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Walking the Talk: Bridging Policy and Reality in Urban Walkability - A Case Study in Freetown and Maputo

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September 2024

Submitted in partial fulfilment of the requirements of the degree of MSc in Environmental Systems Engineering, University College London

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Abstract:

This study explores the policy-reality gaps in improving walkability in the cities of Freetown and Maputo, with a focus on informal settlement communities. The study employs a qualitative approach in analysing policy documents and interview transcripts with residents and other stakeholders to try shape the understanding of the lived experience with walking. The findings reveal a huge contrast between policy intentions and the lived realities in informal settlements. The extent of acknowledging walking as a legitimate mode of transport is frustratingly low, despite walking being the most used form of mobility. The little attention given to walkability in both cities also fail to translate into tangible improvements in overall safety, accessibility, and pleasurability experiences of pedestrians. While policies acknowledge the lack of safety and access for pedestrians, they fail to acknowledge the comfort and ease of walking for pedestrians. The study highlights the marginalization of the urban poor communities that rely on walking as a mode to access services, jobs, and other opportunities. Calling for a shift in policymaking to prioritize pedestrian needs first. Which acts as an equalizing mode, contributing to reducing inequalities.

Key Words: Low-income Cities, Sub-Saharan Africa, Pedestrian-friendly, Walkability, Mobility, Walkable Infrastructure, accessibility, urban mobility, and urban sustainability.

Abbreviations:

SLRA= Sierra Leone Roads Authority
SLRSA= Sierra Leone Roads Safety Authority
IRUMP= Integrated and Resilient Urban Mobility Plan
SLURC= Sierra Leone Urban Research Centre
T-SUM= Transition to Sustainable Urban Mobility
MOT= Ministry of Transport
CBD= Central Business District

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A Introduction:

“Walking, with its constant inflow of new images, gives us new thoughts that nourish us. It replenishes our overtapped creative well and gives us a sense of ... well, wellness.”(Cameron, J. 1996). This symbolic description touches the core of walking, not only as a means of transportation, but as a fundamental human experience.

However, for people in the global south, particularly in Sub-Saharan Africa, the simple act of walking is far from a blissful experience. Instead, it’s a daily necessity, often accompanied with hardship and struggle. Southworth (2005) defined walkability as: “the extent to which the built environment supports and encourages walking by providing for pedestrian comfort and safety, connecting people with varied destinations within a reasonable amount of time and effort, and offering visual interest in journeys throughout the network.” In this definition, it is possible uncover a range of subjective and objective dimensions that influence walking, including physical characteristics of the built environments, the level of comfort and safety perceptions, and overall connectivity to services.

In rapidly expanding African cities, walkability is an essential topic to investigate, for its connection to broader sustainability issues like social equity. High levels of spatial inequalities shape the reality of developing countries, where high-income gated communities have better connectivity and access to transport systems, and low-income communities in informal settlements lack essential transport services. This stark contrast leads to unemployment and less opportunities for the urban poor (Oviedo & Nieto-Combariza, 2021).

In addition, the lack of prioritization and investments towards walkability in these areas create unsafe walking conditions, as infrastructure investments are prioritizing automobile networks. Hence, leaving pedestrians in a vulnerable position, with no other option but to walk in unwalkable environments (Benton et al., 2023; Dada et al., 2019; Okyere et al., 2024).

This study tries to uncover the complex reality of walkability in Sub-Saharan African Cities: Freetown, Sierra Leone, and Maputo, Mozambique. Where local policies are explored, with a focus on how they contribute to the everyday lived experiences of residents in informal settlements. By uncovering these realities, this study works to promote walking as the ultimate equalizing mode of transport, giving all residents their right to the city (RTTC), where residents have equal rights to services and opportunities to mobility (Massingue & Oviedo, 2021; Okyere et al., 2024).

This study aims to answer the following research questions: What are the main policy-reality gaps in improving walkability in Freetown and Maputo? And to what extent is walkability considered a mode of transport in transport and planning policies? The attempt to answer these questions will take a qualitative approach, with a focus on the “Accessibility, Safety and Security, and Pleasurability” dimensions of walking.

The research objectives of this study are:

- To contribute to qualitative study on walkability in Sub-Saharan African cities, with a focus on Freetown and Maputo.
- Offer insights from local communities and stakeholders to better understand the specific walkability challenges and opportunities of walkability in Freetown and Maputo.
- Analyse qualitative data from Freetown and Maputo to identify the elements that influence walking.
- Analyse policy documents to identify gaps in alignment with the communities' needs
- Provide concrete recommendations based on research findings for improving walkability in Freetown, Maputo, and other Sub-Saharan African cities.
- Provide a comparative analysis of both cities.

The following process flow diagram summarizes the main contents of this dissertation:

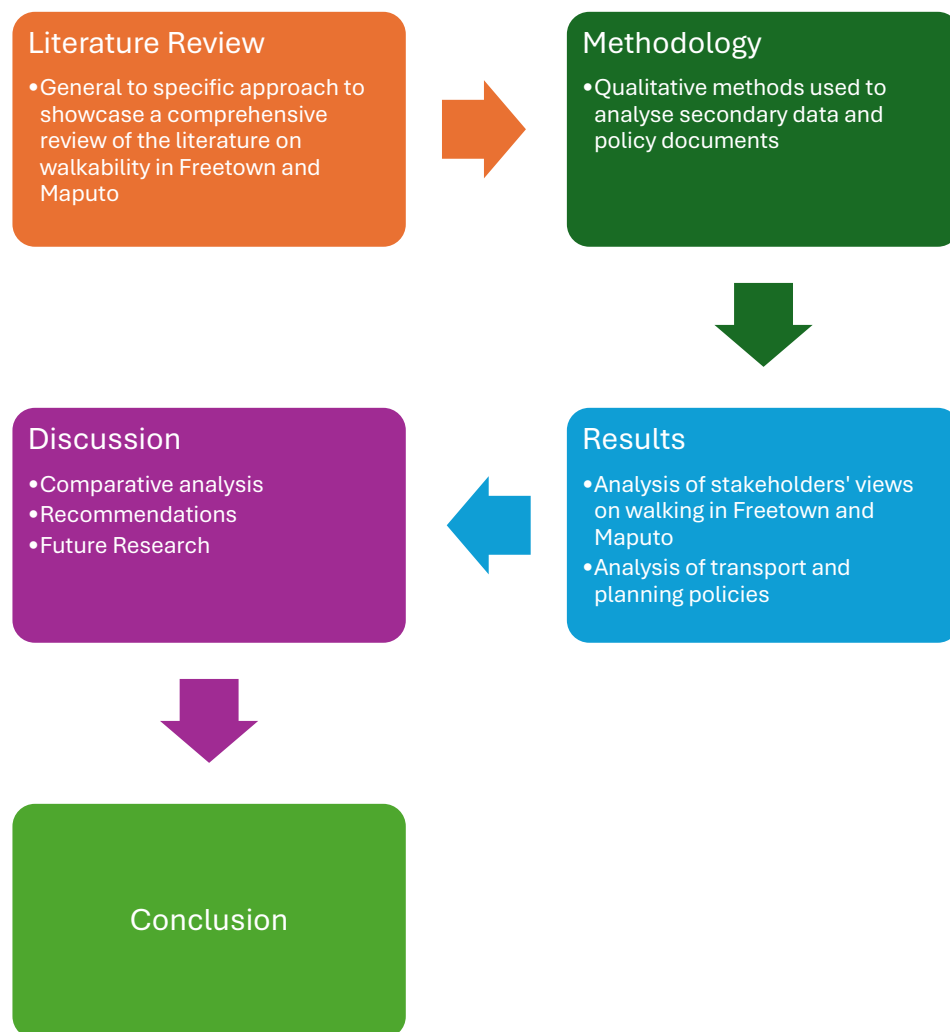


Figure 1 Dissertation Framework

B Literature Review:

The literature review will utilize a general to specific approach, starting with framing the walkability concept within sustainability, where links between walkability and the three pillars of sustainability and Sustainable Development Goals will be established. This link encompasses a wide range of disciplinary subjects, including public health, climate change, social equity, and economic spectrums, to try answer why walkability is an important subject to study in this time.

Next, the focus will be on walkability in cities, covering the factors influencing walkability, and a few examples of global best practices and challenges of adopting walkable friendly cities. The focus is then narrowed down to walkability in the context of Sub-Saharan African Cities, covering the main challenges and opportunities to walkability and policy approaches in Sub-Saharan Africa.

Following that, a background study on Freetown and Maputo's mobility systems, accessibility, infrastructure and other relevant characteristics to walkability will be provided. Finally, the literature will provide insight on walkability in Freetown and Maputo, covering the available studies on community perceptions and specific policy approaches.

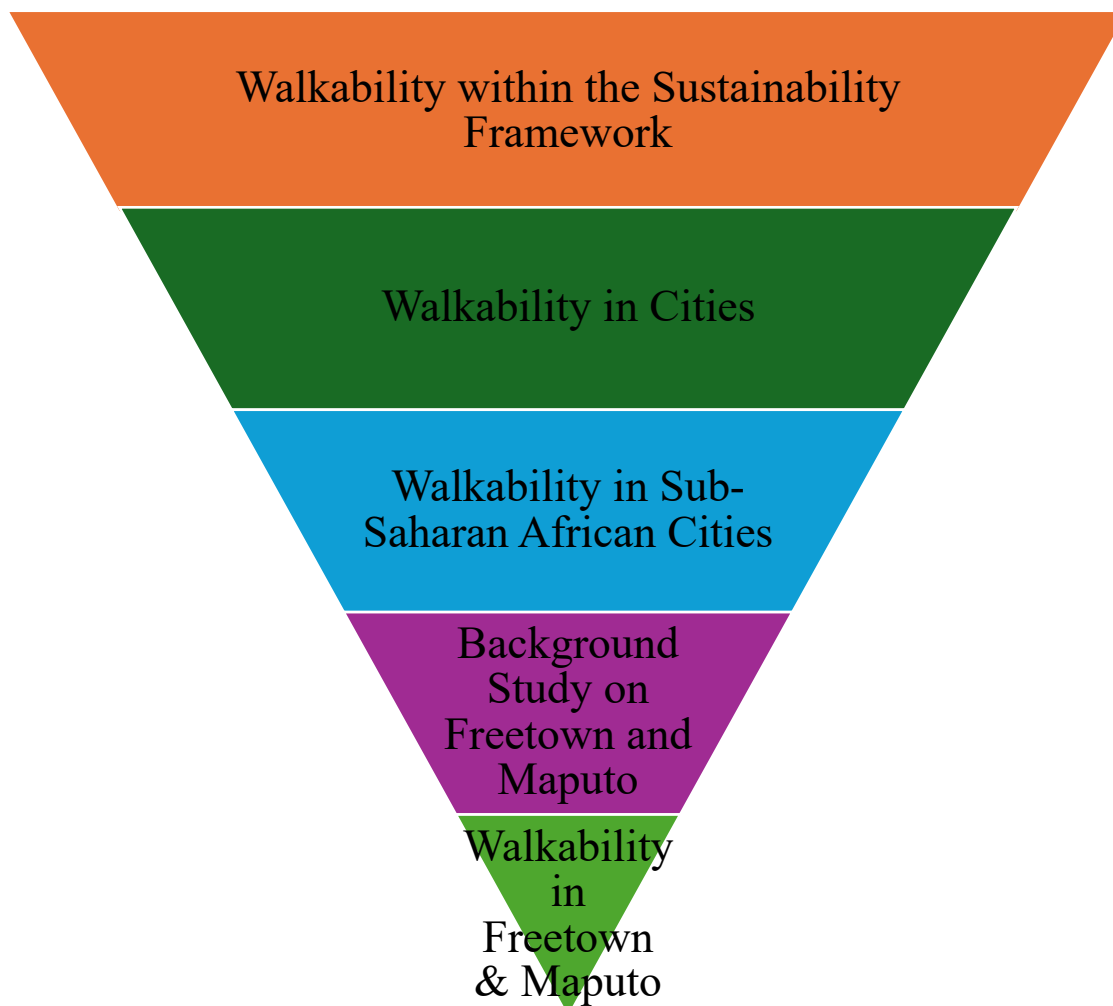


Figure 2 Literature Review Framework

1. Walkability within the Sustainability Framework

In this section, the meaning of walkability within the broader context of sustainability is explored, by delving into the relationship between walkable environments and sustainable urban development. The focus is on the three pillars of sustainability and the United Nations' prominent Sustainable Development Goals (SDGs).

1.1 Walkability and Sustainable Urban Development: An Overview

Several of the top international agendas have highly endorsed sustainable development and promoted equitable cities as key objectives (Pereira et al., 2023; European Commission, 2014; Patel et al., 2018; UN-Habitat, 2016; UNDP, 2016; United Nations General Assembly, 2015; WHO, 1997). In light of the global challenges posed by rapid urbanization, climate change, and public health issues, walkability is continually growing as a central theme in urban planning, as it is an important element of sustainable urban development (M. J. Nieuwenhuijsen, 2020; UN-Habitat, 2018a, 2022). Walkability provides a multitude of advantages spanning the three pillars of sustainability; environmental, social, and economic (Baobeid et al., 2021; Shamsuddin et al., 2012). Figure 3 illustrates advantages of walkability on the three pillars of sustainability:

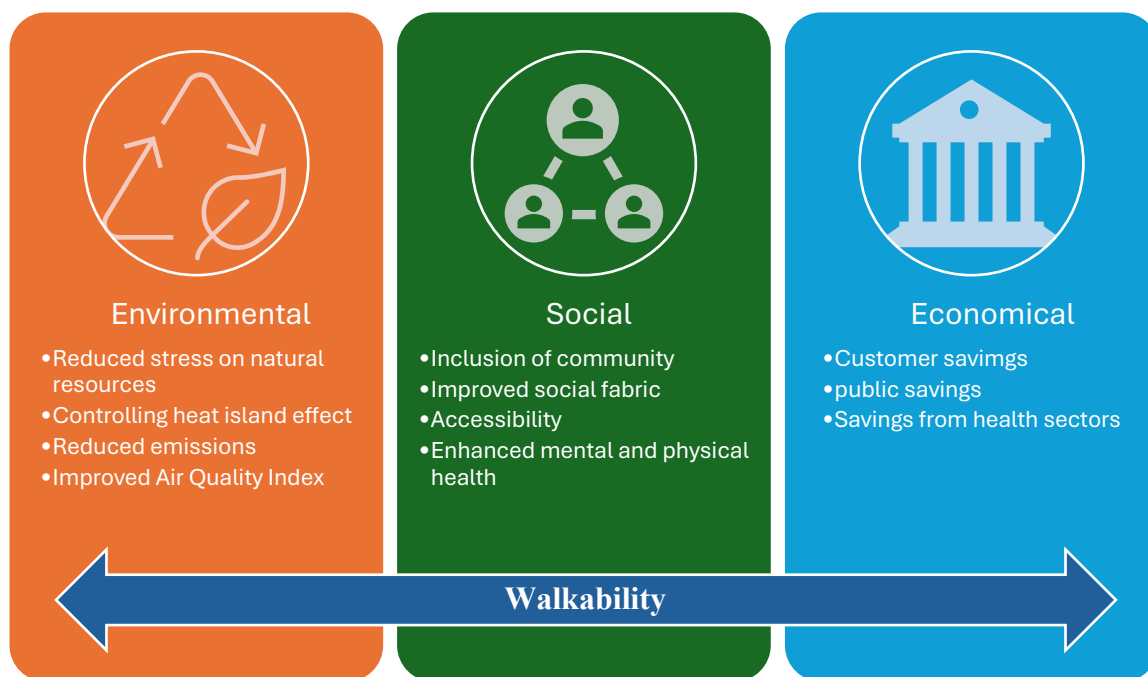


Figure 3 Links between The Three Pillars of Sustainability and Walkability. (Baobeid et al., 2021)

These advantages reinforce the significance of walkability for developing sustainable and thriving urban environments, and that is strongly aligned with broader sustainability goals. Predominantly the UNs' Sustainable Development Goals (SDGs), where SDGs work as an extensive framework for addressing the global concerns (Baobeid et al., 2021).

Figure 2 below showcases the links between urban transport and a number of SDGs.



Figure 4 Elaboration by the T-SUM project: <https://www.t-sum.org/>

Although walkability may indirectly contribute to all the Sustainable Development Goals (SDGs) mentioned in Figure 2, this section will focus on the most significant ones, namely SDGs 13 (Climate Action), 11 (Sustainable Cities and Communities), SDG 10 (Reduced Inequalities), and 3 (Good Health and Well-Being). Walkability also aligns with past sustainability initiatives like Agenda 21, which placed emphasis on sustainable transportation and urban planning (United Nations, 1992).

SDG 3: Good Health & Wellbeing: Multiple studies highlighted the significance of walking in terms of human health and well-being, highlighting that walking is complimentary to a healthy lifestyle, for its positive influence in preventing health problems like diabetes, obesity, and heart disease (Chandrabose et al., 2023; Creatore et al., 2016; Fonseca et al., 2022; Glazier et al., 2014; Howell et al., 2019). Additionally, walkability's positive impact on mental health has been recognized, as research reported an influence in stress and anxiety reduction, especially when coupled with views of greenery (Zumelzu & Herrmann-Lunecke, 2021)

SDG 13: Climate Action: It has been reported that the transport sector is the second largest contributor to CO₂ carbon emissions, which is one of the leading causes of climate change and global warming. This reflects the need for alternative modes of transport (Minarta & Ko, 2024). Neves & Brand (2019) and Minarta & Ko (2024) have emphasized the huge impact of walking in lowering transport-related emissions in developed and developing countries.

SDG 10: Reduced Inequalities: Walkability has a strong link to SDG10, and probably the most relevant link to this study. Unequal urban environments force the urban poor to walk, this necessity marginalizes low-income communities who often have limited access to opportunities like jobs and services, and face risks with unsafe walking conditions. Prioritizing walkability is a crucial step towards reducing inequalities (Oviedo et al., 2021)

SDG 11: Sustainable Cities & Communities: Social cohesion and communal well-being are two further aspects of walkability's contribution to SDG 11. Encouraging walkable cities through improving infrastructure to be pedestrian friendly, while maintaining affordability, reliability, and safety in public transport systems has the potential to enhance the inclusiveness and accessibility of cities for all, while also lessening the impact of rapid urbanization on the environment (Baobeid

et al., 2021; UN-Habitat, 2018b) Several scholars suggest that walkable communities encourage more interaction between locals and their surroundings, strengthening relationships within the community and increasing the sense of responsibility towards the environment (Carra & Ventura, 2020; Grant, 2019; M. J. Nieuwenhuijsen & Khreis, 2016).

While the presented literature emphasizes the importance of walkability in relation to health, climate action, and sustainable development, this study predicts that the reality of walking in Sub-Saharan African cities is far from ideal. As quoted by Oviedo, et al. (2021): “But for many African urban residents, walking is forced on them. It is also a manifestation of socio-spatial inequalities.” This sets the tone for this paper to move beyond the aspirational view of walkability and contribute to the systemic issues that create unequal opportunities and force people to walk in bad conditions.

2. Walkability in Cities:

In this section, elements that impact the level of walkability in cities are explored, shedding light on the physical, social, and regulatory dimensions that influence walkability in urban areas. Next, some approaches of measuring and evaluating walkability are presented. The end of this section exemplifies some of the global best practices and challenges to walkable cities.

2.1 Urban Walkability Factors:

Table 2 presented in Appendix A synthesizes factors influencing walkability, and presents an overview of their key elements, supported by their respective studies. This section provides a selective description of the most relevant factors to this study, that will shape the research methodology in the next section. To avoid repetition, policy and environmental factors will be addressed in later sections.

Walkability is significantly influenced by the built environment. Frank et al. (2010) and Ewing & Cervero (2010) Emphasized the importance of land use mix, street connectivity, and pedestrian infrastructure in shaping walkable environments. Urban design also has a significant influence on the walking experience. The following elements of urban design and their definitions were described by Ewing & Handy (2009) and Ewing et al. (2006)

Imageability	“The quality of a place that makes it distinct, recognizable, and memorable.”
Complexity	“The visual richness of a place, like architectural diversity, ornamentation, landscape elements, street furniture, signage, and human activity.”
Human Scale	“A size, texture, and articulation of physical elements that match the size and proportions of humans as well as correspond to the speed at which humans walk.”
Transparency	“The degree to which people can see or perceive what lies beyond the edge of a street or other public spaces.”

Figure 5 Urban Design Elements, (Ewing et al., 2006)

Johansson et al. (2016) has built on this study by considering site-specific experiences of walking, which is particularly a relevant approach to the study, given the unique environments of Freetown and Maputo. These elements are important for this study as they affect the pleasurability of the walking experience.

Safety is another important component that influence walking behaviours, Foster & Giles-Corti (2008) emphasized the relevance of both traffic and crime related safety. Road safety is a major global concern, as the World Health Organization (2018) reported that 1.35 million people are killed each year in traffic accidents. In their study of the relationship between neighbourhood-level walkability and pedestrian/cyclist fatality rates in the United States, Wali & Frank (2024) reported that more walkable neighborhoods may not be safer for pedestrians, because far less consideration is given to pedestrian safety related implications of walkability.

Fonseca et al. (2022) conducted a detailed literature review, highlighting several attributes related to the built environment like accessibility, which reflects the ability to reach basic amenities and/or public transport. In a recent study by Logan et al. (2022), the concept of x-minute city was investigated, which aims to enable residents to access daily amenities within a specified amount of time. However, their study highlighted the need for continuous evaluation of the progress of the x-city goal, to avoid exacerbating any existing inequalities, as each city has its own unique context.

This section demonstrates how walkability is a multidimensional concept that is affected by a diverse set of factors that also influence each other. It is imperative to consider how these factors relate to the unique circumstances of Freetown and Maputo, and how they combine to influence the overall walking experience in the region.

2.2 Global Best Practices and Challenges in Promoting Walkable Cities

A global shift towards walkable cities is increasing, with several cities using innovative tactics to promote walkability. This section will present some examples of global best practices and key challenges that are beneficial to this study, including instances from the global south and north.

Transit Oriented Development is where high-density, mixed-use buildings are combined with efficient public transit infrastructure. Curitiba, Brazil, has successfully implemented this strategy, establishing a dense and pedestrian friendly community along Bus Rapid Transit (BRT) systems. (Cervero & Dai, 2014). Nevertheless, Duarte & Ultramari (2012) criticize the applicability of Curitiba's model, highlighting that its effectiveness is contingent upon certain political and economic circumstances that are unique to Curitiba.

A low-cost, adaptable solution can be shown by Bogotá's implementation of temporary road closures for walkers (**Ciclovía**). This strategy motivated people to use active transport, positively influencing public health, climate change mitigation, and sustainable urban space. (Taylor, 2024). Montero (2017) noted that this policy has survived due to the changes in rationalities behind the strategy over time, reflecting the importance of continuously upgrading policies.

On the other hand, **car-centric development** pose major challenges to walkability in Amman, Jordan. Cavoli, C (2017) notes that the vast majority of journey's are undertaken by private cars. That is caused by a cultural inclination towards car ownership, in addition to inadequate public transport. Moreover, Al-Mosaind (2018) points out that the **extreme weather conditions** in Riyadh discourage walking, resulting in just 2% of journeys in the city being completed on foot, causing the city to adopt a car-centric design.

Another significant challenge is **funding constraints**. Nairobi's current urban plan prioritizes pedestrian infrastructure, however, funding for research, data collection, as well as sufficient pedestrian infrastructure is a limitation. This Insufficient financing has led to a situation where most of Nairobi's roadways do not have sufficient pedestrian amenities, greatly restricting the ability for people to walk (Odhiambo, E, 2021; UN-Habitat, 2022). This reflects the policy related influence on urban walkability as presented in table 2 Appendix A.

This section highlighted how optimal strategies, and their implementation differs by urban area, it is important to consider that site-specific challenges need unique creative solutions, particularly in rapidly urbanizing areas and emerging nations. Research and policy should focus on flexible walkability techniques in urban contexts, especially in extreme climate-related challenges and limited resources.

3. Walkability in Sub-Saharan African Cities

This section narrows down the scope to capture the unique setting of cities in Sub-Saharan Africa. The distinct challenges and opportunities are investigated in this rapidly urbanized environment. A summary of the existing policy realities will be presented along with the main research gaps, setting the context for this study on Freetown and Maputo. From this section onwards the study will utilize findings from the project “Walkability in African Cities” and present some of the notable research carried out as part of this project the past 5 years.

3.1 Unique Challenges and Opportunities in African Urban Environments

Sub-Saharan Africa is going through a rapid rate of urbanization, primarily caused by the growth of informal settlements, creating unique challenges for promoting pedestrian-friendly environments. UN-Habitat (2022) highlighted that 78% of people in Africa use walking as a mode of transport, however their transport systems often lack adequate pedestrian space, and public transport systems. This absence of pedestrian infrastructure in these regions is forcing pedestrians to share the space with high-speed moving vehicles, making it both unsafe and uncomfortable (Tulu et al., 2015). The following statistical figure depicts the reality of accessibility to public transport in African nations compared to the rest of the world.

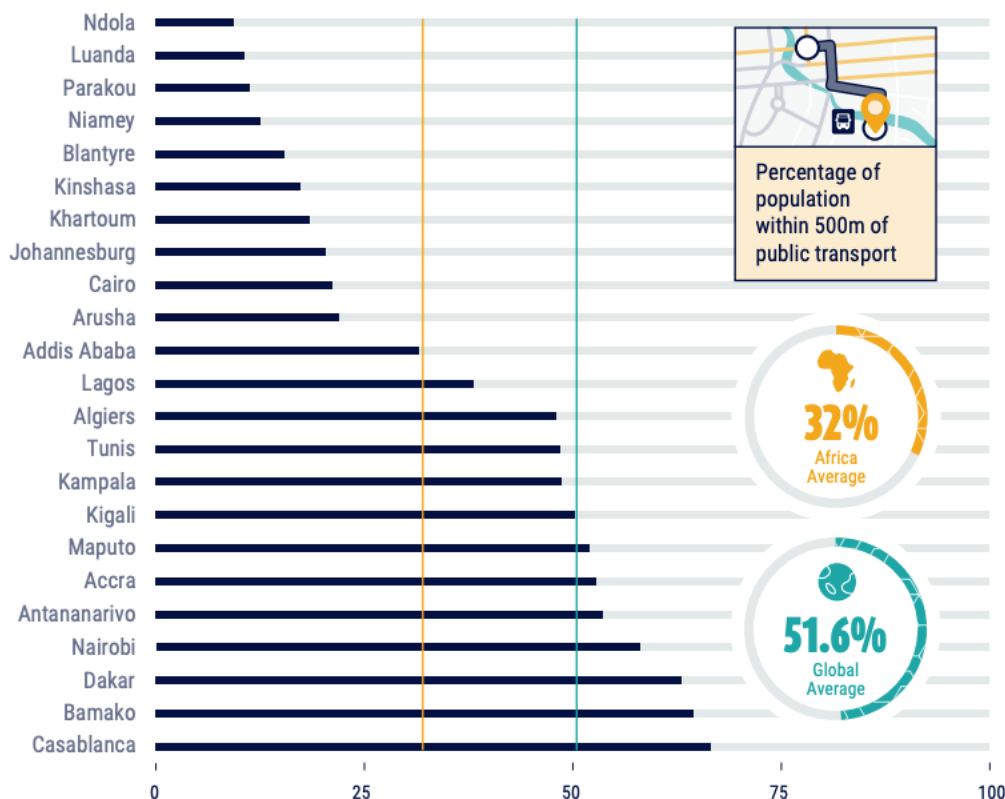


Figure 6 Accessibility to Public Transport (UN HABITAT, 2022)

Moreover, in their study of slum residents in Nairobi, Kenya Salon & Gulyani (2010) noted that poverty and gender influence mobility choices in the region, where women and children face a significant barrier to access. This societal inequality is also evident in Maputo, where women were found to plan their walking habits around safety concerns (Massingue & Oviedo, 2021).

It is evident that both cities have disparities in mobility options for different income groups, in which low-income individuals have limited options for mobility and often face safety and accessibility challenges, like the lack of sidewalks and streetlighting. These insufficient pedestrian spaces exacerbate socioeconomic inequality. This emphasizes the importance of understanding the relationship between walkability and urban fairness and raising inquiries on how the allocation and quality of pedestrian-friendly areas in African cities reflect wider socio-economic inequalities.

Although African cities encounter substantial obstacles in enhancing walkability, they also offer unique opportunities. According to Durant et al. (2023) Informal Public Transport (IPT) is the main mode of public transit across Sub-Saharan Africa. Although these informal modes of transport have negative aspects, including insufficient fleet and vehicle sizes, poor safety records, and severe air pollution, however, as Durant et al. (2023) claims; “any form of transport policy or regulation that does not give sufficient attention to IPT is missing a major opportunity”. Indeed, (IPTs) pose unique potential for policymakers to implement public transport systems that act as a backbone for mobility, consequentially enhancing pedestrian accessibility to public transport and providing more options of mobility to all, and most importantly shifting the focus away from car-centric developments. It is Imperative to utilize tactics that are specific to the individual context and consider the various conditions of urban areas throughout Africa. Future research and policy interventions should prioritize the development of inventive and context-specific approaches to improve the pedestrian-friendliness of African cities.

3.2 Specific Policy Approaches to Walkability in African Cities

A recent study has shown a notable disparity between the goals of policies and the actual conditions in African towns. Okyere et al. (2024) discovered that while policies in Accra recognize the need of walkability, the execution often neglects to include the actual experiences of the inhabitants. This disparity between policy and reality is a prevalent subject in several urban situations throughout Africa. Figure 5 displays data from the report on walking and cycling in Africa, offering a generalized view of policy strategies related to walkability in the region, it illustrates which African nations have national or subnational policies walking and cycling.

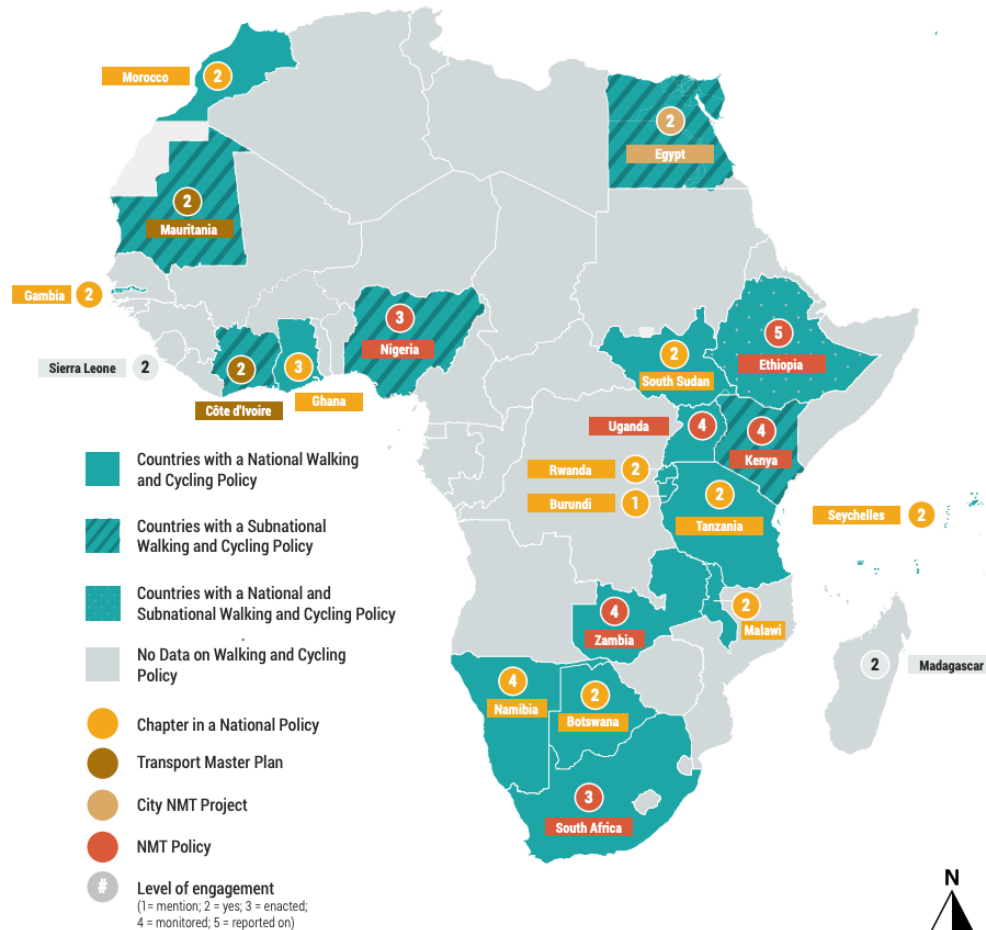


Figure 7 Accessibility to Public Transport in African Countries (UN-Habitat, 2022)

The graphic shows that many countries in Sub-Saharan Africa do not have sufficient data on walking or cycling. However, there is an emerging trend in recognizing the urgency of upgrading policies to improve the walking conditions in the region, a growing shift in policy direction is taking place, as Non-Motorized Transport (NMT) policies have emerged in Nairobi, Kenya and Addis Ababa, offering safe, convenient and easy mobility. These policies include the provision of footpaths, and traffic calming systems as a safety measure for pedestrians sharing the space, shading, and lighting (UN-Habitat, 2018a; IDTP Africa, 2019; Odhiambo, E, 2021; V. Setty Pendakur, 2005; Nyamai & Schramm, 2023).

Additionally, efforts to improve public transits in the region are growing, with the prevalence of paratransit or informal transit systems, reforms are being put in place to upgrade public transport systems. In Cape Town, South Africa these efforts were faced with challenges, as the resistance by paratransit operators is fuelled by compensation principles, which in turn also rises financial concerns (Schalekamp & Behrens, 2013) This necessitates continuous efforts to building cooperative relations between policymakers and paratransit operators. Transitions to Sustainable Urban Mobility in Sub-Saharan Africa (T-SUM) is one of the pioneering projects dedicated towards accelerating sustainable and inclusive transport and land-use development in the Global South. The T-SUM team is utilizing collaboration techniques and participatory policy workshops with different stakeholders, institutions, including community members (Cavoli et al., 2023)

3.3 Research Gaps

The preceding sections presented significant research on walkability; however, it is mainly western centric. Yet, research in Sub-Saharan Africa is evidently growing, given the prevalent social, environmental, and equity issues. The literature on walkability in this region requires context specific approaches, ones that highlight the nature of rapid urbanization, informal settlements, and unique socio-economic characteristics. A multidisciplinary approach to dissect the region's political, economic, and societal factors and their interplay with walkability is vital to the discussion, as these approaches are not yet fully explored, which gives this study an opportunity to leverage current contributions to walkability research in Sub-Saharan Africa.

A prevalent gap found in the literature is the lack of research in policy-reality interface, particularly one that considers the interplay between multiple stakeholders, including (policymakers, community members, experts and activists). This study builds a nuanced perspective, as it immerses in the community experience, valuable insights on community resilience and experience evolution are explored. This study mimics Okyere et al's (2024) study on policy-reality gaps in Accra, to better shape the understanding of on-ground realities in Freetown and Maputo, and potentially guide improvement strategies by identifying challenges and opportunities for improvement, using interviews with local people and looking at policy documents in place.

Additionally, this research is intended to add depth in qualitative studies that analyse objective and subjective dimensions of walking “Accessibility, Safety, Pleasurability”. In their spatial and qualitative study Oviedo, et al. (2021) concluded that further in-depth qualitative evidence could enrich the understanding of walkability in the region. The aim of this study is to do that on a larger scale, by including semi-structured interviews and focus groups from multiple stakeholders.

In summary, this section has revealed several opportunities for contribution to the growing set of literature, the goal is to try and bring fresh insights to the growing field, particularly shedding light on Freetown and Maputo.

4. Freetown & Maputo Context

This section offers the background contexts of Freetown and Maputo, it gives an overview of the relevant characteristics to walkability in both cities. The section will include a comparative study from the literature on the two cities, highlighting the differences and similarities in current mobility modes, state of infrastructure, topography, climate, and recent urban initiatives, in aims to set the tone for narrowing the focus of the literature to Freetown and Maputo.

4.1 Overview of Urban Development & Mobility in Freetown and Maputo

Freetown, the capital of Sierra Leone and the largest city, located in the Western Area Urban District on the west coast of the country (Koroma et al., 2019). Maputo, also the capital and largest city in Mozambique, located on the western shore of Maputo Bay, south of the country (de Tejada et al., 2023). The two cities are major, rapidly urbanizing cities on the coast of Sub-Saharan Africa. This section represents each city's own distinctive characteristics.

Table 3 in Appendix B presents a comparative summary of factors related to walkability in both cities. This section provides a detailed review of urban development characteristics in Freetown and Maputo.

Urbanization Trend: Freetown, a densely populated city in West-Africa has a population growth rate of 4.2%. The city's expansion took an informal approach, where slums are continuously developed in unsafe and unregulated areas. Causing the urban poor to be vulnerable to flooding and diseases. This rapid rate of urbanization coupled with limited housing and poverty, created the spread of informal settlements. These conditions caused the local economy to be dominated by informal businesses (World Bank, 2019).

Urbanization in Maputo however is occurring at an unprecedented rate at 37.6% (Allen & Jossias, 2011). The rapid urbanization was due to the influx that happened after Mozambique's independence from Portuguese colony in 1975, forcing informal settlement expansion around the city (de Tejada et al., 2023; UN-Habitat, 2010)

Topography: Freetown is located on a mountainous peninsula, which is approximately 38 km long and 16km wide, with a topographic relief of over 700 meters above sea level. Given the hilly terrain of Freetown, the area is susceptible to multiple challenges, like flooding, landslides, and building collapses, limiting the city's special expansion, and forcing low-income individuals to settle on marginal lands (Koroma et al., 2018, 2019; Oviedo et al., 2021).

Maputo is a coastal city, bordered by the Indian Ocean and crossed by Matola River. It can be described as a relatively flat coastal terrain, which compared to Freetown might be more favourable for walking, however challenges related to flooding and drainage are more common (UN-Habitat, 2010; de Tejada et al., 2023)

Climate: Annual flooding during the rainy season is one of the most prominent problematic climate conditions in Sierra Leone, restricting people's mobility and at times causing fatalities. It was reported that 1,200 people were killed from disaster-related incidents from intense rainfalls between 1998 and 2018.

Maputo has a tropical climate, (June-September) dry season, and (760mm) annual rainfall in wet season. Given the nature of the dry and warm weather, more emphasis is needed for shade (Koroma et al., 2018, 2019 de Tejada et al., 2023; UN-Habitat, 2010)

Economy: Freetown is reported to be contributing 28% to the country's GDP, however it houses only 14.9% of the population. The city has a vibrant informal economy, where the transport sector is the second highest generator of jobs, in which 85% of it is informal. The economic importance of Freetown is partly due to it being a major port city and a business district of the country. The Central Business district CBD: the main commercial centre in Freetown includes business offices, banks, insurance operations. Accessibility issues emerge as the concentration of employment is in Freetown's city centre, whereas informal employment like fishing and stone quarrying grow in the outskirts of the city. This creates a spatial divide, where higher-paid individuals are attracted to private car ownership to move around, and lower-paid individuals create demand for public transport (Koroma et al., 2019; Oviedo, Cavoli, et al., 2022; World Bank, 2018).

Maputo serves as Mozambique's economic hub, contributing 20.2% to the country's GDP. However, the city is faced with significant economic challenges, with a high unemployment rate of 45.2%. Informality in the city plays a huge role in shaping Maputo's economy, with trade and services. It has also been reported that a key economic driver is the transport and communications sectors (de Tejada et al., 2023)

Mobility Modes & Challenges:

Freetown's modes of mobility consist of private and semi-informal transport, including Poda-Podas (minibuses), shared taxis, kekehs (three-wheelers), and Okadas (motorcycles). The Sierra Leone Road Transport Corporation (state-owned) provides formal public transport services, yet they are limited, and walking remains as the most used mode of transport, particularly for low-income households. Due to the lack of infrastructure, cycling is minimal. Congestion, inadequate pedestrian infrastructure, unorganized allocation of road space, and occupied sidewalks are some of the numerous challenges facing Freetown's mobility. These challenges are further worsened by the rapid population growth, difficult terrain and informal trading activities. The lack of adequate formal public transport has led to informal transport growth, which provide required mobility, but add to congestion and safety concerns. It is important to mention that although these informal modes provide necessary mobility, not all benefit from that, as low-income individuals still cannot afford it and rely on walking, often long distances in hard conditions to get from one place to another. The state-owned formal transport system provides on-demand services to the public, like shared taxis. Additionally, the formal public transport is designed to serve various communities through set routes, however these services have very limited coverage (Koroma et al., 2018, 2019; Oviedo et al., 2021).

Maputo on the other hand is shaped by a diverse mix of mobility modes. However similarly, walking is the predominant mode of transport in the city, accounting at 45.9% of all trips (de Tejada et al., 2023; JICA, 2014). The low-income majority depend on paratransit systems like Chapas (semi-collective minibuses) accounting for 32.9% of trips, and the Metropolitan Structural Network (REM) operated buses, born from the "Plan 1000 buses" initiative, which serves 250-300 thousand passengers daily. Additional options for mobility include the Metrobus (private rail and bus network), Motorcycle taxis (txopelas) and open pick-up trucks (My Love). Car ownership is relatively low, at 20% of all households in Maputo City as of the 2017 census (de Tejada et al.,

2023; World Bank, 2004). The transport sector in Maputo is liberalized, however challenges persist, as most people embark on long and unsafe journeys on a combination of Chapas, walking, and My Loves. The recent currency depreciation increases the transport costs, causing a transport crisis in the city (de Tejada et al., 2023; Massingue & Oviedo, 2021)

Accessibility:

In Freetown, the lack of access to basic services like water, sanitation, healthcare is evident. As previously mentioned, walking is the dominant mode of transport in Freetown, especially in informal areas like Moyiba, where there's a lack of vehicle access. At micro-level accessibility, residents of informal settlements navigate through self-constructed routes to access services and jobs. At the meso-level, connectivity to the rest of Freetown is a challenge, as the city's expansion reached 40km away from the city's CBD, causing longer travel journeys, and higher costs for residents living in informal areas. To navigate outside of neighbourhoods, residents combine walking with informal transport modes like Okadas or poda-podas. The limited transport options reinforce the spatial divide, restricting economic mobility and social interactions between different income groups in Freetown (Macarthy et al., 2017). Adding to the accessibility challenges is Freetown's hilly terrain, which hinders the provision of public transport and the accessibility of emergency services. Another issue to be highlighted regarding accessibility, the occupation of sidewalks by informal trading creates challenges for pedestrians, forcing them to use the road with vehicles (Koroma et al., 2019).

Maputo's accessibility varies significantly between the central area and outskirts. At the meso-level, the city centre is the main attraction for trips, with better access to jobs and services. However, in peripheral areas, has limited accessibility in terms of public transport, mainly due to rapid urban expansion. At the micro-level, walking is the dominant mode of getting around the city, however, pedestrian infrastructure is often inadequate if existing, especially in informal areas. Public transport like Chapas provide essential connectivity but have limited coverage, especially in expanding areas. (de Tejada et al., 2023) It has been reported that low-income residents spend as much as 30% of their income on transport alone, highlighting the burden of inadequate access. (Mendonça, 2014), as cited in de Tejada et al's report (2023). The city has been attempting to Improve accessibility by paving new roads, but fail to prioritize pedestrians, as sidewalks are often too narrow or not existing. All these drawbacks collectively contribute to fragmentation, affecting the poor's access to opportunities and basic services. (de Tejada et al., 2023)

Current Infrastructure:

Development efforts in Freetown is outpaced by the rapid population growth, posing significant challenges to infrastructure. Koroma et al. (2019) and The World Bank (2019) reported that only 5% of the city's total land is allocated to roads, and only 24% of it being paved. Freetown's road network has three paved routes along the coast and through the peninsula, intersected by unpaved roads. Pedestrian infrastructure is often damaged or blocked, and there's a lack of pedestrian crossings, putting pedestrians in a vulnerable position as they are forced to walk on edges. Despite these struggles, investments continue to contribute to building roads over more walkable options. Reinforcing inequalities in road space and transport injustice (Koroma et al., 2019).

Infrastructure in Maputo requires more investment to meet the growing demand. The road network has over 25,000km of classified roads, with only 22% paved (World Bank, 2004). However, conditions of secondary and tertiary roads are poor. The city has been introducing new

developments, including major roads, however these improvements mainly focus on accommodating vehicles rather than public transport or active travel modes like walking. The city lacks public transport infrastructure, as well as adequate pedestrian facilities, in which sidewalks are reported to be obstructed by wrongful parking. Maputo city plans to incorporate a Bus Rapid Transit (BRT) system, to enhance public transport efficiency and coverage (de Tejada et al., 2023)

4.2 The Role of Informality in Urban Development and Walkability

Urban informality is a prominent feature of several cities in Sub-Saharan Africa, exerting a substantial influence on urban growth and the ways in which people move, including the ease of walking (Koohsari et al., 2015; Myers, 2011; Oviedo et al., 2021). Informal Settlements have been defined by United Nations (1997) as cited in Koroma, et al's report (2018): “Areas where groups of housing units have been constructed on land that the occupants have no legal claim to, or occupy illegally; unplanned settlements and areas where housing is not in compliance with current planning and building regulations (unauthorized housing).” Moreover, informal Settlements are often located in unsafe areas that are susceptible to environmental hazards like floods and mudslides, impacting the quality of life and walking conditions (Koroma et al., 2018; de Tejada et al., 2023). Referring to the previous section, it is apparent that both Freetown and Maputo’s mobility options are shaped by informality. Informal transport emerged as an on-demand mobility service for individuals who rely on mass transit to move, providing opportunities for low-skilled workers to earn income. Informal transport comes with externalities like congestion, pollution, and poor safety measures (Cervero & Golub, 2007; Oviedo, Scorcia, et al., 2022).

Gaining a comprehensive understanding of the significance of informality is essential to formulate efficient and tailored approaches to enhance the pedestrian-friendliness in these urban areas. It requires methods that connect formal urban planning with the realities of informal urban growth. As walkability issues and experiences in Freetown and Maputo are explored, it is important to note that the influence of informality will continue to be a significant factor, shaping both the challenges faced and possible solutions.

5. Walkability in Freetown & Maputo

Expanding upon the prior sections, this last segment of the literature review particularly addresses the concerns related to walkability in Freetown and Maputo. Investigating the research done on how walkability is perceived locally, along with policy considerations. This section aims to establish the basis of the main research topics, setting the knowledge base prior to analysing results.

5.1 Local Experiences and Perceptions

5.1.1 Freetown

Research on walkability in Freetown, Sierra Leone has been limited. The limited studies show that walkability is complex yet critical, as almost 70% of informal settlement inhabitants use walking as a main mode of transport, and that is out of necessity rather than choice (UCL, 2023). The prevalence of walking in Freetown is due to lack of public transport infrastructure and low affordability. While paratransit options like Okadas exist, low-income individuals cannot afford it. It has been reported that an average Okada trip costs about 18% for a household on a minimum wage. The economic constraint restricts inhabitants’ choices to walking only, in which walking journeys are perceived as long and unsafe. Moreover, these vulnerable groups tend to make trade-

offs between walking and using Okadas, sacrificing their safety and comfort by enduring very long commutes, at as early as 2 am in the morning to reach their destinations (Oviedo, Cavoli, et al., 2022).

Oviedo et al. (2021) conducted a pilot study investigating the walking environment and everyday walking experiences in an informal settlement (Moyiba). The study highlighted the challenges the community faces while walking, including the difficult terrain, lack of streetlights, and safety risks. Despite these challenges, the study showed how the community is adapting to these challenges, it demonstrated the community's self-help initiatives like building stairs, bridges, or streetlights. This reiterates the importance of walking to access opportunities.



Figure 8 Constructed Bridge in Moyiba. Source: <https://www.walkingcitieslab.com>

The study also highlighted gender differences in walking perceptions, where women reported more feelings of unpleasantness compared to male participants in the study. These extended walking trips were also highlighted by students, as they had consequences like arriving at school late or tired from walking. It was also reported that pedestrians at some point face risks like getting in accidents or becoming victims of muggings (Cavoli, et al., 2022).

5.1.2 Maputo

Walkability studies based on community experiences in Maputo, Freetown have also been limited. Two qualitative studies showed disparities between high-income and low-income individuals, as well as disparities between men and women on walkability and mobility. Where high-income residents have more travel choices, low-income residents often walk long distances because they have no other choice. This necessity is caused by low affordability, safety concerns, and limited transport modes. Maputo's walking environment is shaped by inadequate infrastructure, it was mentioned that residents often compete to use the paved roads (Dahir, 2021).

In a similar study by Massingue & Oviedo (2021), pedestrian immobility was explored, in aims to reflect on the social, physical, and personal drivers of inequalities for walking in Maputo, by exercising the concept of Right to the City (RTTC). In both studies, findings show that gender significantly influence walking and mobility experiences. Where women's activities were often

locally bound, while men have more options and freedom to choose transport options. Additionally, pregnant women, and women with children or women carrying packages face mobility challenges, where they reported not being allowed in Chapas (Dahir, 2021). Both genders face overcrowding and congestion challenges, however, women's experiences are further compounded by fear and susceptibility of crime, especially at night. These studies emphasize the need for inclusive urban planning, addressing the needs of all residents, especially to improve walking experiences for the less fortunate, and those who rely on it the most. Lastly, cultural expectations of Maputo residents continue to influence unsustainable city growth and car-centric design, as it has been reported that car ownership is an aspirational goal (T-SUM, 2019a)

The limited research done on walkability in Freetown and Maputo highlight the need to understand local walking practices and informal settlement settings to inform urban planning initiatives and future improvement plans to improve walkability in these cities. They also emphasize the need for contributing to this distinct area of research in aims to address the unique challenges and create innovative solutions in African urban contexts.



Figure 9 Narrow Road in Chamanculo. Source: <https://www.walkingcitieslab.com>

5.2 Policy Considerations

Freetown launched the 'Transform Freetown' initiative, which is a 3-year plan developed by the Freetown City Council (FCC), aiming to address mobility challenges in Freetown. The initiative has identified two main targets:

- **Reduce congestion by at least 50% in five key locations by 2022**, Strategies include controlling street parking and trading activities, provision of clear road signs, provision of markets for trading activities, improvement of public transport stops.
- **Increase public awareness and understanding of traffic and road safety by at least 50% by 2022**, involves the collaboration of SLRA and SLRSA in providing road markings and signage, enforcing traffic laws, and launching campaigns for schoolchildren road safety.

The Transform Freetown initiative took a participatory and collaborative approach, involving insights from different stakeholders, through assessments, workshops, and other collaborative tools. The plan has worked on improving residents' experiences; however, it focuses on short-term solutions rather than long-term visions to improve walkability (Koroma et al., 2019)

The Maputo Metropolitan Transport Agency (AMT) was established as part of a plan to improve urban development and transport in the Maputo, encompassing the improvement of public transport and traffic congestion reduction. However, these are faced with understaffing and unclear government structure. Additionally, Maputo launched the 1000 busses scheme, to revive the formal public transport system. These buses were provided to minibus operators willing to operate large buses. This scheme faces challenges as minibus operators lack support, as well as the limited provision of new routes. Despite ambitious plans in urban planning and transport, Maputo faces significant challenges in implementation, because of lack of funding and obstacles to integrating the multiple modes of transport available in the city (LUTP, 2022).

These considerations act as an indirect influence on walkability, by improving coverage, and reducing congestion, there's an opportunity to enhance connectivity and accessibility which are factors of walkability as highlighted previously. This study hypothesizes that walkability and walking are not considered a mode of transport or a priority in Maputo and Freetown's policy considerations.

C Methods

1. Overview

This is a qualitative study that aims to contribute to the larger investigation of walkability issues in Sub-Saharan African cities, particularly Maputo, Mozambique, and Freetown, Sierra Leone. It builds upon the existing research and insights from the "Walkability in African Cities" project, specifically focusing on the walkability challenges in Freetown and Maputo. Secondary data obtained by the "Walkability in African cities" project team will be analysed as part of this MSc dissertation project. A thematic content analysis will be conducted on semi-structured interviews and focus groups using NVIVO. As previously reviewed in the literature section, Freetown and Maputo differ in some respects. The cities have a different set of policies, terrain, climate, and each pose unique challenges to walkability.

2. Data Collection & Preparation

2.1 Data Sources

2.1.1 Transcripts

The study is part of an existing research project "Walkability in African Cities", data has been collected by the original research team on the field and anonymized for my analysis. To build on the "Walkability in African Cities" project, this research will utilize the secondary data consisting of transcripts of semi structured interviews and focus groups with community members from Moyiba (Freetown) and Chamanculo (Maputo) along with policymakers, experts, activists, and other stakeholders in the region. Participant selection included diverse stakeholders like residents of informal settlements, policymakers, NGOs, technical experts and activists. The project took a

collaborative approach in data collection to promote engagement, and consider multiple viewpoints on the walking experiences (Oviedo, D., et al., 2023). Appendix A includes an illustration of participants.

In **Freetown**, Participants in general will include men and women, parents and grandparents, and a few members with disabilities. For policymakers, participants include members from the Ministry of Transport, SLRA and SLRSA, and SLRUC. Experts and practitioners come from a technical background.

Maputo included a varied demographic from the Chamanculo community, stakeholders from specific institutions like Maputo Metropolitan Transport Agency, and The Maputo Municipal Mobility and Parking Company, policymakers from Mobility, Transport, and Transit, Mobility, Transport, and Traffic, and Maputo Municipality - Council of Health and Social Action, in addition insights from activists.

IDs and information about participants are tabulated in Appendix C.

2.1.2 Policy Documents

The policy document selection was based on relevance, official status and overall comprehensiveness, and they are:

- **ITPSIP** - National Transport Policy
- **Transform Freetown Initiative** - FCC Urban Development Initiative (latest report)
- **Greater Maputo Mobility and Transport Master Plan** – by Japanese International Cooperation Agency (JICA)
- **PROMAPUTO** - Maputo Municipal Development Program Development Program (latest report)

These documents provide direct insights on urban planning and transport, to provide an understanding of both cities' strategies for addressing walkability, and overall mobility challenges. The officiality of these documents give them credibility to provide a reflection of both governments' intentions and priorities. The study aims to provide a nuanced understanding of the cities' approach to walkability, to be able to identify any disparities within the policy document and against the lived experiences and insights from all stakeholders in this study.

3. Qualitative Methods:

3.1 Analytical Framework

The analytical framework adopted is of Oviedo, et al's study in Accra (2021) . The framework incorporates a range of objective to subjective characteristics. The three categories used for analysis include: accessibility, safety, and pleasurability. Oviedo highlights: “By drawing on this framework, we reason that this categorization allows situating and aligning policy integration and everyday lived experience of walking within a more flexible, simpler, and somewhat non-formalized context of African everyday urbanism.”

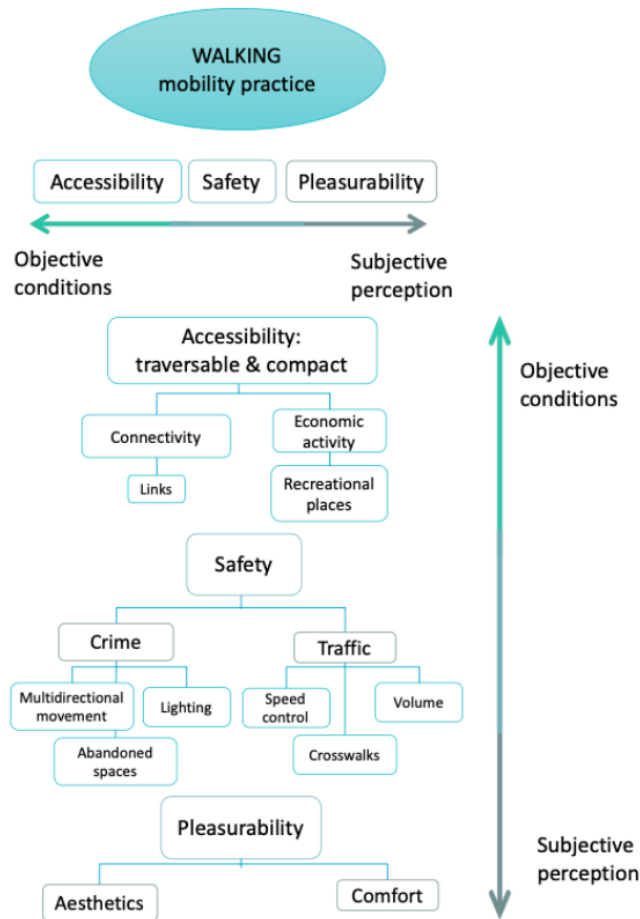


Figure 10 Subjective and objective dimensions of walking. Source: (Oviedo et al., 2021)

The approach is intended to provide more evidence on the applicability of the framework, Oviedo praised the use of the framework in examining the everyday experiences of walking in informal settings, particularly because walking is not a choice, but a necessity. These objective and subjective aspects of walkability align with previous literature on walkability in African cities, and has been validated through the works of Oyeyemi et al., (2012, 2013, 2017), Oyeyemi, Kolo, Oyeyemi, et al. (2019), Oyeyemi, Kolo, Rufai, et al. (2019).

The studies reinforce the applicability of this framework on African contexts, Oyeyemi's work adapted the Neighbourhood Environment Walkability Scale (NEWS) questionnaire, their approach involves consideration of cultural and aesthetic influences, traffic safety, as well as physical attributes that affect accessibility. The framework will be utilized as a guide to coding and content analysis of the interview and focus group transcripts. This approach would enable us to contextualize the gaps between policy and the lived experiences of residents in Freetown and Maputo.

3.2 Thematic Content Analysis

Thematic content analysis is a systematic approach to identifying, assessing, and interpreting patterns of significance “themes” in qualitative data (Clarke & Braun, 2014).

This study will utilize Braun & Clarke's method to examine the experiences in Freetown and Maputo's urban setting. The analytical process is as follows:

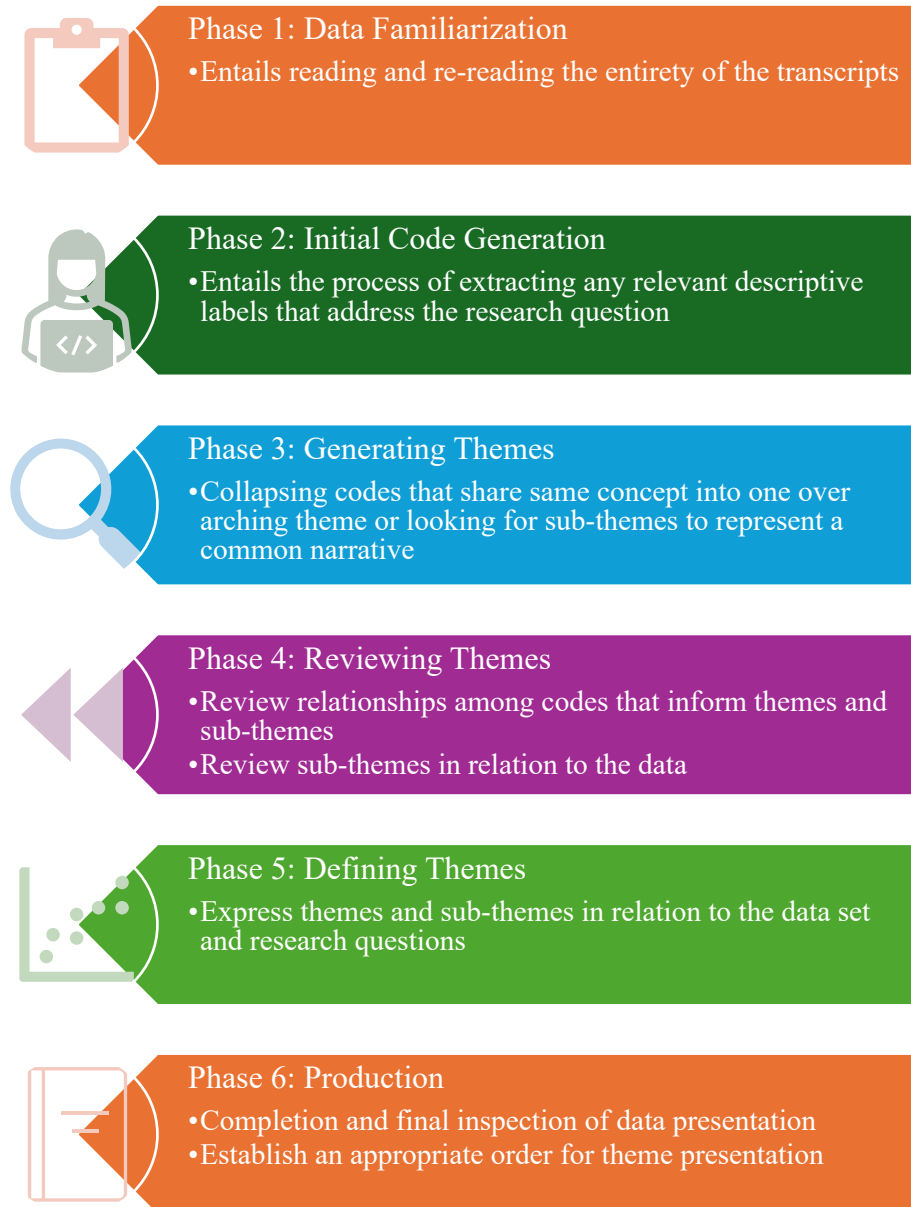


Figure 11 Qualitative Analysis phasis. Source: (Byrne, 2022)

The main themes for this study's analysis are predetermined, as noted before the data will be analysed based on (accessibility, safety, and pleasurability) which are the main themes. However, the same methodology is followed to generate the sub-themes under the set themes.

3.3 NVIVO

The qualitative method will use NVivo, which is a qualitative data analysis platform that includes purpose-built tools for coding and classifying data. It helps researchers with categorizing data and

to facilitate analysis (Phillips & Lu, 2018). NVivo will be used for all phases of the analytical process as presented in the previous section.

3.4 Ethics

A rigorous ethics application took place prior to starting this dissertation analysis. The UCL process for acquiring an ethical approval to access the secondary data has been followed, until access was granted for an anonymized set of data. The anonymization took place to protect the participants from identification and adhere to ethical research protocols. Personally identifiable information was omitted from the data prior to my analysis.

4. Limitations:

This study's limitations stem from sampling, as the community transcripts, while providing valuable insights on perceptions and experiences, they consist of small, randomly selected individuals. The sampling attempts to provide a varied demographic, including parents, young adults, senior citizens, and people with disabilities, but that still may not fully represent the entire population. Additionally, the policy documents chosen for analysis, while relevant, they may not carry the same weight as official policy documents, which were not available for the public. The selection included latest progress reports and masterplans. This limitation affects the generalizability of findings.

Additionally, content analysis relies on language interpretation, and this may be subject to reliability and validity constraints, as there is some degree of subjectivity (Krippendorff, 2019). Lastly, the interview topic guides in Freetown and Maputo did not have the same focus, as the Freetown interviews prioritized how informal settlement evolution shaped the walking landscape, while Maputo centered on the residents' perceptions of the recent street provision. The difference in approach can potentially introduce bias, as well as limit the comparability of the two cities.

D Results & Analysis:

In this section, answers from community members, along with experts, policymakers and other relevant stakeholders of Freetown and Maputo are presented. These answers will demonstrate the patterns and themes extracted from their opinions, and daily experiences with walking in these communities. Special ID information used to refer to community participants are tabulated in Appendix C.

1. Freetown Narrative

Nine residents from the Moyiba community were interviewed, both through semi-structured interviews and focus groups. The topic guide begins by exploring how the residents first settled in Moyiba, setting the context of community formation and growth overtime. The subsequent questions ask about their day-to-day activities that involve walking, and the challenges they face while walking. (Experience Evolution) is introduced as an inductive theme, as it was one of the main topics discussed and was an aim in the topic guide. Residents were asked how they located in Moyiba and how was moving around in the community. The following sub-sections provide the Moyiba community's reality in terms of the three dimensions: Accessibility, Safety, Pleasurability

(deductive themes). This section will include insights from the community, experts and practitioners in the area, and policymakers.

1.1.1 Experience Evolution

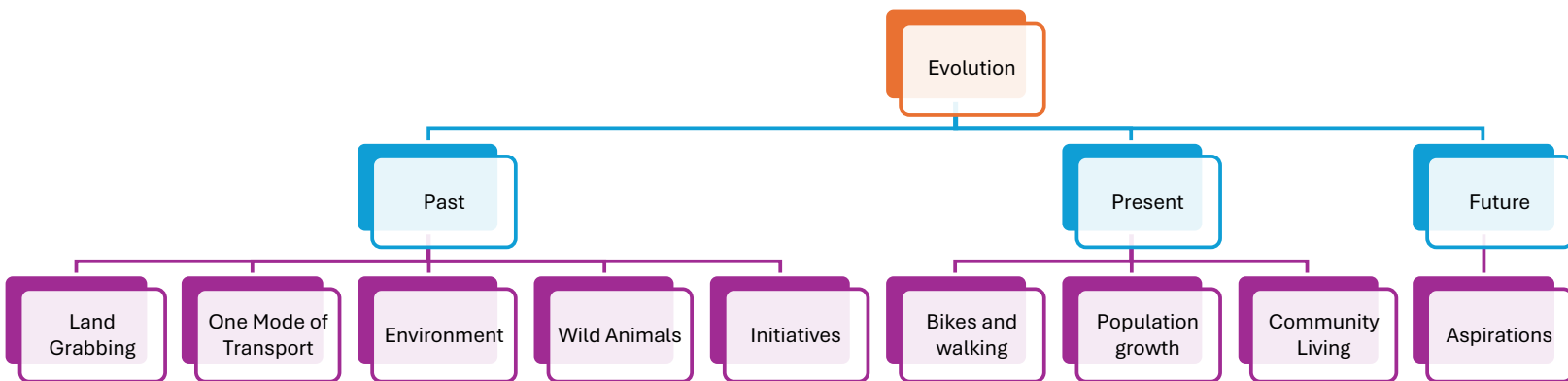


Figure 12 Experience Evolution and sub-themes

The Moyiba Community has undergone rapid, largely informal urbanization. Upon being asked about their arrival in the area, most respondents described a process akin to land grabbing. Where respondents reported moving into Moyiba by finding empty land and building houses on their own. M-CM1 explained: "Well, for most people that came earlier to settle in this community, they do land grabbing and later go to government to secure document for their lands. " M-CM5 added: "..., people like us who were willing to stay here just came and develop some portion and put-up temporal structures which we later change to permanent structures."

Community members recalled how the mobility in the area was prior to recent technologies, where the only mode of mobility was walking. Whereas currently, other options available are bikes. M-CM10 says: "The roads are a little bit better and there are bikes now,". However, opinions on road conditions varied. Some residents felt the roads were still as bad as before, while others thought conditions had worsened due to higher living costs. "..., the road is not yet improved, in fact they are worse than before" (M-CM5), "..., things were better because commodities were cheap" (M-CM2). Adding that the state of the road continues to be bad as it was before, and conditions are further compounded by the cost-of-living rise.

Residents also described the area as 'bushy' and inhabited with wildlife like monkeys and snakes. M-CM1 recalled how the community started receiving help from international funds and NGOs, leading to the construction of health centres and schools.

Moreover, in the past, M-CM3 recalled walking in groups out of fear, as the area was forest. M-CM5 noted that areas occupied today were once unreachable, with only a small number of people venturing there for stone mining work.

1.1.2 Accessibility

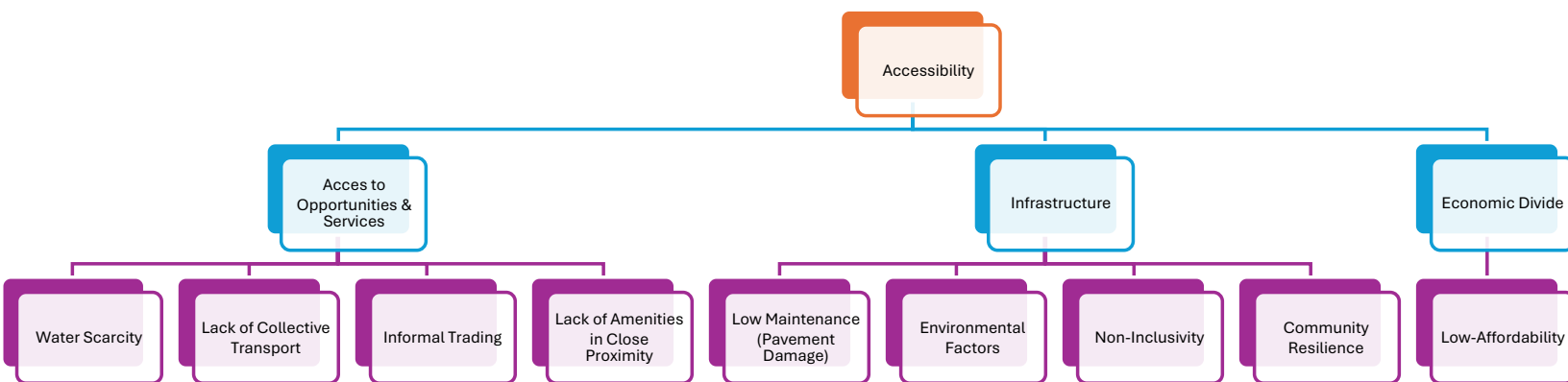


Figure 13 Accessibility dimension and sub-themes

Moyiba’s accessibility reality has been shaped by a multitude of uniquely experienced challenges. It was evident that accessibility in the area is a main concern. A common struggle for Moyiba residents is water scarcity, most participants shared their daily activities of fetching water from wells. M-CM2 shares their struggles with fetching water at very early hours and having no other option but to go to the end of the community to get water. This shortage of basic necessities usually compels the community to undertake very early morning, long walks in bad road conditions.

The bad pedestrian infrastructure worsens their struggles, as multiple respondents noted: “The roads are very bad”. Most respondents reported that it takes them “hours” to get from one place to another. However, it was mentioned that the upgrade of technology and availability of bikes gave the residents more options for mobility and quicker access to markets and other amenities. M-CM5 stated: “It is better now when we have bikes around that transport people from one end of the community to the other”. Alas, most mentions of bikes are usually followed by “those who can afford to pay”, which highlights the economic divide, only those who can afford to pay, benefited from this upgrade. Unfortunately, the only motorized transport option communicated in the Moyiba transcripts were motorbikes, highlighting the critical lack of mobility options.

The Moyiba community transcripts showed inspiring community resilience. The community’s collective actions were necessary measures to adapt to the difficult environment and daily struggles. M-CM10 exemplified this by describing how the community rebuilt a collapsed bridge close to Boro pit. The community initiative involved tasking each household to contribute to the reconstruction process. Other community led initiatives included building benches, wooden bridges, as well as streetlights. Upon being asked how their ideas of constructing such structures came about, a member highlighted: “The idea came as a result of the constraints that we undergo when trying to move around the community”

These interventions help the community in some way, but comprehensive mediation techniques to improve walkability are necessary. Several other factors negatively affect walkability in the area, like informal trading, limited road network, lack of pedestrian-friendly infrastructure, and weather factors. M-CM2 notes: “During the rains the roads will be filled with mods, and this makes it difficult for people to walk” As reported, the daily struggles of community members are evident, and the situation is deemed worse for individuals with disabilities. The infrastructure design is not

universal or inclusive to all road users. An individual with Dwarfism, described his struggles with Freetown’s accessibility, mentioning similar references to potholes, and long-distance travels.

1.1.3 Safety & Security

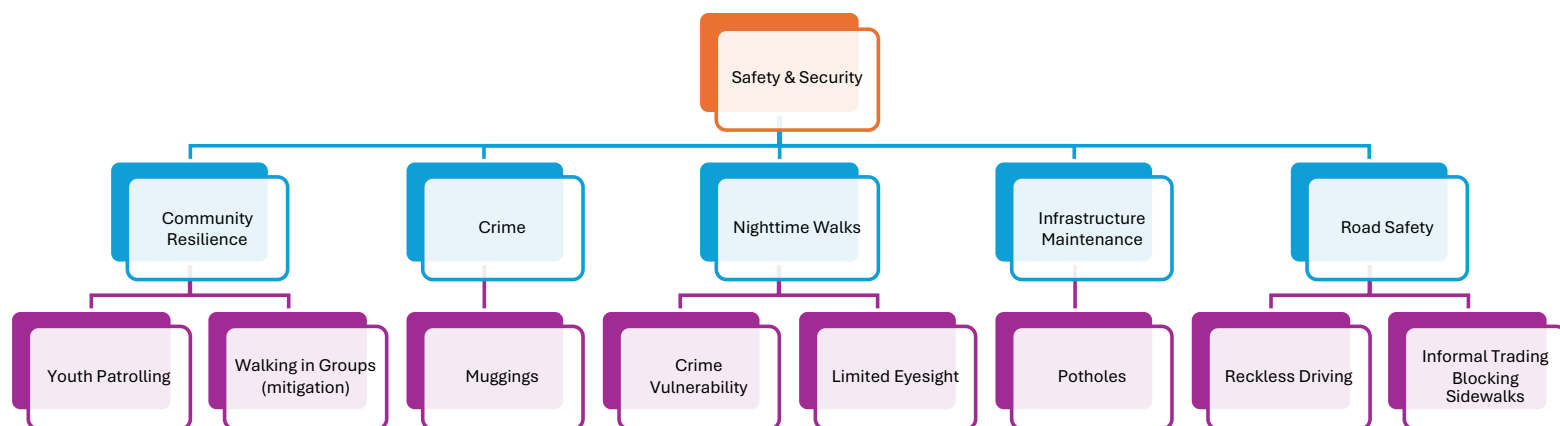


Figure 14 Safety & Security Dimension and sub-themes

Safety issues in the area are prevalent, 8 out of 10 participants highlighted safety concerns with walking. Community members described their struggles with the lack of streetlights, making nighttime walks dangerous and uncomfortable. M-CM1 recalls her experience with walking at night, and she expresses her dislike of doing so because of the lack of streetlights, which makes the street very dark. While M-CM9 added: “..., it is very dark and risky at night, and you will get attacked by bad guys”, suggesting the crime rate is exacerbated by lack of streetlights.

However, community resilience brought about other adaptation techniques in facing security issues. For example, community members mentioned walking in groups to avoid danger. Moreover, M-CM1 added: “..., by organising the youths to be walking around and identify the areas that are not safe for people to walk around especially during the night.” These experiences show that members of the community are taking collective action to fill gaps missed by formal security services. This organization of youth patrols represent an informal security measure, led by the community.

Another safety concern was reckless driving, women participants and parents in the community expressed their concerns with bike riders. A member noted their frustration with the difficulties of sharing the road with bike riders, they reported that people get injured because of the riders’ irresponsibility. This may indicate a lack of awareness or adherence to road safety. Parent participants noted concerns over their children walking to school. In addition, the issue of informal trading, also causes security concerns, as a Freetown expert points out: “All the sidewalks are taken up by traders” He explains that these traders force pedestrians to walk alongside bikes, increasing their vulnerability to traffic accidents.

Pedestrian challenges are further compounded by the terrain and weather conditions, of which often cause damage to the roads and infrastructure. Multiple respondents highlighted issues with “potholes”. This reiterates that the lack of infrastructure maintenance causes accessibility and

safety issues. These obstacles add more time and effort for pedestrians in reaching their destinations, as well as puts them at risk.

1.1.4 Pleasureability

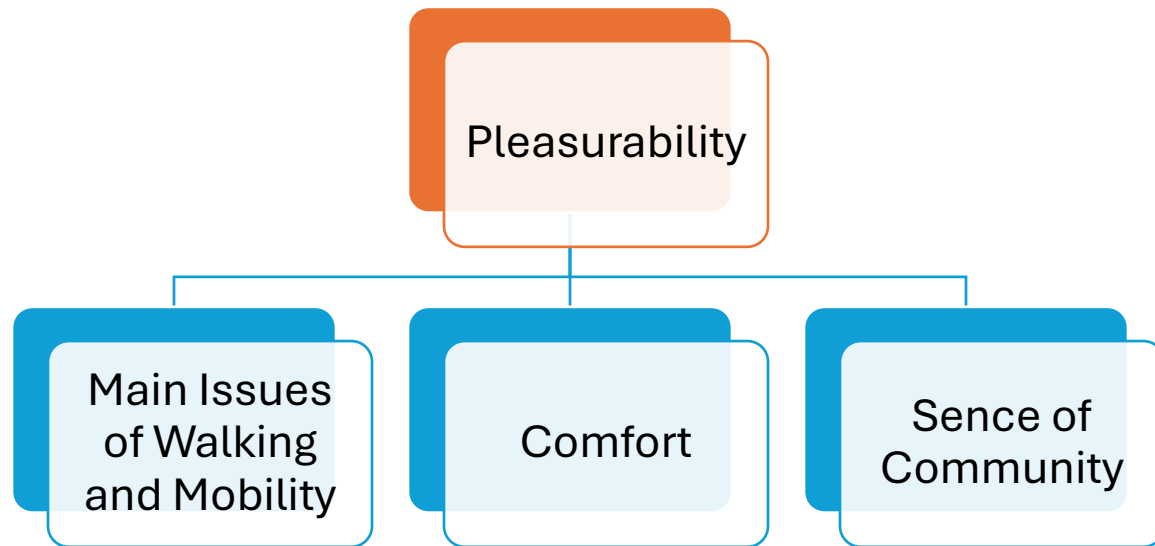


Figure 15 Pleasurability dimension & sub-themes

The accessibility and safety dimensions of walkability in Moyiba also shape the enjoyment and comfort of walking, as the difficulties of accessing certain amenities, compounded with bad pedestrian infrastructure, weather and terrain conditions, and safety concerns also impacts the comfort and ease of walking. This shows how much these dimensions are intertwined and influenced by one another.

Although informal trading has detrimental effects to walkability within the community, it's important to acknowledge the reasons for its prevalent presence in the area, the interviews gave a glimpse of how Moyiba have developed and transformed over time. One participant described how Moyiba was in the past, the area was bushy, but she explains that its better now because traders can access their area to sell items to the community. This highlights the lack of amenities and public services in neighbourhoods, and how informal trading emerged to meet needs.

Moreover, M-CM5 adds that the area wasn't populated, and it was very quiet and lonely, expressing gratitude that there are many people in the area now and its livelier. This population growth has positively influenced the pleasurability of walking in the area, as a stronger sense of community is a factor contributing to walkability because of its increase of social interaction. Further accounts emphasize the importance of sociability in shaping the walking experience. M-CM8 describes it as: "Walking and moving around the community is a beautiful thing for me because it helps me a lot to know people and for people to know me too"

2. Maputo Narrative

Thirteen residents of the Chamanculo community have been interviewed, the topic guide included questions about the participants' perceptions of walking. Which was mainly praised for being good for the health and well-being. The sequential questions were about their perceptions of what is a 'good street' and lastly their opinions about the new constructed road within the community. The following subsections, we'll extract the relevant discussions for qualitative analysis.

2.1 Accessibility



Figure 16 Accessibility dimension and sub-themes

The Chamanculo community highlighted several obstacles impacting accessibility in their neighbourhood. A common struggle for Chamanculo residents was the lack of drainage, where consequently, some individuals tend to throw water and dirt on the road, causing the water level to rise, and the area to flood. CH-CM5 describes his experience navigating Maputo's streets, where instances of water flooding are prevalent, because individuals wash their clothes and dishes and pour the water they used on the streets, because of the lack of drainage. This view was echoed by a Maputo activist, where they note that the prevalence of rain also floods streets and alleyways, constraining people's accessibility.

The new paved road however, received praise, as CH-CM3 notes: "A good street is this pavement here! because this way water won't stop it'll slip". This Indicates a good approach was taken to solve this problem; however, residents requested the same work to be applied on other streets in the area.

Moreover, the lack of space for walking also affects the community's accessibility. Upon being asked, "what is a good street to you?" CH-CM8 briefly explains it as: "A good street? An open

street.” Other members of the community supported this claim or used the same statement ‘open or opening streets’ which indicates the struggle with space.

An activist highlighted the issues with illegal parking, which further compound the issues of inequality in road space, describing the pedestrian experiences, where they have to ‘zigzag’ their way through, i.e. walk around obstacles, or walk on the street alongside cars. Another activist shares a story of a wheelchair-bound lawyer who described the effort and risks they had to take to get from one place to another. Highlighting the severe lack of accessible infrastructure for people with disabilities, emphasizing the critical need for more inclusive infrastructure.

2.2 Safety & Security

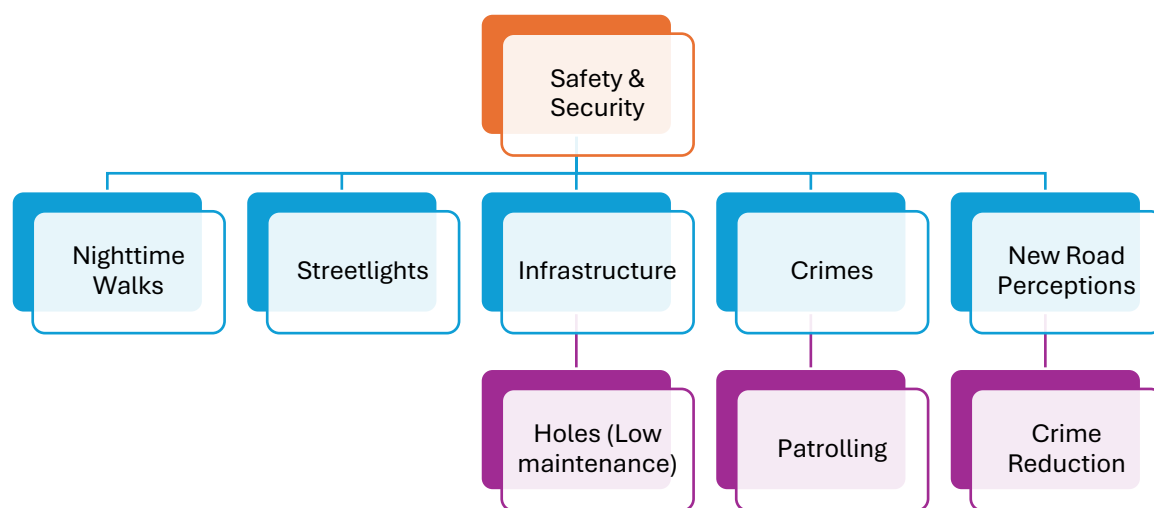


Figure 17 Safety & security dimension and sub-themes

The poor infrastructure and lack of streetlights, significantly affect the safety perception in the community. A member of Maputo Municipality describes how these issues together put pedestrians in a vulnerable position, by being susceptible to accidents, injuries, and mugging: “..., people being mugged and vulnerable, especially at night, because of the lack of lighting.” In addition, the prevalence of holes with the lack of eyesight at night further compounds the safety challenges pedestrians face.

The improvement projects in the neighbourhood received a lot of positive reactions and praise. CH-CM9 commended the outcome of these interventions in reducing crime, stating: “..., different from those old alleyways, and crime has decreased a lot in this case, it's really decreased”. Suggesting that the current interventions are positively perceived by the community in terms of safety. CH-CM12 highlighted the need for patrol officers in the area, to keep the new streets secure, indicating that crimes in the area have been common and widely anticipated. It is apparent that the initiatives in the area are benefitting the society in terms of safety. However as stated by the different stakeholders, for these initiatives to be sustainable, maintenance and continuous patrolling in the area are needed.

2.3 Pleasureability

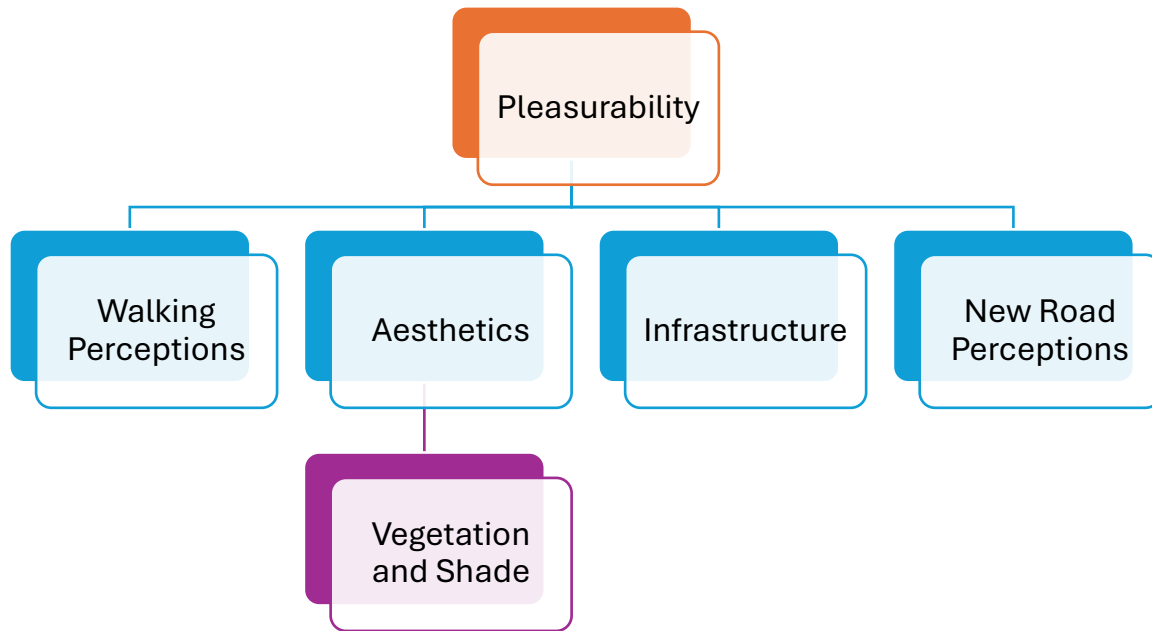


Figure 18 Pleasurability dimension and sub-themes

The pleasurability dimension of walking in Maputo is hugely affected by current infrastructure and urban design challenges, where frustration was rising about the lack of maintenance and inadequate infrastructure, impacting the cleanliness and organization of the streets, whether it is from the lack of garbage cans, or the constant throwing away of dirt. However, improvement projects in the area have received a lot of positive reactions from the community, where CH-CM11 expressed feeling happy upon seeing the new road constructed.

Additionally, a Maputo activist highlights the importance of trees for shading and protection against the sun, indicating that greenery has a role in enhancing comfort while walking. The Chamanculo community respondents show a strong connection between the pleasantness of walking, and the concept of right to the city. The activist notes: “Having the right to the city, I think, means opening the door of your home and seeing yourself, feeling welcome, feeling comfortable in the street.”

Interestingly, the positive local attitude towards walking was evident, where several respondents attributed it to health and wellbeing; “When I walk, I feel very good” (CH-CM11). Other members highlighted their appreciation for walking despite age-related limitations. This positive perception around walking contributes to the pleasurability dimension, as individuals described walking as a pleasant activity despite prevalent struggles and infrastructure obstacles.

To conclude, a member of Maputo Metropolitan Transport Agency described walking as a conscious, healthy, and pleasurable form of mobility. Emphasizing the need for wide, well-maintained sidewalks, good signage, visibility, lighting, trees, vegetation, and adequate street furniture to create a more positive walking experience.

3. Maputo and Freetown Policy Content Analysis

Table 8 in Appendix D serves as a representation of the policy documents content analysis. The following text presents the analysed findings for each policy document.

ITPSIP: The National Transport Policy does not explicitly mention ‘walking, walkability, or sidewalks’ but mentions the word ‘pedestrian’. Pedestrian was mentioned in the context of urban transport, improving traffic management, and improving road space. The document doesn’t seem to consider walking as a mode of transport, as less focus is given on the pedestrian experience with walking or enhancing walkability in the area, there were no clear sections or categories strictly for walking. The document includes pedestrians and NMTs, however, the implementation of strategies that promoting walkability are not detailed or prioritized in the national transport policy. In terms of accessibility the document promotes the improvement of accessibility in the city, emphasizing the development of efficient and accessible transport system. The document mentions the intention to reduce reliance on private cars. Safety is a key focus in the policy document, one of the aims is to promote safety and mobility for all. Strategies to limit motorized transport, include traffic calming and establishing a commission focused on road safety. Pleasurability is the least dimension in consideration, only one instance of incorporating enjoyment measures for pedestrians was mentioned, it stated that: “Urban transport will also be characterised by clean, clear and well-maintained roads and footpaths.” This was the closest reference that contributes to pleasantness while walking.

Transform Freetown: The Transform Freetown initiatives do offer viable solutions to walkability problems, by supervising projects like the cable-car initiative, and Central Business District Regeneration Program, encompassing improvements of lighting, wider sidewalks, and city beautification, and overall accessibility and mobility systems in the city. All contribute to the overall walkability of the area. In addition, the prominent IRUMP project, that aims to transform Freetown into a bus and people-oriented city. However, from the analysis it can be concluded that similarly, walking in the Transform Freetown initiative is not considered a main form of transport, instead, the focus is mainly on larger infrastructure projects and improvements of space. The document lacks a detailed discussion or solely categorized sections for walking and pedestrian-friendly spaces, given the prevalence of walking as a mode of transport in the area.

Greater Maputo Mobility and Transport Master Plan: The masterplan document, while mainly having a mass transit scope, including public transport, did recognize walking as a mode of transport. Particularly acknowledging the accessibility and safety aspects of walking. The document proposed walking and cycling networks, by dedicating spaces for pedestrians and cyclists, in aims to improve connectivity to BRT and other public transport modes. The plan emphasizes the importance of pedestrian safety and suggests measures to decrease the risks posed to pedestrians. However, the plan does not explicitly prioritize walking but recognizes it a supplementary option to BRT systems and other public transport modes. Additionally, it lacks acknowledgement of the enjoyment aspect of walking, focusing more on the functional aspects as a way of accessing other modes like public transport. The plan lacks mention of aesthetics and greenery, and any overall beautification methods for enhancing the pedestrian experience. The plan also attempts to highlight the downsides of the increase of private transport in worsening the congestion if a comprehensive plan that supports collective modes of transport is not acknowledged.

PROMAPUTO: This document significantly lacks acknowledgement of walkability, with only one mention of ‘walkways’ upon describing the enhancements provided to the infrastructure. The document does not specifically consider walking or walkability as a key objective but refer to it in broader terms of road space enhancements and overall improvements of mobility and accessibility. Alas, the improvements largely focus on vehicle traffic and reducing travel times, rather than direct enhancements of pedestrian infrastructure. The document provides a comprehensive list of improvements to urban accessibility, by addressing flooding issues and enhancing accessibility to and from the city primarily from a vehicular side. Additionally, emphasis on solid waste management was highlighted, which indirectly enhances walkability by considering the comfort and cleanliness of the road space.

E Discussion:

1. Policy-Reality Gaps:

1.1 Freetown

Upon reflecting on the analysed data from policymakers against what’s covered in policy documents like the ITPSIP and Transform Freetown, the study presents significant disparities between policy intentions and the on-ground reality of mobility constraints. Policymakers acknowledged challenges posed by rapid informal expansion, validating the community’s lack of accessibility to essential services. Their focus group discussions also highlighted initiatives that aims to improve congestion and pedestrian safety. However, the daily lived experience does not reflect any improvement. Frequent reckless driving and long tiring trips daily, alongside informal trading activities amplifying these obstacles. This suggests a clear gap in policymaking intentions, and the real-life implementation.

This is echoed by an SLRA representative and an expert’s views, in which they express concerns around poor project management and lack of coordination and harmony between the authorities. This can be further backed by T-Sum findings: “Coordination might additionally be challenged by the existence of **multiple layers of authority** (at the national, metropolitan and city level), and the insufficient vertical and horizontal coordination between them” (T-SUM, 2019a). The difference between high level governmental planning and the lived realities of the community raises questions about the effectiveness of Freetown’s decision-making processes.

It is noteworthy to mention, that the documents do not explicitly recognize walking as a mode of transport. The ITPSIP for instance, mentions pedestrians in the context of improving traffic control, giving less consideration on the prevalence of the community’s reliance on it as a means to access opportunities. That is particularly true for Moyiba residents, where they reported financial constraints and limited options for mobility. The intention to avoiding car-centric design was highlighted, however, building car parks were among the topics discussed, which does not align with promoting walkable cities.

In summary, the identified gaps are:

- Lack of acknowledgement of walking as a mode of transport in policy documents and policymakers' discussions (mainly public transport focus)
- Set policy intentions do not match the lived experiences, especially with safety and security measures.
- Lack of implementation
- Lack of a unified goal
- Limited public transport offered, despite discussions around public transport enhancements and privatization of operators.
- Multiple residents expressed financial difficulties and lack of affordability to the offered mobility services

1.2 Maputo

The analysis of the Chamanculo interview transcripts and Maputo policy documents present a significant gap in prioritizing walking, given the high percentage of people that walk as the only means of transport. While there are strong mentions of walking and pedestrians in the **Greater Maputo Mobility and Transport Master Plan**, however the focus remains on improving the overall vehicular traffic rather than enhancing pedestrian experience. The large emphasis on mass transit and vehicle traffic were evident in both documents, it shows that these documents do not prioritize walking as an independent mode of transport but a supplementary mode to the larger mass transit systems.

Moreover, the prioritization of automobile infrastructure is a concern, given the high prevalence of exposed pedestrians, the documents reflect a focus on improving vehicular congestion by improving vehicle infrastructure. This is an apparent gap in overlooking pedestrian needs for safe and comfortable access, this prioritization further marginalizes the urban poor by not including them in the overall enhancement of accessibility to services and opportunities.

Additionally, the lack of acknowledgement of the enjoyment aspect of walking, particularly aesthetics, greenery, and shading, reflects another gap where walkability isn't seen as a feature of a vibrant community, but as a functional aspect of enhancing overall mobility, despite being discussed in policymakers' interviews.

The **PROMAPUTO** document significantly lacks recognition of pedestrians, this is evident with the real-life experiences of the Chamanculo community with the poor state of sidewalks (obstructed by illegal parking), lack of cleanliness and narrow roads that are not lighted, these conditions have been highlighted by policymakers in the interviews, however the lack of funding and reliance on international institutions and NGOs are a major obstacle in implementing improvement initiatives. The community's perceptions on the newly provisioned street have shown a lot of gratitude, this shows how small neighbourhood enhancements contribute significantly to the pedestrian experience, and this was evident by the community, highlighting safety and accessibility improvements.

Lastly, Policymakers acknowledge the lack of inclusivity in Maputo's Road designs, but policy documents do not reflect that, there's no mention of including special access for disabled people in transport planning, which is a critical feature in promoting walking as a feasible mode mobility, inclusive to all. Overall, the interviews show recognition of the various struggles facing pedestrians, initiatives like public funding, awareness campaigns, and public-private partnerships

have been introduced, however, policy documentation do not exclusively show that. As short-term solutions are the priority, long term vision for walkability in Maputo is missing, both in future planning and present implementation. In summary, the identified Gaps:

- Lack of acknowledgement of walking as a mode of transport in policy documents
- Some policymakers acknowledge walking as a mode of transport, however policy documents do not reflect that
- Reliance on foreign funding
- Focus on short-term solutions
- Lack of funding for maintenance

2. Comparative Analysis of Freetown & Maputo

Table 1 below presents a summarized comparison of Freetown and Maputo; the following text details the comparative findings.

Table 1 Summarised comparative analysis table

Comparison Feature		Freetown	Maputo
Key Similarities	Walking Perceptions	Community and some policymakers consider walking as a mode of transport, and as a physical activity. Policymakers mostly consider walking as a supplementary mode of transport. Like walking to the car or walking to the bus stop.	
	Mobility Challenges	Poor road infrastructure, inadequate sidewalks, informal trading, lack of maintenance, lack of pavement, lack of streetlights, crime, non-universal design.	
	Policymaking Obstacles	Insufficient regulations, lack of implementation techniques, limited enforcement capacity, lack of governmental capacity to address basic needs, funding constraints.	
	Gaps	Lack of acknowledgement of walking as a mode of transport in policy documents. Short term solutions > long term visions reliance on foreign funding	
Key Differences	Unique Factors Influencing Mobility	Hilly terrain, potholes, reckless driving, informal trading,	Poor sanitation and drainage, flooding, very narrow alleyways, lack of patrolling and security, illegal parking, centralized services in Maputo city

	Policy approaches	Leaning towards public transport intervention, privatizing informal transport sector. (interviews) IRUMP Project and Cable Car initiative to navigate the hilly terrain, addressing accessibility and safety dimensions but lack acknowledgement of enjoyment dimension (policy documents)	Behavioural interventions, like raising awareness about safety. Enforcing ticketing and towing abandoned cars. (interviews) Suggests improvements of pedestrian infrastructure as a supplementary mode to improve connectivity of BRT system. (policy documents)
	Unique Policymaking Obstacles	Lack of collaboration between authorities, conflicting mandates, lack of clear long-term vision,	Emergency interventions hinder long term plans, cultural inclination towards car ownership
	Mobility Challenges	Poor accessibility to basic services, limited options for mobility, crime rate, unclear paths, holes, uneven ground	Disorganized streets, unhygienic walking conditions, flooding, sidewalk parking, crime in alleyways, lack of access for other mobility modes to neighbourhoods (especially ambulances and fire trucks)

2.1 Key Similarities

Both cities presented similar urgent problems that directly or indirectly impact the walking experiences, the most notable ones are the lack of paved roads, and poor infrastructure and maintenance, lack of streetlighting, and limited modes of mobility within the studied peripheral areas (Moyiba and Chamanculo). Several other issues apparent contribute to competing priorities, like water scarcity in Moyiba and lack of drainage and sanitation in Chamanculo. This is supported by findings from T-SUM, where they note “Transport and mobility are also only one among many other competing social priorities, and usually not the most pressing.” (T-SUM, 2019) However, improving urban planning does have a direct effect in improving the comfort of walking, this is seen by the inclusion of drainage in the Chamanculo improvement efforts, as both cities reported accessibility, safety and security obstacles as a cause of such issues.

Both cities lack prioritization of walking as a main mode of transport, despite it being the most used, however, they both present growing efforts and alignment with more sustainable solutions. Alas, these efforts are not always converted to tangible improvements. Similar to Okyere et al's

(2024) study in Accra, the disparity between policy intentions and the lived experiences of residents is prevalent in both cities. Both Freetown and Maputo struggle to bridge the gap between policy and initiatives that improve accessibility and safety for pedestrians.

Additionally, both cities rely on international donors to fund projects that improve walkability, as lack of funding and competing priorities were among the highlighted struggles for policymakers both in data collection and implementation. Both cities are faced with internal and external pressures, as natural disasters like flooding and landslides exacerbate the difficult conditions of walking. Both Freetown and Maputo residents in peripheral areas showed resilience in their adaptation techniques to improve safety and accessibility, this is shown in Moyiba's local leadership, and Chamanculo community initiatives.

2.2 Key Differences

Maputo's Masterplan document had more recognition of walking as a mode of transport compared to Freetown's policy documents. Maputo's masterplan document emphasized the need for improving pedestrian safety and accessibility, while Freetown's documents gave little attention to pedestrians, more emphasis was on the enhancement of infrastructure and improving public transport modes.

Freetown's hilly terrain poses unique challenges with safety and accessibility, and the policy approaches to navigate terrain issues revolved around more creative ideas like the cable car initiative. Maputo's issues revolved around lack of sanitation and drainage, which requires more emphasis on improving infrastructure. Policy approaches in Maputo is aligned with raising community awareness and improving BRT systems.

Freetown policymakers showed conflicting mandates and lack of harmony, while Maputo struggled with emergency interventions, these different issues affect both authorities' ability to provide better adjustments to the community.

3. Recommendations

After careful consideration of all findings of this research, the following is recommended:

Integrated Design in Urban Planning: A strong shift towards integrated design is needed, where constant collaboration between sectors is maintained, and efforts to create a unified vision are made to effectively implement policies that support walking. Additionally, community involvement is a major advantage. As highlighted by policymakers, data collection has been a struggle, so utilizing local insight in the planning and design process is key to an integrated design approach. Supporting the community to create more resilient interventions to help maintain safety, accessibility and comfort while walking. Especially when communities in Maputo and Freetown showed resilience by taking collective action and the prevalence of their local leaders, highlighting the need for harnessing bottom-up approaches to align with top-down policy interventions (Okyere et al., 2024; T-SUM, 2019b)

Pedestrian Priority: Placing pedestrian infrastructure as the main goal in transport and urban planning initiatives is an important step to transition to sustainable urban mobility. This includes

long-term strategies and sufficient funding that prioritizes walkability over automobile road improvements. This shift in prioritizing walkability serves as an equalizing mode to road space inequality, enhancing the communities' overall mobility, opportunities, access, safety, comfort, and ultimately quality of life improvement. The Okyere et al (2024) study called for a paradigm shift in prioritizing active transport over car-centric planning, this aligns with this study in Freetown and Maputo. The research emphasizes the urgent need to include walkability as a core principle in urban planning and transport.

Political Will and Strong Leadership: Strong leadership and political will are imperative for promoting sustainable mobility and driving positive change. To address policy-reality gaps, a clear unified vision must be established and communicated to all stakeholders. The collaboration with T-SUM has shown great potential, as backed by the policymakers' interviews, it is essential to continue learning collaboration and co-designing techniques, and ultimately introduce improved policies.

Cultural Shift Towards Walking: Awareness campaigns and promotions of walking as a mode of transport are important steps to take for harmonizing the cultural perceptions of walking with the ongoing plans of transitioning into sustainable urban mobility. As mentioned by T-SUM (2019a) the cultural inclination in Maputo is leaning towards car ownership, shifting this mindset towards walking can be done by beautifying the landscape for people to walk and educating the public on the importance and benefits of walking for overall health and climate. One idea is implementing Bogotá's temporary road closures for pedestrian only access (Ciclovía). Similar to Okyere et al's (2024) study in Accra, this study recommends cultural framing, as it impacts the public's acceptance and their support to the government's transition to sustainable urban mobility.

4. Future Research

Future research should investigate the reason for neglecting enjoyment aspects of walking. Despite lack of prioritizing walking as a mode of transport, the limited mentions of walkability terms in policy documents only revolved around enhancing safety and accessibility. So, looking into why pleurability dimensions are often overlooked may guide future research and interventions, to better address walkability issues. Also, longitudinal studies on policy decisions and interventions could potentially distinguish the effectiveness of walkability initiatives and enforced rules over time.

F Conclusion:

To conclude, this study has shed light on the significant disparities between policy intentions and the lived pedestrian experiences in Freetown and Maputo, particularly in informal settlements. Policies in both cities fail to recognize the importance of walking as a main mode of transport. Although there are little mentions of improving pedestrian safety and accessibility, however these also fail translate into tangible improvements on ground.

The findings of this qualitative study show significant safety and accessibility issues, including the lack of streetlights, crime, and inadequate infrastructure, with the pleurability dimension of walking being greatly overlooked in policymaking.

A stark finding in this study was the lack of acknowledgement of walking as a legitimate mode of transport, despite its prevalence in both societies. This gap in recognizing the communities' needs amplifies the marginalizing of the urban poor, giving them less access to opportunities, while exposing them to hazardous and unpleasant conditions. The study showed that walking was not only a mode of transport, but an important feature of their social, economic, and cultural life of the Freetown and Maputo communities.

This study emphasizes the need for a paradigm shift in urban planning and transport policymaking efforts in Freetown and Maputo, with greater attention and investment on walkable infrastructure. Only then can policy really impact the quality of life and create an inclusive and sustainable urban mobility system that accommodates all residents

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APPENDIX

Appendix A: Walkability Factors

Table 2 Factors Influencing Walkability and their Sources from Literature

Urban Walkability		
Factor Category	Key Elements	Relevant Study
Built Environment	Density	(Cervero & Kockelman, 1997; Ewing & Cervero, 2010; Frank et al., 2010)
	Street connectivity	
	Land use mix	
	Pedestrian infrastructure	
Urban Design	Imageability	(Ewing & Handy, 2009; (Ewing et al., 2006); Richa Singh, 2016; Southworth, 2005)
	Legibility	
	Enclosure	
	Human Scale	
	Transparency	
	Linkage	
	Complexity	
	Coherence	
Safety & Security	Tidiness	(Suarez-Balcazar et al., 2020; Wali & Frank, 2024; Yoh et al., 2022)
	Traffic safety	
	Crime rate	
Accessibility & Connectivity	Proximity to destinations	(Fonseca et al., 2022)
	Absence of barriers	
	Connectivity to public transport	
Environmental Factors	Climate	(Gilliland et al., 2019; Meena & Goswami, 2024)
	Air quality	
	Topography	
	Green areas	
	Community engagement	
Policy	Zoning regulations	(Heath et al., 2006; Leinberger & Rodriguez, 2016)
	Funding priorities	
	Transport policies	
	Community attachment	
	User satisfaction	

Appendix B: Urban Development and Mobility Characteristics

Table 3 Overview of Urban Development and Mobility Characteristics in Freetown vs. Maputo

Factor	Freetown, Sierra Leone	Maputo, Mozambique
Urbanization Trend	• Rapid population growth (4.2% rate) • Informal Settlement • Low adaptive techniques with the rapid pace	• Rapid population growth • 75% of housing are informal settlements • Gentrification
Topography	• Between sea and hills	Flat coastal area
Climate	• Heavy rain (July-September)	• Tropical Savannah (wet and dry seasons)
Economy	• Small scale economy; fishing, stone mining	• Agriculture, fishing • Cashew, sugar, timber, and cotton production and export
Mobility Modes	• Walking (main mode) • Low car ownership • Semi-informal Transport	• Walking (main mode) • Semi-collective networks Chapas (minibuses) • Cars and taxis • Private transport
Accessibility (Micro Level & Meso-level)	• Poor pedestrian access due to narrow roads • Blocked sidewalks due to street vendors	• Poor sidewalks and obstructions • Lack of streetlights
	• High congestion • Limited access to basic amenities like water and sanitation	• Uneven services and opportunities in CBD and informal areas • High cost of transport
Current Infrastructure	• 5% of land allocated for roads • No cycling routes • Obstructed pedestrian infrastructure	• Low maintenance of transport infrastructure • 65% of roads are in poor condition
Source: (de Tejada et al., 2023; Koroma et al., 2019; Maputo, n.d.)		

Appendix C: Participants

Table 4 Moyiba Community Participants

Community Members	Freetown - Moyiba Community Semi-Structured Interview Participants	
	Participants' ID	
	M-CM1	
	M-CM2	
	M-CM3	
	M-CM4	
	M-CM5	
	M-CM6	
	M-CM7	
	M-CM8	
	M-CM9	
	M-CM10	

* M= Moyiba, CM= Community Member

Table 5 Freetown Policymakers and Experts

Freetown Semi-Structured Interview and Focus Group Participants		
Policymakers	Entity/	Participant ID
	Ministry of Transport	MOT-PM1
		MOT-PM2
		MOT-PM3
		MOT-PM4
		MOT-PM5
		MOT-PM6
	SLRA	
	SLSRA	
Experts	Expert	
	Practitioner	

Table 6 Chamanculo Community Participants

Mozambique - Chamanculo Community Semi-Structured Interview Participants	
Community Members	Participants' ID
	C-CM1
	C-CM2
	C-CM3
	C-CM4
	C-CM5
	C-CM6
	C-CM7
	C-CM8
	C-CM9
	C-CM10
	C-CM11
	C-CM12
	C-CM13
* C=Chamanculo, CM= Community Member	

Table 7 Maputo Stakeholders

Maputo Semi-Structured Interview Participants	
Entity	
Policymakers	Maputo Municipality – Social Action
	Mobility, Transport, and Traffic
	Maputo Municipality - Council of Health and Social Action
	Mobility, Transport, and Transit
Institutions	Maputo Metropolitan Transport Agency
	The Maputo Municipal Mobility and Parking Company
Activists	NGO Spokesperson
	Professor
	Professor

Appendix D: Freetown and Maputo Policies Thematic Content Analysis

Table 8 Policy Documents Thematic Content Analysis

City	Policy/ Plan	Year	Description	Walkability Mentions (Pedestrians, Walking, Walkable, Sidewalks, etc...)	Mentions
Freetown	ITPSIP	2013	National Transport Policy	Walk/Walking= 0 Pedestrian(s)= 3 Sidewalk(s)= 0 Walkability= 0 Footpath(s)= 1	"Urban transport would therefore focus on the movement of people and goods by giving priority to public transport, goods transport, pedestrians and non-motorised transport while controlling the level of private transport use." "Traffic management measures such as pedestrian or bus-only streets as well as traffic calming measures may also be designed to limit motorised traffic effectively." "Proposed measures include: an improved CBD network with one-way streets, linked traffic signals and dedicated, pedestrian/NMT streets as well as bus/public transport streets;"
	Transform Freetown Initiative	2023	FCC Urban Development Initiative (latest report)	Walk=1 Walking= 1 Pedestrian(s)= 4 Sidewalk(s)= 0 Walkability= 1 Walkway(s)= 2 Footpath(s)= 2	"The project aims to increase the resilience of Susan's Bay Community and has been designed to address the urgent needs of access, water supply, sanitation situation, drainage, and lightning of walkways." "The women of Tree Planting community explained how the provision of two boreholes and four 10,000-liter tanks in their community will positively impact girls and young women who will no longer need to walk long distances in the early hours of the morning to fetch water. Additionally. the

					provision of a tricycle for waste collection will improve sanitation in the community.” “Over the years, Freetown’s Central Business District (CBD) has become a less and less attractive destination for commercial and diplomatic headquarters with high levels of traffic congestion, limited walkability and uncontrolled parking.” “While half the daily individual trips are undertaken by walking, footpaths/walkways are not available or accessible for most of the road networks.”
Reference:					
Maputo	Greater Maputo Mobility and Transport Master Plan	2014	Japanese International Cooperation Agency (JICA)	Walk=1 Walking=8 Pedestrian(s)=13 Sidewalk(s)=7 Walkability=0 Walkway(s)=0 Foot=1	“The Study found that approximately 60% of all non-walking trips were made by <i>Chapa</i>.” “Approximately 400 full-sized buses (with over 50 seats) are operating in Maputo, accounting for approximately 17% of all non-walking trips.” “Passenger trains stop at all intermediate stations, and carry intermediate local traffic within Mozambique, but account for only about 1% of non-walking trips in Greater Maputo.” “Issues involving traffic safety in central business district (CBD) include the lack of safety assurance for pedestrians due to cars and trucks obstructing sidewalks as well as road facilities to protect pedestrians (e.g., guardrails).”

					“Table 3 summarizes trip rates (excluding trips by walking) by the characteristics of household type gained from HIS.” “With respect to the existing travel mode, trips made by either walking or bicycle account for 45.9%.” “Integrated walking and cycling network” “Sidewalk parking (protective fence, regulation)” “Other related measures, e.g., greater control of fleet, electronic safety enforcement, further increase in on-street parking areas, control of sidewalk parking” “The south section (8.8 km) from Brigada to Missão Roque is located in an urban area, and has four lanes with a median and a sidewalk.” “The north section (6.6 km) from Missão Roque to Zimpeto is located in a suburban area, and has two lanes without a median or a sidewalk. It has sufficient margin width on both sides.” “Mode: Walk= 1.42 million Trips” “The number of public transport trips in 2035 will increase by a factor of 2.10 times the current amount if walking is included, and by a factor of 2.27 if walking is excluded.” “At present, when excluding the trips made by foot, the proportion of trips made by public transport is 80%. In the future, as LRT and
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					BRT will be developed, this proportion of public transport trips will drop to 70%.” “The sidewalk is desired to be more than 3 m.” “Sidewalk works” “Issues involving traffic safety in central business district (CBD) include the lack of safety assurance for pedestrians due to cars and trucks obstructing sidewalks as well as road facilities to protect pedestrians (e.g., guardrails).” “Better use of road space and improve vehicle/pedestrian environment (related to Traffic Management)” “The Traffic Control, Management and Safety Improvement Plan plays an important role in delivering the Greater Maputo comprehensive urban transport development vision and strategy, especially through the better use of road space and the improvement in vehicle/pedestrian environment.” “Considering that traffic congestion has become serious at a number of road sections in Greater Maputo, it is vital to implement traffic management measures that can provide short-term improvements in traffic flow and safety especially for public transport and pedestrians.” “Pedestrian measures at accident hotspots” “The measures include digital database development, better
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					driver training and education, and pedestrian measures.” “BRT bus traffic, ordinary vehicle traffic, and pedestrian traffic should be properly allocated given the limited right of way.” “Therefore, the station distance is recommended at 500-800 m for pedestrian convenience and BRT operational efficiency. Figure 46 presents station distance and pedestrian access time.” “Station Distance and Access Time of Pedestrians” “During the operational phase, the BRT system may initially increase the risks to accidents when pedestrians and other vehicles are not yet used to the system.”
	PROMAPUTO	2020	Maputo Municipal Development Program Development Program (latest report)	Walk=0 Walking=0 Pedestrian(s)=0 Sidewalk(s)=0 Walkability=0 Walkway(s)=1 Footpath(s)=0	“However, the project did not quantify additional benefits such as reduced travel times, rising property values as land is converted from agricultural use to housing and business use, inclusion of drainage systems to reduce storm water damage to the road, and creation of walkways.”
Reference:(FCC, 2023; IEG, 2020; JAPAN INTERNATIONAL COOPERATION AGENCY, 2014; SLURC, 2013)					