

Tracing the Implementation of Pedestrianization Schemes for Enhancing Accessibility and Mobility: A Case of Kariakoo, Dar es Salaam City in Tanzania

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Abstract

Pedestrianization schemes were introduced to improve pedestrians' safety and mobility by creating a friendly walking environment, resulting in a sense of belonging for pedestrians within the inner cities. Effective implementation of pedestrianization streets, especially in developed countries, is reported to reduce accidents and ease movement in an urban environment. However, it seems to be different in developing countries where pedestrianization schemes are not well implemented; therefore, the intended goals of their introduction are not attained. This study investigates the implementation of pedestrianization schemes (pedestrian malls and one-way streets) aimed at better accessibility and mobility. Moreover, it examines the challenges facing the implementation of pedestrianization schemes. The study was conducted in five pedestrianized streets (2 pedestrian streets and three one-way streets) in the Kariakoo area. The qualitative approach was employed and methods used in data collection were interviews with officials and 30 pedestrians per street, mapping and observation. Pedestrian malls function as part-time pedestrian streets, which allow vehicular traffic with less than 3 tonnes to the road after 7:00 p.m.; on-street parking is restricted too, but loading and unloading activities are permitted. One-way streets function as shared streets where pedestrians and vehicular traffic share the space, with on-site parking. Hence, pedestrians continue suffering when accessing and moving within pedestrianized streets

I INTRODUCTION

Inner cities are characterized by high densification and extensive economic activities (Das, 2016). Consequently, it leads to increased automobile flow and pedestrian movement within the streets and, hence, inevitable uncontrolled traffic (Kiunsi, 2013). Moreover, Wahba et al. (2020) noted that the broader impacts of this phenomenon are increased air

pollution, unsafety of the streets' users, inadequate parking, congestion, and traffic conflicts. For instance, the experience of Dar es Salaam shows that, during the morning peak hours, the traffic speed is reduced between 0 to 10 km/h at the city centre and just out of its boundary. In the evening, the traffic speed is within 10 to 20 km/h and decreases between zero and 10km/h immediately after the city centre (Kiunsi, 2013).

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Along with this, walking is described as the primary and ordinary means of transport in all societies worldwide because of its proximity to services, affordability, and being considered a form of physical exercise (Lukenangula, 2017). However, the safety of pedestrians is a challenge in urban areas, as pedestrian deaths are making 22% of the world's road traffic deaths (WHO, 2015). Tanzania is ranked ninth in the world for road traffic accidents according to WHO (2017) as cited in (Hamisi & Juma, 2019). In Ilala municipality, about 6,772 road traffic injuries were reported between 2014-2018, where 28% of the fatalities recorded were pedestrians (Walugembe, et al., 2020).

People's movement from one place to another is inevitable because of the ongoing urbanisation which has economic and spatial ramifications. Movement is a basic human need, as people travel for food, leisure and jobs. The movements in urban areas are through motorised vehicles such as public transport, private cars, motorcycles, or non-motorised forms of transportation, including cycling and walking (Rastogi, 2011). Accessibility in urban areas is highlighted as an essential factor that influences and limits the mobility of urban residents. Thus, mobility results from the opportunity provided by accessibility through urban transport and land-use systems, which are disturbed by congestion and traffic crashes (Andreasen & Moller-Jensen, 2017).

It has been revealed that pedestrians are the victims of road safety and congestion in commercial inner streets; thus, various initiatives, including pedestrianization schemes, were introduced to improve pedestrians' safety and mobility via creating a friendly walking environment, resulting in a sense of belonging for the pedestrians in the streets (Iranmanesh, 2008; Wahba et al. 2020). The priority given to the pedestrians is the critical point that leads to

streets being exclusive for pedestrians only and others adopting traffic calming measures and one-way systems to favour the pedestrians' movement. That means no invasion of vehicles to the pedestrian zones (Iranmanesh, 2008).

Pedestrianization schemes such as introducing pedestrian malls ensure safety and security and improve pedestrian accessibility in highly congested streets. The plans may lead to suitable conditions for pedestrian movements, minimising pedestrian congestion and improving shopping access (Lukenangula, 2017). The call for improving pedestrian safety in Dar es Salaam's inner city dates back to 1977, when 2,570 traffic accidents and 155 deaths were recorded, 60% of which involved pedestrians and cyclists. This led to the pedestrianization of sections of India, Mosque, Makunganya, and Marina Streets (URT, 1979). According to (URT, 2007), the Indian and mosque streets still maintain the architectural quality needed to support pedestrianization, facilitating retail and pedestrian activities while minimizing vehicle impacts. The benefits of pedestrianization measures in German neighbourhoods have reduced traffic injuries by 20%-70% and serious traffic injuries by 35%-56%. (Soni & Soni, 2016).

To address the challenge of the walking environment, mainly road accidents on which the pedestrians are reported to be the victims, the government and its agencies, through the Kariakoo redevelopment scheme (2017-2027), introduced two pedestrian malls (Congo Street section of Aggrey and Tandamti Streets; and Mchikichi Street section of Msimbazi and Nyamwezi Streets) and widened the sidewalks along the three one-way streets (Mkunguni Street from Lumumba Street to Msimbazi Street, Swahili Street from Mkunguni to Morogoro road, and Lindi Street from Shaurimoyo Street to Msimbazi Street) to ease pedestrians' accessibility and mobility since the pedestrian

safety is jeopardised and the high concentration of people. Therefore, the research aims to investigate the implementation status of the introduced pedestrian malls and widened sidewalks on one-way streets to enhance pedestrians' accessibility and mobility

2 LITERATURE REVIEW

Restriction of Vehicles within Pedestrianized Streets

Street pedestrianization exists in three kinds: First, full-time pedestrian streets where the entrance of vehicles is forbidden and services are usually in the back of the streets, except for emergency service vehicles, which are allowed to enter when necessary. Part-time pedestrian streets are another kind of pedestrianization where vehicular access is permitted for a limited time. They usually contain load and loading bays for shops' delivery trucks (Iranmanesh, 2008). For example, in Westminster Mall, vehicles are closed between 11:00 a.m. and 2:00 p.m. (Robertson, 1990). Traffic signs and police guards control the movements within the pedestrianized streets (Parajuli & Pojani, 2017). Traffic calming is the other form of pedestrianization, which intends to reduce the dominance and speed of vehicles. There is no restriction on automobiles accessing the streets, but sidewalks are widened, vehicular lanes narrowed and parking spaces, for example, one-way streets (Iranmanesh, 2008). Mama Ngina Street is a good example where the sidewalks widened and the street transformed into a one-way street (Agevi, et al., 2016).

Relationships Exist on Pedestrianization Schemes and Accessibility and Mobility

The primary reason for street pedestrianization is to improve pedestrians' safety and mobility while accessing various desired destinations. Through pedestrianization, walking is

experienced as the more enjoyable means of transport. The space for street furniture, which is well-designed and managed, creates an area that is more adaptable for humanity (Iranmanesh, 2008). The pedestrian street's environment influences pedestrian mobility; the street furniture, such as lighting fixtures and signage, increases the safety and security of the pedestrian. For example, street lamps, installed street lamps, and cafes with canopied enclosures enhance the movement of pedestrians on Buchanan Street (Wahba, et al., 2020). The accessibility is described in two ways: the way pedestrians reach the pedestrianized streets at the entrances and exit nodes, aiding the pedestrians to reach their destination within the streets through walking. The other kind is the connection of pedestrian streets with transit systems and pedestrian networks. Accessibility is among the factors regarding the succession of the pedestrian street (Wahba, et al., 2020). It is evidenced in Schildergasse Street, which is well connected with Neumarkt train station (a public hub for urban subway trains, suburban light railway trains, and city buses,) which connects the street in all forms: international, regional, local, and Buchanan Street which is associated with many public transportation networks including subway, railway and bus station at the end of the street itself. The pedestrian streets' strong connections have made them the best places (Wahba, et al., 2020).

Barriers to the Succession of Pedestrianization Schemes

Implementing pedestrianization schemes depends on enforcing laws settled regarding the use of the streets. There is laxity in law enforcement in Global South countries implementing pedestrianization schemes. The most common reason is the lack of signage to guide the movement within pedestrianized streets. The situation experienced in Kathmandu is described as being at risk of being encroached

upon by vehicles through parking and conditioning (Parajuli & Pojani, 2017).

Pedestrianization projects, in most cases, lack institutional and political support. It is due to the low level of commitment shown by the local governments toward the projects favouring pedestrians. This barrier was described as a challenge decades ago since the emergence of the pedestrianization concept. It is evidenced in Brisbane's active transport policies, its implementation of pedestrian streets guidelines, and the City Centre Master plan, which are poorly and occasionally implemented (Parajuli & Pojani, 2017).

Lack of accountability influences the falling of many pedestrian streets. It was concluded that most falling pedestrian streets were supervised during planning and designing and left with no funds or management and maintenance provisions (Schmidt, 2010).

Challenges Facing Pedestrianized Streets

Street vendors are often described as contributing to the chaos in pedestrianized streets. The situation worsens when their activities are poorly organized. For instance, street vendors can obstruct pedestrian visibility, as observed on Al-Shawarbi Street in downtown Cairo (Fadda, et al., 2017).

Street furniture and fixtures, such as lighting and seating, as well as pavement quality, are also factors that hinder effective pedestrianization. While street furniture is designed to enhance accessibility and contribute to comfort, safety, and security, its placement can inadvertently affect road mobility. In Swedish pedestrian streets, accessibility and the quality of physical elements have been identified as key issues. Improvements, such as better walkways, seating, and lighting, are proposed to address these challenges (Robertson, 1991).

Homeless individuals often occupy pedestrianized streets, using street furniture as makeshift beds. This limits the intended use of such spaces for socializing and resting. Additionally, people experiencing homelessness can intimidate both merchants and pedestrians, as seen on Al-Shawarbi Street (Fadda, et al., 2017). One-way streets can enhance safety by reducing conflicts between vehicles and between vehicles and pedestrians. However, safety concerns may arise if there are no control measures to regulate high-speed motor traffic, putting pedestrians at risk (Meyer, 1997).

Pedestrianization Concept

Bates (2013) describes that street pedestrianization was initially introduced in European cities after WWII when there was an increase in automobile ownership. The streets were firmly blocked by automobile traffic. As a result, pedestrianization came as a movement to reclaim streets as public spaces, not homes for vehicular traffic. In 1953, the first intentional pedestrian-only street was developed in Rotterdam, Netherlands, known as Lijnbaan Street.

Iranmanesh (2008) points out that pedestrianization is a concept concerning where the streets are converted into pedestrian uses only by excluding vehicular traffic. The roads are not pedestrianized in isolation as they have to be connected with public transport to ensure easy accessibility of the streets to pedestrians. Street pedestrianization plays a significant role in controlling motor traffic to provide a conducive walking environment for pedestrians. Pedestrianization includes services and emergency vehicles such as ambulances, police vehicles, fire-fighting trucks, sewerage trucks, and delivery vans and freight trucks. (Iranmanesh, 2008; Soni & Soni, 2016).

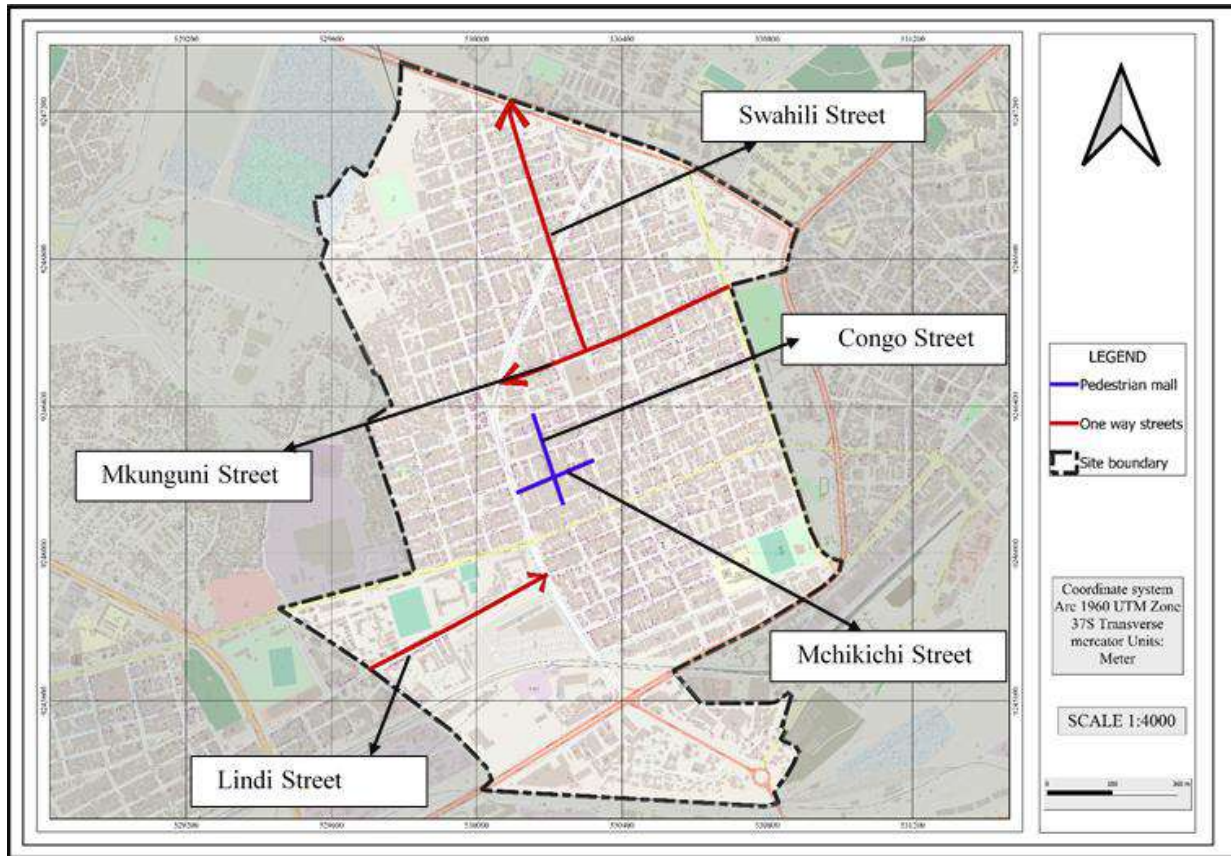
The pedestrianization concept is associated with promoting public spaces on commercial streets in inner cities to promote walkability and enhance the quality of life in commercial streets (Wahba, et al., 2020). High levels of pedestrian activities, mainly shopping, have been conducted in the city centres and inner cities for centuries. Promoting pedestrians' movements become an essential goal of downtown development plans. Planners reveal that a safe, comfortable, and exciting pedestrian environment is needed to attract walking to downtowns (Robertson, 1991).

3 METHODOLOGY

Despite the presence of pedestrianized streets in Dar es Salaam City Center, Kariakoo was selected as the case study area for the following reasons: it is the busiest area in Tanzania, largely due to the Kariakoo International Market, which

serves not only Tanzania but also nearby countries. The area features commercial streets offering a diverse range of goods, such as clothing, food, home appliances, and spare parts, which encourage walking while shopping. Thus, consequentially welcomes large number of pedestrians. Additionally, the complexity of understanding the implementation of pedestrianization schemes, such as pedestrian malls and one-way streets, in Kariakoo makes it an ideal study location.

The study employed a qualitative approach. Data collection methods included interviews with a town planner, a TARURA official, city security guards, Ward Executive Officers from Kariakoo and Gerezani. The study involved conducting 30 interviews with pedestrians on each street. This sample size was chosen because it allows the researcher to collect the necessary information, as noted by Denscombe (2010). Additionally, data was gathered through observations and mapping.



Map I: Kariakoo-Pedestrianized Streets

4 FINDINGS AND DISCUSSION

Operationalization of the Pedestrianized Streets

Pedestrian Malls

The study reveals that pedestrian malls fall under the category of part-time pedestrianized streets. Since these roads are located in commercial areas, it is challenging to restrict vehicle access completely. Therefore, the current measure allows delivery trucks under 3 tonnes to enter the streets at any time to deliver or collect goods, provided they vacate the road promptly after completing their tasks. Private vehicles, such as taxis, are permitted to pass through the streets, but parking is strictly prohibited. Additionally, vehicular traffics weighing more than 3 tonnes including service vehicles like solid waste collection trucks are restricted to entering

before 6:00 a.m. and after 7:00 p.m., as the streets are busiest between 6:00 a.m. and 7:00 p.m. Furthermore, carts are allowed to assist with loading and unloading activities.

The mechanism employed is different from other pedestrian streets; vehicular traffic is banned regardless of their weight for example, Westminster Mall, where vehicles are closed between 11:00 a.m. and 2:00 p.m. (Robertson, 1990).

There are no physical barriers such as bollards to restrict the entry of vehicles within streets rather than city security guards who are responsible for ensuring the mechanism established is conducted accordingly. Experience shows that not only are police guards used to control movements within pedestrianized streets, and traffic signs are employed (Parajuli & Pojani, 2017). With the restriction of vehicles of

more than 3 tonnes, it was revealed that the vehicular traffic allowed and carts within pedestrian malls affected the safety of the pedestrians negatively, as evidenced by 80% and 73% of the pedestrians interviewed from parts of Congo and Mchikichi Streets respectively were feeling unsafe.

One-way Streets

These streets do not operate as one-way streets, as proposed in the Kariakoo redevelopment scheme. Instead, vehicles move in two directions. They function as shared streets, where motorized traffic and pedestrians use the same



Plate SEQ Plate * ARABIC 1: Pedestrians sharing carriage way with motor vehicles in

Pedestrians' Accessibility to Pedestrianized Streets

Pedestrian Malls

The concentration of activities, particularly street vending at key entrance and exit nodes, makes it difficult for pedestrians to access the streets. The lack of traffic signs at entrance nodes indicating the streets' status creates confusion and leaves users unaware of the intended street use. As evidenced through interviews with pedestrians, 90% and 92% from Congo and

lanes due to the lack of grade separation. In contrast, other pedestrianized streets use bollards create a clear separation between motor vehicles and pedestrians, such as on Mama Ngina Street (Agevi, et al., 2016). In developed countries electronic bollards enhance control mechanisms by allowing emergency vehicles to access pedestrian streets.

Interview revealed that 64%, 60%, and 70% of pedestrians on Lindi Street, Mkunguni Street, and Swahili Street respectively, felt unsafe. This perception is influenced by the absence of physical separation between vehicular lanes and sidewalks.



Plate SEQ Plate * ARABIC 2: Pedestrian walking beside on-street parked vehicles

Mchikichi Streets argue that accessing pedestrian malls is difficult.

As one of the pedestrians interviewed quoted, "For sure it is challenging to enter in Mchikichi Street, there are many street vendors at the street entry, and the situation is worse within the street, they put their staffs on the road surface" (Pedestrian interview No.33; Mchikichi street; 2022).

One-way Streets

Pedestrians face difficulties when entering and exiting the streets. It contributes to the lack of

traffic signs to indicate the uses of the roads and parking activities, which start at the nodes of the streets. However, within these streets' the concentration of activities at the entrance nodes was less than in pedestrian malls. Also, based on findings, 39%, 33%, and 42% of pedestrians interviewed in Lindi, Mkunguni, and Swahili Streets, respectively, argued that they face difficulties when accessing the entry points of the streets.

It collides negatively with the idea that pedestrians should easily access pedestrianized streets, as literature shows on the pedestrianization of Al-Shawarbi Street (Fadda, et al., 2017). Hence, the study revealed that accessing pedestrianized streets is a challenge since pedestrians do not quickly enter the streets.

Mobility within Pedestrianized Streets

The study reveals affected by the following physical factors space organisation, street

amenities and road condition, as described as follows;

Space Organisation

Activities across all the streets were observed to be disorganized. Starting with pedestrian malls (Congo and Mchikichi Streets), the presence of street vendors increases congestion. Moreover, the loading and unloading goods by shop vehicles and carts is uncoordinated, further contributing to the disorganization within the streets.

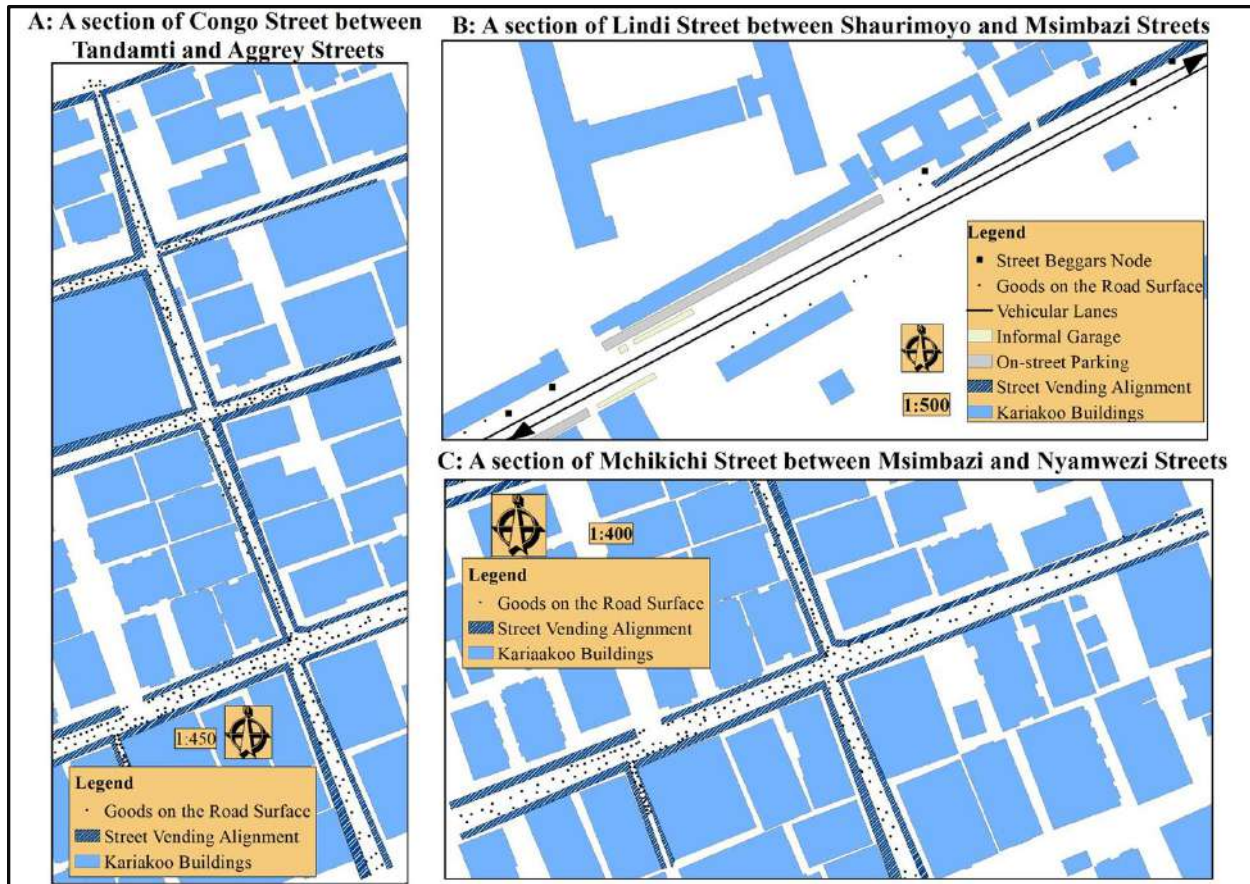
The situation was similar to that of one-way streets, where street vendors and on-site parking along all three streets (Lindi, Mkunguni, and Swahili) create unfavorable conditions for walking. Additionally, informal garages, delaying solid waste collection and street beggars within Lindi Street hinder pedestrian mobility. Disorganization of activities along these streets makes it uncomfortable for pedestrians to navigate moving within streets.



Plate SEQ Plate * ARABIC 3: Informal garage and Parking along Lindi Street



Plate SEQ Plate * ARABIC 4 Street vending along Mchikichi Street



Map 2: Space organization on pedestrianized streets

Furthermore, the disorganization of the space led to challenges such as a decreased sense of security. This was evident in pedestrian malls, where 83% of interviewed pedestrians from a section of Congo Street and 67% from Mchikichi Street felt unsafe from criminal activities.

As the interviewee quoted, "One day when I was passing on this street (Congo Street) and approached a street vendor's table to buy shoes, I opened my handbag and discovered, to my dismay, that it had been worn without knowing, I realized my small wallet was missing" (Pedestrian interview No. 13; Congo street; 2022).

It was found that 53% of pedestrians interviewed from Lindi Street, 56% from Mkunguni Street and 60% from Swahili Street felt insecure due to the threat of criminal activities. According to an interview with the former city security guard, the

lack of security on these streets is attributed to the competition for space, which is exacerbated by the presence of street vending activities.

As he was quoted, "In early 2015, an incident occurred on section of Mchikichi Street between Msimbazi and Congo Streets, where a car driver was beaten to death by street vendors after he accidentally trampled their goods while passing through the street" (former city security guard; Kariakoo ward office; 2022).

It has also been revealed that security guards and police are unable to work efficiently due to the presence of street vendors. The numerous, poorly organized street vendors make it difficult to apprehend thieves within Kariakoo streets. Furthermore, the disorganization of activities causes delays for pedestrians in reaching their

destinations, as supported by 100%, 90%, 77%, 73%, and 80% of pedestrians interviewed from Congo, Mchikichi, Lindi, Mkunguni and Swahili Streets respectively.

As one of the pedestrians quoted, "*It may take up to 5-7 minutes, to move from one shop to another, even if are so close, while the same distance can be reached in just 1 minute on other streets that are less congested*" (Pedestrian interview No.35; Mchikichi street; 2022).

Street Amenities

Streetlights were observed to be dominant street amenities within the street. The mobility of pedestrians during night hours depends on the presence of functioning streetlights within the streets. The analysis of street lights and their effects are described as follows;

Pedestrian malls

Streetlights within pedestrian malls were observed to be installed at each junction, with less than 50m between one streetlight and the next making the streets passable during the night. This was supported by 60% of pedestrians interviewed from Congo Street and 63% from Mchikichi Street, who stated that the streets are passable at night. However, 20% of the pedestrians from Congo Street and 17% from Mchikichi Street noted that it is difficult to navigate the streets at night due to some of the streetlights not functioning. Additionally, 20% of pedestrians from each street reported that they had never crossed the streets at night and therefore could not provide an option.

One-way Streets

Field observations revealed that streetlights were unevenly distributed and limited in number (5), with only five streetlights on each of Swahili and Lindi Streets, depending on the length of the streets (700m and 550m) respectively. Despite the poor distribution of the streetlights, 70% of pedestrians interviewed from Lindi Street and

73% from Swahili Street argued that the streets are passable at night due to the presence of streetlights and the lighting from commercial premises along the corridors.

In contrast, the pedestrianized section of Mkunguni Street had a more favourable lighting setup, with 22 streetlights placed 30m apart, and some sometimes as close as 20m. These streetlights were in good condition and functional. Powered by solar energy which is more reliable and unaffected by power outages, 90% of the pedestrians stated that the street is passable at night due to reliable lighting. However, 10% of pedestrians reported that they never use the street at night.

Streetlights were considered the most crucial amenity for improving security for pedestrians and other street users at night. The pedestrianization of Mama Ngina Street, for example, included the installation of streetlights to encourage pedestrian activity at night, following a rise in criminal activities in the City Center before the pedestrianization process, with 72% of all residents avoiding travel and work at night (Agevi, et al., 2016). Similarly, well-distributed streetlights on Al-Shawarbi Street in downtown Cairo contribute to pedestrian security at night and enhance the street's appeal (Fadda, et al., 2017). The concept of pedestrianization recognizes the importance of street furniture like benches, lighting, trash bins, and signage as essential elements that improve the comfort, awareness, safety, and security of pedestrians, ultimately enhancing pedestrian movement (Mauliani, et al., 2015).

Road Condition

Pedestrian Malls

Pedestrian mobility within the streets was found to be better during sunny seasons compared to rainy seasons. In sunny weather, pedestrians can move from one point to another without obstacles caused by poor road conditions or

inadequate drainage systems. However, the situation changes during the rainy season. The streets have narrow drainage channels with shallow depths, which are unable to efficiently discharge surface runoff. As a result, this hampers pedestrian movement during the rainy season. This was evident, as 100% of pedestrians in Congo Street reported that it becomes difficult to reach various destinations on the street during the rainy season. Similarly, 97% of pedestrians on Mchikichi Street agreed that mobility is challenging during rainy weather.

One-way Streets

70%, 90%, and 73% of pedestrians interviewed from Lindi, Mkunguni, and Swahili Streets, respectively, reported that it is difficult to move to various destinations within the streets during the rainy season. The reasons mentioned include the unsatisfactory size of drainage channels on Swahili and Mkunguni Streets, and the lack of drainage channels and poor road surface on Lindi Street, which creates shallow holes that fill with rainwater. This leads to water stagnation on road surface, hindering mobility

A TARURA Official during an interview explained:

"There are some streets like Lindi that lack drainage channels. Even those with stormwater drainage channels were designed a long time ago, where there were fewer physical developments compared to current situation. This means the existing drainage channels cannot handle the current level of development, ultimately making the streets difficult to access during the rainy season, as runoff is not efficiently discharged". (TARURA official; Ilala DMDP office; 2022).

Challenges in the Implementation of Pedestrianization Schemes

Coordination among Actors

The study reveals a critical gap among actors during the process of proposing pedestrianized

streets. The Ward Executive Officers (both of Kariakoo and Gerezani) were reported to be unaware of what had been planned in the areas of their jurisdictions. As Kariakoo Ward Executive Officer explained: *"vehicles with more than 3 tonnes are usually passing on the street before early 6:00 a.m. and after 7:00 p.m. This is done as a norm and not as a matter of implementing something"* (official interview No.3; Kariakoo ward; 2022).

In addition, during the discussion with WEO revealed that she was not in the office during the preparation of the scheme as Kariakoo Ward Executive Officer. Also, there were no any records concerning the street pedestrianization left by the former Ward Executive Officer. This change in leadership contributed to a lack of continuity and awareness, affecting the effective execution and management of the pedestrianization scheme.

Further compounding the issue, the Gerezani Ward Executive Officer also reported a lack of awareness regarding developments within her jurisdiction. In an official interview she was noted:

She said, "Currently, there is no one-way street in my ward, and to be honest, I am not aware of the proposal made on Lindi Street to be a one-way street from Shaurimoyo Street to Msimbazi Street. That is why during our ward development meeting, we reached the agreement of sending the proposal to TARURA and LATRA to turn the same section into a one-way street but in reverse direction from Msimbazi to Shaurimoyo Street, not as proposed by the Kariakoo redevelopment plan as you are informing me right now" (official interview No.4; Gerezani ward; 2022).

These findings highlight a significant lack of coordination among key actors, which contradicts with Management theory (Taylor, 1911). Effective policy implementation relies on seamless coordination among actors from the

planning phase to the controlling stage. For instance, the successful pedestrianization initiative on Mama Ngina Street in Nairobi underscores the importance of collaboration between City governments and local communities (Agevi, et al., 2016).

Financial Resources

As discussed with the town planner, Dar es Salaam City Council is the primary authority responsible for implementing the pedestrianization scheme. Financial resources were identified as the main barrier to the implementation of these plans. The town planner explained:

"The City's income has to cover many services such as improving school conditions, health facilities and road conditions within the city's boundaries. As a result, the implementation of pedestrianization scheme receives little attention" (official interview No.1; Dar es Salaam City Council office; 2022).

The study reveals that pedestrianization schemes were given low priority, due to the lack of funding, although when effectively implemented, they contribute to achieving Sustainable Development Goal 11, Target 11.2 (UN, 2018).

Lack of Action and Implementation Plans

The study reveals that there were no clear action plans or implementation strategies for the proposed pedestrianization initiatives in the redevelopment of the Kariakoo area, which contributed to the inefficiency of the scheme. The redevelopment plan recommended that the one-way streets and pedestrian malls be implemented immediately after the plan's preparations, but did not outline a strategic approach for their implementation. This finding aligns with the existing literature, as lack of institutional support was identified as one of the most significant barriers to successful pedestrianization projects. Even cities with pedestrianization guidelines included in the Local Government Act and City Master Plan often

struggle with poor inconsistent implementation due to the absence of a strategic framework to ensure their effectiveness, as observed in Brisbane (Parajuli & Pojani, 2017).

5 CONCLUSION AND RECOMMENDATIONS

The study concludes that the implementation of the pedestrianization schemes in Kariakoo is underwhelming, resulting in persistent challenges for pedestrians. The intended pedestrian malls function as uncoordinated part-time pedestrian streets, allowing vehicular traffic under 3 tonnes to access the streets all the time. Additionally, street designated as one-way function as shared street where pedestrians and vehicles including parked cars, occupy the same space. The situation compromises pedestrian safety, causes congestion resulting to the delaying of pedestrian movement. Furthermore, street vendors exacerbate these challenges by limiting visibility, crowding the streets and creating chaotic conditions that undermine pedestrian security and mobility. As a result, pedestrian accessibility and mobility remain hindered in these pedestrianized streets.

The research recommends that planning authorities ensure coordination among all relevant actors, including local leaders and stakeholders, by holding regular meetings to discuss and manage pedestrianization schemes effectively. Likely, the timed-vehicular restriction should be implemented as it is suggested that from 6:00 a.m. to 7:00 p.m., no vehicular traffic should enter pedestrian malls; this will go parallel with the introduction of handcarts to assist shoppers in taking off their goods with streets. All loading and unloading activities done via vehicular traffic and service vehicles should enter the pedestrianized streets after 7:01 p.m. to 5:59 a.m. Street furniture such as street lights should be installed at a minimum interval of 50 m to ensure the movement of pedestrians at night

hours; bollards should be installed at the entrance of pedestrian malls to limit vehicular traffic and also to provide physical separation of vehicular traffic lanes and walkways in one-way streets. Also, traffic signs to inform street status should be installed at each entrance node. Proper organization of activities within Kariakoo Street could be attained by controlling street vending along the streets. With the government's effort to relocate the street vendors to the Jangwani area, Kisutu market, and Machinga Complex, many street vendors are still along the streets. Thus, a strong street vendors association with street vendors should be established. The association should work with the planning authority to register their members, provide them with designated spaces, preferably along the veranda of permanent commercial shops. This will prevent them from occupying the right of way. Also, enforce the relocation to designated areas such as Machinga complex.

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