

# Chapter 19

## The Future of Non-motorised Transport in Urban Africa



Chinebuli Uzongdu and Anderson Aja Etika

**Abstract** Non-motorised transport (NMT) modes are an important and integral component of urban transport across the world. Besides the provision of basic mobility, affordable transport and physical fitness, they serve to reduce negative environmental impacts of transportation. However, despite the NMT being a dominant mode of transport in most African rural and urban areas, it continues to be largely neglected in terms of relevant policies, planning and provision of infrastructures. Governments in African nations remain unsustainably focused on expanding the road networks and increasing motorization, with NMT as modes borne out of necessity for the poor. Non prioritization of NMT carries a huge road safety burden of fatalities and injuries to these vulnerable road users and an increasing car-culture. Thus, it is imperative that a future narrative is drawn for this key transport mode. This research seeks to examine the current challenges faced by NMT users in Sub-Saharan Africa and provide insightful policy ideas and infrastructure development strategies to make walking, cycling and other NMT transport modes more convenient, safe, pleasant and convincing in urban Africa. Through consultations with relevant stakeholders and experts, the book chapter recommends a pathway for the integration of NMT to urban mobility plans in African cities and towns.

**Keywords** Non-motorised transport · Infrastructures · Nairobi · Accra · Lagos · Kampala

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C. Uzongdu (✉)

Department of Transport Management Technology, Federal University of Technology, Owerri, Imo State, Nigeria

e-mail: [Chinebuli.uzongdu@futo.edu.ng](mailto:Chinebuli.uzongdu@futo.edu.ng)

A. A. Etika

Department of Civil Engineering, Cross River University of Technology, Calabar, Nigeria

e-mail: [andersonetika@crutech.edu.ng](mailto:andersonetika@crutech.edu.ng)

## 19.1 Introduction

Globally, it is now estimated that over 50% of the world's population live in towns and cities (World Bank 2020). This has resulted in increased transport demands to meet urban mobility needs. This increase in transport demand could be regarded as a reflection of economic growth. However, managing this enormous demand for mobility has become a major challenge for most countries as such increase comes with other socioeconomic problems such as traffic congestion, environmental pollution, traffic crashes and fatalities, noise pollution, among others.

According to the World Health Organisation, the African region has the highest rates of road traffic deaths in the world (26.6/100,000 people). It is even more troubling that Africa has the highest proportion of pedestrian and cyclist mortalities with 44 deaths (WHO 2018). The heavy burden of deaths borne by these road users reflects the prioritization of infrastructure for cars and other motorised transport (MT) and overlooking of Non-Motorised Transport (NMT) modes. According to VTPI (2010), NMT includes walking, bicycling, and variants such as small-wheeled transport (cycle rickshaws, skateboards, scooters and hand carts), however, the focus of this study will be on walking and cycling.

These modes are gradually becoming an integral part of urban transport systems in most developed countries of the world. Besides the provision of basic mobility, affordable transport, and physical fitness, they serve to reduce the negative environmental impacts of transportation. However, despite NMT and particularly walking, being a dominant means of transport in most African urban and rural areas, it continues to be largely neglected in terms of relevant policies, planning and provision of infrastructures. The road infrastructures within most African cities, towns and even villages are majorly designed for MT with little attention to NMT. The lack of dedicated space for cyclists, pedestrians and other NMT users in most African Cities and Towns means they share the roadway with MT users, thus exposing them to road traffic crashes and fatalities.

The high cycling culture and safety in countries such as the Netherlands, Germany and the Scandinavian countries of Denmark and Sweden have been attributed to their transport and land use policies which prioritise non-motorised and public transport facilities. However, cycling and walking in most low-income countries is borne out of necessity for the "poor". In these countries, NMT infrastructure is either non-existent or provision is poor. For example, there is a lack of pedestrian crossings, lack of cycle lanes, streets with open drains exposing pedestrians to hazards, and poor lighting of streets. According to Vanderschuren et al. (2017), transport planners mostly concentrate on improving urban automobility and rarely make adequate provisions for pedestrians. This is consistent with Mitullah et al. (2016) where they concluded that NMT integration into urban transport planning in Africa clearly shows that transport and urban planning remain situated in an automobile-dependent transport planning and global city development which pays no adequate attention to walking and cycling. Additionally, transportation planning in these countries tends to overlook and undervalue many active transportation benefits (see Table 19.1),

**Table 19.1** Cost and benefit of non-motorised transport

|          | Improved active transport conditions   | More active transport travel   | Reduced automobile travel   | More compact communities   |
|----------|--|--|---|--|
| Benefits | <ul style="list-style-type: none"> <li>• Improved user convenience, comfort and safety</li> <li>• Improved accessibility for non-drivers, which supports equity objectives</li> <li>• Option value</li> <li>• Higher property values</li> <li>• Improved public realm (more attractive Streets)</li> </ul> | <ul style="list-style-type: none"> <li>• User enjoyment</li> <li>• Improved public fitness and health</li> <li>• More local economic activity</li> <li>• Increased community cohesion (positive interactions among neighbours)</li> <li>• More neighbourhood security</li> </ul> | <ul style="list-style-type: none"> <li>• Reduced traffic congestion</li> <li>• Road and parking facility cost savings</li> <li>• Consumer savings</li> <li>• Reduced chauffeuring burdens</li> <li>• Increased traffic safety</li> <li>• Energy conservation</li> <li>• Pollution reductions</li> <li>• Economic development</li> </ul> | <ul style="list-style-type: none"> <li>• Improved accessibility, particularly for non-drivers</li> <li>• Transport cost savings</li> <li>• Reduced sprawl costs</li> <li>• Open space preservation</li> <li>• More liveable communities</li> <li>• Higher property values</li> <li>• Increased security</li> </ul> |
| Cost     | <ul style="list-style-type: none"> <li>• Facility costs</li> <li>• Lower traffic speeds</li> </ul>   | <ul style="list-style-type: none"> <li>• Equipment costs (shoes, bikes, etc.)</li> <li>• Increased crash risk</li> </ul>   | <ul style="list-style-type: none"> <li>• Slower Travel</li> </ul>   | <ul style="list-style-type: none"> <li>• Increases in some development costs</li> </ul>  |

Source Litman (2021)

resulting in underinvestment in these modes, which reduces overall transport system diversity and efficiency (Litman 2021).

The primary purpose of this study is to highlight the current existing conditions of NMT interventions, constraints and opportunities in selected African cities. The research has underlined the importance, role, benefits and influencing factors of NMT in order to have a clear understanding of the significance of NMT and its required adequate facilitating infrastructure in African cities.

## 19.2 Role of NMT in Improving Urban Mobility of African Cities

NMT remains the principal mode of transportation in most African cities, particularly for local travels. While this is largely not by choice but rather by non-availability of affordable and accessible options, its importance in aiding mobility cannot be over-emphasised.

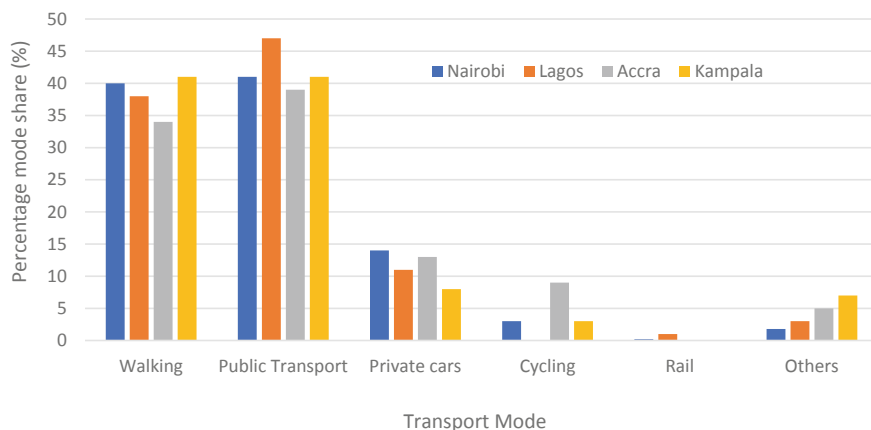
- (i) Emissions are growing rapidly in most developing countries as the use of motor vehicles increases. However, NMT produces no air pollution, no greenhouse gases, and little noise pollution.
- (ii) While a well functional public transport provides more efficient use of road space, cyclists use less than a third of road space while pedestrians use less than a sixth of road space used by private vehicles thus combating congestion.
- (iii) Besides serving as a transport mode, NMT also provides aerobic exercise which could help address the health challenges associated with lack of exercise such as obesity and mental diseases. Walking and cycling can also serve as an alternative to the traditional gym.
- (iv) According to the World Health Organisation (2018), Africa currently has the highest road fatality rates with pedestrians and cyclists being overrepresented. Thus, promoting NMT will help reduce the annual road deaths from crashes in African cities.
- (v) Increasing walking and cycling in African cities will greatly reduce their dependence on fossil fuels and the cost of policies such as subsidies. For example, Nigeria, Africa's largest oil exporter, imports all its fuel spending over \$300 Million as subsidies (Olurounbi and Clowes 2021).
- (vi) It is important that those who already walk very long distances in poor conditions because they cannot afford other transport modes are better protected. Therefore, encouraging safe cycling and walking is key in improving accessibility for the lower class and promoting social cohesion. Getting to workplaces in most African cities remains a difficult task for most low-income earners. This group spend a large part of their income on fares for trips which are most times <3 kms. Improving NMT infrastructure will serve to create a more cohesive society as persons of all incomes will be able to have access to bikes or walk in a pedestrian area.

### 19.3 Trends and Conditions of NMT

NMT modes are very common worldwide, but their needs are rarely recognised and planned for in most transport infrastructural projects. Additionally, NMT users form a significant percentage of road traffic crash victims worldwide as there is a general lack of infrastructure in most cities. However, some cities in Europe and England have been redesigned to accommodate these modes. According to Singh (2018), the number of non-motorised trips varies greatly in developed countries, with walking and cycling making up less than an eighth of daily trips in countries such as the US and Canada, and over 20% in most European countries. Some places such as the Netherlands and Denmark in Western Europe have very high bicycle ownership. This could be because of transport policies formulated and being implemented in these countries which are in favour of NMT and public transport rather than MT. These countries also have very low death rates from road traffic accidents.

Recently, governments have begun showing interest in and promoting NMT in developing countries. In some parts of Latin America like Mexico, NMT constitutes about 39% of the trips in cities. Similarly, NMT is the principal mode of transportation in most cities in Africa. It is known that most trips begin and end with NMT and therefore, the modal share of walking and cycling could be higher than published figures. Figure 19.1 shows urban modal shares of selected African countries. For example, the average share of walking in Accra is 40% and Lagos is about 38%. In Nairobi walking and cycling account for about 43% of all trips and in Kampala, it is 44%. Most of the inhabitants in these cities walk because they cannot afford MT. Therefore, this mostly affects the low-income population groups who invariably cannot afford public transport. As seen in Fig. 19.1, bicycle utilization rate is very low. This could be because of the unsafe road environment created by MT, lack of NMT infrastructures and high cost of acquiring a bicycle. Therefore, where more than 38–40% (UN Environment 2016) of the population already walk, these existing trips could be embedded into the sustainable development goals (SDGs) targeted for African cities.

According to ICE (2000), experience from some developed countries such as the Netherlands, Denmark and Germany has shown that consistent and substantial funding sustained over extended planning and implementation horizon is required in the development and promotion of a comprehensive and operational NMT network. It has also been about integrated land use and transport planning that recognises the need for compact activities and mixed-use development with housing. Additionally, these countries made walking and cycling part of transport and infrastructures planning function with a dedicated strategy and budget—which is mostly not obtainable in African cities. Therefore, for improved mobility, cities must develop NMT infrastructures and facilities that are safe, secure, accessible, convenient and attractive to the users.



**Fig. 19.1** City level statistics of modal share (*Source* Compiled by authors from city authorities, published and local unpublished documents and unofficial documents)

## 19.4 Method

The methodology involves a review of primary and secondary sources of information. This focused on examining the literature on trends and challenges of NMT globally. A qualitative approach was then used to identify and understand the current situation of NMT in selected Sub-Saharan African cities (Lagos, Nairobi, Kampala and Accra). Semi-structured interview templates were designed to elicit views and trends on NMT across the four cities from transport consultants, government officials and academics. A total of twenty-two (22) responses were received. Using Deductive Content Analysis (DCA), data were analysed, and discussions were made on the various topics of interest.

## 19.5 Case Studies: NMT in Selected African Countries

A qualitative approach was taken to understand the situation in selected African cities. The study was carried out in 4 different cities in Africa (Kampala in Uganda, Lagos in Nigeria, Accra in Ghana and Nairobi in Kenya) and is based on available data, discussions/interviews held with key government, non-government, and private sector stakeholders focusing on NMT. Information relating to the current condition of NMT, challenges and opportunities was sought from the respondents and formed the basis of the study. Below, major key findings are presented and discussed which gives some ideas of the condition of NMT and how it could be improved in Africa.

### 19.5.1 *Brief Background of the Cities*

These four cities are different from each other; however, they share some common features such as:

- (i) low-income countries with low car ownership (WHO 2018)
- (ii) a rapidly growing urban population
- (iii) inadequate and deteriorating road infrastructure
- (iv) poor facilities for NMT especially for walking and bicycling
- (v) poor and inadequate formal public transport system resulting in the use of informal transport
- (vi) growth in the use of minibuses, taxis, motorcycle services etc.
- (vii) over dependence on informal or semi-formal transport services for most motorised trips

#### *Nairobi*

Nairobi is a hub for commerce, transport, and economic development in Africa. It has an estimated population of over 4 million and an annual growth rate of 3.95% (World

Bank 2016). Transportation is mainly road-based. However, the city has experienced rapid urbanisation which has overstretched the present road infrastructure. Traffic congestion has increased in recent years because of the increasing use of private cars. The NMT infrastructure is not developed, and this is a major challenge, especially to the low-income earners who mostly rely on them. The actual contribution of NMT to transport in the city is not well documented as there are widely varying data, however, walking and public transport are the dominant means of transport.

### *Lagos*

Lagos is one of the fastest growing cities in the world with an estimated population of 18 million people and an annual growth rate of 6% (NBS 2016). It is the economic and commercial centre of Nigeria, and the transport system is predominantly road-based. Rising urbanisation has led to an increased demand for transport services and infrastructure and imposes challenges on the urban transport systems. Official data on walking and cycling are not available except those compiled from local unpublished sources and some official sites. Available records show that non-motorised transport modes account for an estimated 40% of all trips in the city. Almost all public transport trips involve walking, as a result most commuters walk as a part of their daily trips.

### *Accra*

Accra is the most populated region in Ghana with more than 4 million people, and an annual growth rate of 4% (WHO, 2021). Though Accra has the least land size of 1.4% of the total land area of Ghana, similar to Nairobi and Lagos, Accra has not been able to absorb the great pressure exerted from rapid urbanisation. This has resulted in traffic being often gridlocked on poorly maintained, potholed roads. Congestions are made worse by street hawkers, who gather at busy junctions to sell their wares and the dominance of old buildings, which inhibit traffic flow, particularly around busy areas. While most of the population depends on the use of informal transport, reports show that NMT accounts for about 43% of all trips (see Fig. 19.1).

### *Kampala*

Kampala is the second most populated Higher Local Government in the Greater Kampala Metropolitan Area with a projected population of 2.9 million people (Twinokwesiga 2020) and an annual growth rate of 5.4%. It is the administrative and economic capital of Uganda. The city is characterized by road-based public and private transport systems which is unable to meet the demand of the constantly growing urban population and the number of people who travel to the city for work and business every day. This has resulted in huge traffic congestions in the city. Even though most intra-urban trips are made by foot, the NMT infrastructure is not very well developed.

### 19.5.2 Current Condition

Increasing motorisation, combined with unplanned and inadequately maintained infrastructure has made NMT unsafe in most African cities. The needs of NMT users are rarely considered in road design, construction and improvements as there is a general lack of infrastructure. Road accidents adversely affect NMT users, especially pedestrians and cyclists because they continuously share the road space with high-speed vehicles. According to TRL (2002), the little NMT space available (footpaths and cycle lanes) is obstructed or occupied illegally by parked cars, and makeshift shops. NMT in Africa is currently in a very poor state exacerbated by lack of support from policymakers. The focus has always been and is still on expanding the road network which promotes car use and increases motorisation. Motorised transport is greatly prioritised over NMT, and most transport policies favour motor vehicles compared to NMTs. Even though some countries boast of some NMT infrastructures, reports from our study which are similar to the cities of interest show that most of them are in a very poor state (see Fig. 19.2).

For example, in Lagos, the roads are bad and lack adequate parking for motor vehicles resulting to the available footpaths frequently being occupied by motor



Fig. 19.2 State of some NMT infrastructures in some African cities



vehicles. Cities such as Lagos, Owerri and Calabar have wide streets that lack pedestrian crossings, making it difficult and risky for pedestrians to cross the road. A study by Uzundu et al. (2018) shows that the most common type of conflict observed among pedestrians in Owerri is the crossing conflict which is due to lack of pedestrian crossing facilities. There are little or no footpaths and cycle lanes, which also means that pedestrians and cyclists share the road space with other vehicles which impairs their safety and make movement very slow and difficult. Because of the very bad drainage system, the streets are often flooded, and this contributes to the difficulty in using NMT.

The situation is similar in Kampala where respondents reported limited NMT facilities and infrastructure to support different NMT modes. Reports show that most roads are narrow and poorly demarcated, and walkways are in a very poor state and not safe. These put the NMT users at risk of being knocked down by speeding cars. The interesting thing is that there are vast ideal road reserves that can be utilised efficiently but are not being considered.

In Accra, reports show that there is a disregard of law and order as the available walkways have been converted to illegal car parks. Most transport Infrastructure is not built to accommodate sufficiently the safety of NMT as pedestrians and cyclists use a part of the road as a walkway and for cycling.

Nairobi reports very low investment in NMT facilities and infrastructure. There are footpaths, footbridges and cycle lanes but they are not adequate and not up to the stipulated national standard. Like the situation in other cities, the available infrastructure is always occupied by parked cars and motorcycles and there are no penalties for these. There are no adequate policy and legislation on the design, use and maintenance of NMT infrastructure. This affects NMT users a great deal thereby exposing them to danger.

### ***19.5.3 Opportunities for Improving NMT Infrastructure in Selected Cities***

Studies have shown that there are huge opportunities not only for providing NMTs but also integrating them into the existing infrastructure in many African cities.

The study in Kampala shows that there are vast ideal road reserves that can be utilised efficiently to provide adequate and state of the art NMT facilities. There are great opportunities to design and promote appropriate infrastructure. Additionally, the pandemic has highlighted the great need for the provision of NMT facilities and thus should be a priority.

Additionally, Accra respondents reported that cycling may be the biggest opportunity for NMT in Africa. As there is more awareness of cycling today than it was 10 years ago, notwithstanding the present lack of adequate facilities that could make cycling safe and comfortable. With proper advocacy and sensitization there is an opportunity to get policymakers to integrate ideas that boost cycling and other NMT

programs into road designs and planning. Also, construction of new roads should make provision for safe walkways and cycle paths. Apart from that the government and policymakers can integrate policies and programs on safe walking spaces into existing transport policies, incorporate these into road design and encourage the use of NMT based on its environmental, social and health benefits (see Table 19.1).

Similar to Kampala and Accra, Lagos has land spaces that can be utilised efficiently to provide adequate infrastructure for NMT. Cities can incorporate walkways and cycling paths into every road design to encourage the use of NMT.

In Nairobi, respondents emphasized the prioritization of NMT by the authorities and policymakers as lands are available to achieve these. NMT spaces can be created from the existing road networks and developed to link poor neighbourhoods to employment centres, schools and social amenities. Some roads and recreation areas could be made pedestrian and cyclists friendly by closing them up to motorists and restricting the use of cars in those areas.

#### ***19.5.4 Challenges in NMT Development***

Even though there are huge opportunities for investment and provision of NMT infrastructure in African cities, there are also challenges which respondents believe could impede or delay the provision of these facilities.

Respondents in Kampala stated that a considerable number of people have moved to the urban areas, and this has contributed to traffic congestion in the cities as people can only use their private cars or public transport. Walking and cycling are not very common because of poor public perception, risk associated with sharing the road space with high-speed vehicles and lack of NMT facilities. This could be because little or no resources are allocated to them. Additionally, stakeholders' recommendations are rarely considered in policymaking, planning and implementation of NMT infrastructures as the political class doesn't appreciate the need to allocate resources to NMT. Road users are not aware of existing NMT policies because there are no sensitisations about the policies. Provision of NMT facilities have been shown to be more cost-effective compared to motor vehicle infrastructures yet they are rarely provided.

Similarly, in Accra, respondents attributed the non-provision of these infrastructures to lack of political will. They reiterated that policymakers do not prioritize the provision of safe walkways and are not willing to implement most NMT policies, pedestrian safety is not prioritised in the infrastructure development process. People are not aware of the NMT policies as participants noted that they are largely lacking, even where they are available, the infrastructure built is evidence that they are not being adequately used.

Reports from Lagos highlight lack of funding and adequate road space hinder the provision of NMT and NMT facilities. However, according to Uzundu et al. (2018), roads are currently being designed, built, expanded and improved without considering the needs of NMT users. The notion that motor vehicles come first has

also affected road transport policy development as road infrastructures are largely designed to accommodate motor vehicles.

In Nairobi, stakeholder recommendations are rarely considered in transport planning. To improve the safety condition of NMT users, resident associations and NGOs try hard to lobby those in authority to see what could be done. There is massive corruption which has hindered the development of these projects.

These are in line with ICE (2000) on barriers to implementing a successful NMT policy which shows that the transport system in most developing countries is usually private-vehicle-oriented as the population perceives walking, cycling (and public transport) as the transportation mode for the poor and those who cannot afford private vehicles. Also, those in the upper-class of the population often have a disproportionate decision power, which makes NMT-focused policy risky. Where there are no NMT facilities, NMT users have a higher risk of being involved in accidents.

## 19.6 Design of NMT Environment

Traditionally, in most countries, road infrastructure planning is focused on the uninterrupted flow of motorised transport. The lack of usable, dedicated pedestrian and cyclist spaces in most African cities means that pedestrians and cyclists are forced to share the carriageway with fast-moving vehicles compromising NMT user safety. Thus, For NMT modes to be viable, and convenient, cities need to rebalance the distribution towards pedestrians and cyclists. Addressing this imbalance requires cities to redesign neighbourhoods and traffic systems to work in favour of cyclists and pedestrians, and to discourage car use. This will involve the provision of NMT infrastructure which encompasses shared spaces, slow-speed, footpaths, cycle tracks, and greenways on which to travel. There is a strong association between NMT use and high-quality NMT infrastructure that is separated from fast and heavy motor vehicle traffic (Pucher and Buehler 2008). Therefore, accommodating NMT would mostly involve the provision of separate travel spaces and measures to reduce vehicle speed. It is important to provide dedicated space for NMT users particularly on streets with moderately fast motorised vehicle traffic. This can be achieved by the introduction of barriers such as kerbs, landscaping or vehicle parking between pedestrian footpaths and cycle lanes along streets and motorised traffic (see Fig. 19.3) and pedestrianisation of streets. This is likely to be more effective than using paint to demarcate footpaths and cycle lanes, particularly in the African context with limited enforcement of traffic rules. There is also a need for road intersections to provide dedicated facilities for NMT users, and for traffic light signalling to prioritise pedestrians and cyclists.

Traffic calming measures such as vertical deflections (speed humps, speed tables, and raised intersections), horizontal shifts, and roadway narrowing could serve to reduce vehicle speed and enhance the street environment for NMT users. However, a by-pass area for cyclists should be included.



**Fig. 19.3** Separated cycle lanes and pedestrian walkways

## 19.7 Policy Development to Encourage NMT Use in African Cities

Most road spaces in African cities are often developed for motor vehicles rather than people. Pedestrians and cyclists are not considered in the design and construction of road infrastructure despite that every journey either begins or ends with walking or cycling. Respondents believe that there are policies, but these are not being implemented. There are existing laws that could be leveraged upon to meet these needs, but they are often neglected. These laws could be modified to meet current demands instead of making new ones. Where there are walking and cycling facilities, motor vehicle drivers misuse them. Additionally, some available NMT infrastructure have been converted to illegal parks as guidelines developed for their use are not strictly enforced. Motor vehicle speeds are not regulated and therefore pose a great risk for NMT users who share the road space with them. Furthermore, there is a general lack of interest by stakeholders which have hindered policy development. According to VPTI (2010), past studies have shown that about 5–10% of car trips can be replaced by NMT if good policies are in place. There is an urgent need to develop appropriate policies to encourage NMT use in Africa. It must be made attractive with policy packages consisting of investments in infrastructure, awareness campaigns, strict enforcement etc. and must be sustainable.

Most countries in Africa have developed NMT policies in the past but most of them are not being fully implemented. Two of these policies from Nairobi and Lagos are presented below.

In 2015, the Nairobi City County Government developed a Non-Motorised Transport policy (Nairobi NMT 2015) that strives to facilitate a transport environment where all transport modes are of equal importance. It aims to develop and maintain a transport system that fully integrates NMT as part of the city's transport system. It will put in place laws and regulations to ensure that NMT facilities are not encroached by the MT modes and other street users.

The objectives of this policy are to:

- (i) Increase mobility and accessibility;
- (ii) Increase transport safety;
- (iii) Improve infrastructure for NMT;
- (iv) Increase recognition and image of NMT in Nairobi County; and
- (v) Ensure that adequate funding/investment is set aside for NMT infrastructure (Nairobi City County Government NMT 2015).

The Lagos state government developed a Non-motorised Transport policy that aims to support increased accessibility by prioritising walking, cycling, and public transport. This would be achieved by creating a safe and pleasant network of footpaths, cycle tracks, greenways, and other facilities to serve the general population. According to the policy (Lagos State NMT 2018), this will achieve the following:

- (i) **Enable equitable access for all** by improving access and mobility for all residents; promoting social and economic empowerment through the provision of improved low-cost mobility; facilitating safe access for children; enabling gender equity through the provision of non-motorised transport (NMT) and public transport facilities that are safe for women to use; enabling inclusion of persons with disabilities by creating NMT facilities that follow principles of universal design; and by creating a changed culture that accepts the use of walking, cycling, and public transport as acceptable and aspirational means to move around in the city.
- (ii) **Optimise the use of resources such as space, funds, time, and energy** by investing in NMT and public transport modes that consume fewer resources per person-trip compared to personal motor vehicles (PMV) and by encouraging dense, compact, and mixed-use development that contributes to shorter trips and allows more people live and work close to PT facilities.
- (iii) **Improve road safety and personal security** by improving management of traffic conflicts; reducing road crashes, and deaths; and creating public spaces that are safe at all times of the day for all users.
- (iv) **Reduce local and global environmental impacts** of Lagos's transport system by expanding the use of zero-pollution NMT modes and low-pollution motorised modes, helping to improve the city's air quality.
- (v) **Enable community participation by involving residents, businesses, and other stakeholders** in the preparation of designs to foster the community's active use and sense of ownership of these spaces.

These are very comprehensive policies that if fully adopted and implemented would improve NMT in these cities and contribute to safer urban mobility in Africa.

## 19.8 Conclusion and Policy Recommendation

This book chapter provides an overview of the importance of NMT and its contribution to sustainable mobility. From the research, it can be concluded that well-planned implementation and integration of NMT infrastructure could offer a safe and viable transport system. NMT currently accounts for a large percentage of trips in most developing countries, ironically NMT facilities are nearly non-existent in these countries. While there have been some improvements in most African cities, more can be done in terms of improving NMT facility implementations in these cities. The successful implementation of NMT projects will involve cooperation among multiple stakeholders. There must first be committed interest on the part of the policymakers. This means that they must be willing to make policies that would favour NMT in different African countries. Policies that are sustainable and would be implemented and enforced, in addition to raising awareness and sensitizing people of the needs and benefits of using NMT modes. These could be achieved by developing an integrated transport policy that includes NMT development, policymakers should prioritize implementation of NMT policies and programmes considering that they are vital aspects of the transport system, and proper urban planning with some focus on pedestrian-oriented development which would include NMT facilities in road design and provision of policies to strengthen them. For sustainability, it is necessary to strongly recommend measures that will ensure that these policies are implemented. Transport development projects funded by development partners can, for example, come with requirements for NMT designs/assessments prior to approval. Public sensitization and awareness-raising could be done using influencers and through social and print media. However, integrating NMT modes in current and future road improvements could increase awareness.

Specifically, to improve the future of NMT in Africa, the following are recommended:

- (i) More Investment and funding are needed to provide state of the art facilities. Therefore, governments need to address this and provide innovative ways of accessing funds that will aid the planning and implementation of NMT infrastructure.
- (ii) NMT infrastructure should be included in all road infrastructure plans, designs and construction including when existing facilities are being renovated.
- (iii) Developing ideas that boost NMT into road transport planning and designs.
- (iv) Designing, building and improving sidewalks, cycle paths and all networks required to keep users of these modes safe.
- (v) NMT could be integrated with conventional motorised transport through shared space.
- (vi) Providing different traffic calming measures to reduce vehicle speed.
- (vii) Proper sensitisation and strict enforcement are needed to make people understand and adhere to NMT guidelines.
- (viii) More research is needed, especially, to develop evidence-based strategies needed to plan, develop and sustain these modes.

- (ix) All NMT infrastructure should be developed and designed based on well-researched and validated NMT procedures.

This study has addressed NMT use in African cities by examining the role, current state, challenges and opportunities to improve a transport mode which majority of the population use, yet no adequate provision has or is being made to improve the infrastructure needed to support it. It has clearly shown that there are opportunities that could lead to the successful implementation and integration of NMT in the studied areas, but this will depend largely on adequate development of associated NMT facilities and infrastructure among other things. It is therefore very crucial that stakeholders and transport planners work together to develop innovative strategies tailored to address these challenges which will have a greater likelihood of success.

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**Chinebuli Uzundu** is a Lecturer and Researcher at the department of Transport Management Technology, Federal University of Technology Owerri Nigeria. She has previously worked as a Post-doctoral researcher with the Human Factors and Safety Group at the Institute for Transport Studies, University of Leeds, United Kingdom where she obtained her Ph.D. Her research seeks to understand road user behaviour through projects funded by various research organisations and the Nigeria and UK governments. This involves using both quantitative and qualitative research methods, to inform the design of transport infrastructure and/or technology interventions, and to evaluate the effectiveness of these interventions.

**Anderson Aja Etika** is a Senior Lecturer, Researcher and currently the Head of Department, Civil Engineering at the Cross River University of Technology (CRUTECH), Calabar, Nigeria. He is a Chartered Civil Engineer and has worked in private practice as a Project Engineer for several projects. Anderson's research interests primarily lie in Road Safety, Speed Management, Highway Engineering and Transport Planning and Policy related areas. He currently leads the Highway and Transportation Engineering theme, at CRUTECH.