Climate & Development Knowledge Network

NAIROBI NMT NEWSLETTER

June 2020

AIR QUALITY AND NON-MOTORIZED TRANSPORT

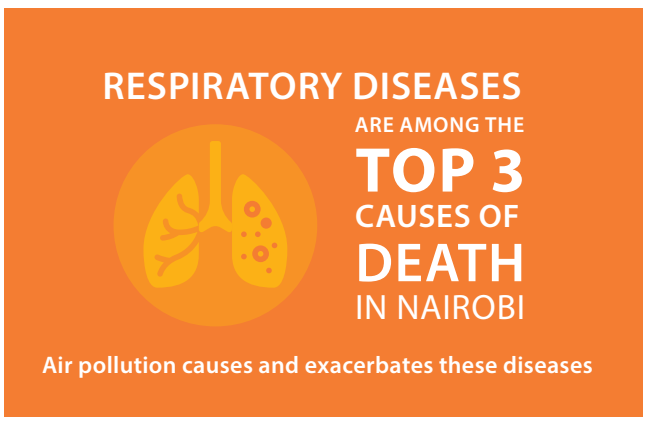
WHERE WE ARE

Every year, Kenya suffers **19,112** premature deaths linked to air pollution.[1] Outdoor air pollution is responsible for 4,000 of these deaths annually, while indoor air pollution accounts for 14,000 deaths.[2] The main sources of outdoor air pollution are vehicular emissions, roadside rubbish fires, road dust, and industry. It has been estimated that 90% of urban air pollution in rapidly growing cities in developing countries is attributable to motor vehicle emissions.[3]

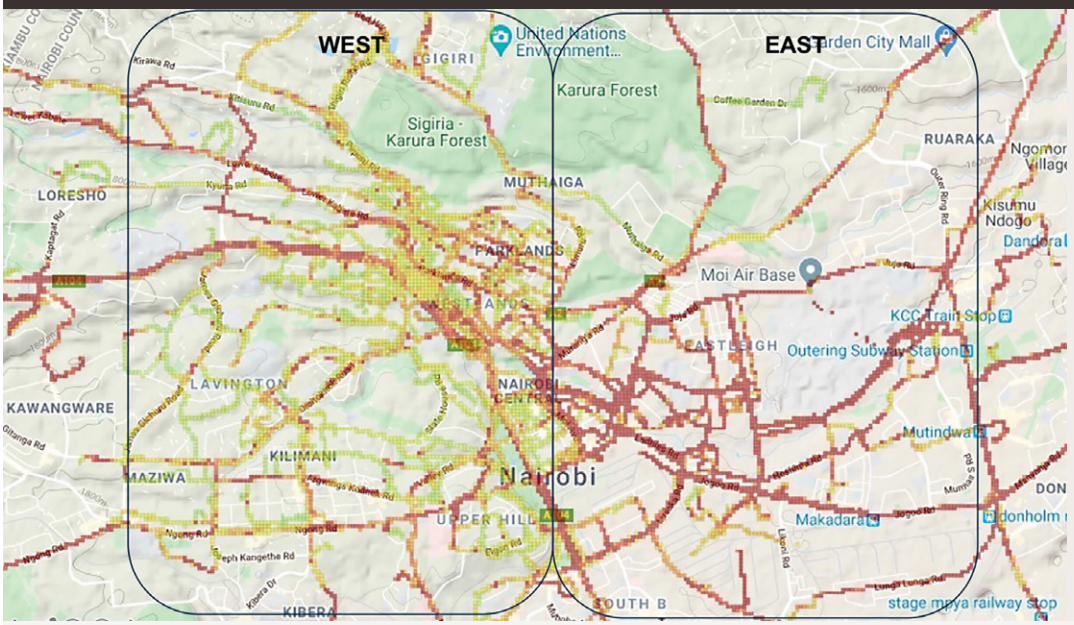
Air pollution causes and exacerbates respiratory diseases such as pneumonia, asthma, lung cancer, emphysema, and chronic obstructive pulmonary disease. These diseases rank among the **top three causes of death** in Nairobi and were the leading causes of morbidity in 2014.[4]

According to a study by the United Nations Environment Program (UNEP), Nairobi's air quality **breaches all limits set by the World Health Organisation**.[5] The study measured air pollutants such as particulate matter with a diameter of less than 2.5 micrometres (PM2.5), Nitrogen Dioxide (NO_2), Carbon Monoxide (CO), and Ozone (O_3). Currently, Nairobi's air contains an annual average of 17 micrograms per cubic metre of the deadly PM2.5, which is more than 70% the WHO recommended limit.[6] PM2.5 refers to the mixture of solid particles and liquid droplets found in the air such as dust, dirt, soot, or smoke that are too small to be seen with the naked eye. It is acutely dangerous because the ultra-fine particles can penetrate and lodge deep inside our lungs.

Aggregated data collected in 2020 confirms that PM2.5 levels in Nairobi are at dangerous levels.[7] The maps below depict a colour range that corresponds to the level of pollution. The data was collected using mobile sensors at different times over a few months covering a wide range of neighbourhoods. It was then collated to establish baselines relating to PM2.5 in Nairobi.



Nairobi air quality levels during first quarter 2020



Acceptable levels of less than 30 micrograms per cubic metre.

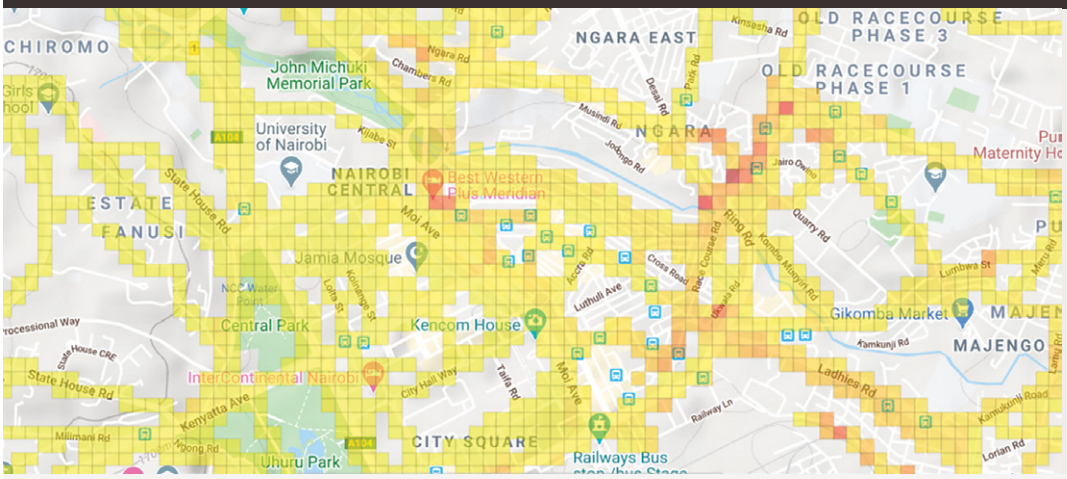
Dangerous levels of more than 30 micrograms per cubic metre.

(Source: Open-Seneca Nairobi 2020)[8]

Observations

- The **west side of the city has better air quality** compared to the east side. Most upper class and higher middle-income neighbourhoods are located in the west side of the city. Roads with moderate to low air pollution include: *Peponi, Statehouse, Ngong, Oloitoktok, Limuru, Mamlaka, Northern Bypass, Ngecha, Kitisuru and Arboretum Drive.*
- The **east side of the city has poorer air quality** compared to the west side. Most of the lower-middle income and low-income neighbourhoods are located in the east side of the city. Roads with high air pollution include *Waiyaki Way, Jogoo, Landhies, Juja, Lungalunga, Outering and Kangundo.*
- Higher population and higher activity areas have greater pollution. These include markets, roundabouts, congested roads and dense neighbourhoods.

Nairobi CBD air quality during week 1 (March 15–21) of COVID-19 lockdown



Micrograms per cubic metre:

0-10	Good
10-20	Moderate
20-29	Unhealthy
30+	Hazardous

(Source: Open-Seneca Nairobi 2020)[9]

Observations

A decrease in activity at the onset of the COVID-19 lockdown period, on average, led to a slight improvement in air quality in most areas. However, it was not that significant, and the PM2.5 levels in the central business district highlight how much more work is needed to achieve good levels of air quality.

The hotspot areas that still recorded dangerous levels of air pollution are:

- Globe roundabout getting into Tom Mboya Street.
- Ring Road & Quarry Road, Kariokor roundabout.
- Downtown-Landhies Road, Gikomba open air market.

OUR CHALLENGE

The main challenge is that Kenya does not regularly **monitor or report** its air quality. There is a lack of adequate, real-time, publicly accessible data.[10]

Providing access to local air quality data and improving knowledge about air pollution exposure could be a powerful factor in helping to decrease the mortality rates and disease burden in Kenya. Such information would go a long way in encouraging vigilance and protecting vulnerable groups such as children and those with pre-existing respiratory conditions.

WHAT WE ARE DOING ABOUT IT

There are several efforts towards addressing the data deficit and creating the impetus for improving, monitoring and reporting of air quality in Nairobi. The newly established Nairobi Metropolitan Services with oversight on County Transport, Planning, Health and Environment supports a clean air quality vision for Nairobi. There are commendable initiatives on increasing NMT infrastructure, re-carpeting roads to reduce road dust and managing unsanitary dumping of waste.

Nairobi City County in partnership with C40 Cities and UNEP, has drafted an Air Quality Action Plan (2019-2023). The Plan seeks to create an evidence base for policy interventions and enforcement related to air quality management. The County has partnered with UNEP to deploy air quality monitors in five neighbourhoods. The monitors in Eagle Estate on Mombasa Road, Braeburn, and Garden Estate on Thika Road are recording real-time data. The monitors on Luthuli Avenue and Mukuru Kwa Reuben are being improved to collect real-time data.[11]

Open-Seneca Nairobi, a group of young innovators together with local and international groups, is using science to raise public awareness about air quality in cities. Their vision is to have a critical mass of monitors deployed across Nairobi to record as much data as possible. The high cost of monitors, however, inhibits their accessibility. Consequently, they are exploring ways of assembling monitors using locally sourced, cheaper materials and welcome partnerships from interested stakeholders.[12]

Sensors Africa (incubated by Code for Africa) is a pan-African citizen science initiative that monitors air, water and sound pollution to give citizens actionable information about their cities. Their website provides real-time data on air pollution in neighbourhoods where monitors have been deployed. This data is being used to advocate for communities' rights, particularly in low-income neighbourhoods.[13]

We are confident that improving NMT will contribute to accomplishing our shared air quality goals. By forging ongoing partnerships with all stakeholders we can improve data collection and synthesis, increase public awareness, and create opportunities to achieve cleaner air for Nairobi County.

DID YOU KNOW?

Children are most vulnerable to the effects of air pollution because they are closer to the ground where pollutants that can affect their developing brains and bodies are at a peak level. Moreover, children breathe more rapidly than adults, hence they absorb more pollutants.[14]

Recent studies suggest that there is a direct correlation between air pollution and higher death rates in people with COVID-19. This is largely attributable to pre-existing respiratory conditions, many of which are linked to poor air quality. The research suggests that **people in polluted areas are far more likely to die from the coronavirus** than those living in cleaner areas. Long-term exposure to NO_2 may be one of the most important contributors to the fatality rate of COVID-19.[15]

Globally, cities are **turning to cycling as a safer and healthier means of transportation during and post-COVID-19**. During lockdown, cycling has been shown not only to enable better physical distancing than public transit but it also contributes to an improvement in air quality as a result of decongestion.[16] Uganda has recently hinted about its intention to revive bicycle factories to encourage cycling as a safe and healthy mode of transport post-COVID-19.[17]

MEET YOUR CITY CHAMPIONS

Mercyline Odhiambo

Public Health Officer & Climate Change Coordinator, Nairobi City County

"My vision is to reduce morbidity and mortality from exposure to poor air quality within Nairobi County."

Margaret Kariuki

Environment Officer, Air Quality Management, Nairobi City County

"My vision for the city is to have a clean and healthy environment through the promotion of clean air for all."

ENDNOTES

1. Sensors Africa. (2019). 'The Air Pollution in Nairobi, Kenya'. Retrieved from: https://sensors.africa/air/city/nairobi
2. Global Health Observatory. (2018). 'World health statistics: monitoring health for the SDGs'. Retrieved from: https://www.who.int/gho/publications/world_health_statistics/2018/en/
3. United Nations Environment Program (UNEP). (2010). Urban Air Pollution. Retrieved from:
4. Kenya National Bureau of Statistics (2014). Kenya Demographic and Health Survey: Key Findings. Retrieved from: https://www.dhsprogram.com/pubs/pdf/sr227/sr227.pdf
5. Nthusi, V. (April 2017). 'Nairobi Air Quality Monitoring Sensor Network Report - April 2017'. Retrieved from: https://www.researchgate.net/publication/317256296_Nairobi_Air_Quality_Monitoring_Sensor_Network_Report_-_April_2017
6. Sensors Africa. (2019). Op cit.
7. A series of interviews conducted with Open Seneca Nairobi May, 2020
8. Open-Seneca Nairobi. (2020). Internal documentation
9. Ibid
10. Muntaka, Chasant. (4 July 2019). 'Air Pollution In Kenya: Causes, Effects and Solutions'. ATC Mask. Retrieved from: https://www.atcmask.com/blogs/blog/air-pollution-in-kenya#fn1
11. Interview with Margaret Kariuki Environment Officer, Air Quality Management, Nairobi City County, May 2020.
12. Interview with Phoebe Oriama, Project Engineer, Open Seneca Nairobi, May 2020.
13. Sensors Africa. Retrieved from: https://medium.com/@sensors.AFRICA
14. World Health Organisation. (29 October 2018). 'More than 90% of the world's children breathe toxic air every day'. Retrieved from: https://www.who.int/news-room/detail/29-10-2018-more-than-90-of-the-worlds-children-breathe-toxic-air-every-day
15. Gerretsen, I. (28 April, 2020). 'How air pollution exacerbates COVIV-19'. BBC. Retreived from: https://www.bbc.com/future/article/20200427-how-air-pollution-exacerbates-covid-19
16. Laker, L. (11 April 2020). 'World cities turn their streets over to walkers and cyclists'. Retrieved from: https://www.theguardian.com/world/2020/apr/11/world-cities-turn-their-streets-over-to-walkers-and-cyclists
17. UN Habitat (2 June 2020). 'Uganda's capital promotes cycling to protect against COVID-19'. Retrieved from: https://unhabitat.org/uganda%E2%80%99s-capital-promotes-cycling-to-protect-against-covid-19

ABOUT CDKN

CDKN works to enhance the quality of life for the poorest and most vulnerable to climate change. We support decision-makers in designing and delivering climate compatible development.

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Canada

Front Image: © Critical Mass Nairobi. Cyclists ride through the streets of Nairobi as part of a pro-cycling campaign.

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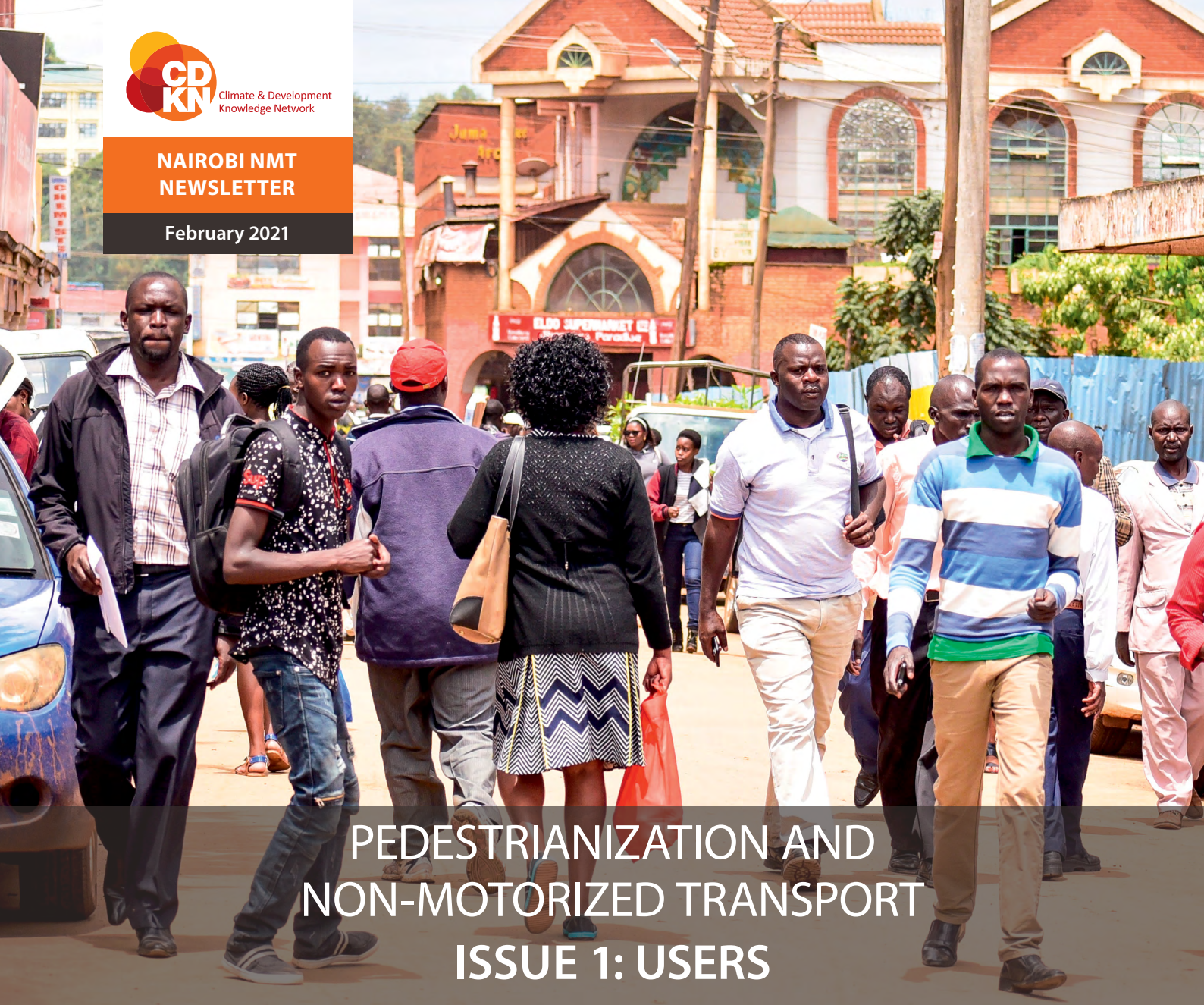
NAIROBI NMT NEWSLETTER

February 2021



PEDESTRIANIZATION AND NON-MOTORIZED TRANSPORT

ISSUE 1: USERS

Pedestrians on a Kenyan street. © Billy Miaron, Shutterstock.

Why give walking so much prominence? Nairobi is already a walking city with almost 47% of all daily trips made on foot. **This results in 2.27 million trips made daily by walking.**

Pedestrianization is the process of making a street or part of a town into an area that is only for people who are walking, not for vehicles or any other form of motorized transport, such as *bodabodas*. Our Pedestrianization Newsletter Series will be a three-part series covering ***users, safety, and infrastructure*** and seeks to support decision-making geared towards improving the non-motorized transport (NMT) experience in Nairobi. In this issue on 'users' we examine the demography of pedestrians in some of Nairobi's busiest walking corridors to gain a better perspective of their needs. Naturally, when half of the city walks daily, one would be curious to find out the following information from pedestrians:

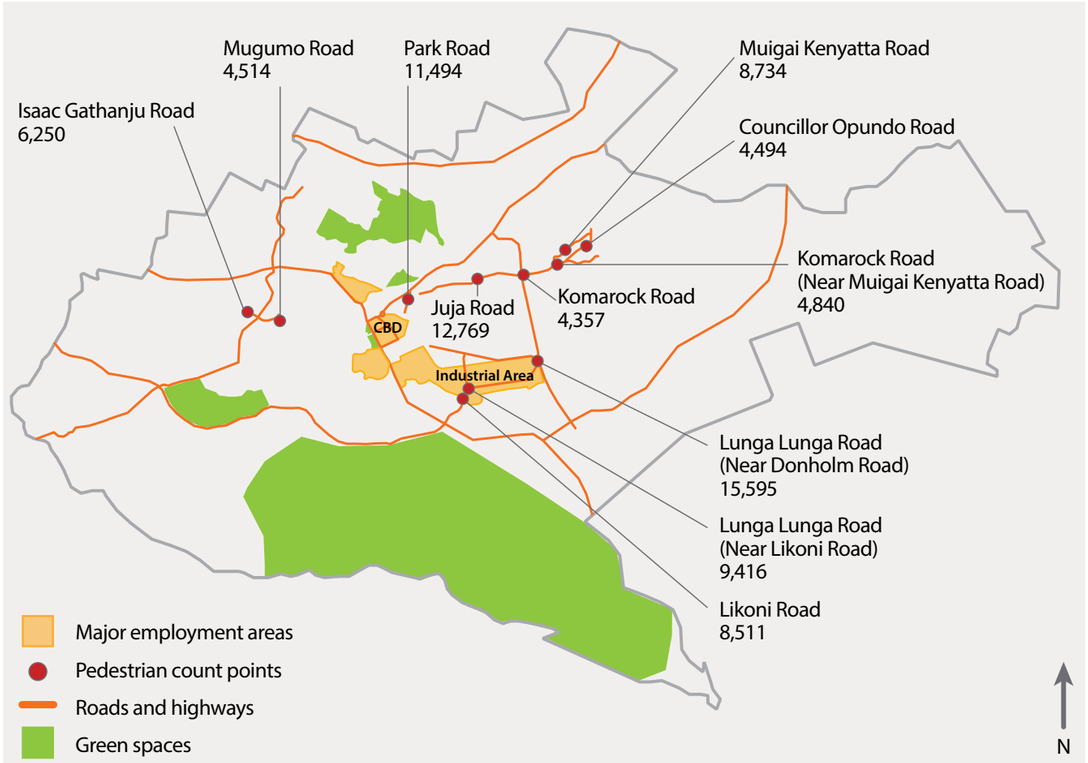
1. **Where are they coming from and where are they walking towards?**
2. **What services do they seek to access?**
3. **What is the average duration of their trips?**
4. **Do they enjoy walking?**
5. **What challenges do they face while walking?**

NMT surveys commissioned by the Ministry of Lands, Housing and Urban Development (now, Ministry of Lands and Physical Planning) and Nairobi City County Government were conducted by Sai Consulting International Ltd and CAS Consulting Engineers in 2016. These surveys were updated by Nairobi Metropolitan Services (NMS) in partnership with the Climate and Development Knowledge Network in December 2020 to shed more light on the questions posed. With a sample size of 4,671 NMT users randomly distributed across the busiest walking corridors, survey respondents were profiled and interviewed about their trip's purpose, the ease of walking and any safety concerns, among other issues. Observation and photographs were also used as data collection methods.

AN OVERVIEW OF NAIROBI'S MAJOR PEDESTRIAN CORRIDORS

Let's first get an overview of where most of the walking happens in Nairobi.

Figure 1: Nairobi's major pedestrian corridors showing number of pedestrians per day



The selection of the key corridors was based on a number of factors, which include:

- Urban centers with high-volume commercial activity.
- Public transport stations (bus terminus and railway stations).
- Neighborhood markets.
- Slum area environs and access routes; These areas were selected given the importance of improving the mobility of vast populations to and from densely-populated estates, low-income estates and informal settlements..
- Primary schools, secondary schools colleges and universities.
- Public service facilities (hospitals, markets, public offices, city hall).
- Recreational hubs like parks and green corridors.
- Completing missing transport links to provide connectivity between different road corridors for continuous flow.

Survey findings

- **Eight out of the 10** major pedestrian corridors are located in the east of the city, with close proximity to the Industrial Area: a major employment zone in Nairobi.
- The surveys revealed that **dust, vehicular emissions, roadside garbage, open sewage and industrial smoke are major pollutants.** Our June 2020 newsletter on 'Air Quality'[1] revealed that the east of the city is more polluted than the west owing to heavy industry and congestion. Since 80% of the busy corridors are in the east, many pedestrians are exposed to poor air quality – compromising their health and well-being. For this reason, it is important to prioritize the improvement of air quality, particularly in congested areas that serve as socio-economic hubs for thousands of city residents.
- **Pedestrian corridors have limited access to green spaces.** A businessman interviewed along Lungalunga Road emphasized the need for shade and street furniture. He relayed that pedestrians tend to shelter under his business when it gets too sunny, which affects his ability to trade. Unnecessary cutting down of trees to accommodate road expansion has become rampant in Nairobi. A good example of countering this trend is the preservation of the iconic fig tree,[2] which was earmarked for cutting along Waiyaki Way owing to ongoing construction of the Nairobi Expressway. This demonstrates that many trees can be preserved without interfering with the construction of transport projects.

A recent audit[3] of public spaces in Nairobi conducted by UN Habitat highlights the gaps in the distribution, accessibility and quality of public open spaces and seeks to restore Nairobi as the "Green City in the Sun." Such initiatives, if implemented by the respective government entities, will contribute to greening efforts and improve the pedestrian experience, while creating a more sustainable and inclusive city.

FINDINGS FROM A JOURNEY MAPPING EXERCISE

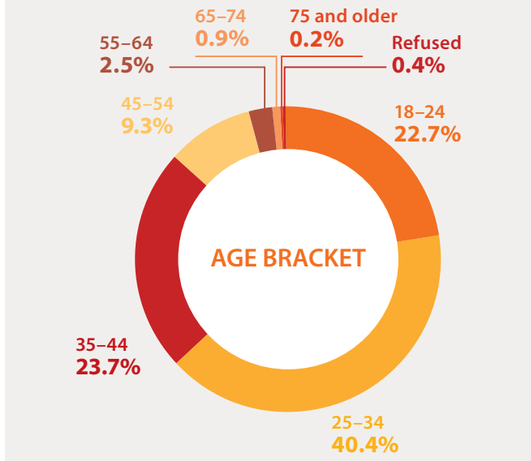
Survey respondents were asked to map their walking journeys to shed light on how and where their journeys begin and end. This is also known as first and last mile connectivity, which is important across all modes of transport. The trends revealed that:

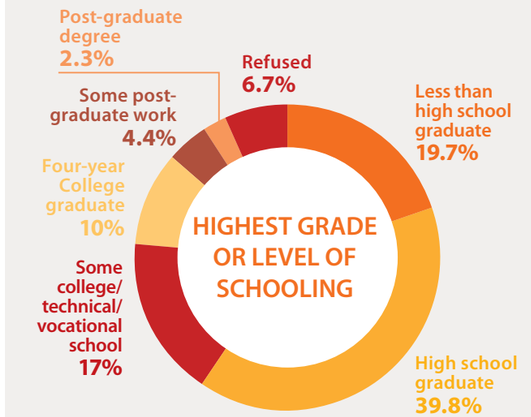
- **Most journeys begin on foot**, including for those who have to walk to access public transport and *bodabodas*, and those who make their whole journey using NMT.
- Most NMT journeys in Nairobi **originate at dense residential areas and terminate at major employment areas.** For example, NMT journeys go from Kangemi to Westlands, Kibera to Industrial Area, Pipeline to Kayole and Industrial Area, Kawangware to Kilimani and Kileleshwa. All these journeys tend to cover **long distances exceeding five kilometers.** This implies that those from poorer, high-density neighborhoods travel very long journeys to access major employment centers. This makes them 'time poor' compared to those who have other mobility choices.
- **Short NMT journeys are predominantly within high-density neighborhoods.** For example, all journey mapping done in Dandora showed that origin and destination was within the neighborhood.
- Pedestrians will also **seek shorter routes wherever possible**, even in the event of a longer route having better NMT infrastructure.

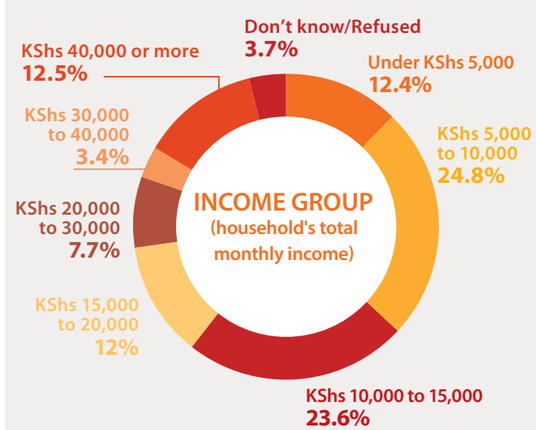
These trends should assist authorities as they roll out a network of NMT infrastructure which caters for first and last mile connectivity. Additionally, the trends are useful for creating an integrated transport system where users have seamless connectivity and choice of mode of transport.

PROFILING NAIROBI PEDESTRIANS ACROSS AGE, EDUCATION, INCOME AND GENDER

So, what is the profile of the average pedestrian in Nairobi?







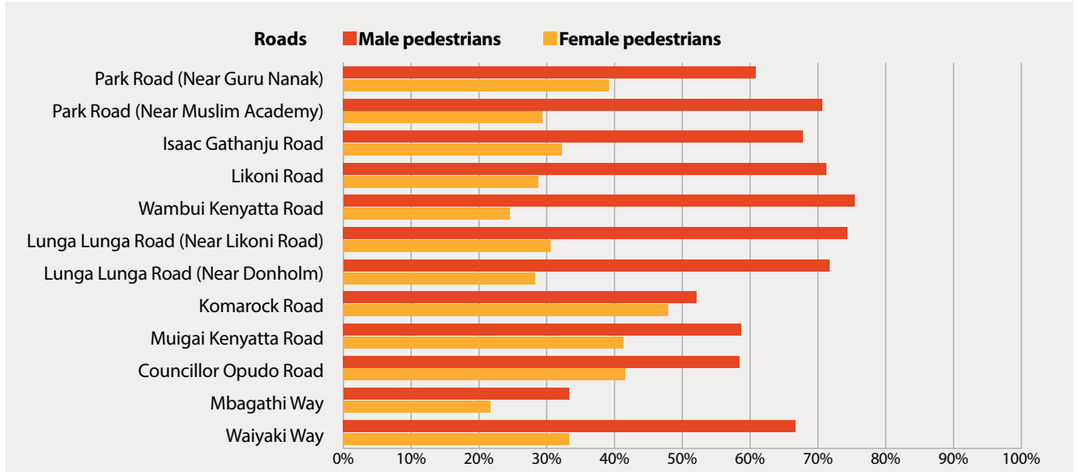
Survey findings

Age brackets: The 25-34 year age bracket is the most common at 40.4%. 86.8% of pedestrians fall between the age bracket of 18-44, corresponding to the youthful population in Nairobi city. As age increases, pedestrian numbers decrease. In our next Newsletters on safety and infrastructure, we will examine whether the NMT experience caters to diverse user needs, such as those of children, persons with disabilities and the elderly. This is an important facet of an inclusive transport system.

Income levels: The majority of pedestrians earn between KShs 5,000-15,000 (48.4%). This indicates that most pedestrians are low-income earners often walking out of no choice. Further, more effort is needed to shift behavioural attitudes from viewing walking as being reserved for the poor, to viewing walking as a healthy and environmentally-friendly mode of transport for all.

Education levels: 73.6% of pedestrians range from high school graduates to holders of post-graduate degrees, indicating high literacy levels. This can be useful in guiding the design of communication strategies and public awareness campaigns on NMT. It is interesting to note that as levels of education increase, the pedestrian volumes decrease. Those with post-graduate degrees recorded the lowest number of pedestrians (2%) compared to those with high school certificates (39%). Does this confirm the aspiration to motorization that many have in society?

Gender: All 10 corridors examined had more male pedestrians than to female pedestrians. This could be one of the reasons contributing to high male fatalities recorded on Nairobi roads, details of which will feature prominently in the next issue on safety.

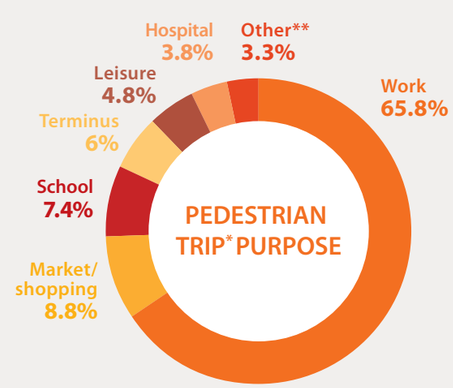


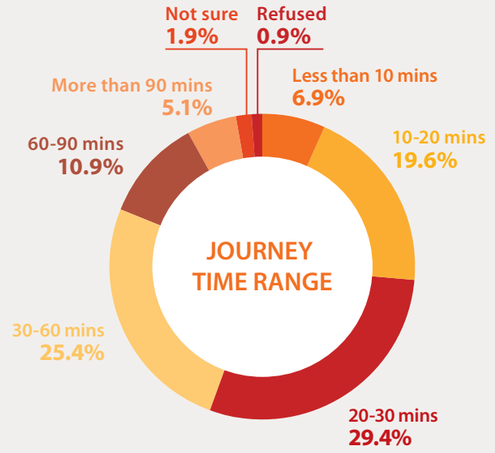
Have you heard of the 20-minute city?

The 20-minute city[4] is about giving people the ability to meet most of their everyday needs within a 20-minute walk, cycle or local public transport trip from their home. The goal is that this combination of modes would offer a reasonable size catchment area in which people, jobs and services, including recreational opportunities and nature, are accessible. Cities designed in this way bring wide-ranging benefits. These include: less time in traffic, fewer road accidents, lower greenhouse gas emissions, reduction in noise pollution, better health from a more active lifestyle, more choices about how to travel, and more connectivity within your locality which translates into spending more money in local businesses. Originating in Portland, Oregon, the concept is gaining traction as cities across the world, such as Melbourne and Singapore, are implementing it.

SERVICES ACCESSED BY PEDESTRIANS

What services are pedestrians accessing and at what time?





* Trips are roundtrips

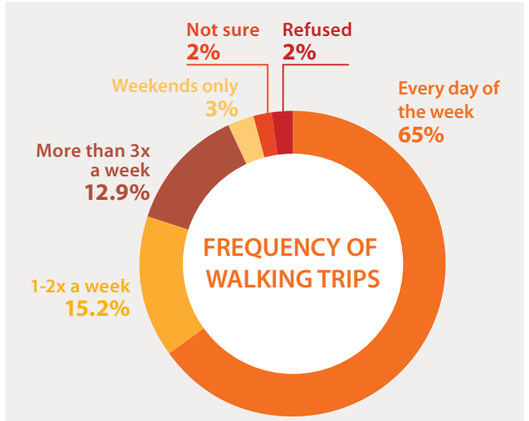
** Other trip purposes (e.g. going to or returning from church, etc.)

Survey findings

- The **majority of walking trips are made to and from work** at 65.8%, followed by shopping at 8.8%.
- Most walking trips (54.8%) range from **20 minutes to 60 minutes.**
- Morning peak hours range from **6.30am-8:30am**, while evening peak hours range from **5:00pm-6:45pm**, when most pedestrians are commuting for work. Trends regarding peak times can be useful in informing traffic-calming measures to increase pedestrian safety and decrease motorised congestion and pollution. This calls for inter-agency collaboration with NMS, the National Transport and Safety Authority and the Kenya Police. These trends can also support "car free day" initiatives by providing evidence-based information on which days and areas are most suitable to kick off these initiatives.
- A small random sample of 40 survey respondents showed that 63.2% of **women made more shopping trips** versus 36.8% of men.
- Corridors located in **middle-income neighborhoods observed more leisure walkers and joggers** compared to those in low-income neighborhoods where very few leisure walkers and no joggers were spotted.

Ongoing road works on footpath, Kangundo Road. © CDKN.

FREQUENCY OF WALKING TRIPS



Survey findings

- **The majority of pedestrians (65%) walk every day** of the week with the least pedestrian volumes recorded during the weekends. This is expected considering most walking trips are to commute to and from work.
- Out of a random sample of 295 respondents, **39.2% reported walking because they cannot afford public transport** and 10.3% because public transport does not exist from their homes to their destination. This calls for the need to examine strategies that can subsidize the **cost of public transport**, as well establishing an integrated transport system that seamlessly incorporates different modes of transport and provides users with a choice on how to travel.

Open drainage and garbage strewn on footpath, Landhies Road. © CDKN.

PEDESTRIANS RATE EASE OF WALKING

Survey findings

- **More pedestrians rated their journey as difficult or very difficult** (44.5%), versus those who said it was easy or somewhat easy (31.1%).
- **Congestion attributed to motorized traffic** is the most pressing challenge for pedestrians at 40.9%, followed by lack of sidewalks at 26.7%.
- **Many pedestrians struggle with encroachment of their spaces** by *bodaboda* riders, cars parked on sidewalks and street vendors. Commendably, NMS is addressing the encroachment of NMT spaces. NMS has issued a notice to motorists, riders, florists and public service vehicle operators to desist from encroaching on NMT facilities, and failure to comply will result in hefty penalties.
- **Other concerns such as traffic accidents, muggings, open drainage and lack of streetlights** were mentioned and will be addressed in the safety and infrastructure newsletters to be published soon.

CONCLUSION

A glimpse into the life of your average pedestrian in Nairobi reveals that many walk to work, generally owing to low-income levels and a lack of available alternatives. Pedestrians are faced with several challenges in their walking journey: from a lack of green spaces, pollution, muggings, and congestion, to a lack of walking paths, encroachment and traffic accidents, among others. The majority of these challenges are either safety related or infrastructure focused. Our next two issues addressing safety and infrastructure will explore these challenges more deeply and recommend possible actions for respective NMT stakeholders.

What makes it difficult to walk along your journey route?

- **Roads too busy/too much traffic** 40.9%
- **No sidewalks** 26.2%
- **Health issues** 6.5%
- **Don't know** 5.8%
- **No street lights/lighting is bad** 5.4%
- **Refused to answer** 5.4%
- **Unsafe neighborhood/safety** 4.5%
- **Too many hills/big hills on walking route** 4.3%

Hilly terrain on Kangemi, Waiyaki Way. © CDKN.

MEET YOUR CITY CHAMPIONS

Mercy Wanjohi

Acting Assistant Director Gender Affairs, Nairobi City County

"My vision is to see gender mainstreaming in all county's plans, programs and policies"

Moses Kuiyaki

Transport Engineer, Nairobi Metropolitan Services

"My vision for the city is a Nairobi where everyone can get to their destination in a safe and timely manner while using reliable means."

Roadside dust along Likoni Road. © CDKN.

ENDNOTES

1 Climate and Development Knowledge Network (June 2020) 'Nairobi NMT Newsletter on Air Quality.' https://cdkn.org/wp-content/uploads/2020/06/NMT-Newsletter-June-2020.pdf

2 Standard Newspaper (December 25, 2020) 'Iconic fig tree on Waiyaki Way adopted by NMS for preservation.' https://www.standardmedia.co.ke/nairobi/article/2001398294/iconic-fig-tree-on-waiyaki-way-adopted-by-nms-for-preservation

3 UN Habitat (2020) 'Nairobi City County: Public Space Inventory and Assessment.' https://unhabitat.org/nairobi-city-county-public-space-inventory-and-assessment?fbclid=IwAR38vXx83fgTmhMPTyAIhntbq-XwuPCzKRA18YRkqIJxJ8QMRNWq4-jzTRQ

4 Better Futures Forum (2020) 'The 20-Minute City: The city of the future?' https://bff.org.nz/2020/08/08/the-20-minute-city-the-city-of-the-future/

ABOUT CDKN

CDKN works to enhance the quality of life for the poorest and most vulnerable to climate change. We support decision-makers in designing and delivering climate compatible development.

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Climate & Development Knowledge Network

NAIROBI NMT NEWSLETTER

March 2021

PEDESTRIANIZATION AND NON-MOTORIZED TRANSPORT

ISSUE 2: SAFETY

Pedestrians in Nairobi. © Ben Welle, Flickr.

Over 3,000 Kenyans die on our roads every year, the majority of whom are young people between the ages of 20 and 44.[1] **In Nairobi, pedestrians account for 64.5% of all traffic fatalities, translating into an estimated 320 pedestrians dying annually.** Road accidents cost our economy in excess of $50 million annually.[2] This newsletter issue on pedestrian safety is dedicated to all the precious lives that have been lost on our roads and is a call to action to make our roads safe spaces for all.

In our last issue on 'Users', we highlighted the safety concerns of pedestrians, which included road accidents, muggings, open ditches, health risks from air pollutants, and poor street lighting. Though this issue tackles each of these concerns, it emphasizes road accidents as a top threat to pedestrian safety. The content of this issue is largely informed by five-year crash data (2015-2019) from the National Transport and Safety Authority (NTSA),[3] and a safety survey using questionnaires, observation and photographs of the deadliest roads in Nairobi. The survey was conducted in December 2020 by Nairobi Metropolitan Services (NMS), in partnership with the Climate and Development Knowledge Network.

The following questions are addressed in this newsletter:

1. **Who** are we losing on the roads?
2. **What** causes these traffic accidents?
3. **Where** do most of these accidents occur?
4. **When** do most of these accidents occur?

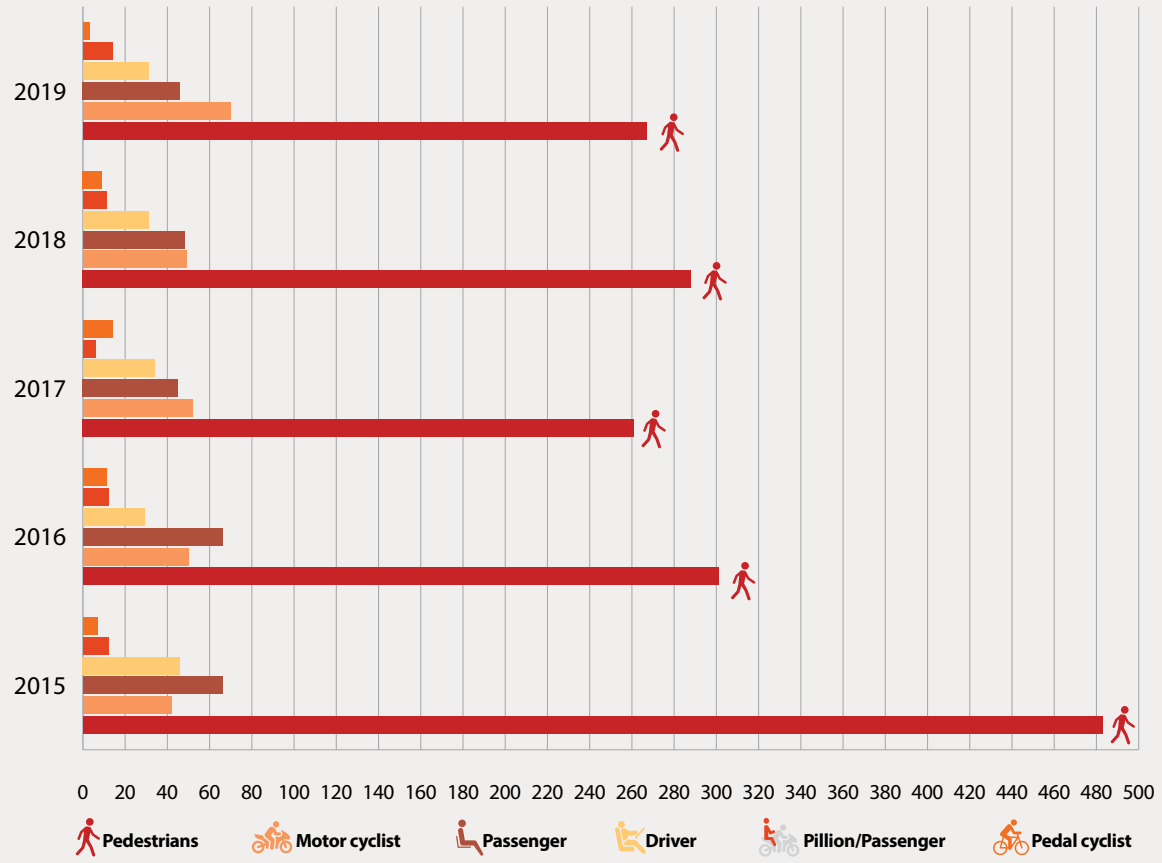
These insights can support decision-making by those authorities who have mandates related to road safety. These include: NTSA, the Kenya Police, NMS and, by extension, the Kenya Urban Roads Authority (KURA) and Kenya National Highways Authority (KeNHA).

WHO ARE WE LOSING ON THE ROADS?

The NTSA five-year crash data was disaggregated by types of road users, their gender and age.

Nairobi traffic fatalities by type of road user

Figure 1: Traffic fatalities by type of road user (2015-2019)



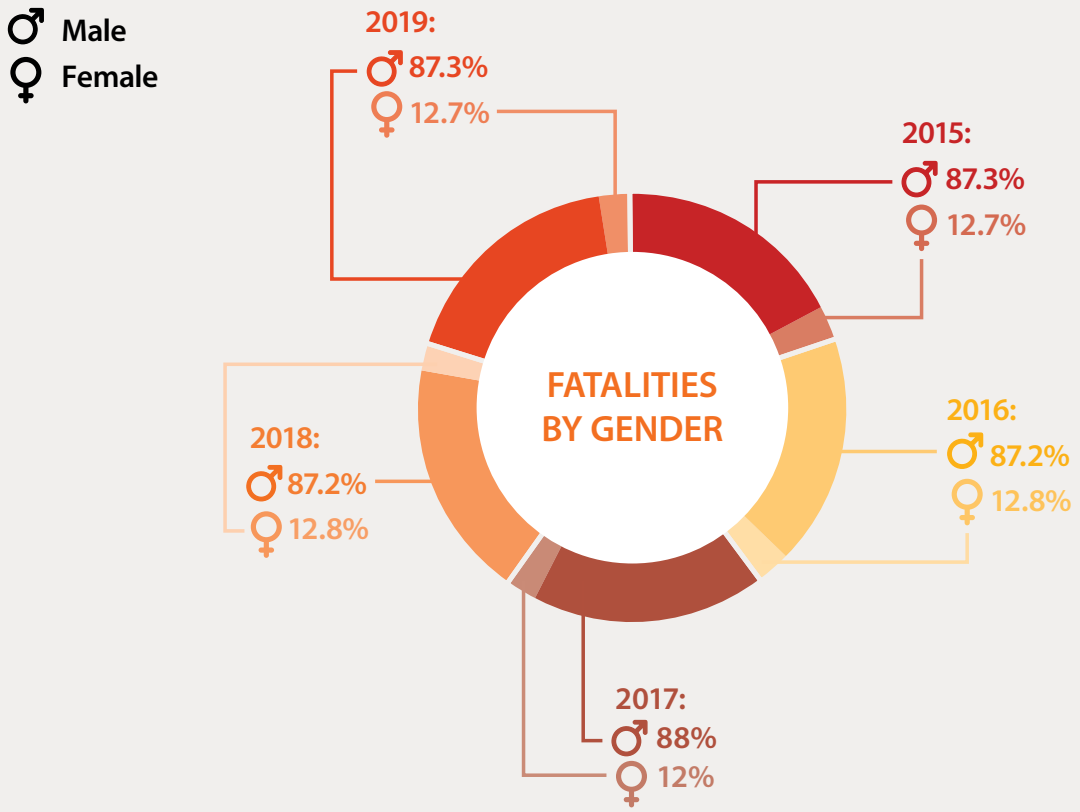
- The five-year crash data consistently show that, **by far, the most vulnerable road users are pedestrians**, followed by motor cyclists (the majority of whom are *bodaboda* riders), vehicle passengers, vehicle drivers, passengers on *bodabodas* (pillion) and pedal cyclists.
- **Pedestrians accounted for an average of 64.5% of traffic fatalities from 2015-2019**. This is in line with several studies[4] and the broader literature showing that Nairobi city's design is largely not people-oriented, and **the greatest danger to a pedestrian's life is a private car**. With 2.27 million pedestrian trips made daily in the city, and the high risk of pedestrian traffic fatalities, there ought to be a shift towards a more people-oriented approach in land-use planning and mobility infrastructure. In addition, measures to address careless driving that endangers pedestrians need to be taken. These factors will be discussed below under 'What causes these traffic accidents?'.

Plans by NMS to roll out well-designed and connected NMT networks across the city are one of the measures that promise to move us towards a city designed for people, and not one built primarily for cars.

Nairobi traffic fatalities by gender

The NTSA crash data was disaggregated by gender, noting that in some instances the gender of the deceased was unspecified at the time of reporting.

Figure 2: Traffic fatalities by gender (2015-2019)



Observations and recommendations

- **Males account for an average of 88.3% of all traffic fatalities** compared to 11.8% for females. This is a stark difference, which calls for further inquiry, as the reasons are not completely clear. In our previous issue on 'Users', it was highlighted that **significantly more men are pedestrians**. In fact, the **data collected on the busiest corridors showed an average of 50% more men compared to women, at all times**, on all 12 corridors surveyed.
- Giving more attention to gender considerations has often been focussed on the plight of women. However, **road crash data challenges us to consider gender concerns equally from a male perspective.** Do road safety campaigns or street design guidelines adequately recognize men's vulnerability? **How often are men categorized as vulnerable road users?** We repeatedly focus on children, persons with disabilities, women and the elderly, yet we are losing more men, in particular young men, on the roads. It may mean viewing **every road user as potentially vulnerable, as we develop street designs and safety campaigns**.

Nairobi traffic fatalities by age

Figure 3: Age brackets recording the highest number of traffic fatalities (2015-2019)

	0-4 YEARS	5-9 YEARS	10-14 YEARS	15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	35-39 YEARS	40-44 YEARS	45-49 YEARS	50-54 YEARS	55+ YEARS
2015	13	12	13	21	57	93	100	79	58	19	21	31
2016	4	7	5	8	21	54	43	30	23	7	5	18
2017	6	12	4	2	18	31	31	29	17	13	4	15
2018	2	6	7	9	33	38	39	39	19	9	12	21
2019	9	11	10	7	38	59	57	47	35	56	27	75

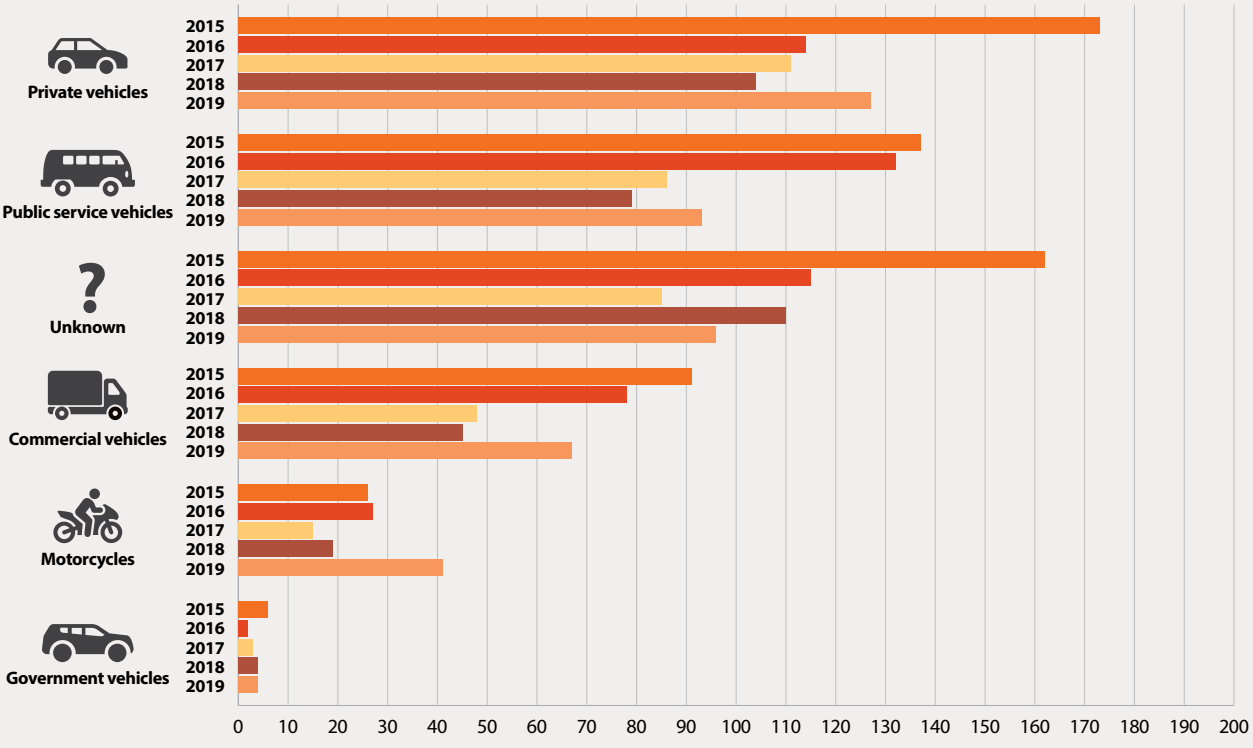
Observations

- On average, **46.4% of traffic fatalities were people aged between 20 and 44 years**. This confirms that Nairobi is losing a very youthful population to traffic crashes, in particular young men.
- We can assume many of these fatalities are pedestrians, if pedestrians make up 64.5% of fatalities and 86.8% of pedestrians fall under the age of 18-44.

WHAT CAUSES THESE TRAFFIC ACCIDENTS?

Since pedestrians make up 64.5% of traffic deaths, understanding which vehicles cause traffic accidents can help us understand what makes pedestrians vulnerable.

Figure 4: Types of vehicle causing road accidents in Nairobi (2015-2019)

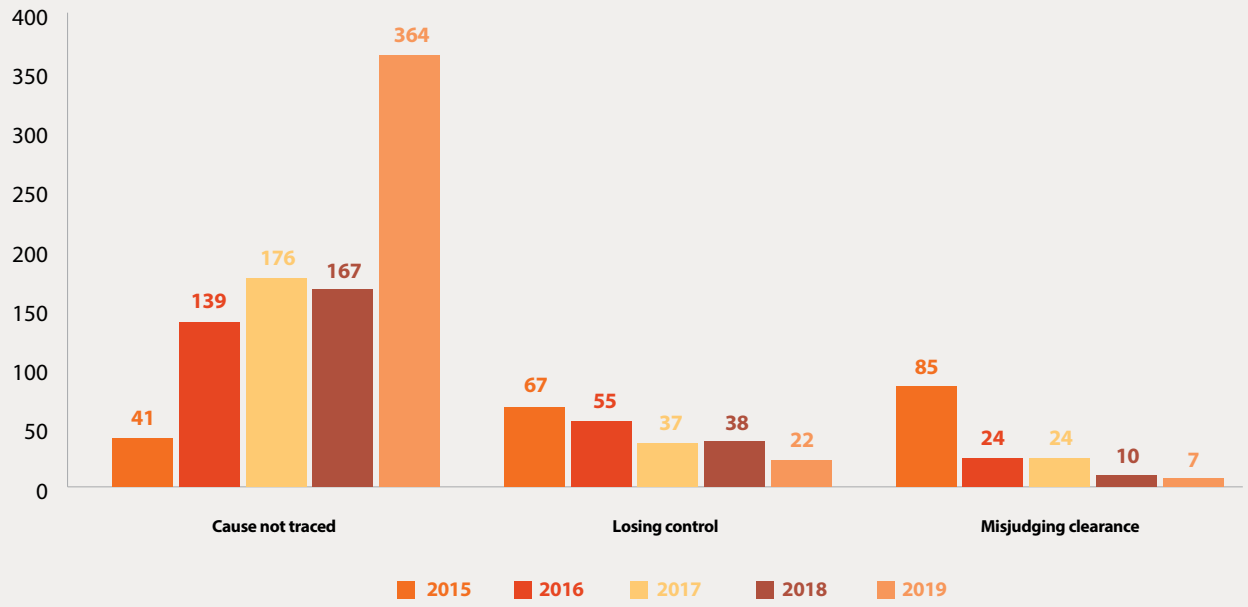


Observations

- Private vehicles were the leading cause of accidents in 2015, 2017 and 2019.
- Public Service Vehicles (PSV) appear in the top three types of vehicles causing accidents.
- Unfortunately, there is a significant data gap. 'Unknown vehicle' appears in the top three causes of accidents. The Kenya Police provide NTSA with daily crash data, which is then categorized. One of the major reasons for 'unknown vehicle' being recorded is hit-and-runs. In this case, the drivers fled the scene of the crime before the police arrived.

WHAT FACTORS CONTRIBUTE TO THESE ROAD ACCIDENTS?

Figure 5: Top three road accident causes in Nairobi (2015-2019)



Observations

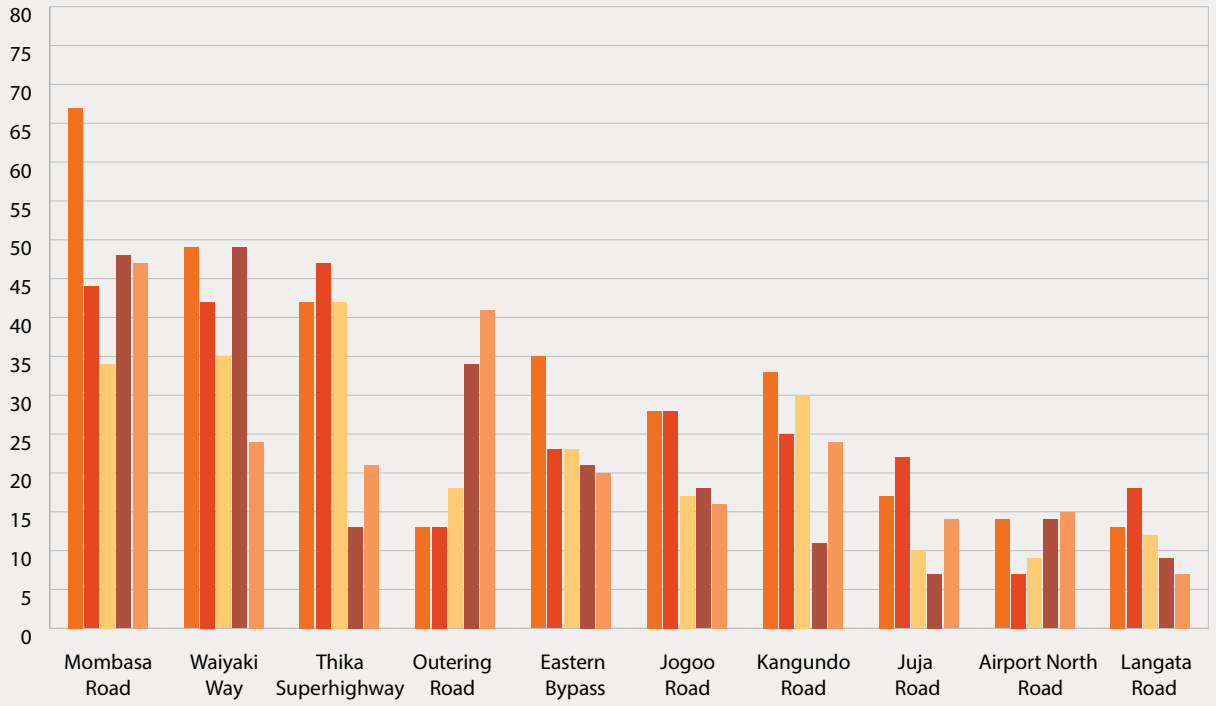
- Unfortunately, **the causes of 44.6% of crashes that occurred from 2015-2019 have gone untraced**. This statistic demands we ask the question: what factors contribute to poor tracing of the accident causes and how can they be addressed? This also correlates with the fact that 'unknown vehicle' ranks in the top three of the type of vehicle causing accidents, and hit-and-runs are a major factor.
- **Losing control** appears consistently as a **top three crash cause** in all five years, while **misjudging clearance, distance or speed of vehicles and objects** followed by **recklessness** both **appear twice in the top three** for the five years recorded.

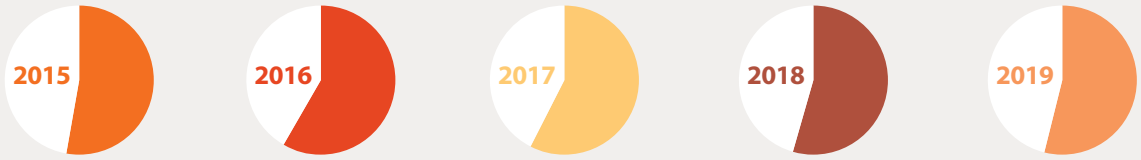
We want to find out more about these untraced causes, as well as the factors contributing towards losing control, misjudging clearance, and recklessness. To effectively address these questions, the subsequent section examines more information about the accidents: where accidents are happening, on which days and at what times.

WHERE DO MOST OF THESE ACCIDENTS OCCUR?

Having knowledge of where the majority of these accidents occur sheds light on which areas deserve priority for intervention. There are 10 roads identified below, which are in need of urgent attention.

Figure 6: Nairobi's top 10 deadliest corridors (2015-2019)





52.8% of all fatalities occurred on these corridors

58.6% of all fatalities occurred on these corridors

57.5% of all fatalities occurred on these corridors

54.7% of all fatalities occurred on these corridors

54% of all fatalities occurred on these corridors

Observations

- **Mombasa Road** appears **every time in the top three deadliest roads** during the five-year period. **Waiyaki Way appears four times** in the top three, while **Thika Superhighway** appears **three times**, and **Outering Road** appears **twice** in the top three, during the five years.
- **Eastern Bypass, Jogoo Road** and **Kangundo Road** all appear **five times in the top 10 deadliest roads**, while **Juja Road** appears **four times, Airport North** appears **three times**, and **Langata Road** appears **twice in the top 10**.
- These **deadliest corridors account for 55.5% of all traffic fatalities** in Nairobi.

According to the Kenya Police Annual Crime Report (2018),[5] the major causes of road accidents include speeding, overloading, drunk driving, fatigue, incorrect use of the road by pedestrians, poor road infrastructure and non-observance of traffic laws. The safety survey sought to find out what makes these roads so dangerous, while considering contributing factors from motorists, pedestrians and infrastructure.

The survey was conducted along **Mombasa Road** (City Cabanas), **Waiyaki Way** (James Gichuru, Kangemi Flyover and Uthiru), **Airport North Road**, **Thika Superhighway** (Shell Petrol Station), **Eastern Bypass** (Kamakis, Kihunguro and Corner), **Kangundo Road, Outering Road, Jogoo Road** and **Landhies Road**.

Table 1: Causes of road accidents on Nairobi's deadliest corridors

Note: Where '✓' is indicated, the practice was observed. Non-observance of the practice during the safety audit does not imply the practice may not exist.

Area	Motorists				Pedestrians		Infrastructure				
	Speeding	Careless driving	Encroaching on NMT spaces	Pick up and drop offs at non-designated zones (esp. PSVs)	Careless crossing	Crossing at non-designated zones which are dangerous	Lack or inadequate pedestrian paths	Lack of adequate pedestrian crossings	Footbridges being underutilized by pedestrians	Poor lighting especially at night	Lack of clear road signs
Mombasa Rd (Cabanas)	✓	✓			✓	✓	✓	✓	✓		
Waiyaki Way (Kangemi)	✓	✓	✓	✓	✓		✓	✓		✓	
Waiyaki Way (Uthiru)	✓	✓	✓		✓		✓	✓			
Waiyaki Way (James Gichuru)	✓	✓		✓			✓	✓			✓
Eastern Bypass	✓	✓	✓				✓	✓		✓	✓
Airport North Rd	✓	✓		✓	✓	✓	✓	✓	✓	✓	
Landhies Rd	✓	✓			✓		✓	✓		✓	
Outering Rd	✓	✓			✓		✓			✓	
Jogoo Rd	✓	✓			✓	✓	✓	✓			
Thika Superhighway (Shell station)	✓	✓	✓	✓	✓		✓				
Kangundo Rd	✓	✓		✓	✓		✓	✓			

Survey findings and recommendations

- **All surveyed roads** recorded **careless driving by motorists**, and **careless pedestrian crossing** was recorded on most roads. This calls for increased road safety education among all road users, which should be instilled via school curriculums from primary school up to university level.

  It is commendable to see that road safety campaigns by Kenya Police and NTSA are conducted using the media, especially on proper use of the roads by pedestrians since they are the most affected by these accidents. It is also important to ensure that drivers get harsh penalties, such as license suspension, to deter careless driving.

  In addition, regulations seeking to curb careless driver behavior such as banning drunken driving, random breath testing, enforcing seat belt-wearing and forbidding the use of hand-held mobile phones are all useful. However, the World Health Organization (WHO) rates the enforcement of these laws in Kenya as relatively low.[6] For example, drunken driving enforcement levels are at 50% and seat belt-wearing at 40%. This implies that Kenya Police and NTSA have a lot of room for improvement in the enforcement of these regulations.

- **Speeding** was noted on most roads. WHO rates Kenya's enforcement of speed limit levels at 40%.[7] This shows the need for better enforcement of speed limits – maximum 50 kilometers per hour (km/h) on urban roads – by Kenya Police in collaboration with NTSA. Some of the measures undertaken – such as speed-guns and permanent camera traps, and tamper-proof speed governors for all PSVs – are useful. Digital fines issued for speed trap cameras can also support a more efficient and transparent process of enforcing traffic rules.

- **Lack of adequate pedestrian infrastructure** was recorded on most roads. This naturally results in congestion when all road users struggle for limited space, which increases the risks of traffic accidents. It is hoped that the NMT infrastructure developed by NMS will follow recommended design guidelines that secure safety and, most importantly, will provide a network that can seamlessly connect people to the services they need. As development happens in phases, NMS should prioritize corridors with the highest volume of users and those with the highest fatalities.

- **Lack of pedestrian crossings** was recorded on most roads. Pedestrian crossings are necessary, especially on busy roads, not only to secure pedestrian safety, but also to alert motorists to slow down. Tabletop crossings (raised pedestrian crossings) have been installed along Ngong Road, near Coptic and Kenyatta hospitals, and ought to be considered for most urban roads, as they increase the visibility of pedestrian crossings.

- **Poor lighting**, especially at night, is a big challenge on Kangemi Kawangware, Eastern Bypass, Airport North Road, Landhies Road and Outering Road. This correlates with the fact that most accidents occur between 7:00pm-9:00pm, as will be illustrated in the next section. **Muggings** were

Pedestrian crossing along Thika Road. © CDKN

mentioned by pedestrians as a major concern for both male and female pedestrians, especially at night, since many streets are poorly lit. NMS launched a street lighting initiative, which should maintain momentum until every street in Nairobi is well-lit.

NMS is in charge of street lighting in Nairobi and should continue with the street lighting initiatives launched in 2020 to prioritize these dangerous corridors claiming more lives. Commendably, Kangundo, James Gichuru, Uthiru and Thika Superhighway all have good lighting.

- **Picking up and dropping off passengers at non-designated zones is rampant** in Kangemi Kawangware, James Gichuru Road, Airport North Road, Kangundo Road, and Thika Superhighway. Designated pick up and drop-offs points should be designed in a manner that does not interfere with the movement of traffic. Traffic police should be deployed in these areas to enforce traffic rules.

- In the case of City Cabanas on Mombasa Road and Airport North Road, the **footbridges erected to increase pedestrian safety are underutilized**. Most pedestrians interviewed stated that the footbridges make for longer journeys, and they would rather cross the road at very risky spots to save time. Globally, there are different views on pedestrian footbridges. Some claim that they make cities less walkable and reinforce that pedestrians do not belong on the street. On the other hand, some claim that they can significantly reduce traffic fatalities and best utilize limited space.

  All the same, pedestrians want safe and convenient options, and, in some instances, safety is sacrificed for convenience. Agencies with mandates relating to transport planning and infrastructure, such as KURA, KenHA, NMS, Nairobi Metropolitan Transport Authority and Kenya Roads Board, should bear in mind the competing interests and strike a balance.

- In some of the instances where **a lack of road signs was noted, vandalism was mentioned as a challenge**. For example, in the case of James Gichuru, respondents shared that road signs once erected are stolen and sold as scrap metal. NTSA, KURA, NMS could consider using alternative materials for road signs, such as recycled plastics, which are hardy but do not attract vandals.

- **Open ditches** are a safety concern that was observed on almost all 12 of the busiest pedestrian corridors. Pedestrians can easily have an accident when infrastructure is not properly maintained by authorities. For Nairobi, the road is either managed by NMS if it is a County Road, KURA if it is an Urban Road, and KenHA if it is a highway.

NMT infrastructure from reclaimed parking space on Kenyatta Avenue. © NMS

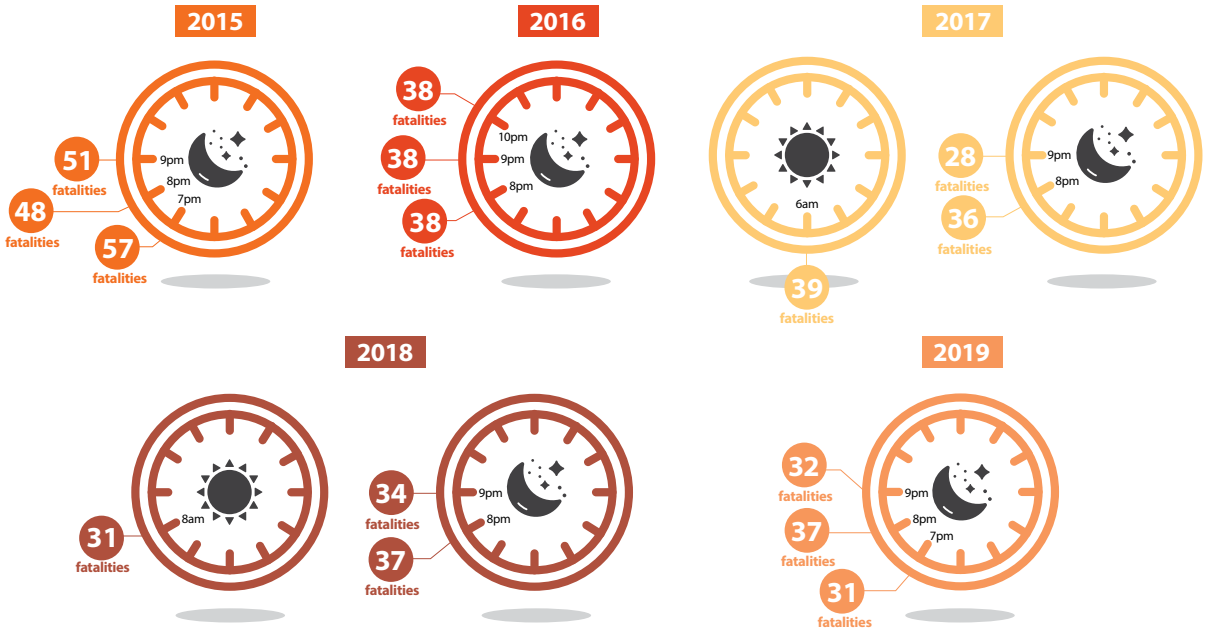
WHEN DO MOST OF THESE ACCIDENTS OCCUR?

A look at which days of the week record the highest number of accidents, as well as the time of these accidents, also gives us further insights. This information can guide the relevant agencies as to which days and times need increased deployment of resources, such as police check points to discourage careless driving and responsible pedestrian crossing, as well as more random alcohol blow tests to check for drunken driving.

Figure 7: Days of road accident occurence in Nairobi (2015-2019)

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
2015	83	83	84	68	103	120	115
2016	70	48	51	53	64	96	87
2017	36	40	53	52	76	75	80
2018	51	52	54	46	68	75	92

Top three deadliest times of road accident occurrence in Nairobi (2015-2019)



Observations

- **Most fatalities occur on Friday, Saturday and Sunday making these the most dangerous** days of the week to be on the road. Kenya Police Crime Report confirms fatigue and drunk driving are some of the leading causes of accidents. This may explain why the majority of accidents occur after a long week and perhaps at a time when road users have indulged in alcohol.
- On average, **most accidents occur at night compared to daytime, with 7:00pm-9:00pm being the most dangerous time** on Nairobi roads. This suggests that there may be more need for police stops, speed cameras and breathalyser testing used by NTSA at this time, especially from Friday to Sunday.
- The fact that 7:00pm-9:00pm is the most dangerous time also correlates with the survey findings that **poor street lighting, especially at night, is a contributing factor to accidents**. This may further relate to the fact that **miscalculating speeds and distances of vehicles and objects is a top three cause of accidents in Nairobi**.

DID YOU KNOW?

Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy and equitable mobility for all.[8] First implemented in Sweden in the 1990s, Vision Zero has proved successful across Europe, and is gaining momentum in major American cities.

Kenya is losing too many lives on the roads. Is it time to implement #KenyaVisionZero? The difference between Vision Zero and the status quo approach is:

Traditional approach:

- Traffic deaths are **inevitable**
- **Perfect** human behaviour
- Prevent **collisions**
- **Individual** responsibility
- Saving lives is **expensive**

VS

Vision Zero:

- Traffic deaths are **preventable**
- Integrate **human failing** in approach
- Prevent **fatal and severe crashes**
- **Systems** approach
- Saving lives is **not expensive**

We have compiled information on the most vulnerable road users, the causes for these accidents, and where and when the majority of these accidents occur. The recommendations made to authorities concerning increased road safety education, improved pedestrian infrastructure, harsher penalties for speeding and careless driving as well as better street lighting, will go a long way in realizing a #KenyaVisionZero. Together, let's save lives!

MEET YOUR CITY CHAMPIONS

Asumpta Lagat

Road Safety Officer, National Transport and Safety Authority.

Vision: "To achieve safe, efficient, and reliable NMT in Nairobi City through multisectoral collaboration and partnership."

Samson Kigen

Transport Engineer, Nairobi Metropolitan Services.

Vision: "An efficient, integrated transport system that is socially fair and makes a positive impact on the environment."

Design impression of NMT infrastructure along upcoming Green Park Terminus. © NMS

ENDNOTES

1. World Health Organization - WHO (2004). 'World report on road traffic injury prevention'. Retrieved from: https://apps.who.int/iris/bitstream/handle/10665/42925/9241591315.pdf
2. Ibid.
3. National Transport and Safety Authority - NTSA (2020). Internal documentation.
4. United Nations Environment Program - UNEP (2018). 'Kenya prioritizes non-motorized transport to enhance road safety'. Retrieved from: https://www.unep.org/news-and-stories/blogpost/kenya-prioritizes-non-motorized-transport-enhance-road-safety
5. Kenya Police (2018). Annual Crime Report.
6. World Health Organization - WHO (2018). 'Global status report on road safety'. Retrieved from: www.who.int/violence_injury_prevention/publications/road_traffic/en/
7. Ibid.
8. Vision Zero Network (2021). Retrieved from: https://visionzeronetwork.org/about/what-is-vision-zero/

ABOUT CDKN

CDKN works to enhance the quality of life for the poorest and most vulnerable to climate change. We support decision-makers in designing and delivering climate compatible development.

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Climate & Development Knowledge Network

NAIROBI NMT NEWSLETTER

March 2021

PEDESTRIANIZATION AND NON-MOTORIZED TRANSPORT
ISSUE 3: INFRASTRUCTURE

Encroachment of a footpath along Jogoo road. © CDKN

In this pedestrianization series, we started out the **first issue** with examining the demography of pedestrians. This was useful in understanding the profile and needs of the average pedestrian in Nairobi. The majority of the needs that came to light were either safety- or infrastructure-related. Having dealt extensively with the safety-related concerns in the **second issue**, this **third and final issue** in the series will focus on infrastructure and how it affects the pedestrian experience.

A number of the challenges faced by pedestrians in Nairobi relate to inadequate pedestrian infrastructure. These include lack of footpaths, poorly maintained footpaths, lack of pedestrian crossings, lack of access for persons with disabilities, poorly-lit streets, and the encroachment on footpaths by other road users. These infrastructure gaps compromise pedestrian safety and health, as well as making the pedestrian experience less enjoyable. In this issue, we examine the highlighted infrastructure challenges and make recommendations based on the standards presented in the Street Design Manual for Urban Areas in Kenya, 2019 (SDMUAK).[1]

A survey using questionnaires, observation and photographs engaged with pedestrians on the challenges they faced on 12 busy pedestrian corridors. The survey was conducted in December 2020 by Nairobi Metropolitan Services (NMS), in partnership with the Climate and Development Knowledge Network.

PEDESTRIAN INFRASTRUCTURE CHALLENGES

Note: Where a 'tick' (✓) is indicated, the practice was observed. Non-observance of the practice during the survey does not imply the practice may not exist.

Table 1: Pedestrian infrastructure challenges observed on 12 busy Nairobi corridors

	Inadequate pedestrian crossings	Inadequate footpaths (including design shortcomings where footpaths are present)	Lack of greenery and shade	Poor street lighting	Lack of protected footpaths (separated lane for pedestrians with barriers such as vegetation on each side)	Lack of street furniture, adequate litter bins and toilets	Poor drainage facilities (open drains and/or visible sewage)	Encroachment of footpaths	Presence of litter on footpaths	Inappropriate for persons with disabilities
Park Road (near Guru Nanak)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Park Road (near Muslim Academy)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Likoni Road	✓	✓	✓	✓	✓	✓		✓	✓	✓
Lunga Lunga Road (near Likoni Road)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lunga Lunga Road (near Donholm)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Komarock Road	✓	✓	✓	✓	✓	✓		✓	✓	✓
Muigai Kenyatta Road	✓	✓	✓	✓	✓	✓		✓	✓	✓
Councillor Opudo Road	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mbagathi Way	✓	✓	✓	✓		✓				✓
Waiyaki Way	✓	✓	✓	✓	✓	✓			✓	✓
Isaac Gathanju Road	✓	✓		✓	✓	✓		✓	✓	✓
Wambui Kenyatta Road	✓	✓		✓	✓	✓		✓	✓	✓

Survey findings

All corridors lack adequate pedestrian crossings, making pedestrians vulnerable to road accidents while crossing the road. As per Kenya's street design manual mentioned above, **pedestrian crossings should be located where many people need to cross the street, such as a bus stop, at an entrance to a shopping mall, or where a path intersects the street**. In busy commercial areas, crossings should be spaced at more frequent intervals. **Pedestrians often prefer to cross at street level compared to climbing a stairway in order to cross the street**. In our past issue on safety, we highlighted that on some of the roads, footbridges are underutilized, as pedestrians find that they increase the length of their journeys and prefer to cross the road at street level despite the danger from oncoming traffic.

All corridors lack adequate and protected footpaths. In most cases, footpaths have less than two meters of clear space and are, therefore, not compliant with the street design manual's minimum standard requirements. **Footpaths are also not continuous**, forcing pedestrians to walk on the road. Additionally, the **footpaths are not protected by barriers such as greenery on each side**, and most pedestrians feel exposed to the risk of road accidents especially from motorized traffic.

Eight out the 12 corridors lack greenery and shade. Eight corridors are located on the eastern side of the city, and the three corridors with some greenery and shade are located on the western side of the city – close to high and middle-income neighbourhoods. This correlates with the fact that the air quality in the western side of the city is better than the eastern side, as was highlighted in our previous issue on 'Air Quality'.[2]

Greenery plays an important role in providing shade, purifying the air by absorbing polluting gases, and has aesthetic value. The street design manual recommends that trees with high branches are preferable, and medium-height vegetation should be trimmed next to pedestrian crossings to improve the visibility of pedestrians. As pointed out in the 'Users' issue, **unnecessary cutting down of trees to accommodate road expansion is rampant and should be addressed**.

Poor street lighting is observed on all corridors. All corridors have some street lighting, but **pedestrians do not consider these streets to be adequately lit, especially at night**. This increases safety concerns such as risk of traffic accidents, muggings, and tripping on unseen objects. The street design manual recommends that the spacing between two street-light poles should be approximately three times the height of the fixture, and the poles should be no higher than 12 meters. In residential areas, the poles should be significantly lower than 12 meters to reduce undesirable illumination of private properties. The placement of street lighting should be coordinated with other street elements so that trees or billboards do not affect proper lighting.

All corridors lacked street furniture, adequate litter bins and toilets. Streets serve many functions in addition to being paths to get from one point to the next. **Streets can be places to sit and relax, enjoy a snack, socialize, and enjoy activities such as street art**. Street furniture should be placed in areas that receive shade, to make them comfortable for users. Street furniture can also be used as advertising space by companies, for example the adoption of benches. Partnership with private sector and government institutions can also save on costs for infrastructure, while making the streets more user-friendly. **Other amenities such as toilets, litter bins, and water taps are equally important to support streets as spaces that can be enjoyed as places to socialize and enjoy activities.** Litter, and in some instances dumped garbage, was present in all corridors due to the lack of adequate litter bins.

Poor drainage facilities. Five out of the 12 streets observed had poor drainage facilities. According to the street design manual, footpaths should be raised to permit storm water runoff to flow away from/under the footpath. Stormwater should be carried through closed drains to free up road space for pedestrians. **NMT facilities, bus stops, and street vending areas should be at a higher level to avoid flooding**, which is a common sight in Nairobi streets during rainy seasons.

All corridors observed had elements that make them unfriendly to persons with disabilities. These include a **lack of ramps on footpaths**, which force persons with disabilities to be dependent on others to access the footpath. Lack of continuous footpaths often force people with disabilities to use the road or rough surfaces, which exposes them to physical discomfort, road accidents and generally uncomfortable journeys. **Narrow footpaths of less than two meters pose a challenge to those using wheelchairs.** Footbridges make it very difficult for people with disabilities to navigate the street and they are often at the mercy of others to help them across footbridges.

Encroachment is rampant on all corridors observed. The **most common forms of encroachment are street vending, cars parked on footpaths and *bodabodas* using the footpaths**. There are efforts to address encroachment, such as the notice by NMS of harsh penalties for florists, *bodabodas* and vehicles that block footpaths. Street vending is trickier to manage as a form of encroachment. It often seeks to provide essential goods and services. The street design manual states that **well-planned streets should accommodate street vending**. It recommends that vending spaces should be placed where they will not interfere with pedestrian movement. It also notes that **vendors will be attracted to areas with shade and areas with high visibility to pedestrians**. Supporting infrastructure, such as cooperatively managed water taps, electricity points, litter bins, and public toilets, should also be provided to encourage hygienic practices.

DID YOU KNOW?

Good walking is good business! Retail spending is often higher in walkable areas. A welcoming walking environment attracts strolling visitors and local customers running daily errands. People on foot are more likely to see street vendors or window displays, encouraging them to go into more stores and to stay longer, all of which offers the potential of increased sales.[3]

NMS, Kenya Urban Roads Authority (KURA) and Kenya National Highways Authority (KeNHA) are responsible for addressing these infrastructure challenges depending on whether it is a county road, urban road, or highway, respectively. For street lighting, NMS is responsible for all street lights in Nairobi. For matters dealing with greenery, NMS has a mandate over environmental matters in Nairobi and should collaborate with KURA and KenHA to protect trees during road works. NMS should also collaborate with the National Environment Management Authority for strategies to increase and maintain greenery in the city.

The multiple benefits of a walkable city

This three-part series has taken us through the pedestrian experience in Nairobi and highlighted the need to improve walking as a safer and more enjoyable mode of transport. As we end the series, it is worth recapping some of the many benefits of walking:

Being an active mode of transport, those who walk realize **improved health**, compared to those living sedentary lifestyles.

Walking can **increase economic productivity** as those walking are more likely to purchase goods and services from shops along their journey. A study that evaluated the effects of walkability on housing prices concluded that walkability had a statistically significant positive impact on housing values.

Walking facilities can improve the lives of many citizens through **better access to economic opportunities** – for example well-lit streets can allow someone to stay later at work, and thus earn more money – as well as easier access to healthcare services and social engagements. It can also reduce the amount of money spent by families on public transport, particularly in the low-income bracket.

Lastly, walking is a form of **clean transport** and is a quick win to address the **climate crisis and air pollution in cities**. The more citizens that choose walking over cars, the more we avoid harmful greenhouse gas emissions from vehicles and abate air pollution.

As you look out for our next issue on cycling, let's walk to secure the green city under the sun!

Cars parked on a lane along downtown Nairobi. © Edna Odhiambo

MEET YOUR CITY CHAMPIONS

Hon. Mary Mwami

Member of Nairobi County Assembly, Gender/persons with disabilities representative & transport committee member.

"A great city with a vibrant economy that serves her citizens"

Martin Eshiwani

Administration Director, Directorate of Transport Roads and Public Works, Nairobi Metropolitan Services.

"At NMS, delivery of a well-designed, safe and convenient network of infrastructure that serves the needs of Nairobians is our priority"

Poorly maintained footpath in downtown Nairobi. © Edna Odhiambo

ENDNOTES

1. Institute of Transport and Development (2019). 'Street Design Manual for Urban Areas in Kenya'. Retrieved from: https://africa.itdp.org/publication/street-design-manual-for-urban-areas-in-kenya/
2. Climate & Development Knowledge Network (2020). 'Air Quality and Non-Motorized Transport'. Retrieved from: https://cdkn.org/wp-content/uploads/2020/06/NMT-Newsletter-June-2020.pdf
3. Walk Boston (2012). 'Good walking is good business'. Retrieved from: https://walkboston.org/resources/handouts/good-walking-is-good-business/
4. Litman (2010). 'Quantifying the Benefits of Non-Motorized Transportation for Achieving Mobility Management Objectives', *Victoria Transport Policy Institute 22.*

ABOUT CDKN

CDKN works to enhance the quality of life for the poorest and most vulnerable to climate change. We support decision-makers in designing and delivering climate compatible development.

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This work was carried out with the aid of a grant from the Ministry of Foreign Affairs of the Netherlands and the International Development Research Centre (IDRC), Canada, as part of the Climate and Development Knowledge Network (CDKN) Programme. The views expressed herein do not necessarily represent those of the Ministry of Foreign Affairs of the Netherlands, or of the International Development Research Centre (IDRC) or its Board of Governors, or of the entities managing CDKN.

Climate & Development Knowledge Network

NAIROBI NMT NEWSLETTER

June 2021

CYCLING AND NON-MOTORIZED TRANSPORT

Critical Mass Nairobi during a pro-cycling campaign. © Critical Mass Nairobi

An estimated **55,000 daily trips in Nairobi are made by cycling**, accounting for 1.1% of the share of journeys made by different modes of transport. This statistic shows that **there is significant opportunity to raise the profile of cycling as a convenient and healthy means of mobility, for all ages**. As an active means of transport, cycling is relatively fast for short and medium journeys, does not contribute to pollution, and has the added health benefits of physical activity.

Having concluded a three-part newsletter series on pedestrianization, this issue focuses on cycling. As such, the newsletters offer readers a complete perspective of the two major non-motorized transport (NMT) user groups: pedestrians and cyclists. With similar objectives to the pedestrianization series, this cycling issue will examine the demography of cyclists, to better understand this group of road users, as well as highlighting the safety and infrastructure challenges they face.

Data was collected from interviews with 703 randomly distributed cyclists along Nairobi's major NMT corridors. Survey respondents were profiled by age, income, education and gender and were asked about their trip's purpose, the ease of cycling, and safety concerns they face. Observation and photographs were also used as data collection methods.

These interviews were collected in two NMT surveys. The first was commissioned by the Ministry of Lands, Housing and Urban Development (now, Ministry of Lands and Physical Planning) and the Nairobi City County Government in 2016. It was conducted by Sai Consulting International Ltd and CAS Consulting Engineers. This was then updated by Nairobi Metropolitan Services (NMS) in partnership with the Climate and Development Knowledge Network (CDKN) in December 2020, to gain a deeper and more current understanding of NMT user needs. Additionally, this newsletter is informed by five-year crash data (2015-2019) from the National Transport and Safety Authority (NTSA).

The selection of the key corridors was based on a number of factors, which include:

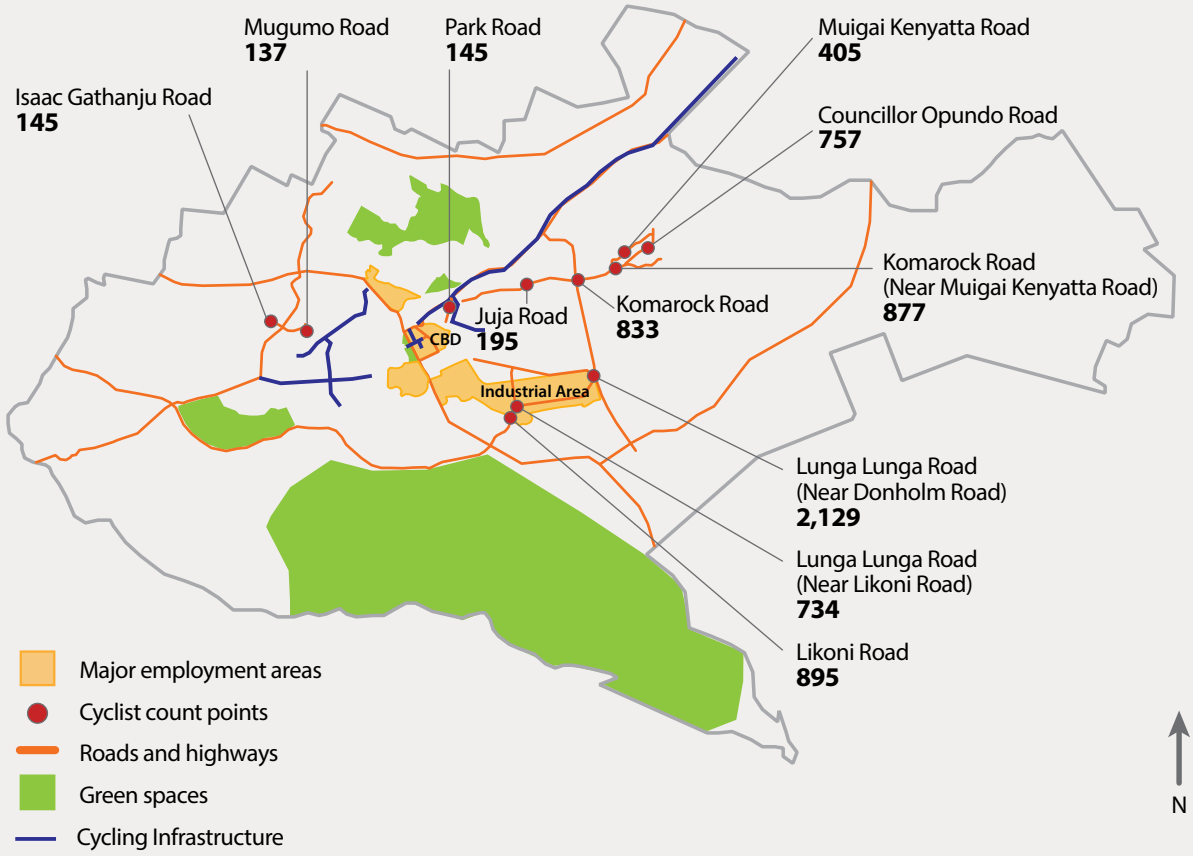
1. Urban centers with high-volume commercial activity
2. Public transport stations (bus terminus and railway stations)
3. Neighborhood markets
4. Low-income settlements and access routes that impact the mobility of the vast population to and from densely populated areas
5. Primary schools, secondary schools, colleges and universities
6. Public service facilities (hospitals, markets, public offices, city hall)
7. Recreational hubs (like parks and green corridors)
8. Completing missing links to provide connectivity between different road corridors for continuous flow

A beneficiary of the Bicycles for Educational Empowerment Program. © World Bicycle Relief

AN OVERVIEW OF NAIROBI'S MAJOR CYCLING CORRIDORS

Let's first get an overview of where most of the cycling happens in Nairobi.

Figure 1: Nairobi's major NMT corridors showing number of cyclists per day



Survey findings

Careful consideration of the **location of cycling infrastructure is important to assess whether mobility needs of the masses are met.** Similar to the pedestrian findings, a majority of cycling corridors are located in the east of the city, with close proximity to the Industrial Area – a major employment zone in Nairobi. Komarock (near Muigai Kenyatta Road), Lungalunga Road (near Donholm Roundabout), and Likoni Road recorded the most cyclists. Komarock Road and Muigai Kenyatta Road are also in close proximity to dense working-class neighborhoods like Dandora and Kariobangi, where NMT is a popular mode of mobility.

Despite this need, recent projects have seen cycling infrastructure developed within up-market neighborhoods, such as Kilimani and Kileleshwa, leaving **road expansion programs in the working-class neighborhood of Eastlands (for example, Outering Road) with a high volume of cyclists lacking safe cycling infrastructure.** It is important to ensure that transport infrastructure is inclusive and serves the needs of the masses. NMS should ensure that well-designed cycling networks linking dense neighborhoods and major employment areas, such as the Industrial Area, are factored into NMT development plans.

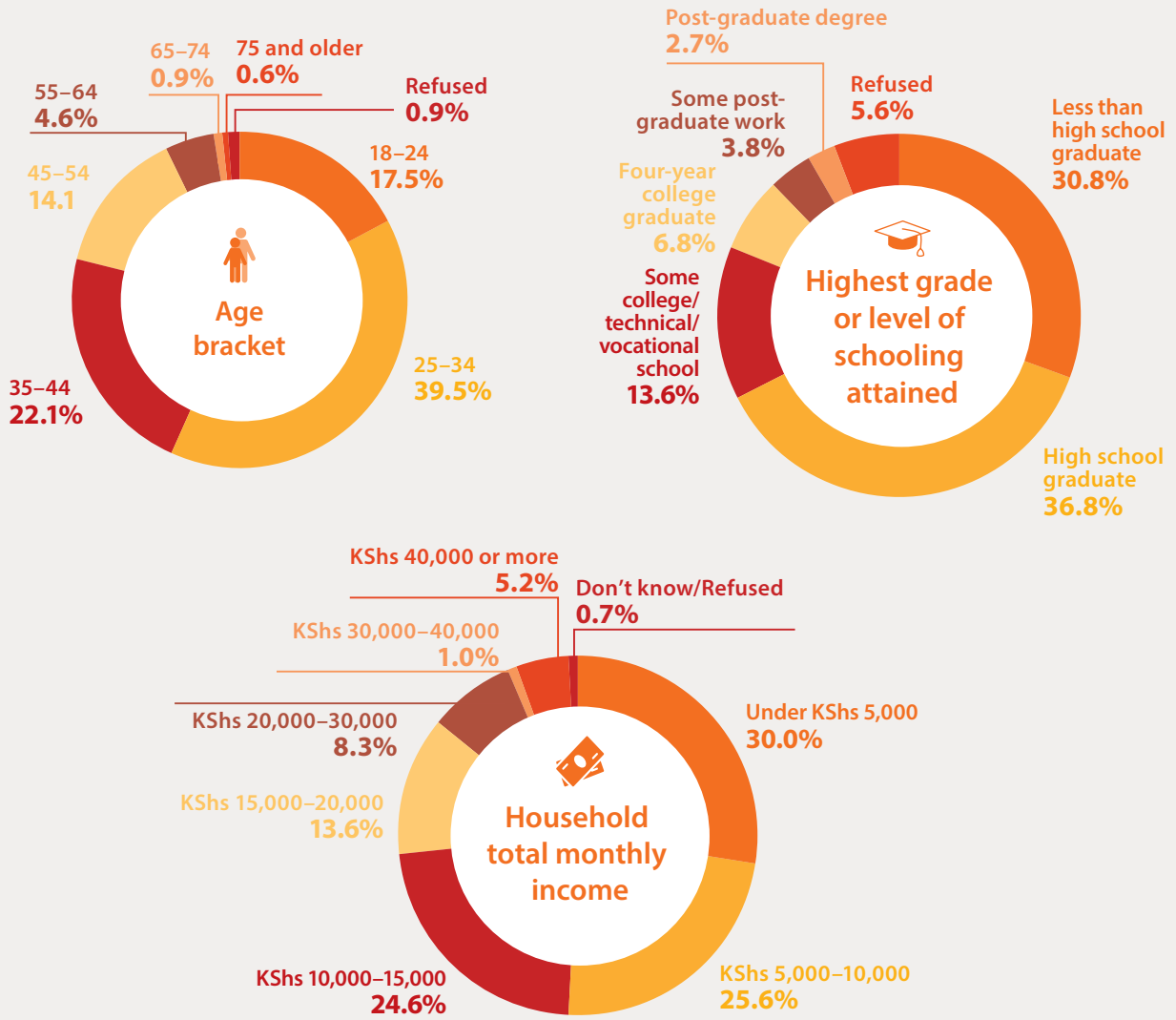
The **lack of cycling lanes and sufficient cycling networks continue to be a challenge** in the city. An observation from the map shows how cycling infrastructure, which has been developed along some of the new roads, has a lot of gaps with several dead ends, and is not well-linked throughout the city.

The major pollutants present on cycling corridors are **dust, vehicular emissions, roadside garbage, open sewage and industrial smoke.** It is important to prioritize the improvement of air quality, particularly in congested areas that serve as socio-economic hubs for thousands of city residents.

Cycling corridors have limited access to green spaces, as was also pointed out in the pedestrianization user issue. This emphasizes the need to green NMT infrastructure to provide for a more enjoyable journey with protection from direct sunlight, better air quality and improved aesthetics.

WHO ARE NAIROBI'S CYCLISTS?

Figure 2: Profiling Nairobi's cyclists across age, education, income and gender



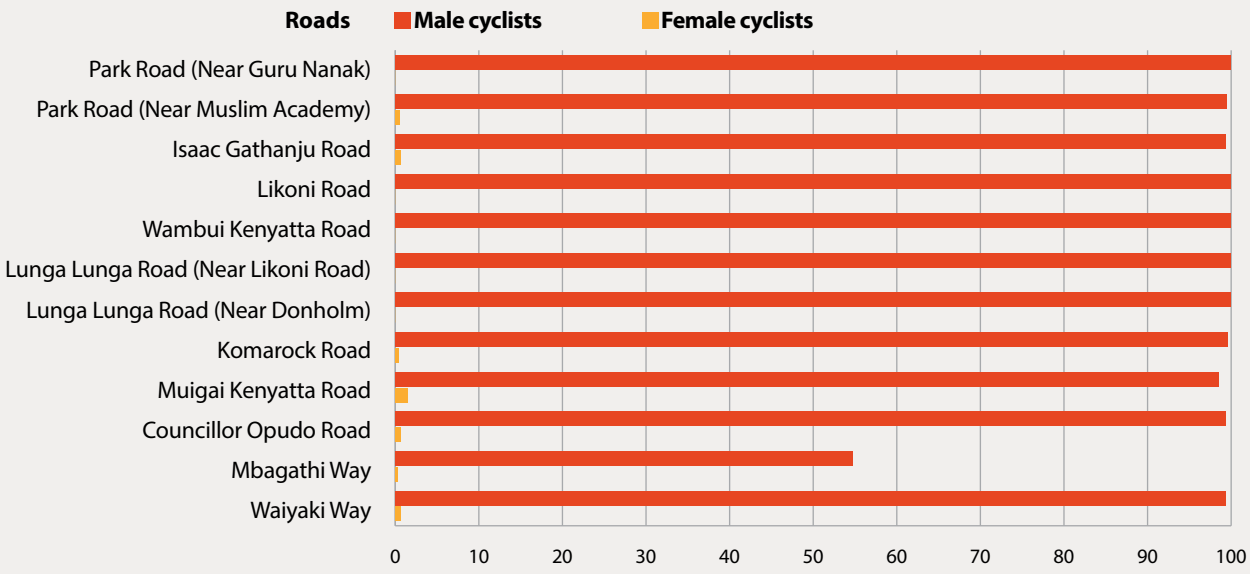
Age: From the cyclists interviewed along the major NMT corridors, the largest frequency of cyclists is 25-34 year olds (39.5%), followed by those between 35-44 years old (22.1%). **79.1% of the of cyclists interviewed were below the age of 44, indicating that most cyclists are youthful.** The number of cyclists decrease as age increases, indicating a similar trend to pedestrians, as noted in the pedestrianization newsletter issue.

Income: More than half of cyclists earn a monthly income within the range of KShs 5,000 to KShs 10,000 (55.6%). This indicates that most cyclists are low-income earners, with little choice regarding other forms of transport, such as public transport and private vehicles because of affordability.

Education: 63.7% of interviewed cyclists range from high school graduates to holders of postgraduate degrees, indicating high levels of literacy. This can be useful in guiding the design of communication strategies and public awareness campaigns on NMT. The number of cyclists reduces as education increases. For example, we observed more cyclists having a high school diploma, compared to those with college and postgraduate degrees. As highlighted in the pedestrianization series, there is need for more public awareness encouraging people to view NMT as a healthy mode of transport, rather than a preserve for low-income groups.

Gender: All 10 corridors examined had an average ratio of 99.6% male cyclists to 0.4% female cyclists. This may confirm some of the cultural stereotypes that cycling is a domain for men, and often viewed as "unladylike". However, Nairobi has seen a number of women take up cycling as a means of transport and physical activity. A number of cycling groups, such as Dada Rides, Spin Queens and Critical Mass Nairobi, have strong female leadership, and they are challenging the stereotypes related to women and cycling.

Figure 3: Gender profile of cyclists on Nairobi's major NMT corridors



SERVICES ACCESSED BY CYCLISTS AND FREQUENCY OF TRIPS

A majority of cyclists cycle every day to work (67.2%), followed by shopping trips (11.1%). These statistics are similar to the pedestrian patterns observed in the pedestrianization series. The recent commuter rail service has integrated the use of cycling by allowing cyclists to go on board with their bikes. This can make it more convenient for those who work close to the Central Business District to use their bicycles for last mile connectivity to their destinations.

Figure 4: Services accessed by cyclists

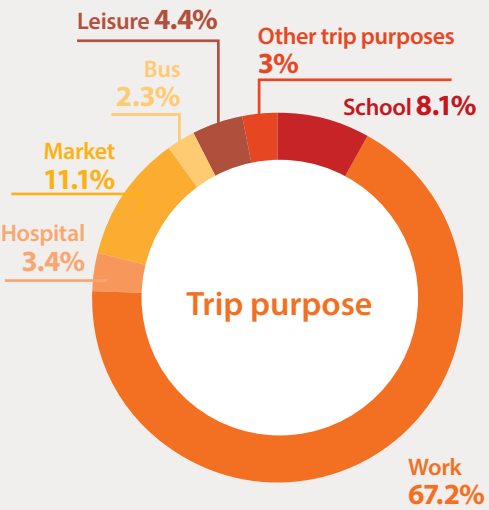
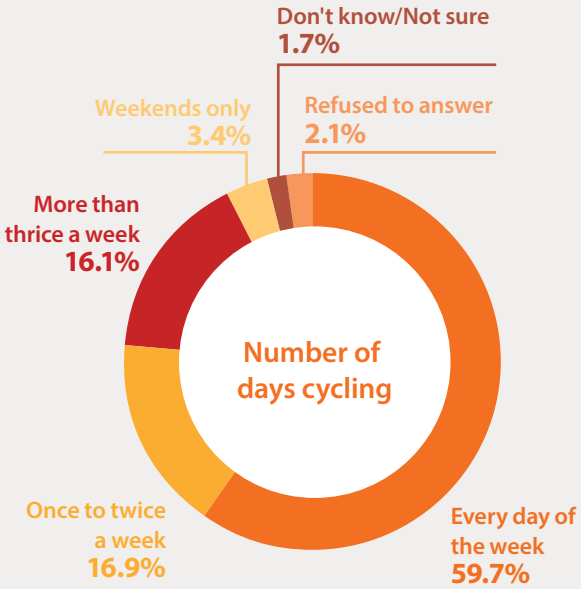


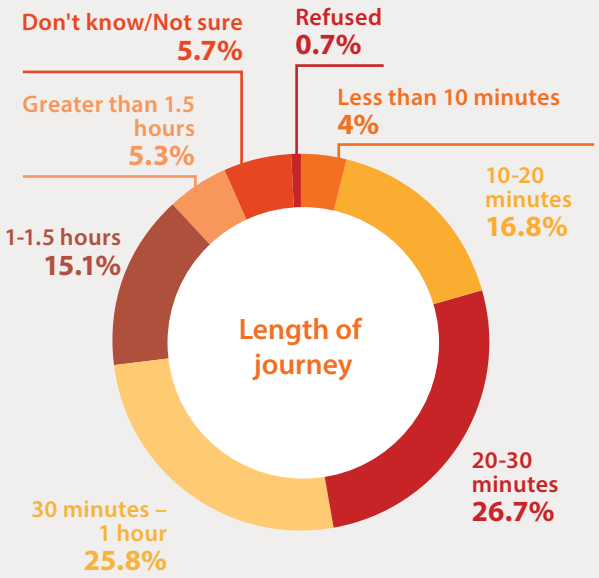
Figure 5: Frequency of cycling trips



JOURNEY TIME TO REACH DESTINATION AND PEAK HOURS

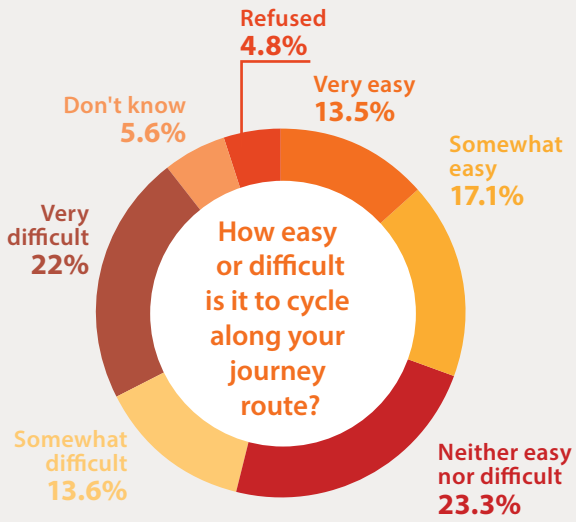
Most cycling journeys range from 20 minutes to an hour (52.5%). Morning peak hours range from **6.30am-8:30am,** while evening peak hours range from **5:00pm-6:45pm,** when most cyclists are commuting to and from work. Trends regarding peak times can be useful in informing traffic-calming measures to increase cyclists' safety and decrease motorized congestion and pollution. This calls for inter-agency collaboration with NMS, the NTSA and the Kenya Police. These trends can also support "car-free day" initiatives by providing evidence-based information on which days and areas are most suitable to kick off these initiatives.

Figure 6: Journey time to reach destination and peak hours



Do cyclists enjoy cycling?

Figure 7: Opinion on ease of cycling



FACTORS CURTAILING CYCLING

35.6% of cyclists find it somewhat difficult to very difficult to cycle along their journey route compared to 30.6%, who find it very easy to somewhat easy. A significant number of cyclists (23.3%) find it neither easy nor difficult. This indicates that the opinions of cyclists regarding the comfort of their journeys are fragmented. 58.5% of cyclists **rate lack of safe, adequate cycle lanes and motorized congestion** as their top two factors curtailing cycling, while **poor lighting** comes in third at 15.3%. The importance of cycling infrastructure that meets minimum design guidelines cannot be overstated. Details on cycling infrastructure will be addressed in the infrastructure section.

Figure 8: Factors that make cycling difficult

30.3%
Roads too busy

28.2%
No cyclist lanes

15.3%
No street lights

7.6%
Refused to answer

5%
Don't know

4.7%
Roads too narrow

4.6%
Unsafe neighborhood

2.3%
Health issues

2%
Too many hills

OPPORTUNITIES FOR MORE CYCLING

For this question 4,370 pedestrians and 701 cyclists (as part of the NMT survey conducted in 2016 referred to in the introduction) were asked if they would cycle if an operational bicycle was available to them. **While a large majority of cyclists (65%) said they would like to cycle more, almost a quarter of the cyclist respondents would not like to continue cycling perhaps due to the difficulties experienced while cycling.**

These include lack of cycling tracks, congestion and pollution. An equal proportion of pedestrians would like to cycle (43%), compared to those who would not cycle (43.1%), even if a bicycle became available. This indicates that efforts are needed to improve not only the cycling experience, but also to shift public behavioral attitudes towards embracing cycling.

PEDESTRIANS AND CYCLISTS RATE PREFERENCE FOR CYCLING

Figure 9: Pedestrians rate preference for cycling

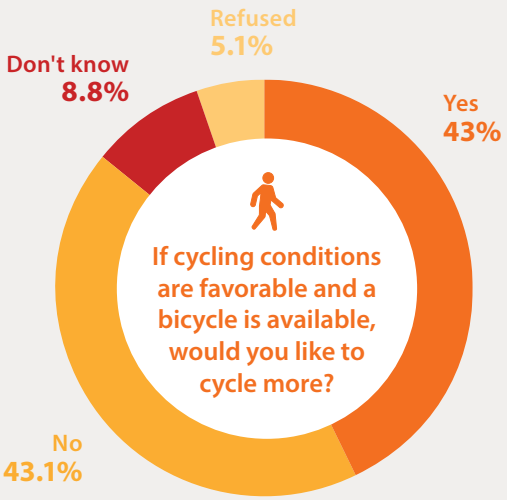
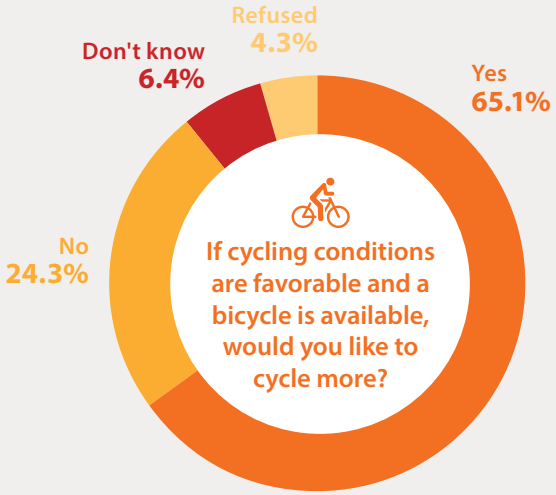
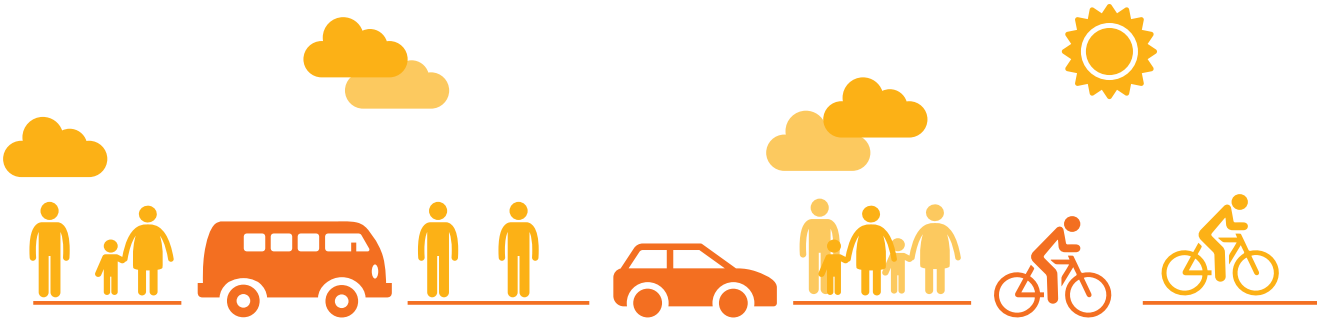


Figure 10: Cyclists rate preference for cycling





CYCLISTS' RECOMMENDATIONS TO IMPROVE CYCLING

Most cyclists interviewed singled out **provision of more cycling facilities (41%) as an important recommendation to improve the cycling experience.** These facilities include cycle lanes, bike parking racks, improved street lighting, safe signals and intersections.

Which of these changes would you recommend be made along your journey route to make it easier for you to cycle more?	Percent
Provide more cycling facilities, such as cycling paths, cycle lanes, bike parking racks, better street lighting, safe signals and intersections	41.0%
Making areas for cycling safer	17.8%
Improve existing facilities	15.8%
Don't know	7.4%
Change laws related to cycling and motorists	5.4%
Enforce laws governing cycling	4.8%
Refused	4.7%
Initiating bicycle safety education	2.0%
Something else	1.1%
Total	**100%**

CYCLING SAFETY

This section is informed by five-year crash data (2015-2019) from the NTSA.[1] **Cyclists account for 1.8% of traffic fatalities.** Though these numbers may appear low, they need to be considered in direct proportion to the share of cyclists in the city who account for 1.1% of the trips made by different modes of transport. In 2020, a number of avoidable cyclist fatalities were witnessed in the city, which led a parliamentarian to table a bill requiring road authorities to prioritize the safety of cyclists and pedestrians in Kenya.[2]

Table 2: Nairobi cyclists' fatalities (2015-2019)

YEAR	NUMBER OF CYCLIST FATALITIES	TOTAL NUMBER OF FATALITIES	PERCENTAGE
2015	7	656	1.0%
2016	11	469	2.3%
2017	14	412	3.0%
2018	9	438	2.0%
2019	3	431	0.7%

CYCLING INFRASTRUCTURE

Lack of adequate and well-designed cycling infrastructure compromises the safety and comfort of cyclists. The Street Design Manual for Urban Areas in Kenya provides standard design guidelines for cycle lanes.

Cycle tracks should be positioned between the footpath and carriageway. To increase cyclists' safety, cycle tracks should be physically separated and elevated from the carriageway with a space that is at least 0.5 meters wide rather than painted cycle lanes, which offer little protection to cyclists.

Well-designed cycle track. © Street Design Manual for Urban Areas in Kenya

The recommended width for cycle tracks is a **minimum of two meters for one-way movement, and two-and-a-half meters for two-way movement.** A **smooth surface material should be used,** such as asphalt or concrete. Paver blocks are to be avoided.

Selecting the side of the road for cycle tracks

The **side with fewer obstructions** (shops, kiosks, street traders) and the one **not frequently used by pedestrians is more attractive to cyclists,** as there are fewer "obstructions" or "hindrances". Most cyclists are actually transit travellers and are not very interested in roadside shopping. The concept of hindrances is more directly related to the comfort and convenience of cyclists.

The **side with a wider space and fewer side roads** that links well with other network roads at intersections is the better choice. It is inconvenient for cyclists to keep stopping and crossing the road to different sides each time they meet another road.

If the track is to be used by cyclists as a two-lane-two-way path, **cyclists travelling in the same direction should not be allowed to ride side-by-side. A dividing line should be marked on the track to indicate two-way usage.** This design has one distinct advantage: the cyclist moving in the same direction as the motor vehicles will be further away from the motor vehicles; and the one travelling in the opposite direction will be closest to the motor vehicles. This provides some safety at side roads for those travelling in the same direction with the motor vehicles; and more safety for cyclists travelling in the opposing direction, as there is clear visibility of the motor vehicles at all times.[3]

Cyclists during a pro-cycling campaign organized by Critical Mass Nairobi. © Edna Odhiambo

DID YOU KNOW?

Bicycles are being used as tools for empowerment to enable access to education in Kenya. **Bicycles For Educational Empowerment Program (BEEP) is a World Bicycle Relief flagship program mainly targeting students in rural areas where distance affects their ability to obtain an education.**[4]

Thousands of girls and boys can look to a brighter future having completed their primary and secondary school education thanks to the power of a bicycle!

BICYCLES FOR EDUCATIONAL EMPOWERMENT PROGRAM (BEEP)

Across the globe, to date BEEP has provided over 209,743 life-changing Buffalo Bicycles to students in rural areas.

2019 KENYA BEEP IMPACT

Girl/boy students received bicycles	2,833/1,233
Total schools reached	54
New bicycle supervisory committees trained	9
New mechanics trained	26
Existing mechanics upskilled	20
Schools that attended termly coordination meetings (TCMS)	100%
Average bicycle usage	80%
Average student attendance	90%

Beneficiaries of the Bicycles for Educational Empowerment Program (BEEP). © World Bicycle Relief

Cyclists during a pro-cycling campaign organized by Critical Mass Nairobi. © Edna Odhiambo

The current volumes of cycling are low, and Nairobi has great potential to increase the profile of cycling as an efficient and environmentally-friendly means of transport. Improving cycling infrastructure is the foremost step in securing the safety and comfort of cyclists, and in so doing encouraging more residents to take up this mode of transport. NMS has a mandate over County NMT infrastructure and Kenya Urban Roads Authority in charge of infrastructure on urban roads and, as such, these agencies are responsible for the development of a well-designed cycling network in Nairobi. Apart from infrastructure improvements, access to bicycles is a major factor hindering the uptake of cycling. Globally, many cities have launched affordable bike share programs in partnership with the business community, enabling residents to get convenient access to bicycles without having to own and maintain one. Such initiatives can be encouraged at scale in Nairobi to promote cycling.

A beneficiary of the Bicycles for Educational Empowerment Program. © World Bicycle Relief

ENDNOTES

1. National Transport and Safety Authority – NTSA. (2020). Internal documentation.
2. Business Today. (December 2020). 'New Bill Seeks to Prioritize Cyclists, Pedestrians on Kenya's Roads.' Retrieved from: https://businesstoday.co.ke/new-bill-seeks-to-prioritize-cyclists-pedestrians-on-kenyas-roads/
3. Sai Consulting International Ltd and CAS Consulting Engineers. (2016). Internal documentation.
4. World Bicycle Relief. (2019) 'Kenya Impact Report.' Retrieved from: https://worldbicyclerelief.org/wp-content/uploads/2020/05/2019-Kenya-Impact-Report_FINAL-051320.pdf

ABOUT CDKN

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Climate & Development Knowledge Network

NAIROBI NMT NEWSLETTER

January 2022

NON-MOTORIZED TRANSPORT: LESSONS FROM NAIROBI, MOMBASA AND KISUMU

Pedestrians crossing along Lungalunga Road, Nairobi. © CDKN

ISSUE 1: PUBLIC AWARENESS AND ENGAGEMENT ON NON-MOTORIZED TRANSPORT

Non-Motorized Transport (NMT): Lessons from Nairobi, Mombasa and Kisumu is a **four-part newsletter series covering public awareness and engagement, building partnerships with the private sector and public transport actors, sustainable financing and political successions**. It builds on the recommendations from previous newsletters,[1] which examined the NMT experience in Nairobi. These newsletters culminated in a study,[2] *'Promoting Non-Motorized Transport in Nairobi, A Study on Users, Safety and Infrastructure Trends'*, officially adopted by Nairobi Metropolitan Services (NMS) as a reference guide in June 2021.

As part of the efforts to implement the recommendations from the NMT study, NMS, in partnership with the Climate and Development Knowledge Network (CDKN), organized **peer learning forums among Nairobi, Kisumu and Mombasa** city officials in September 2021 and October 2021. Representatives from the National Transport and Safety Authority (NTSA) and the Kenya Urban Roads Authority were present, as these agencies are essential in securing NMT safety and improving infrastructure. These peer exchanges were informed by the commendable gains that the three cities have made on NMT and provided the opportunity for city officials to share best practices and explore solutions for advancing NMT.

This **four-part series draws on the outcomes[3] of the peer learning forums**, which have been useful in supporting several NMT stakeholders – such as city officials, road agencies, political leaders, civil society organizations and residents' associations – to develop NMT networks that meet the needs of the people.

WHERE WE ARE

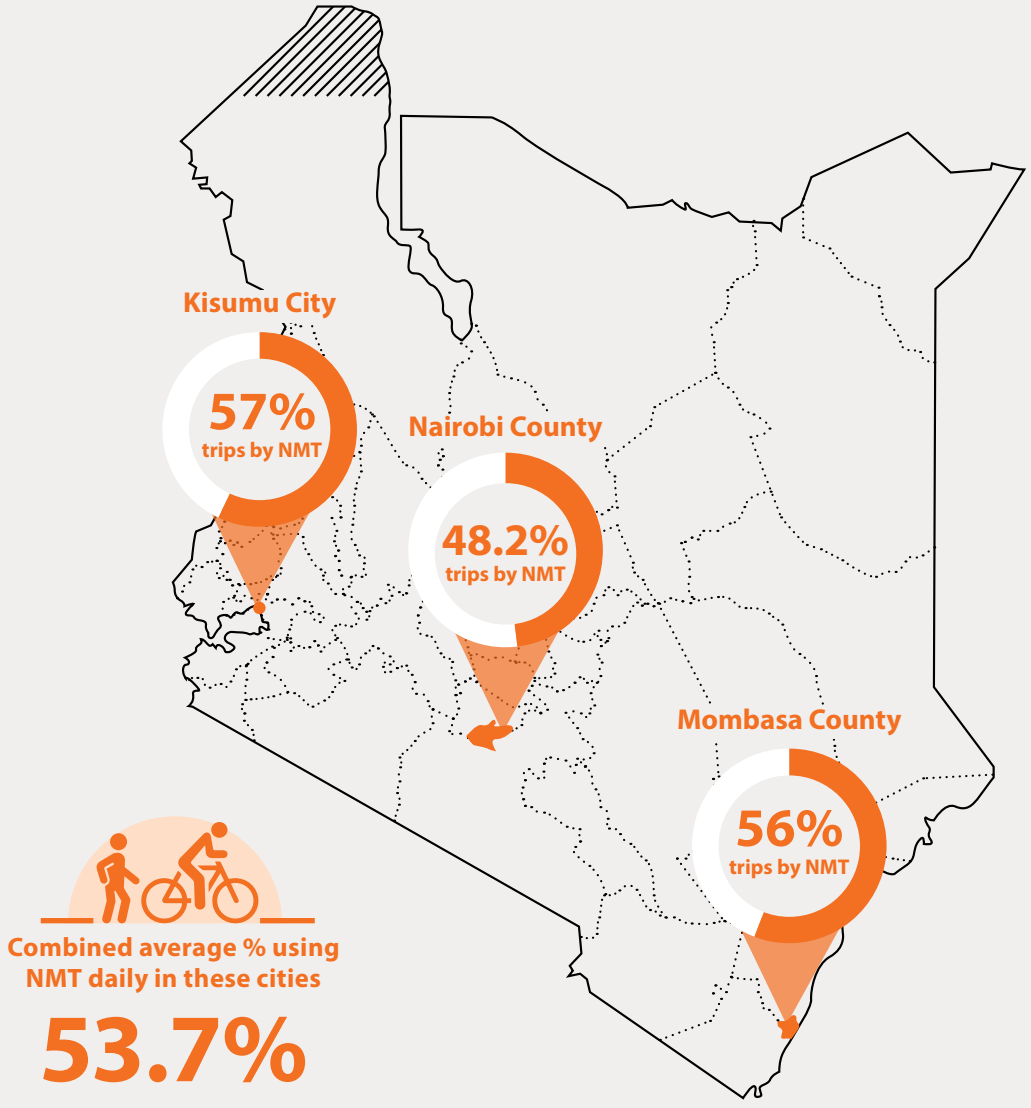
In this first issue on 'public awareness and engagement on NMT', we examine the public's interaction with NMT, the challenges faced by key stakeholders (such as road agencies) while engaging with the public on NMT and how to address them, as well as the recommendations for improving public engagements and awareness campaigns around the topic of NMT.

The socio-economic needs, user preferences and behavioral patterns of the public are crucial to determining transport networks. A foremost step is to understand the current trends in Kenya's major cities: Nairobi, Kisumu and Mombasa. **These cities have high volumes of pedestrians, with a combined average of 53.7% of daily trips made by NMT.**[4] The numbers confirm that much of the population closely interacts with NMT for their daily needs, and even those using motorized means of transport must take into consideration the large walking and growing cycling populations.

A central challenge is the general public perception that **NMT is a lowly means of transport**, reserved for the poor, while cars and highways are associated with affluence and status. For example, during *barazas* in Mombasa, residents from low-income neighborhoods often ask their leaders to build roads, despite not owning vehicles themselves and relying solely on NMT for their daily movement.[5]

This mismatch of needs is not only a poor use of financial resources, but can even endanger lives. In one instance, within days after the completion of a new road in a low-income neighborhood in Nairobi, three traffic injuries occurred. The road had been built on the insistence of the residents, who had rejected a wide footpath proposal. Since they were unaccustomed to a high frequency of motorized vehicle traffic, and children were accustomed to playing on the paths, the new road has become not only a risk, but also discourages the vibrant street life they previously enjoyed.[6]

Figure 1: Percentage of NMT users in Kenya's major cities



The perception of NMT as being inferior has resulted in **poor public awareness of the rights of NMT users and improper usage of NMT facilities**. While observing Nairobi's busiest and most dangerous corridors, the following trends were noted:

- **A lack of adequate NMT facilities** and, where present, the minimum design guidelines (such as accessibility for persons with disabilities, adequate width and street lighting) were often not met.
- **The rampant encroachment** of NMT facilities by motorists, including boda-bodas, and vendors.
- Pedestrians **running while crossing roads**, signaling a 'trespasser' mentality where pedestrians do not feel that they share equal user rights with other road users.
- Pedestrians **crossing the road at non-designated zones**.
- **Speeding** of motorists on carriageways adjacent to NMT corridors.
- **Illegal pick-up and drop-off** of passengers at non-designated zones.
- **Garbage** thrown on footpaths and clogged drains.

These trends reveal the following regarding the mindset and the level of public awareness on NMT:

1. Low awareness on the **rights of NMT users** to have safe and designated facilities, free from encroachment by motorists and vendors.
2. Low awareness about **sharing the road** among all road users, contributing to widespread speeding and pedestrians running while crossing roads.
3. Low user education on the **proper use of road facilities and traffic rules**, contributing to the crossing, picking-up and dropping-off at non-designated zones.

Encroachment of footpaths by vendors along Ring Road. © CDKN

Clogged drain along Muigai Kenyatta Road. © CDKN

Garbage along Outer Ring Road. © CDKN

Illegal pick-up and drop-off on Outer Ring Road. © CDKN

RECOMMENDATIONS FOR PUBLIC ENGAGEMENT ON NMT

Having examined the current trends on public perception and awareness regarding NMT, this section proposes recommendations to help navigate the challenges faced while engaging the public on NMT matters.

Building trust with the public

Establishing trust is a crucial first step while engaging with the public on NMT. **Understanding the target audience** is important. Their age, gender, education, income, culture and physical environment are key factors. These factors should guide the location, content, format and language of the message. The following are key steps in the process of building trust:

Go to the grassroots. Though neighborhoods within a city share similarities, every locality has unique realities. Often, **public participation forums in Nairobi are held at the sub-county level, where several wards are combined.**[9] This encourages the generalization of needs and solutions, which may not in fact be suited to a particular neighborhood. There is a **need for public participation forums to be held at a more local level, such as the ward and village levels**, to contextualize the needs of a particular area.

For example, Starehe sub-county includes Pangani, Ziwani or Kariokor, Landimawe, Nairobi South, Hospital, and the Central Business District (CBD) wards. A public participation forum was held in Kariakor and it was very challenging to have focused discussions, since **each ward has very different concerns and interests, even on matters related to NMT.**[10] The CBD ward, for example, is more interested in the impact that NMT has on businesses, while those in neighborhoods are more interested in safety and connectivity.

In Kisumu, public participation has been encouraged beyond the sub-county and ward levels, all the way down to the village unit. This is an exemplary practice supported by the adoption of the **Kisumu County Administration Village Units Act.**[11] Other counties should also encourage public participation beyond the ward level and adopt legislative frameworks that guide deeper public participation. These approaches offer a more contextualized response to the public's needs on NMT.

Take advantage of existing structures of influence. Leveraging the current organization of a community can not only **save resources** while undertaking public engagement, but also **increase the chances of acceptance** of the message. For example, in Mombasa and Nairobi, road agencies and county officials sometimes **collaborate with political and opinion leaders to influence their constituents on the benefits of NMT.** This has been particularly effective where sensitive exercises, such as acquisition of land for NMT or enforcement against encroachment, are involved.[12]

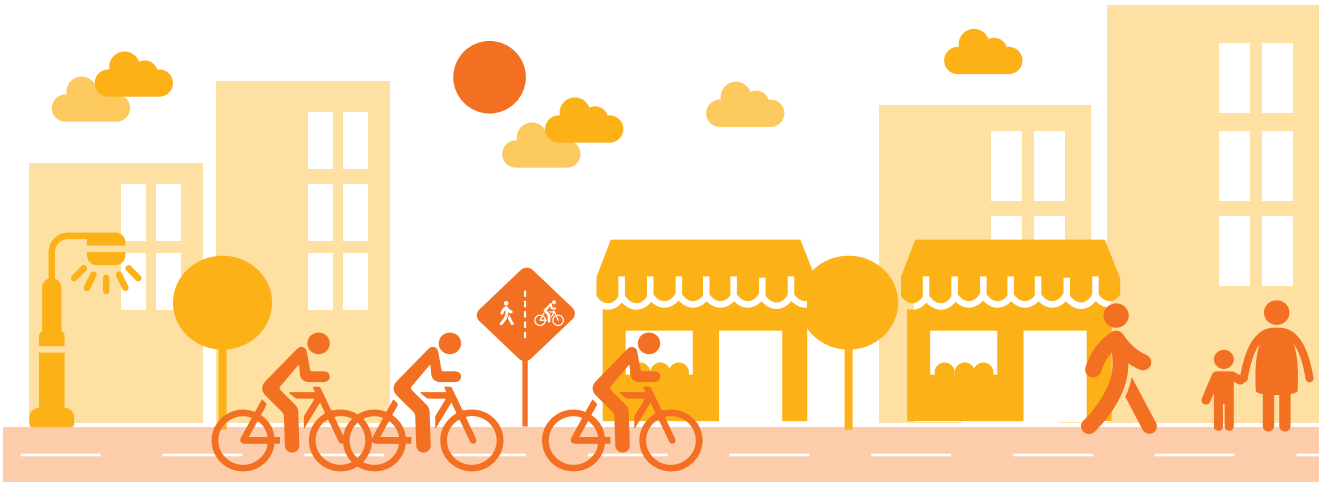
Other influential structures that are often under-utilized include **residents' associations and community radio stations**. For example, Mukuru informal settlement is a Special Planning Zone where the government is investing significant resources to address the living conditions, including NMT connectivity. Ruben FM is a community radio station in Mukuru, broadcasting within a three-kilometer radius. It aims to empower and unite the residents of Mukuru through education, information and entertainment.[13] Such platforms, which already enjoy goodwill from the community, can offer productive avenues to engage the public on NMT.

Dress and talk appropriately. First impressions often go a long way, and one's **manner of dress and language of address** are crucial. For example, many residents from low-income neighborhoods are more comfortable expressing themselves in Swahili, Kenya's national language. Addressing them in English **creates a barrier to open communication and does not enhance trust.**

In addition, one's mode of dress may often seem insignificant. However, even **attire should appeal to the status (age, income, occupation, religious beliefs) of the person being addressed**. For example, wearing a business suit to speak to an audience of blue-collar workers would not be appropriate and, by drawing attention to status and hierarchy, could create a communication barrier.

Have patience and listen. Public engagement is a **continuous and sustained effort**, until the desired outcomes are achieved. It is important to recognize that shifting attitudes and changing behaviors take time. **Listening to the needs of the people** rather than advancing preconceived messages and solutions is important.[14] It allows for genuine engagement, where the public feels consulted. It fosters a sense of ownership that NMT facilities are a public good[15] and offers an opportunity to **co-create sustainable solutions on NMT**.

Be sensitive to immediate needs. Almost 60% of the population in Nairobi dwells in informal settlements,[16] with tough living conditions. These residents are a big part of the public engagement audience. It is important to **present the NMT message in a way that recognizes and advances solutions to immediate needs.** For example, more members of the public will find the cost-savings from reduced commuter fares and the socio-economic vibrancy of walkable areas more appealing, rather than the health benefits of using NMT whereas the health benefit of NMT is one that the middle-class residents will resonate with more, compared to the cost-savings accruing from NMT.



Increasing awareness on the importance of NMT

Once trust has been built, the next step is to educate and build awareness on NMT. This involves highlighting its benefits, educating users and enforcing traffic rules. Assuming the target group has already been identified and trust has been built, the following are some of the factors to consider while undertaking public education on NMT:

Capitalize on the benefits of NMT: Depending on the audience, what factors can we focus on while engaging the public on NMT?

Cost-savings: Well-designed NMT networks that provide improved access to socio-economic activities offer opportunities for the public to save costs on commuter fares. Reduced transport costs, particularly for low-income residents, can significantly ease financial constraints on families while allowing them to meet other pressing needs.

Improving socio-economic opportunities: Emphasizing the role of NMT in increasing opportunities for economic development is important. For example, this includes sensitizing the public on how NMT can not only boost small and large businesses by increasing foot traffic and social vibrancy along the streets, but also help improve security.

Health benefits: The fact that NMT promotes active lifestyles, which can reduce the dangers of sedentary living, is a selling point. Additionally, we can remind the public that many of our cities have poor air quality, which negatively affects our health, and illustrate how NMT, being a zero-carbon form of transport, helps to reduce air pollution.

Environmental benefits: Besides helping to improve air quality for health reasons, one can also mention that NMT plays a role in addressing the climate crisis, since it promotes a zero-carbon mobility option.

Have the right tools for engagement: Sub-county administrators involved in public participation and engagement forums in Nairobi have noted that there are often inadequate financial and skilled human resources dedicated to public engagement. This results in poor preparation and suboptimal outcomes.[17] Below are some recommendations for how to optimize public engagements on NMT:

Be prepared: Public engagement, like any other forum, needs adequate preparation. This includes a focused agenda developed with the relevant stakeholders, an appropriate venue and materials, and conducting the engagement in a timely manner.

Use skilled facilitators: Engagement is a skill, and often the responsibility of facilitating is left to sub-county and ward administrators. Though these administrators play a central role in mobilizing the community, they need support with facilitation. Using skilled facilitators to assist in public awareness and education on NMT is essential.[18] This allows for the message to be presented in a way that is best suited to the audience and, most importantly, for the audience to feel heard and included in the outcomes. There is also an opportunity to build the skills of sub-county and ward administrators with basic NMT knowledge and facilitation capacity, to enhance their role in public engagement on NMT.

Use data to support your message: When engaging with the public, the use of current and credible data

helps build trust in the messages about NMT. For example, 66.2% of all traffic fatalities in Nairobi are NMT users, translating to more than 330 lives lost annually.[19] This makes for a more powerful message compared to only stating that pedestrians are the most vulnerable road users. Similarly, public awareness campaigns on road safety often focus on women, children and persons with disabilities. However, 88.3% of all traffic fatalities in Nairobi are men.[20] Moreover, many of them are young men between the ages of 20 to 40.[21] These are examples of how data can guide and strengthen messages on NMT.

Include technical officers: It has been noted that during public engagement forums, there is a lack of interest from county technical personnel, especially the senior officers who have the power to influence policy and budgetary changes on NMT.[22] Technical personnel are best suited to explain some of the finer details on NMT to the public. These officers are not obligated to attend these forums and often send junior officers who have little decision-making authority. Junior officers are important to the discussions. However, they need to be accompanied by senior officers who make decisions, have much more experience with the issues being discussed and, hence, can contribute effectively to the discussions. The sub-county and ward administrators have called upon the county transport departments to build strong working relationships with them to navigate these challenges related to accessing officials.[23]

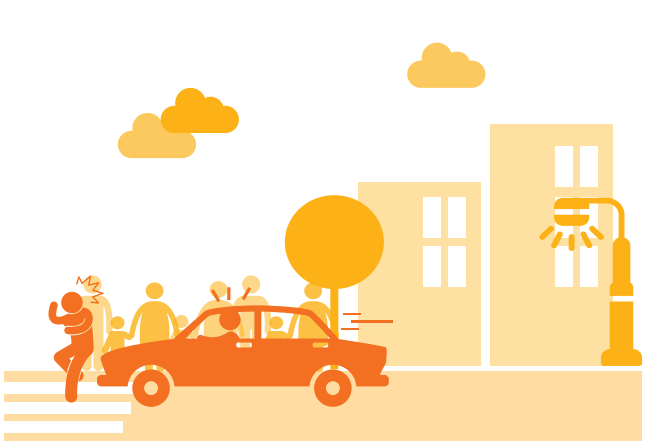
Include enforcement officers: Enforcement officers need to attend these forums so that they can understand the behavioral attitudes of users. During these forums, they can dig deeper into some of the reasons that lead to encroachment of NMT facilities, speeding, crossing, and pick-up and drop-off at non-designated zones. It has been noted that when some key stakeholders are not part of the conversations, sub-county administrators can only forward the feedback from the forums, and this method has not been effective in addressing the concerns from the public. This leads to frustration among the public and consequently a sense of distrust of authorities becomes entrenched.[24]

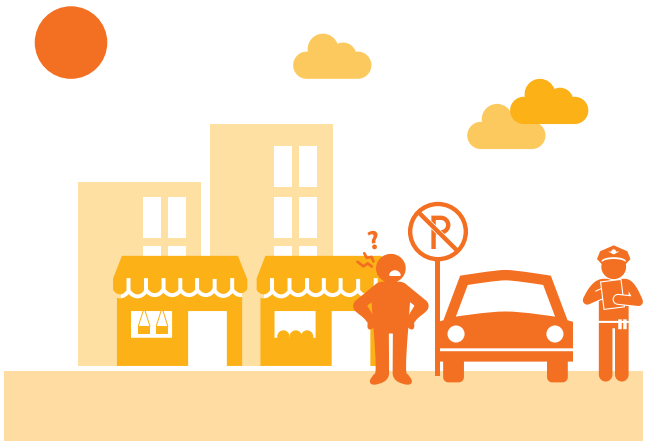
Be creative: Beyond the conventional public engagement forums, theatre, song, dance and technology such as mobile phone applications and hotlines can support public engagement on NMT. For example, *Zusha!*,[25] a road safety campaign, includes messages on saving lives inside Public Service Vehicles and hotlines for the public to report the breach of traffic rules by public transport operators and other members of the public.

Shifting behavioral attitudes towards NMT

Changing the perception that NMT is a lowly means of transport as opposed to a convenient, healthy and clean means of mobility, is a long-term effort. This involves unlearning misconceptions and embracing new ways of thinking. One of the most effective ways of shifting behavior is starting at a personal level and being the change you want to see. Many advocates of NMT often avoid using it because they prefer the comforts of motorization and are concerned about anticipated negative perceptions from others. However, emphasizing that cars are just a means of mobility that can complement NMT, and not a sign of status, is particularly important.

Furthermore, public opinion and political leaders can play a significant role in influencing their constituents. For example, the Nairobi County Women Representative has often been spotted cycling to the County Assembly.[26] If we encourage more leaders to start using NMT, it will support the shift in perception away from NMT being a lowly means of transport.





The law is your friend

There are many challenges faced while engaging the public, such as governance, budgetary constraints and vested interests. Remembering that public participation is a right of the people provided for under the Constitution of Kenya,[27] which vests power to the people, can help navigate the obstacles that minimize public inclusion on matters dealing with public goods. This requirement for public participation has been included in several other laws and is important for ensuring inclusion, transparency and accountability to the public on matters that affect people's daily lives, like NMT.

While enforcement of traffic laws is an important aspect of ensuring proper use of road facilities, including NMT and securing user safety, it should not precede engagement and education. **If enforcement precedes awareness and engagement, it creates mistrust between the public and the authorities** and will often result in poor outcomes.

Enforcement can also be used as an opportunity to educate. For example, in the enforcement against encroachment of NMT facilities and drunk driving, NMS often resorts to collaborating with NTSA to revoke the driving licenses of such motorists and requires them to undertake refresher driving classes to understand and observe traffic regulations.[28] Sometimes, this approach towards enforcement can prove to be more effective than fines. A traffic offender can easily pay for a fine, move on, and repeat the same offence. However, the inconvenience of having one's license revoked creates a deterrent with more magnitude.

CONCLUSION

In conclusion, an informed public will appreciate the benefits of NMT, which will, in turn, lead to a greater demand for proper infrastructure. This infrastructure will be used appropriately because of increased user education. Increased awareness will also ensure that the public is involved in the enforcement of traffic rules since they will be empowered on the rights to share the road and that of NMT users. Overall, this will result in a better and safer NMT-user experience.

In our next issue, we focus on building partnerships with the private sector and public transport actors; two groups that play a major role in the NMT experience.

ENDNOTES

1. Climate and Development Knowledge Network. (2021). 'Promoting Non-Motorized Transport in Nairobi'. Retrieved from: www.cdkn.org/nmt
2. Climate and Development Knowledge Network. (2021). 'Promoting Non-Motorized Transport in Nairobi, A Study on Users, Safety and Infrastructure Trends'. Retrieved from: www.cdkn.org/nmtstudy
3. Climate and Development Knowledge Network. (2021). 'Non-Motorized Transport Peer Learning Nairobi-Kisumu-Mombasa Reports'. Retrieved from: www.cdkn.org/nmt
4. Ibid.
5. Climate and Development Knowledge Network. (2021). 'Mombasa-Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/mombasanmtreport
6. Climate and Development Knowledge Network. (2021). 'Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/kisumunmtreport
7. Climate and Development Knowledge Network. (2021). 'Promoting Non-Motorized Transport in Nairobi, A Study on Users, Safety and Infrastructure Trends'. Retrieved from: www.cdkn.org/nmtstudy
8. Climate and Development Knowledge Network. (2021). 'Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/kisumunmtreport
9. Climate and Development Knowledge Network. (2021). 'Mombasa-Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/mombasanmtreport
10. Ibid.

11. Kenya Law Reports. (2019). 'Kisumu County Administration Village Units Act'. Retrieved from: http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/2019/KisumuCountyAdministrationVillageUnitsAct2019.pdf
12. Climate and Development Knowledge Network. (2021). 'Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/kisumunmtreport
13. Standard Media. (2021). 'President Uhuru Kenyatta surprise visit to Mukuru kwa Reuben FM Station'. Retrieved from: https://www.standardmedia.co.ke/ktnnews/news-centre/video/2000214485/president-uhuru-kenyatta-surprise-visit-to-mukuru-kwa-reuben-fm-station
14. Climate and Development Knowledge Network. (2021). 'Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/kisumunmtreport
15. Climate and Development Knowledge Network. (2021). 'Mombasa-Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/mombasanmtreport
16. World Bank. (2019). 'Kenya Informal Settlements Improvement Project'. Retrieved from: https://documents1.worldbank.org/curated/pt/364621576423240976/pdf
17. Climate and Development Knowledge Network. (2021). 'Mombasa-Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/mombasanmtreport
18. Ibid.
19. Climate and Development Knowledge Network. (2021). 'Promoting Non-Motorized Transport in Nairobi, A Study on Users, Safety and Infrastructure Trends'. Retrieved from: www.cdkn.org/nmtstudy
20. Ibid.
21. Ibid.
22. Climate and Development Knowledge Network. (2021). 'Mombasa-Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/mombasanmtreport
23. Ibid.
24. Ibid.
25. https://www.thelifeyoucansave.org/best-charities/zusha/
26. Standard Media. (2019). 'Esther Passaris ditches car, rides bicycle to parliament'. Retrieved from: https://www.standardmedia.co.ke/entertainment/local-news/2001283947/photos-esther-passaris-ditches-car-rides-bicycle-to-parliament
27. Constitution of Kenya. (2010). Article 10.
28. Climate and Development Knowledge Network. (2021). 'Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/kisumunmtreport

ABOUT CDKN

CDKN works to enhance the quality of life for the poorest and most vulnerable to climate change. We support decision-makers in designing and delivering climate compatible development.

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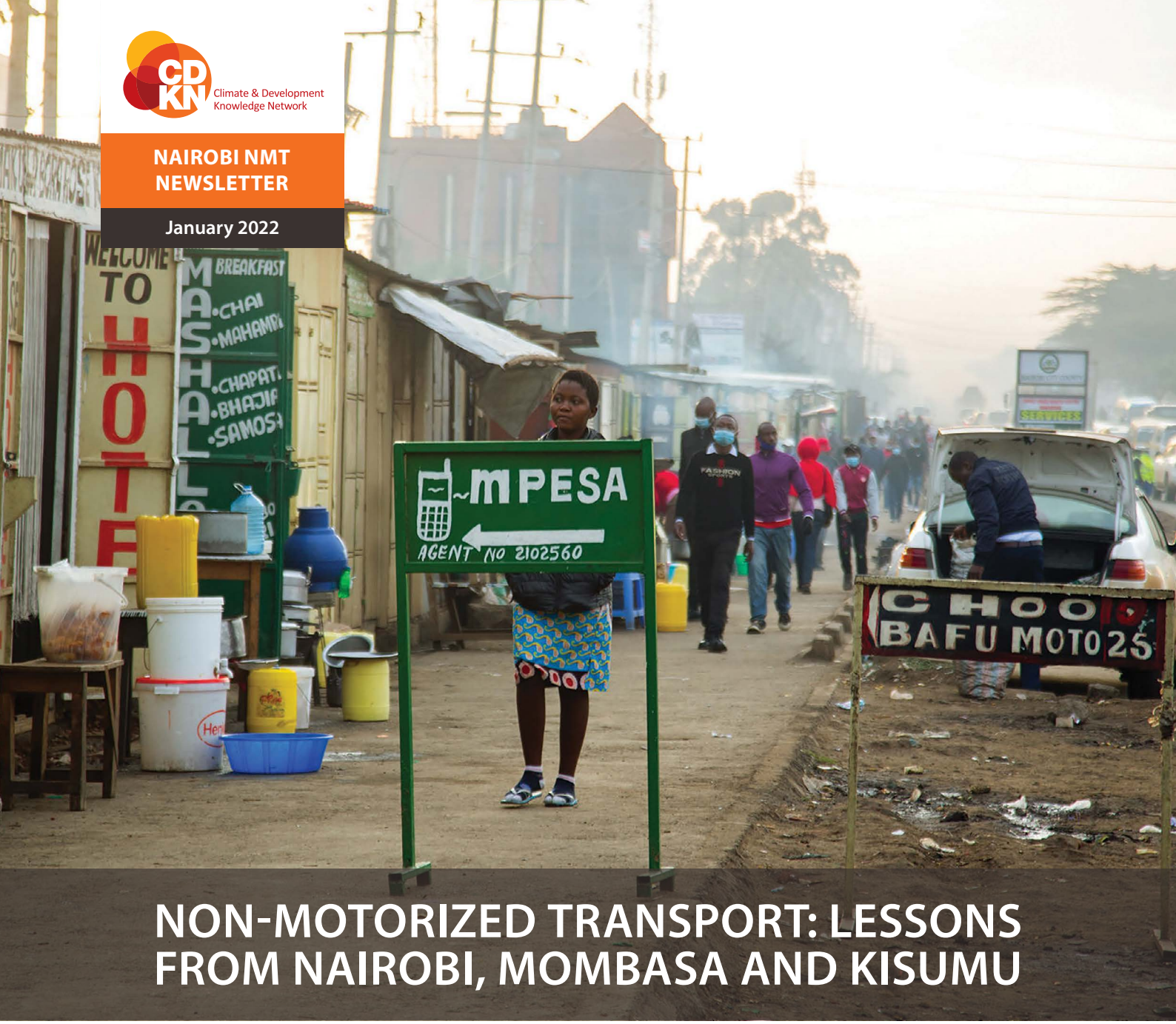

NON-MOTORIZED TRANSPORT: LESSONS FROM NAIROBI, MOMBASA AND KISUMU

Footpath encroachment by vendors on Lungalunga Road, Nairobi. © CDKN

ISSUE 2: BUILDING PARTNERSHIPS WITH THE PRIVATE SECTOR AND PUBLIC TRANSPORT ACTORS

Non-Motorized Transport (NMT): Lessons from Nairobi, Mombasa, and Kisumu is a **four-part newsletter series.** The first issue covered public awareness and engagement,[1] while **this issue will examine building partnerships with the private sector and public transport actors**. The next two issues will cover sustainable financing and political successions. This series builds on the recommendations from the previous newsletters,[2] which examined the NMT experience in Nairobi. These newsletters culminated in a study[3], *'Promoting Non-Motorized Transport in Nairobi, A Study on Users, Safety and Infrastructure Trends'*, officially adopted by Nairobi Metropolitan Services (NMS) as a reference guide in June 2021.

As part of the efforts to implement the recommendations from the NMT study, NMS, in partnership with the Climate and Development Knowledge Network (CDKN), organized **peer learning forums among Nairobi, Kisumu and Mombasa** city officials in September 2021 and October 2021. Representatives from the National Transport and Safety Authority and the Kenya Urban Roads Authority were present, as these agencies are essential in securing NMT safety and improving infrastructure. These peer exchanges were informed by the commendable gains that the three cities have made on NMT and provided the opportunity for city officials to share best practices and explore solutions for advancing NMT.

This **four-part series draws on the outcomes[4] of the peer learning forums**, which have been useful in supporting several NMT stakeholders – such as city officials, road agencies, political leaders, civil society organizations, and residents' associations – to develop NMT networks that meet the needs of the people.

ENGAGING THE PRIVATE SECTOR ON NMT

In this context, the private sector refers to formal traders, street vendors or hawkers and offices. A good starting point is to examine what role the private sector plays in NMT matters. Private sector actors attract human traffic, be it people seeking to purchase goods and services from shops or street vendors, or those visiting offices. Since they attract human traffic, they create demand for NMT facilities, and their location and distribution can also influence an NMT network. Additionally, due to their location next to NMT facilities, they have immediate access and regular interaction with these networks.

Opportunities for engaging the private sector on NMT

Having laid out the role of private sector actors in NMT, it is important to understand their needs and strengths, and how these issues can be leveraged while promoting NMT.

Good walking is good business: Private sector actors are keen on attracting foot traffic to boost their sales. In this regard, they are interested in whether people would find it easy and enjoyable to access their enterprises. Therefore, well-connected NMT networks support the profitability of their businesses.

Partnering with the private sector as NMT facility investors: Since the private sector has a vested interest in attracting human traffic to boost business, there is an opportunity to partner with private sector actors as NMT investors. For example, in Nairobi, NMS has partnered with banks and formal businesses along AgaKhan Walk to fund the NMT corridor adjacent to their businesses. These partnerships are mutually beneficial as they support the county with financing while offering businesses better accessibility and advertising opportunities on litter bins and streetlights.[5]

Footpath encroachment by vendors on Outer Ring Road , Nairobi. © CDKN

The private sector can also offer maintenance services for NMT facilities. Businesses along Park Road in Ngara, for example, help maintain street benches since their customers benefit from using these benches and this, in turn, boosts sales.[6] Globally, many cities have partnered with the private sector to promote cycling, through branded bicycles and docking stations for their bike-share programs. For example, New York City has partnered with Citibank for its extensive bike-share program, which includes 10,000 branded bicycles and 600 branded bike-docking stations.[7]

Recommendations while engaging with the private sector on NMT

Shifting the perception that NMT will disrupt business activities

Though many businesses often rely on human traffic and walk-in customers, there is a common perception that NMT facilities can act as obstructions to their accessibility and even increase crime and security issues, due to increased foot traffic close to their shops. However, this is a misconception that needs to be addressed, since research shows that walkable streets encourage more purchasing, including impulse buying.[8] Using techniques such as making streets inviting, as seen on Luthuli Avenue in Nairobi, to showcase the benefits for businesses when streets are made walkable, is a powerful way to shift attitudes towards appreciating NMT facilities.

Obtaining space for NMT facilities

Sometimes, improving or establishing new NMT facilities may require the acquisition of space from businesses. This will often mean a temporary interruption of smooth operations due to road closures and construction work, which also causes noise and air pollution. The bigger picture needs to be presented to private sector actors that improved NMT facilities will provide opportunities to increase and recoup lost sales.

Additionally, to avoid future interference with services, road agencies need to incorporate dedicated sleeves and service ducts in the design and construction of NMT facilities.[9] This offers service providers, such as water, electricity and cable companies, underground space for their infrastructure, as well as planned room for expansion for future needs while avoiding disrupting NMT facilities.

Enforcing against encroachment on NMT facilities

Street vending is the most common form of encroachment from private sector actors, and is often done on walking paths. Street vending is a trickier form of encroachment to manage since it often provides essential goods and services and is responding

to public demand. The Street Design Manual for Urban Areas in Kenya (2019) states that well planned streets should accommodate street vending. It recommends that vending spaces should be accommodated where they will not interfere with pedestrian movement. It also notes that vendors will be attracted to areas with shade and high visibility to pedestrians. Supporting infrastructure, such as cooperatively managed water taps, electricity points, litter bins and public toilets, should also be provided to encourage hygienic practices.[10]

Similarly, many shop owners tend to put advertising boards on the footpaths in front of their shops, and this obstructs the free movement of pedestrians and reduces the enjoyment of the walking experience. Enforcement authorities need to educate these enterprises that the walking path is for public use and should not be used for advertising. Instead, shop owners can be encouraged to advertise by branding litter bins, streetlights and benches along the NMT facilities.

Generally, there are several opportunities to establish win-win partnerships on NMT with the private sector by capitalizing on their needs for increased pedestrian traffic, visible advertising and ease of access, and showing how these can be achieved by enhancing the NMT agenda.

ENGAGING THE PUBLIC TRANSPORT SECTOR ON NMT

In this context, public transport actors include *matatu* operators, *bodabodas*, ride-hailing companies and *tuk-tuks*. All these actors provide access to and from NMT facilities. Due to the diversity of players, corporate actors in the sector, such as ride-hailing companies who use motorcycle riders, can be engaged as partners in maintaining NMT infrastructure, such as street signs and benches, as they advertise on them.

Recommendations while engaging with public transport actors on NMT

Enforcement of pick-up and drop-offs at designated zones

One of the factors affecting NMT safety is the pick-up and drop-off of passengers at non-designated zones. Understanding user patterns, including pedestrian traffic flow, is important for determining the most appropriate pick-up and drop-off points. These points should be complemented by proper NMT facilities to allow for first-mile and last-mile connectivity, which enable a seamless journey. The leadership of *matatu* Savings and Credit Cooperative Organizations (SACCOs) can also support the enforcement of these rules on designated pick-ups and drop-offs.[11]

Enforcement against encroachment on NMT facilities

Encroachment of NMT facilities, especially by motorcycle riders, is widespread and compromises the safety of NMT users. Some of the solutions against encroachment are:

Include designated parking for motorcycle operators in the design and construction of NMT facilities. Most of the motorcycle operators do not have designated parking areas, which forces them to park on NMT facilities. These waiting bays for motorcycle operators should be shaded, and street vending could even be incorporated within them, creating more economic opportunities.

Regulate motorcycle operations. Such regulations should cover the operation, licensing, identification and enforcement in case of non-compliance. Nairobi, Kisumu, Mombasa and the Kenya Police department all share the same frustration of enforcement against motorcycles breaking traffic rules, since many of them are not registered. In Kisumu, they have established mobile municipal courts that deal with rogue motorcyclists.

Illegal pick-up and drop-off on Outer Ring Road, Nairobi. © CDKN

The courts have proved to be effective, as cases are dealt with immediately and the fines charged are fair, such as 200-300 Kenya Shillings. This can support compliance but is not too punitive to push the operators out of business.

Legislate that motorcycle operators must register with SACCOs or any other identifiable group. These groups should have a code of conduct for their members to deter criminal activity, especially from those who double as criminals in the guise of offering public transportation. NMS has noticed that operators appear to adhere to such rules more easily and faithfully than the general laws of the counties.[12]

Provide more training facilities for aspiring motorcycle operators. Doing so, especially through existing institutions that provide training on industrial skills, such as the National Industrial Training Institute and National Youth Service, can encourage more discipline in the motorcycle industry.

Look for more **creative ways of protecting NMT footpaths, apart from bollards and greenery**, to curb encroachment, without compromising the needs of different users, such as wheelchair users.

Translate **traffic signage and laws into the languages that users in the area are familiar with**, such as Swahili or even vernacular languages where needed. In operationalizing the new Green Park Stage in Nairobi, NMS is in consultation with motorcycle operators to have a color-based identification system for end-user commute routes. This approach also allows motorcycle operators to feel accepted in the NMT transportation ecosystem and can increase compliance with traffic laws.[13]

To conclude, public transport plays a central role in the transport system and is complementary to NMT. These recommendations can be useful in guiding county officials and road agencies in engaging with the private sector and public transport actors to support the NMT agenda through mutually beneficial partnerships.

ENDNOTES

1. Climate and Development Knowledge Network. (2022). 'Non-motorized transport: Lessons from Nairobi, Mombasa and Kisumu - Issue 1: Public awareness and engagement on non-motorized transport'. Retrieved from: www.cdkn.org/nmtnewsletter/publicawareness
2. Climate and Development Knowledge Network. (2021). 'Promoting Non-Motorized Transport in Nairobi'. Retrieved from: www.cdkn.org/nmt
3. Climate and Development Knowledge Network. (2021). 'Promoting Non-Motorized Transport in Nairobi, A Study on Users, Safety and Infrastructure Trends'. Retrieved from: www.cdkn.org/nmtstudy
4. Climate and Development Knowledge Network. (2021). 'Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/kisumunmtreport
5. Ibid.
6. Ibid.
7. Citi Group. (2019). 'Citi to sponsor New York City's new bike share program'. Retrieved from: https://www.citigroup.com/citi/citiforcities/roads_transit/n_050912.htm
8. Walk Boston. (2012). 'Good walking is good business'. Retrieved from: https://walkboston.org/resources/handouts/good-walking-is-good- business/
9. Climate and Development Knowledge Network. (2021). 'Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/kisumunmtreport
10. Institute of Transport and Development. (2019). 'Street Design Manual for Urban Areas in Kenya'. Retrieved from: https://africa.itdp.org/publication/street-design-manual-for-urban-areas-in-kenya/
11. Climate and Development Knowledge Network. (2021). 'Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/kisumunmtreport
12. Ibid.
13. Ibid.

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NON-MOTORIZED TRANSPORT: LESSONS FROM NAIROBI, MOMBASA AND KISUMU

Cyclists along Lungalunga Road. © CDKN

SUSTAINABLE FINANCING AND NON-MOTORIZED TRANSPORT

Non-Motorized Transport: Lessons from Nairobi, Mombasa and Kisumu is a **four-part newsletter series on non-motorized transport, covering public awareness and engagement, partnership building with the private sector and public transport actors, sustainable financing, and political successions.**

This series builds on recommendations from a previous newsletter series published by the Climate and Development Knowledge Network (CDKN), which examined the NMT experience in Nairobi. It culminated in a study,[1] 'Promoting Non-Motorized Transport in Nairobi: A Study on Users, Safety and Infrastructure Trends,' which was officially adopted by the Nairobi Metropolitan Services (NMS) as a reference guide in June 2021.

As part of the efforts to implement the recommendations from this study, NMS, in partnership with CDKN, organized **peer learning forums among Nairobi, Mombasa and Kisumu city officials** in September 2021 and October 2021. Representatives from the National Transport and Safety Authority (NTSA) and the Kenya Urban Roads Authority were also present, as these two agencies are essential in securing NMT safety and improving infrastructure. These peer exchanges were informed by the commendable gains that the three cities have made on NMT and provided the opportunity for city officials to share best practices and brainstorm plans to advance NMT in their respective cities.

This **four-part newsletter series draws on the outcomes[2] of the peer learning forums,** which have been useful in supporting several NMT stakeholders – such as city officials, road agencies, political leaders, civil society organizations and residents' associations – to develop NMT networks that meet the needs of the people.

The construction and maintenance of NMT infrastructure calls for sustainable sources of financing. This newsletter will:

1. Explore the existing sources of NMT financing across Kisumu, Nairobi, and Mombasa;
2. Highlight a selection of under-explored finance sources for NMT; and
3. Recommend financing mechanisms that are sustainable in the long-term.

Sources of NMT financing across Kisumu, Mombasa, and Nairobi

Kisumu, Mombasa and Nairobi present with unique and contrasting NMT financing models. Kisumu City's NMT projects have so far been purely donor-funded, whereas Mombasa's have been largely funded by government road agencies. Nairobi has the most diverse sources of funding, ranging from county budgetary allocation and county revenues, to development loans.[3]

Kisumu

In Kisumu City, NMT phase one covering 1.8 kilometers (km), and phase two (ongoing) covering 8.1 km, are **fully funded by the World Bank through the Kenya Urban Support Program (KUSP)**. The KUSP focuses on supporting the development of cities that have been recognized as being underfunded in existing county government regimes. However, the fund does not cater for maintenance of the established infrastructure, which highlights the need for sustainable sources of NMT financing going forward.[4]

The city is thus exploring alternative sources of financing for NMT, including:

- A **minimum budgetary allocation** of 5% for urban infrastructure by Kisumu County Government.
- Resources from the **Kenya Urban Mobility Program (KUMP).**
- **Tariffs collected from fiber optic providers** to be used for maintenance of NMT facilities.
- **Public-private partnerships with business.** An example is as an ongoing partnership between the city and Naivas Supermarket on Nairobi Road.

Mombasa

The 81 km of NMT infrastructure in Mombasa was financed by several stakeholders: 29.4 km was financed by the Kenya Municipal Program, 40 km by the Mombasa County Government, and the remaining 11.6 km by the Kenya Urban Roads Authority and Kenya National Highways Authority.

In Mombasa, the Roads, Public Works and Transport department prioritizes funds according to the needs of the county. As such, **NMT and drainage facilities are often sacrificed when there are budgetary constraints.** Using a complete street guide approach to inform how funds are prioritized and budgetary guidelines are established can help ensure that drainage and NMT facilities are included. Additionally, there is **a need to revise NMT Key Performance Indicators to focus on outcomes of the facilities for users, rather than focusing on the length of NMT facilities constructed.**[5]

Nairobi

In Nairobi, the Roads department, like Mombasa, prioritizes financing according to needs. As such, in Nairobi, too, there is a need to have the complete road design framework incorporated in decision-making. This approach allows for all road users' needs, including pedestrians and cyclists, to be considered in the design and implementation of road infrastructure.[6]

Commendably, **during the 2020/2021 financial year, Nairobi saw 40% of city finances focused on NMT projects.**[7] This may partly be a result of increased policy and legislative support for financial allocation towards NMT, which is translating into actual budgetary support for NMT. According to the Nairobi NMT Policy,[8] 20% of funds collected by the county are allocated to infrastructure as road funds. Additionally, the Transport Act[9] states that 15% of county revenue is to be allocated to the transport fund. Most of the revenue contributors come from the transport sector, such as parking fees and licenses.

Other potential sources of NMT financing for the county include:

- The **Ward Development Program (WDP)**, through Ward Committees, identifies projects within each ward. The budget allocation for the WDP is approximately KES 1.5 billion, and research shows that up to 80% of the funds are allocated to road projects.
- Nairobi gets a share of the **Fuel Levy Fund**, which is used for maintenance and routine works. All counties receive a share of this fund and can utilize it to improve NMT facilities.
- Nairobi also receives funding from the **Kenya Informal Settlement Program (KISIP)**, which could be used for NMT purposes.
- **The Kenya Roads Board Fund** is less bureaucratic as it does not require approval by the political class; therefore, it is easier to prioritize NMT within this Fund.
- NMS has partnered with **private sector players** to assist in financing and coordinating projects.
- Leveraging the **Nairobi Metropolitan Improvement Project (NAMSIP)** phase two for NMT prioritization is also an avenue of finance.
- NMS has **invested in its in-house capacity** in technical skills and machinery, and stocks paving materials that can be used for maintenance. This allows them to save on costs that would otherwise be incurred when hiring external contractors and machinery for NMT road construction.

RECOMMENDATIONS FOR SUSTAINABLE NMT FINANCING

Anchoring minimum budgetary allocation for NMT in county policies and plans

Securing minimum budgetary allocation ensures that NMT projects are prioritized.[10] The percentage for minimum allocation should be informed by the specific needs of the county. Nairobi offers a good example for legislation of minimum budgetary allocation through the 20% set in the NMT Policy, and the provision that the Transportation Fund should boost its NMT kitty. In Kisumu, the county budget currently only caters for maintenance costs. Below are some examples of instruments that may be used to secure such minimum NMT budgetary allocations at county level:

- The integration of NMT in County Integrated Development Plans and County Annual Development Programs.
- The development of discrete NMT Policies.
- The establishment of Sustainable Mobility Plans.
- The institution of County Transport Acts.

Public sensitization and participation are equally critical to ensure funds are allocated according to the needs of the people regarding NMT. Issue 1 of this newsletter considered public awareness and outlined various strategies for public engagement and building awareness on NMT.[11] A well-informed citizenry can advocate for appropriate NMT facilities while supporting the proper use and maintenance of such facilities. A good example of this is the community engagement seen on Park Road, Ngara, where local vendors and businesses took up the work of maintaining and cleaning NMT facilities themselves.

Mainstreaming the NMT agenda across sectoral policies and plans

Transport is a cross-cutting issue and should be mainstreamed across county departments.[12] This approach allows for NMT needs to be considered in all relevant sectors such as transport, health, finance, and environment, enabling the leverage of additional sources of financing. A siloed approach towards transport not only hinders holistic development strategies, but also constrains resources for infrastructure development and maintenance.

Strengthening collaboration between private sector and government

Issue 2 of this newsletter explored partnership building with the private sector for NMT.[13] It emphasized that mutually beneficial partnerships are key in strengthening public-private sector partnerships (PPPs). Approaching corporates to partner with counties on street lighting, bike-share programs, the maintenance of green spaces, and the supply of street furniture and crossing marshalls, while allowing them to use these various avenues to advertise, has also been instrumental in cutting costs.

Leveraging political goodwill

Fund allocation and development plans at the county level must be approved by members of County Assemblies. There is a need to engage with political decision-makers in a manner that ensures that they understand the benefits of NMT to the public. This can be done by demonstrating the importance of NMT, including showing them the positive effects of NMT on the lives of their electorate. Local advocacy groups also play a critical role in pushing the agenda of NMT improvement to political decision-makers.

CONCLUSION

Long-term NMT improvement can only be supported by sustainable financing. These recommendations can be useful in guiding county officials in leveraging diverse sources of funds to support NMT, beyond traditional sources such as donor funds and budgetary allocations.

ENDNOTES

1 Climate and Development Knowledge Network. (2021). 'Promoting Non-Motorized Transport in Nairobi, A Study on Users, Safety, and Infrastructure Trends'. Retrieved from: www.cdkn.org/nmtstudy

2 Climate and Development Knowledge Network. (2021). 'Non-Motorized Transport Peer Learning Nairobi-Kisumu- Mombasa Reports'. Retrieved from: www.cdkn.org/nmt

3 Ibid.

4 Climate and Development Knowledge Network. (2021). 'Kisumu-Nairobi Non-Motorized Transport Peer Learning Report'. Retrieved from: www.cdkn.org/kisumunmtreport

5 Climate and Development Knowledge Network. (2021). 'Non-Motorized Transport Peer Learning Nairobi-Kisumu- Mombasa Reports'. Retrieved from: www.cdkn.org/nmt

6 Ibid.

7 Ibid.

8 Nairobi City County Government. (2015). 'Non-Motorized Transport Policy'. Retrieved from: https://www.kara.or.ke/Nairobi%20City%20County%20Non%20Motorized%20Transport%20Policy.pdf

9 Nairobi City County Government. (2020). 'The Nairobi City County Transport Act'. Retrieved from: https://nairobiassembly.go.ke/ncca/wp-content/uploads/act/2021/Nairobi-City-County-Transport-Act-2020.pdf

10 Climate and Development Knowledge Network. (2021). 'Non-Motorized Transport: Peer Learning Nairobi, Kisumu and Mombasa Reports'. Retrieved from: www.cdkn.org/nmt

11 Climate and Development Knowledge Network. (2022). 'Non-Motorized Transport: Lessons from Nairobi, Mombasa and Kisumu – Issue 1: Public Awareness and Engagement on Non-Motorized Transport'. Retrieved from: www.cdkn.org/nmtnewsletter/publicawareness

12 Ibid.

13 Climate and Development Knowledge Network. (2022). 'Non-Motorized Transport: Lessons from Nairobi, Mombasa and Kisumu – Issue 2: Building Partnerships with the Private Sector and Public Transport Actors'. Retrieved from: www.cdkn.org/nmtnewsletter/buildingpartnerships

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CDKN works to enhance the quality of life for the poorest and most vulnerable to climate change.
We support decision-makers in designing and delivering climate compatible development.

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