Chapter 9:
Regulatory preparedness for non-motorised transport in Nairobi

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1 Introduction

1.1 Global climate change and transport

There is scientific consensus that human activities are inducing dangerous warming[1] and the consequences will be severe and widespread. Droughts, floods, wildfires, heat waves, ocean acidification, sea level rise, among others, continue to threaten ecosystems and ultimately endanger human livability on earth.[2] Consequently, urgent and concerted climate action is needed to avert a looming catastrophe.

The Paris Agreement is a universal legally binding treaty adopted in 2015 and came into force in November 2016 as the successor to the Kyoto Protocol in an attempt to curb climate change. In stark contrast to Kyoto's top-down model of internationally set binding emission reduction targets, the Paris Agreement has adopted a bottom-up approach to addressing emissions through the Nationally Determined Contributions (NDCs). Each party drafts their own NDCs, which represent the nation's climate action plans taking into account local priorities and unique circumstances.

Transport contributes towards 23% of global greenhouse gas (GHG) emissions and is the second largest source of CO_2 from fossil fuel combustion after the power sector.[3] This figure is set to rise particularly with the growth of emissions from road transport.[4] An analysis of 133 NDCs reveals that 76% of the parties intend to mitigate emissions from the transport sector with a focus on urban transport.[5] Urban transport constitutes 40% of total transport energy consumption[6] and projections indicate that it will double by 2050.[7] This chapter postulates that the NDCs under the Paris Agreement present an opportune moment to advance low-carbon mobility options such as non-motorised transport (NMT) into city transport planning.

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1 IPCC (2014: 4).
2 Ibid: 2, 5 and 8.
3 Ibid.
4 Partnership on Sustainable Low Carbon Transport (2015).
5 Ibid.
6 Sims et al. (2014).
7 International Energy Agency (2013).

1.2 Benefits of NMT

1.2.1 Emissions abatement

NMT substantially reduces GHGs from the transport sector because it is a viable alternative to motorised options, particularly for short trips and last mile connectivity. According to a study conducted in Mumbai, converting 10% of roads into NMT-friendly infrastructure will result in a reduction of carbon dioxide emissions by 7.63 million tons over the next five years.[8] This is a good indication of NMT's potential to address climate emissions from the transport sector. In many cities, including Nairobi, the lack of sufficient baseline data on NMT is a barrier to calculating the actual emission abatements achieved from NMT options such as walking and cycling. The importance of data will be canvassed below in subsequent parts of this chapter.

1.2.2 Increased economic opportunities

Studies conducted indicate that improved NMT infrastructure can increase economic productivity and development.[9] Such infrastructure increases local retail sales and property values because people walking and cycling are more likely to purchase goods and services as they pass by shops.[10] NMT facilities attract residents and industries that value environmental quality, physical fitness and outdoor recreation.[11] A study that evaluated the effects of walkability on the housing process concluded that walkability had a statistically significant positive impact on housing values.[12] In a typical metropolitan area, each walk score point[13] increase was associated with a $700 to $3,000 increase in home values.[14]

1.2.3 Health

NMT, also known as active transport, can substantially improve the health of citizens. According to the World Health Organization, approximately three million deaths are

8 Yelda (2015).
9 Victoria Transport Policy Institute (2004).
10 Local Government Commission (2001).
11 NBPC (1995); NAR & NAHB (2002); According to a survey of 2,000 representative home-buying U.S. households, 27% would like to be able to walk to more places from their home, and the following community amenities rated important or very important: jogging/bike trails (36%), sidewalks (28%), and shops within walking area (19%).
12 Litman (2010: 22).
13 Carr et al. (2010: 460).
14 Litman (2010: 23).

recorded annually as a result of outdoor air pollution.[15] Heavy motorisation is a major cause of air pollution, which can be mitigated by increased investment in NMT, which reduces congestion and in turn promotes better air quality. Additionally, walking and cycling encourage healthy lifestyles because of regular activity. This has a direct impact on reducing risks of lifestyle disease such as diabetes, cardiovascular diseases, high blood pressure and obesity.

1.2.4 Safety

According to the Nairobi NMT Policy, pedestrians constitute the highest number of road fatalities.[16] 47% of the population in Nairobi make their journeys on foot, implying that the majority of the population is most at risk due to inadequate investment in NMT facilities.[17] If NMT infrastructure is prioritised, a safer city for the majority of the citizenry will be achieved.

1.2.5 Accessibility

Non-motorised transport, particularly walking and cycling facilities, can improve the lives of many citizens through better access to economic opportunities, health care services and social engagements. It can also reduce the amount of money spent by families on transport, particularly in the low-income bracket. One study indicates that approximately 8-16% of household income, and in some cases even 25% of it, is spent on transport.[18] With options such as walking and cycling, many can have an option of low-cost transport, and this greatly reduces inequities in cities.

1.3 Kenya's transport sector emissions

Kenya's NDCs seek to reduce emissions by 30% by 2030 relative to the business as usual scenario of 143 $MtCO_2eq$.[19] Low carbon and efficient transport systems have been listed as one of the intended mitigation measures.[20] The transport sector contributed 11% (9.1 $MtCO_2e$) of total emissions in Kenya.[21] This figure is projected to

15 See <http://www.who.int/airpollution/ambient/health-impacts/en/> (accessed 16-2-2018).
16 Nairobi City County Government (2015: 5).
17 Ibid: 3.
18 See <www.fiafoundation.org> (accessed 5-3-2018).
19 Ministry of Environment and Natural Resources (2015: 1).
20 Ibid: 73.
21 Ibid.

increase to 15% (21.0 $MtCO_2e$) by 2030 due to an increase in the number of passenger and freight vehicles.[22]

According to the National Transport and Safety Authority (NTSA), Kenya is projected to have 4,141,189 vehicles in 2020 of which approximately 46% will be privately owned cars. Vehicle increase is set to rise annually at an average rate of 10%.[23] These statistics justify the need to invest in sustainable mobility such as NMT in the country's cities if Kenya is to decrease emissions from the transport sector.

1.4 Status of NMT in Nairobi

NMT caters for an average of 47% percent of daily trips in Nairobi with the rest being provided by public transit and private cars respectively.[24]

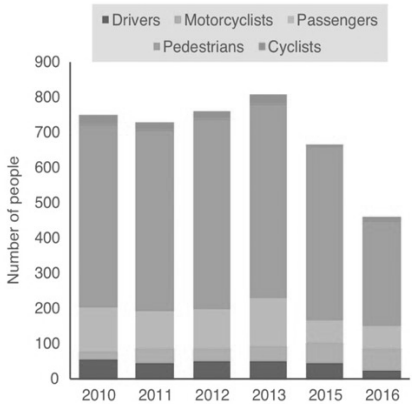
Despite this being the most used means of transport, there has been little improvement of NMT infrastructure over the past fifteen years.[25] NMT is marred with poor infrastructure mainly due to the lack of implementation of an integrated transport regulatory framework that supports multi-modal transport. The popularity of NMT is not attributed to choice or convenience, but rather, it is the only alternative for many citizens who are not catered for by an inefficient public transport system and high costs of motorised transport.[26]

Much focus has been placed on road expansion and increased motorisation in a manner that does not cater for multi-modal transport. Secondly, the privatisation of public passenger transport has led to stiff competition and an over-supply of vehicles. This, in turn, is causing congestion in the city, encroachment of the few NMT spaces as well as aggressive and unsafe driving adversely affecting NMT users.[27]

NMT users are most at risk of road fatalities, making it the most unsafe means of transport. According to road accidents data for 2010-2016 illustrated in Figure 1 below, pedestrians account for the highest number of road fatalities, and in 2016, 65% of traffic fatalities were pedestrians.[28]

22 Ibid.
23 National Transport and Safety Authority (2016).
24 Nairobi City County Government (2015: 3).
25 Ministry of Environment and Natural Resources (2015: 75).
26 Ibid: 73.
27 Ibid: 81.
28 Cummings & Obwocha (2018).

Figure 1: Traffic fatalities in Nairobi by road user, 2010-2016[29]



Statistics from NTSA indicate that 1,097 people died in road accidents by 11 May 2017, of which 416 were pedestrians.[30] By September 2017, the figure had risen to 714 pedestrians and 36 cyclists.[31] These figures are set to rise if updated to include fatalities from September to December. On 31 December 2017, 36 people died in a road carnage after a road accident along the Nakuru-Eldoret highway.[32] These figures reiterate the need to share the road and make it more conducive for other users besides vehicles.

2 Legislative framework for NMT in Nairobi

2.1 Constitution of Kenya, 2010

The Bill of Rights provides that all Kenyans have a right to a clean and healthy environment.[33] NMT plays a crucial role in mitigating air pollution from the transport sector and promoting a cleaner and healthier environment. Generally, the transport sector has a role to play in realising other rights such as equality, dignity, security, health, movement and reasonable access.

The Constitution further provides for county government functions regarding transport.[34] These include county roads, street lighting, traffic and parking, and public road transport. Therefore, counties have an essential role in promoting NMT infrastructure and other sustainable modes of transport.

29 Data from NTSA (2017).
30 Anjali (2017).
31 Wanambisi (2017).
32 Openda (2017).
33 The Constitution of Kenya (2010), Article 42.
34 The Constitution of Kenya (2010), Fourth Schedule.

2.2 NMT in transport legislative framework

2.2.1 The Kenya Roads Act, 2007

The Act was enacted to provide for the management and provision of road infrastructure including NMT in all classes of roads. Under part two, Section 3(1), the Act establishes the Kenya National Highways Authority (KeNHA) which is responsible for the management, development, rehabilitation and maintenance of national roads. Similarly, it establishes the Kenya Urban Roads Authority (KURA),[35] which is responsible for the management, development, rehabilitation and maintenance of all public roads in the cities and municipalities.

In this context, KURA has a role to play in addressing NMT challenges in Nairobi county's roads such as encroachment of pedestrian pathways, provision of walking and biking paths on roads, maintenance of NMT infrastructure and securing safety of NMT users.

2.2.2 National Transport and Safety Authority Act (NTSA), 2012

NTSA has the mandate to provide safe, reliable, efficient road transport and to implement policies relating to these issues. NTSA deals with registration, licensing and inspection of motor vehicles, educating the public on road safety, safety audits, compilation of road accident statistics, and overseeing testing and licensing of drivers.[36]

Bearing in mind that pedestrians account for approximately 50-60% of road accident fatalities, these functions of NTSA play a crucial role in ensuring the safety of NMT users. Further, the functions of safety and efficiency have implications for NTSA to ensure that transport policies adequately factor in low carbon mobility options such as NMT.

2.2.3 Traffic Act, 2015

This Act establishes the law relating to traffic on all public roads. Provisions on licencing of vehicles, speed limits, signage, and traffic offences go a long way in safeguarding NMT users and infrastructure. In particular, the Act criminalises offences that have been the leading causes of pedestrian deaths in Nairobi, such as: driving under the

35 The Kenya Road Act, Section 9(1).
36 National Transport and Safety Authority Act (NTSA) (2012), Section 4(2).

influence of drink;[37] driving on pavement;[38] pedestrian walkway, reckless driving and causing death by driving or obstruction;[39] reckless driving;[40] and driving without due care or attention.[41]

Drunken driving is a leading cause of pedestrian deaths. The Traffic (Breathalyser) Rules (2011) operationalise NTSA's mandate to ensure safety on roads by curbing drunk driving, an offence under the Traffic Act. NTSA used breathalysers to arrest and charge drunk drivers. Rule 3 of the Breathalyser Rules states as follows:

> Alcohol prohibition:
>
> (1) No person shall drive, attempt to drive or be in charge of a motor vehicle on a road or other public place if the person has consumed alcohol in such quantity that the blood alcohol concentration in his body is beyond the prescribed limit.
>
> (2) A person who contravenes sub-rule (1) commits an offence under section 44(1) and 45 of the Act.

However, this was challenged in court,[42] and it was held that drunk-driving should be charged under traffic laws, not breathalyser rules. The court noted that the breathalyser rules did not introduce any new offences other than those in the Traffic Act, adding that there is need to amend the Traffic Act to align it with the breathalyser rules.

Subsequently, NTSA stated that it would apply Section 44 (1) of the Traffic Act, which outlaws driving under the influence of alcohol or substances. Whichever section of the law is invoked, it is necessary to ensure that NTSA's mandate to protect road users is facilitated and not derailed by technicalities. Parliament should harmonise the provisions of the law to create an enabling environment for institutions to carry out their responsibilities. Additionally, coordination of the roles of the Kenya Roads Board (KRB), KeNHA, KURA, and NTSA is vital to avoid overlaps and conflicts as well as allow for efficient use of resources.

2.2.4 Kenya Roads Board Act, 1999

KRB is charged with coordination and implementation of all policies relating to the maintenance, rehabilitation and development of the road network with a view to achieving efficiency, cost-effectiveness and safety. Rehabilitation and safety of roads have direct implications for NMT. As part of increasing NMT infrastructure, several roads in Nairobi will have to be rehabilitated to include NMT options.

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37 Traffic Act (2015), Section 44.
38 Traffic Act (2015), Section 45A.
39 Traffic Act (2015), Section 46.
40 Traffic Act (2015), Section 47.
41 Traffic Act (2015), Section 49.
42 *Reminisce Sports Bar Limited t/a Reminisce Bar & Grill & 3 others v. Cabinet Secretary Ministry of Transport & 7 others* (2017) eKLR.

2.3 NMT in the climate change legislative framework

2.3.1 Kenya Climate Change Act, 2016

The Act states that the National Climate Change Plan shall prescribe measures to enhance energy conservation, efficiency and use of renewable energy in industrial, commercial, transport, domestic and other uses.[43] Unfortunately, the National Climate Change Action Plan (2013-2017) makes no mention of investing in NMT as a climate mitigation strategy. It prioritises development of mass transit options such as bus rapid transit (BRT) and light rail transit (LRT) to the exclusion of NMT.[44] The Plan has not fully embraced the features of multi-modal transport and fails to cater for other forms of low carbon mobility.

According to a 2016 meeting on the Transport Sector NDC Analysis, an NMT study by the University of Cape Town on behalf of United Nations Environment Program is underway to document GHG abatement emissions, and some models for Nairobi may be available.[45] The report notes that:[46]

> The challenge remains in realising significant emission reductions from NMT given that the trend (at least in the short to medium term) is that bulk of commuters who cannot afford to travel by vehicles today will do so when they can and finally shift from using PSVs to purchasing personal cars.

This statement demonstrates why integrating NMT as a preferred mode of travel for short trips and last mile connectivity will have a long-term impact on emission reductions. Additionally, the NDC sector analysis report states that:[47]

> [NMT] is not considered as a priority mitigation option. The justification provided is that NMT emission reductions are not significant on a national scale, and levels of NMT will decrease over the coming decades if the government meets its development targets. Further, there is a significant overlap with the options for mass rapid transit systems. If designed and priced well, the improved access to transport services and reduced transport inefficiencies resulting from improved transit systems will greatly reduce the number of journeys undertaken by foot.

This approach may be problematic in the long term. Firstly, the analysis concludes that NMT's emission reductions are not significant on a national scale. Such assertions are not backed by baseline studies and projections. There is no data from evidence showing the impact of NMT on emission reductions. In fact, as will later be highlighted in this chapter, NMT has been lumped together with intermediate transport in some policies making it impossible to have any disaggregated data and targeted policy interventions on NMT.

43 Kenya Climate Change Act (2016), Section 13(3)(j).
44 Ministry of Environment and Mineral Resources (2013).
45 Ministry of Transport, Infrastructure, Housing and Urban Development (2016: 5).
46 Ibid.
47 Ministry of Environment and Natural Resources (2015: 81).

Secondly, the analysis adopts a narrow approach to NMT as it focuses exclusively on walking. While walking is the most popular, other modes of NMT, particularly bicycling, may grow if investment in infrastructure is made and proper integration is done. Adopting a multi-modal approach cannot be overemphasised as citizens need to have a choice as to what is the most appropriate and convenient means of access to goods, services and each other.

Thirdly, inadequate prioritisation and investment in NMT will push more residents to purchase private vehicles once they can afford to do so because public transport cannot be the panacea for all transport challenges. This does not adequately address the emission challenge from the transport sector. The efficiency of public transport is a fallacy if it does not encompass multi-modal forms of mobility. NMT becomes particularly vital since it is the most convenient for short trips and last mile connectivity.

3 Policy framework for NMT in Nairobi

3.1 Nairobi County Government Non-Motorised Transport Policy, 2015

The County Government of Nairobi has adopted an NMT Policy, which aims to make NMT "the mode of choice as a safe and reliable means of transport".[48] It recognises NMT as an effective means of mobility particularly for short trips and for last mile connectivity compared to the proposed mass transportation systems. The County is cognisant of NMT's advantage as a low carbon emitter.

The Policy reiterates the following challenges facing NMT in Nairobi: lack of NMT provision, encroachment of NMT spaces; high accident rates; weak land use development and planning; traffic congestion; radial network system; and inefficient public transport.[49] Its geographical scope is rather limited as it provides an analysis of a survey conducted along two road corridors – Jogoo and Juja.[50]

Commendably, it lays out targeted strategies (represented in Table 2 below)[51], which go a long way in providing targets for monitoring and evaluating progress. Additionally, it pledges at least 20% of the County's transport sector budget for NMT and public transport services and infrastructure.[52]

48 Nairobi City County Government (2015).
49 Nairobi City County Government (2015: 4-5).
50 Ibid: 6-12.
51 Ibid: 20.
52 Ibid: 23.

Table 1: Outputs and outcomes of the policy

Objective	Output	Outcome
1. Increase mobility and accessibility;	Safe and cohesive pedestrian facilities (footpaths, etc) from 500. km to 1,500 km by 2020	Increased modal share of walking from 47. to 50for trips up to 5km by 2025;
	Cohesive cycle network of lanes, tracks and destination facilities from 50km to 1,000km by 2020.	Increased modal share of cyclists from 2% to 10% for trips up to 15km by 2025;
	NMT facilities along and at major PT routes and terminals from 500to 1,500By 2020.	Increased modal share of public transport from 32to 35for all trips by 2025;
	Nairobi Streets and Roads Design Manual (NSRDM) is developed by 2017.	All roads within the County shall fully comply with the specifications of the NSRDM by 2025.
2. Improve transport safety and security;	Safe NMT crossings: Pedestrian signals from 185to 500. Footbridges and underpasses from 27 to 50. Marked and visible crossings from 150to 500 by 2020; Working street lights from 30,000to 65,000by 2020.	Reduced pedestrian fatalities from 500to 50 or lessby 2025. Reduced cyclist fatalities from 20to5by 2025.
3. Improve amenities for NMT;	No of benches, No of repair shops; No of stores; etc	Level of Service[23] (LOS) rating of streets improves from D to Bby 2025.
4. Increase recognition and image of NMT in Nairobi	Percentage of road users considering NMT as a mode for the poor reduces by 40% by 2020.	Diverse income groups using NMT as a mode of choice.

Local NMT planning is a step in the right direction. A report by UNEP reveals a growing trend among African countries to localise the development of NMT policies.[53] Localisation allows for the development of tangible informed targets derived from broader policy statements agreed upon nationally. Secondly, this gives sub-national governments the mandate to allocate budgetary resources for the improvement of NMT and effectively participate in monitoring and evaluation of it. Nevertheless, national NMT policies are equally important in encouraging synergistic efforts between the central and local governments.

The Policy is lacking in adequate baseline data and even admits to presenting outdated information due to a lack of documentation on NMT.[54] However, this challenge is not unique to Nairobi. According to UNEP,[55] lack of available baseline data is a major issue in monitoring and implementing NMT policies. Collecting baseline data on NMT varies from data collection principles used in motorised transport. NMT has

53 UN Environment (2016: 19).
54 Nairobi City County Government (2015: 4).
55 UN Environment (2016: 19).

characteristics such as shorter trips, less confinement to fixed paths hence unpredictable movements, more affected by weather conditions, larger margins of error while counting and less developed technology for data collection.[56]

3.2 Integrated National Transport Policy (INTP), 2009

INTP's mission is to "link transport policy with other sectoral policies, in order to achieve national and international development objectives in a socially, economically and environmentally sustainable manner".[57] It makes provision for NMT and intermediate means of transport (IMT), which include low engine capacity vehicles (motorcycles and motor tricycles and sidecars or trailers attached to these).

It does not distinctively address NMT; rather it combines it with IMT.[58] This grouping has challenges when trying to obtain disaggregated data and make targeted policy interventions on NMT. This data is particularly imperative when one wants to calculate the emission abatement from NMT.

The Policy has several intervention areas including tackling climate change. It mentions various strategies, but none of them mention NMT as a means of tackling atmospheric pollution from the transport sector.[59] This is indicative that NMT is not considered as a key strategy for climate action in the transport sector.

It acknowledges that NMT has lagged behind over the years due to a focus on motorised transport at the expense of NMT infrastructure. According to the Policy, NMT is not fully recognised by law and does not enjoy government's financial and technical support. It is not clear what 'full recognition' entails.

However, one can deduce that the national government has not prioritised NMT as an important mode of transport more so as a climate mitigation strategy in the transport sector. Rather, it views it as a default option for those who cannot afford and access public transport and other forms of motorised transport. This bias at the national level negatively affects the improvement and increased uptake of NMT infrastructure at the county level.

Among the strategies laid out is to "encourage development of NMT as a means of enhancing mobility and accessibility in urban areas".[60] This is important because it elevates NMT to equal status with other motorised modes of transport bringing out the need for equitable financial and technical allocation while integrating multi-modal transport. The Policy aims to increase the socio-economic impact of motorised

56 Minnesota Department of Transportation Bicycle and Pedestrian Data Collection Manual (2015: 33).
57 Ministry of Transport and Infrastructure (2009: 6).
58 Ibid: 45.
59 Ibid: 95-96.
60 Ibid: 46.

transport through NMT. Conspicuously missing is the environmental impacts of motorised transport which should be addressed separately if one is to understand the full benefits of NMT as a sustainable means of transport.

A number of issues facing NMT have been laid out by the Policy including gender bias, infrastructure development and maintenance, regulatory frameworks, safety, incentives for NMT and enforcement. Lack of adequate NMT infrastructure development and maintenance is a key issue, which the policy proposes to address by requiring road agencies to cater for NMT infrastructure in their projects as well as factor in technical and financial support for it.

In the urban areas, it proposes that each local authority or agency provides and maintains adequate sidewalks and pavements for pedestrians, separate lanes, parking bays, bridges, footpaths, and other facilities for NMT and intermediate means of transport (NMIMTs).[61] This provision creates a central role for the county governments, which should take a leading role in the provision and maintenance of adequate NMT infrastructure.

3.3 National Land Use Policy, 2017

Land use and transport planning are intimately intertwined. Various land use factors such as mobility management, density, centeredness and site design have direct implications for the transport sector. The Policy seeks to encourage the efficient, productive and sustainable use of land.[62] It acknowledges that land use in Kenya has been haphazard due to a lack of coordinated legal and policy frameworks.

This is evident particularly in Nairobi and other major cities facing the consequences of poor physical planning such as congestion, urban sprawl, accessibility, air pollution and safety. The same is reiterated in the NMT policy, which asserts that:

> Land use planning and development control is weak and does not encourage compact land use that is supportive to better transport provisions, especially for NMT users. The current land use encourages increasing trip distances making the use of NMT and public transport less attractive.

The Land Use Policy makes a mention of transport and infrastructure stating the need to continuously develop and upgrade transport infrastructure. It does not go into any detail on how this should be done. The mere mention of transport does not solve the myriad of issues faced in the interactions between poor land use and transport infrastructure. Moreover, implementation, monitoring and evaluating progress is illusory in the absence of targeted outputs and outcomes.

The Policy states that a majority of the residents in urban areas are in the low-income bracket. These residents are currently the major users of NMT, and they do not

61 Ibid: 47.
62 Ministry of Lands and Physical Planning (2017: 2).

enjoy choice on mobility. This brings into play a crucial discussion on how unsustainable transport trends of increased private motorisation and road expansion continues to disenfranchise the urban poor.

NMT is a preserve of the low-income earners, and such infrastructure is inadequate and poorly maintained. It is the most unsafe means of transport as users are most at risk of road accident fatalities. Public transport infrastructure is equally inadequate and unaffordable making it out of reach for the urban poor. The current state of affairs suggests that unsustainable transport planning is a key factor in exacerbating the plight of the urban poor's access to basic services. Though this discussion is beyond the ambit of this study, it deserves passing mention.

Lastly, the Policy seeks to address environmental degradation and climate change, which includes air pollution, and NMT plays an important role in securing these goals.[63] Further, it proposes the adoption of compact sustainable urban forms[64], which may be interpreted to include mixed land use, centeredness and connectedness, which in turn make a good case for the increased uptake of NMT.

3.4 Integrated Land Use Guidelines, 2011

The Guidelines,[65] if adopted, have positive implications for NMT as they deal with: i) ensuring the provision of pedestrian paths and bicycle paths in road construction and planning; ii) provision of subways for interurban connections and improved mass transit systems within both the urban areas and connecting urban centres; iii) provide time-frames during which private vehicles are not allowed within the Central Business District (CBD); and iv) provide for the location and enforcement of designated pedestrian drop-off and pick-up points for public transport.[66] These Guidelines should complement the provisions of the NMT policy.

3.5 Draft National Urban Development Policy (NUDP), 2016

The NUDP seeks to create a framework for sustainable urban development. It mentions transport as one of its thematic areas laying emphasis on addressing challenges faced in the urban transport sector. NUDP proposes that all urban areas and cities prepare and implement an appropriate transportation strategy with emphasis on mass transport, pedestrian and cycling modes. The mention of city-led pedestrian and

63 Ibid: 21.
64 Ibid: 47.
65 National Environment Management Authority (2011: 36-37).
66 Ibid: 36-37.

cycling strategies creates an impetus for promoting a localised NMT agenda as a means of achieving sustainable cities [67]

It also seeks to encourage compact land use, which as previously discussed, encourages NMT as a mode of choice. Additionally, it seeks to address climate change and improve the environmental management of urban areas through city-wide environmental planning and management, including adherence to environmental legislation and the mainstreaming of climate change in planning and development processes.[68] This may encourage transport planners to lay emphasis on low carbon mobility modes such as NMT.

3.6 Nairobi Integrated Urban Development Master Plan (NIUPLAN), 2014

The NIUPLAN tackles urban transport. It lists the rapid increase of private vehicles and the lack of efficient public transport systems as some of the key issues that need to be addressed. Though it does not provide detail, it mentions the development of efficient and sustainable transport systems as one of the planning strategies.[69] This strategy must factor in NMT to be considered 'efficient and sustainable' and avoid pitfalls of ignoring NMT or giving it late consideration in the design phase.

3.7 Nairobi County Integrated Development Plan, 2018-2022 (NCIDP)

The Nairobi County is expected to increase NMT facilities to 1,500 km from a current 300 km through the implementation of the NCIDP.[70] The NCIDP seeks to improve the integration between NMT and public transport and proposes the development of an NMT master plan.[71] Some of the key performance indicators include the length and number of NMT infrastructure constructed, level of utilisation of NMT infrastructure,[72] a decrease in the number of private vehicles accessing the CBD, and improved accessibility to CBD by NMT.[73]

As part of the measures to harness impact, there will be strict enforcement to ensure NMT facilities are effectively used and this can address the issue of encroachment of NMT spaces by vendors and public vehicles.[74] Civic education to encourage the public

67 Opiyo & Mitullah (2016).
68 Nabutola (2012).
69 Nairobi Integrated Urban Development Master Plan (2014: 2).
70 Nairobi County (2017: 47).
71 Ibid: 76.
72 Ibid: 178.
73 Ibid: 181.
74 Ibid: 180.

to own NMT facilities has also been mentioned.[75] This strategy is critical in changing perceptions and attitudes that NMT is a preserve for low-income earners and that private vehicles are a status symbol.

Climate change[76] and the Sustainable Development Goals (SDGs)[77] have also been listed as thematic areas of the NCIDP. If the NMT vision is realised, it will significantly address the growing emissions in the transport sector, and the SDGs on sustainable cities, climate action, energy efficiency, health and equality.

4 Conclusion and recommendations

Having evaluated legislation, policies and plans, it is evident that there is a commendable effort at the county level to promote the NMT agenda. However, despite the projections in vehicle increase and the attendant emissions, NMT has not been prioritised as a climate mitigation strategy in the transport sector unlike BRT and LRT.

NMT does not enjoy a standalone policy at the national level unlike what is discernible at the county level. In the instances where NMT is mentioned in national policy documents, it has not been fully accepted as a stand-alone means of transport and is always viewed as a corollary for other forms of transport. Below are recommendations advocating for the inclusion and prioritisation of NMT as a GHG abatement measure along with attendant benefits it can bring to safety, health, and accessibility.

4.1 Making a business case for NMT

NMT should be viewed as a viable economic development opportunity. Reduced traffic congestion could see increase in the national gross domestic product (GDP). Currently, significant revenue is lost in traffic congestion as productive person-hours are spent on the road. The government can have increased cost savings from reduced road and parking infrastructure development. Reduction in air pollution registers savings in the provision of healthcare particularly for deadly respiratory diseases not to mention savings from energy conservation and reaping benefits from strategic land use utilisation.

75 Ibid.
76 Ibid: 35.
77 Ibid: 102.

4.2 Autonomy of city governments to drive sustainable transport infrastructure

Autonomy of local governments is important in the promotion of sustainable infrastructure. A review of 30 Sub-Saharan countries reveals that administrative and fiscal decentralisation remain weak, thus undermining the authority of local governments. In particular, local governments have "no real responsibility for land management and no power over public utilities and pricing".[78] Bernard and Madiès'[79] study of four African countries confirms low fiscal capacities of local authorities and notes that capacity building for local administration officials is imperative if decentralisation will be attained.

The idea behind localisation of transport infrastructure projects is to make a case for cities as best suited to address climate impacts from transport because of their contribution and vulnerability to climate impacts. It also proffers an approach that emphasises the need to contextualize unique realities of local governments, hence creating an opportunity for them to steer their own infrastructural development.

4.3 Prioritising data on non-motorised transport

There is a glaring absence of baseline data on walking and cycling particularly in African cities. One of the recommendations from the African Mobility week is that urban areas should invest in data gathering to allow for critical evaluation of the cost-benefit of NMT infrastructure, while taking into account road safety and public health, especially for vulnerable groups.[80]

Data plays an important role in monitoring and evaluation, which can only be effective in the presence of reliable quality data. It also allows for evidence-based decision making. Some of the potential challenges that cities may have to contend with are the informality that surrounds them. Informal settlements, informal transport associations and hawkers are an integral part of our city, and these have direct implications on transport infrastructure. Adequate resource allocation for NMT research and user privacy rights, which are becoming an area of concern in big data, should be contemplated as well in this regard.

78 Paulais (2012: 111).
79 Dafflon & Madiès (2013).
80 UN Environment (2018).

4.4 Unpacking 'development'

According to the NDC Analysis Report, NMT usage will decrease as the government meets its development targets.[81] This statement brings into question, what does the government consider to be 'development'? Kenya Vision 2030,[82] the country's development blueprint, aims at providing a high quality of life to all its citizens in a clean and secure environment and is anchored upon the economic, social and political pillars. It is interesting that even though it seeks to achieve a clean environment, it does not include the 'environment' as one of its pillars and places it under the 'social' pillar.

As regards infrastructure, the aim is to: i) develop a 50-year Integrated National Transport Master Plan which is linked to the National Spatial Plan; ii) establish the Nairobi metropolitan region BRT to cover three transport corridors; and iii) develop a light rail transportation system for Nairobi and its suburbs which is projected to serve at least 150,000 passengers daily.[83] Progress in the transport sector in the context of Vision 2030 seems to be confined to BRT and LRT. This contradicts the objective of establishing an integrated transport plan.

For a plan to be considered integrated, it should adequately cater for multi-modal transport. Further, isn't getting more people out of their cars and having them walk or bike equally a sign of development? NMT not only reduces GHG emissions but also positively affects citizens' health. It decreases air pollution and gives people a chance to enjoy the environment around them.

There is, therefore, a need to re-define the term 'development' in a manner that truly embraces the three components of sustainability. Such an approach will influence the policy interventions in the transport planning sector to be representative of these three components in a manner that achieves GHG emissions abatement. It will also promote adequate financial and technological investment in NMT infrastructure.

4.5 Optimisation of bus rapid transit and light rail transit

The Kenyan emission mitigation strategy in the transport sector focuses on investing in the BRT and LRT in Nairobi and its suburbs. These forms of mass transit have been successful in many parts of the world particularly in addressing decongestion in cities. However, BRT and LRT and compact, pedestrian-oriented land-use development are mutually supportive. In essence, therefore, one cannot purport to exclude NMT from the agenda of BRT and LRT.

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81 Ministry of Environment and Natural Resources (2015: 81).
82 Government of the Republic of Kenya (2007: vii).
83 Ibid: 14.

One of the features of BRT is reducing and eliminating delays in connectivity. This brings the trade-offs between spacing and convenience into sharp focus. Therefore, BRTs tend to have fewer stops (in comparison to LRT), and this is where NMT infrastructure becomes crucial in facilitating the last mile connectivity.

Adequate NMT infrastructure is a vital component of successful BRT and LRT systems, which can be most effective when integrated within a broader planning framework encompassing land use policies, zoning regulations, and economic and community development.[84] Climate responsive transport planning in Nairobi should, therefore, prioritise NMT as a complementary mitigation strategy to other forms of mass transit.

4.6 Behavioural change and civic education

The Nairobi NMT Policy seeks to make NMT the transport mode of choice. This statement is indicative of perceptions associated with NMT. According to the survey conducted along Jogoo and Juja roads, walking seemed to decline sharply with increased income, and the majority of the pedestrians (58.8%) earned less than Ksh20,000 a month.[85] The general public perception of pedestrians was that they are poor (22.6%) and belonged to the low-income group (14.4%).[86] The same case applied to cyclists and handcart operators who are also viewed as poor accounting for 11.9 % and 21.9 % respectively.[87] In particular, motorists perceived pedestrians as low-income earners (11.8%), cyclists as poor (21.9%) and handcart operators as a nuisance (35.1%).[88] Additionally, it was noted that motorists do not respect NMT users.[89] This explains the rampant encroachment of NMT spaces and endangerment of NMT users.

For NMT to be an effective climate mitigation strategy and a transport mode of choice, Nairobi residents must recognise, appreciate and respect its use and users. The perception that NMT is the preserve for low-income earners must change. Similarly, the attitude that owning a private vehicle is a status symbol must shift if we are to achieve sustainable mobility in Nairobi. The county and line ministries should take a leading role in changing these mindsets and helping the public un-learn and embrace an environmentally-friendly approach towards transport with its attendant health, social and economic benefits.

That said, many will not embrace NMT until adequate investments are made to improve and maintain NMT infrastructure, the safety of pedestrians is guaranteed, and

84 Institute for Transportation & Development Policy (2007).
85 Nairobi City County Government (2015: 6).
86 Ibid.
87 Ibid: 7.
88 Ibid: 6.
89 Ibid.

massive improvement of public transport is recorded. Having invested in NMT, the national and county governments may consider adopting market approaches to encourage NMT such as carbon tax on fuel, toll charges, increased parking fees, increased duty on private vehicles, incentives for carpooling, and stringent regulations on the importation of used motor vehicles.

It is evident that a one size fits all strategy will not achieve sustainable mobility and effectively reduce the growing transport emissions in Nairobi. Integrated approaches that factor in multi-modal means of mobility based on sound land use and urban planning are needed to push the NMT agenda forward.

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