Chapter 10
Conceptualising an Urban Transport Framework for Enhanced Quality of Life in Sub-Saharan Africa: Case Studies of Ghana and Namibia

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Abstract Unpacking the ramifications of urban transport for quality of life is pivotal for evaluating the pros and cons of national or local policy options. In the sub-Saharan African context, such an enquiry serves to comprehend how different modes of transport affect the state of the physical environment, as well as public health and social equity. This chapter therefore assesses the implications of urban transport for quality of life through a comparative analysis of Ghana and Namibia. The Ghanaian case study instantiates how the dominance of mini-buses (trotros), as well as private vehicles in major cities, results in outcomes such as traffic congestion and pollution. Moreover, the case of Namibia demonstrates a socio-spatial tapestry of inequality characterised by the prevalence of taxis and private vehicles in sprawled cities. The chapter articulates a conceptual framework premised on the tripod of environment, health and equity. The model argues that deleterious urban transport impacts such as pollution must be addressed through alternative modes and policy reforms. Also, the implications of transport options for the health of residents should define the choices made by the central government or local authorities. Additionally, the needs of groups such as pedestrians, cyclists, the physically challenged, children and low-income residents ought to be considered when designing transport options for use by urban residents. The chapter contributes to existing scholarship by unpacking the dialectical ramifications of urban transport for quality of life. This serves to enrich the discourse on sustainable development through the lens of transport policy options and outcomes.

Keywords Urban transport · Quality of life · Environment · Health · Equity

10.1 Introduction: Urban Transport and Quality of Life

The implications of urban transport for quality of life have received significant attention in the academic literature over the years. This notwithstanding, cities in North

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America and Europe appear to have attracted more scholarly focus than those in the Global South. Moreover, the comparative contexts of urban transport for human well-being in sub-Saharan Africa could benefit from more investigation. This chapter thus contributes to existing discourse by elucidating the urban transport system on the continent with the view of assessing implications for quality of life. Based on a comparative analysis of Ghana and Namibia, the discussion unpacks the historical and socio-spatial factors which shape the differential manifestations of sustainable transportation in the two countries. The goal is to assess options for enhanced well-being by users of the transport systems.

The term quality of life as used in this chapter refers to the level of human well-being experienced by residents in an urban setting. This may be evident in terms of the state of one's physical environment, as well as the quality of health. Moreover, the level of social inclusion plays an important role in shaping one's level of comfort in the urban environment. This chapter adopts a qualitative approach to evaluate the quality of life. The analysis relies on document and discourse analyses, as well as interviews to make its observations or arguments.

The environmental, health and equity aspects associated with urban transport portend significant ramifications for the quality of life. Specifically, the attainment of sustainable transport options may occur through more environmentally adept modes of travel such as walking and bicycling. There should also be the integration of transportation and land use plans to optimise planning effectiveness. Moreover, the utilisation of ecologically friendly energy sources to reduce reliance on fossil fuels is pivotal (Aftabuzzaman and Mazloumi 2011). The health impacts of urban transport policy options are also evident in terms of pollution, road accidents, absence of green spaces, negative climate impacts and poor physical exercise. These situations require a policy reorientation to upend the status quo (Khreis et al. 2017). Additionally, the subject of urban transport may be conceptualised as a social justice issue in terms of exposure to pollution, the allocation of space to different modes and time savings. Thus, even though pedestrians and cyclists tend to minimise negative ecological impacts, they are disadvantaged by the policy emphasis on motorised transport, as well as costs with respect to space utility and travel time (Gössling 2016).

Broadly speaking, quality of life may be assessed based on objective (quantitative) or subjective (qualitative) indices. Objective evaluation utilises data such as income and level of access to social services. Subjective analysis may however entail a review of existing documents or resident perceptions in terms of parameters such as amenity value and liveability (Khalil 2012; Biagi et al. 2018). Quality of life may also be determined based on *physical*, *environmental*, *mobility*, *social*, *psychological*, *economic* and *political* factors (El Din et al. 2013). The physical parameters comprise land use and infrastructure characteristics, while the environmental component entails neighbourhood attributes. Mobility embodies transport accessibility, while social elements encompass interpersonal relations and citizen engagement. The psychological aspects involve resident perceptions and place identity. Economic quality of life entails jobs and other opportunities available, while the political element involves policy choices as well as their implementation which affect resident liveability (El Din et al. 2013).

10.2 Conceptualising Urban Transport and Quality of Life in Africa

Within the sub-Saharan African context, a number of trends can be observed in terms of the implications of urban transportation for quality of life. To begin with, rapid urbanisation partly attributed to rural–urban migration has resulted in an ever-growing demand for transport services (Haq et al. 2012). Moreover, there is prioritisation of motorised as opposed to non-motorised forms of transport resulting in growing levels of pollution. The transport system across the continent is also characterised by a relatively poor road safety record as evident in the high number of accidents in several countries (Haq et al. 2012). In parts of West and Central Africa, low levels of vehicle ownership and high transport costs pose challenges to access (Olvera et al. 2013). Moreover, for places such as South Africa, urban transport is an equity issue which must address subjects of access and quality of service delivery, particularly in low-income neighbourhoods (Lucas 2011).

Urban transport has been variously conceptualised in the existing literature, especially within the lens of sustainability. For instance, Kane and Whitehead (2017) observed that a model for sustainable urban mobility may be premised on clean energy, ride-sharing, self-driving and other autonomous forms of transport, as well as increased urban density. Doi and Kii (2012) proposed a cross-assessment sustainable urban transport framework based on both visioning and consensus building. Within specific reference to sub-Saharan Africa, Jones et al. (2013) proposed a framework for sustainable urban transport premised on indigenous and scientific concepts, as well as a participatory planning mechanism. In order to reduce greenhouse gas emissions on the continent, transport policy options which emphasise multi-modality, non-motorised transit and reduced demand on the existing transport system may be envisaged (Creutzig et al. 2012). Moreover, innovative interventions in transport planning such as mixed land use and bus rapid transit can reduce the negative heath impacts of urban transport (Khreis et al. 2017). Also, green transport strategies which seek to advance the goals of mobility, equity and hence quality of life can be adopted (Carvalho et al. 2012).

As noted earlier, quality of life as used in this chapter refers to the level of human well-being experienced by residents in cities and towns. This chapter thus articulates that an urban transport framework for enhanced quality of life in an African context may be broadly distilled in terms of environment, health and equity (Table 10.1). Analysis of the environment helps to observe the ecological implications associated with transport modes and policy choices. Also, health is a sine qua non for evaluating the implications of urban transport for the life expectancy of residents. Additionally, equity helps to evaluate the differential impacts of transport on residents. Moreover, the concept entails differences in levels of accessibility to transport facilities by various demographic groups. Applications of these parameters are particularly important in the sub-Saharan African context given the tremendous negative ecological, health and socio-spatial impacts wrought on residents by urban transport systems.

Table 10.1 Urban transport framework for residential quality of life

Urban transport	Theoretical or Conceptual foundations	Quality of life		
		Environment	Health	Equity
Historical origins and contexts	Colonialism Apartheid Postcolonialism	Compact city; urban sprawl	Spatial expansion; low physical access based on urban form	Relatively less prioritisation of the needs of transport users
Dominant modes	Automobile dependency	Road and motorised transport	Congestion and pollution; respiratory and other diseases; low access to health facilities	Poor non-motorised and public transport facilities
Actors and interests	Public and private interests	Residents, community-based and neighbourhood groups, transport sector operators	Low- and high-income residents; marginalised groups	Pedestrians, cyclists, women, physically challenged persons, low-income residents, marginalised groups
Contemporary policy choices	Policy learning: multi-modality; non-motorised transport; public transport	Low carbon transport policies	Policies on minimising negative health impacts of transport	Policies on non-motorised and public transport
Sustainable transport and mobility futures	Ecological and social sustainability	Reduced pollution and less reliance on fossil fuels	High life expectancy from improved air quality and alternative transport forms	Enhanced accessibility for previously marginalised users of transport services

Source Author's construct based on document and discourse analyses, as well as interviews

The three broad parameters will be evaluated against various urban transport elements such as historical contexts and origins, dominant modes, actors and interests, contemporary policy choices, as well as sustainable transport and mobility futures. The historical contexts and origins provide situational analyses to unpack the evolution of urban transport. Moreover, dominant modes essentialise how the preferred or available transport forms translate into quality of life. Actors and interests embody the roles of stakeholders in shaping the transport sector as well as the degree to which they may be willing to cooperate in improving the system (Cleophas et al. 2019). Also, contemporary policy choices entail how government focus in modern times serves to deal with the pervasive problems of urban transport.

Moreover, sustainable transport and mobility futures determine the implications of government policy choices for urban transport going forward. Overall, the proposed framework argues that in the sub-Saharan African context, colonial and postcolonial historical provenance result in automobile dependency. Thus, to protect the interests of ordinary citizens and other road users, contemporary policy choices should prioritise non-motorised and public forms of transport. These will serve to ensure sustainable transport and mobility futures towards enhanced quality of life.

As already noted, this chapter is based on a comparative analysis of Ghana and Namibia. The choice of Ghana and Namibia can be justified on a number of grounds. To begin with, the differential historical and political economic contexts of the two countries provide for a better understanding of how their respective transport systems emerged. The dissimilarities also serve to unpack potential divergent ramifications of urban transport for quality of life. Moreover, appreciable differences between the two countries in terms of population and socio-spatial dynamics make for an interesting comparative analysis. For instance, Ghana had a 2020 population estimate of 31,073,000 and a population density of 136.56 given the fact that its land area is approximately 227,540 km^2 (United Nations: Department of Economic and Social Affairs 2019; The World Bank Group 2021). Moreover, the nation's socio-spatial tapestry is largely devoid of a racial binary. Namibia on the other hand had a 2020 population of approximately 2,541,000 as a well as population density of 3.086 given its land area of 823,290 km^2 (United Nations: Department of Economic and Social Affairs 2019; The World Bank Group 2021). It is characterised by a spatial binary premised on the dynamics of race and class. Ultimately, my relative familiarity with the transport systems in the two countries serves to ensure a more nuanced and in-depth analysis. The proposed model will now be applied to comparatively analyse the respective urban transport situations in Ghana and Namibia (Table 10.2).

10.3 Ghana

The implications of urban transport for the environment, health and equity in Ghana will be discussed first before focusing on Namibia.

10.3.1 Environment

The historical origins of urban transport in modern-day Ghana may largely be traced to the 1800s when the British colonial authorities emphasised the development of rail transit. The goal was to facilitate the exploitation and transportation of raw materials from the then Gold Coast to Europe (Poku-Boansi 2020). As time went on, attention began to shift towards the provision of roads in hinterlands so they could serve as feeders for the rail sector (Jedwab and Moradi 2011; Gould 1960a, b; Poku-Boansi 2020). Since Ghana's independence in 1957, the overwhelming policy emphasis has

Table 10.2 Urban transport framework applied to Ghana and Namibia

Urban transport	Theoretical or conceptual foundations	Quality of life		
		Environment	Health	Equity
Historical origins and contexts	**Ghana**: Colonialism and postcolonialism **Namibia**: Colonialism, apartheid and postcolonialism	**Ghana**: Colonial era planning (separation of places of work and residence); prioritisation of road transit after independence **Namibia**: Colonial era planning (low-density developments and monofunctional cities); apartheid-era planning (spatial segregation)	**Ghana**: Rapid spatial expansion from urbanisation and motorisation **Namibia**: Low physical access from monofunctional urbanism and apartheid spatial planning	**Ghana**: Historically less prioritisation of the needs of pedestrians, cyclists and physically challenged persons **Namibia**: Poor access by low-income residents or neighbourhoods
Dominant modes	**Both Ghana and Namibia**: Automobile dependency	**Ghana**: Road transport; motorised transit (mini-buses, taxis and private vehicles) **Namibia:** Road transport; motorised transport (taxis and private vehicles)	**Ghana**: Transport-induced pollution; poor air quality; health problems such as respiratory ailments **Namibia:** Low health access associated with transport planning; health problems such as respiratory ailments; high road fatality rates	**Ghana**: Few or no crosswalks, sidewalks and spaces dedicated for use by the physically challenged; poor safety zones for children **Namibia:** Less emphasis on public and non-motorised forms of transport

(continued)

Table 10.2 (continued)

Urban transport	Theoretical or conceptual foundations	Quality of life		
		Environment	Health	Equity
Actors and interests	**Ghana**: Citizen-oriented public interest **Namibia**: Equity-oriented public interest	**Ghana**: Ordinary residents, community-based groups and residents' associations; operators of mini-buses, taxis and private cars **Namibia**: Ordinary residents, community-based groups and residents' associations; operators of taxi services and private car owners	**Ghana**: Low- and high-income residents **Namibia**: Low-income residents; marginalised groups	**Ghana**: Pedestrians, cyclists, physically challenged persons and children **Namibia**: Low-income residents, pedestrians, cyclists, marginalised groups
Contemporary policy choices	**Both Ghana and Namibia**: Multi-modality; non-motorised and public transport	**Ghana**: Reversal of colonial era planning practices; prioritisation of non-motorised and public transport; adoption of electric vehicles **Namibia**: Reversal of apartheid-era planning policies; prioritisation of alternative modes of transport; integration of land use and transport planning	**Ghana**: Emphasis on non-motorised transport; integration of land use and transport planning; sustainable public transport **Namibia**: Emphasis on non-motorised transit; prioritisation of physical access to health facilities; focus on improving road safety	**Ghana**: Emphasis on safety, gender balance, universal access, efficient spatial design and participatory planning **Namibia**: Emphasis on sustainable and non-motorised transport forms

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Table 10.2 (continued)

Urban transport	Theoretical or conceptual foundations	Quality of life		
		Environment	Health	Equity
Sustainable transport and mobility futures	**Both Ghana and Namibia**: Ecological and social sustainability	**Ghana**: Reduced negative ecological impacts associated with pollution, congestion and reliance on fossil fuels; adoption of alternative modes of transport **Namibia**: Reduced pollution; upending the existing preponderance of road and motorised transportation	**Ghana**: Higher life expectancy from improved air quality; bus rapid transit; rail-based mass transit and an integrated light rail system **Namibia**: Higher life expectancy from improved access to health facilities and road safety; bus rapid transit; cycling and walking	**Ghana**: Enhanced accessibility by pedestrians, cyclists and the disabled; safer travel options for children **Namibia**: Enhanced accessibility for low-income residents, pedestrians, cyclists, marginalised groups

Source Author's construct based on document and discourse analyses, as well as interviews

been on the development of road transport in order to increase accessibility to all parts of the country (Poku-Boansi 2020; Jedwab and Moradi 2011). Moreover, due to the poor public transport system, the nation has also experienced the emergence of an informal transport sector dominated by mini-buses or *trotros* and taxis (Poku-Boansi 2020).

According to Essel and Spadaro (2020), road transport in Ghana currently comprises approximately 95% of all internal transit in Ghana, with the remaining 5% being made up of rail, air and water transport. The specific breakdown of road transport is as follows: trotros and large buses (48.2%); non-motorised transport, i.e. cycling and walking (37.6%); taxis, private cars and motorcycles (13.7%); and passenger rail (0.5%). In Accra, an estimated 1 million trips are made daily to and from the central business district by mini-buses and taxis. These vehicles are inefficient in terms of the amount of road space used, implying that congestion is a major challenge especially on arterial routes (Armah et al. 2010; Quarshie 2006).

It is also important to note that colonial era urban planning practices were based on the separation of places of residence from work. This practice has continued even after independence, resulting in increased travel distances and wasteful commuting (Obeng-Odoom 2010, 2015). Moreover, government's economic liberalisation policies since the 1980s have fuelled the importation of vehicles into the country at an alarming rate. The situation has been exacerbated by the poor public transport system and increased pace of road construction which have fostered a growing preference for the use of the private automobile. The result has been increased traffic congestion with concomitant challenges such as noise and air pollution (Obeng-Odoom 2010).

From an environmental perspective, the main actors and interests in Ghana's urban transport system are ordinary residents in cities, as well as community-based groups and residents' associations. These persons or organisations directly bear the brunt of the negative environmental impacts such as congestion and pollution associated with transport choices. As a result, it is important to obtain their inputs when formulating policy responses to deal with these issues. Moreover, operators of mini-buses, taxis and private cars whose activities contribute to environmental challenges in the transport sector may also be regarded as important actors and interests.

To address the noted environmental challenges as a way of creating sustainable transport and mobility futures in Ghana, colonial era urban planning practices based on the separation of places of residence from work need to be revisited with the view of cutting down on travel distances and wasteful commuting. Moreover, policies which prioritise public and non-motorised transport may be envisaged (Obeng-Odoom 2010). It is however important to note that the empirical feasibility of cycling and other non-motorised forms of transport may be dependent on individual factors. These include personal attitudes, normative values, as well as perceptions regarding the convenience of cycling, traffic lights, congestion and individual ownership of bicycles (Acheampong 2017). Also, residents who have low levels of income or work from home are more likely to opt for walking as a mode of transport as opposed to high-income residents who commute to work (Acheampong 2020).

The adoption of electric vehicles such as buses for public transport can also be an approach to the creation of sustainable transport and mobility futures. Specifically,

this mechanism will serve to reduce the negative ecological impacts associated with current buses which primarily rely on fossil fuels. Admittedly, the successful roll-out of such an initiative may be constrained by the unreliable power supply and the paucity of charging infrastructure. However, the existence of a favourable policy environment can mitigate these problems by facilitating investments in renewable energy infrastructure. This will serve to boost the electricity supply and enhance the charging system (Teko 2018).

10.3.2 Health

In terms of health, the historical emphasis on road transportation in Ghana has contributed to the rapid spatial expansion of cities and towns. In major cities such as Accra, increased urbanisation and motorisation have led to appreciable levels of transport-induced pollution. The result has been a concomitant decline in air quality (Nerquaye-Tetteh 2009; Essel and Spadaro 2020). Between March 2005 and December 2008, a comprehensive scheme for measuring air quality in Ghana was implemented by the Environmental Protection Agency of Ghana, the United Nations Environment Programme and the United States Environmental Protection Agency (Armah et al. 2010). A total of 745 roadside samples were collected for various pollutants such as particulate matter 10 (PM_{10}), carbon monoxide (CO), nitrogen oxide (NO_2), sulphur dioxide (SO_2), lead (Pb) and manganese (Mn). For instance, 75% of the roadside samples obtained in Accra surpass the national daily average PM_{10} limit of 70 $\mu g/m^3$ while 87% went beyond the World Health Organisation (WHO) level of 50 $\mu g/m^3$ (Nerquaye-Tetteh 2009; Armah et al. 2010; Essel and Spadaro 2020). Moreover, 40% of NO_2 samples were in excess of the 40 $\mu g/m^3$ yearly figure stipulated by the WHO (WHO 2006; Essel and Spadaro 2020).

Evidently, the reactive (rather than proactive) nature of the urban planning system has contributed immensely to the current status quo in which health-related impacts are relatively less prioritised with respect to the transport sector. This is evident in terms of the rapid population growth which persistently outpaces the ability of local authorities to effectively plan for the needs of residents. Moreover, the historical emphasis on motorised forms of transport with little or no mitigating measures for their environmental impacts lends credence to this assertion.

In Accra, residents associate environmental pollution with health problems such as respiratory ailments. Thus, they exhibit a greater propensity to participate in environmental policy design initiatives with the goal of mitigating these challenges (Odonkor and Adom 2020). The main actors and interests in terms of the implications of urban transport for health in Ghana are the residents (both high- and low-income) whose life expectancies are impacted either directly or indirectly by air pollution and other transport-related emissions. In one vein, low-income residents may be more negatively affected since they are the ones who normally patronise mini-buses and other informal transport forms associated with higher levels of pollution. On the other

hand, however, wealthy people in Ghana are more likely to own and drive private cars, implying less physical exercise and thus potential health issues such as obesity.

To address the health-related challenges of urban transport towards creating sustainable transit and mobility futures in Ghana, a policy shift towards more ecologically friendly urban planning options such as non-motorised transport can be envisaged. There should also be proper integration of land use and transport planning initiatives to ensure a more orderly development of cities. Moreover, a sustainable public transport approach coupled with ride-sharing and pooling initiatives may be envisaged (Essel and Spadaro 2020). Towards attaining these and other goals, Ghana's transport policy of 2008 articulates the promotion of non-motorised forms of transit such as cycling and walking. It also emphasises the creation of a sustainable and road-based public transport system with options such as bus rapid transit. Moreover, it prioritises rail-based mass transit and an integrated light rail system to connect urban business nodes with suburban residential areas in cities (Essel and Spadaro 2020).

10.3.3 Equity

In terms of equity, the historic emphasis on road transportation in Ghana has led to the dominance of motorised forms of transit. The inequity dimensions of Ghana's urban transport system are thus evident in terms of relatively less prioritisation of the needs of pedestrians, cyclists and physically challenged persons. Specifically, the presence of few or no crosswalks, sidewalks and spaces dedicated for use by wheelchairs and other needs of the disabled lend credence to this assertion (Abane et al. 2019). It is estimated that pedestrian-related incidents account for 42% of Ghana's road traffic deaths. Moreover, 68% of the pedestrian deaths from accidents are determined by the state of crossing infrastructure, as well as the attitudes of pedestrians (Obeng-Atuah et al. 2017).

Additionally, the low availability of safe zones for children in many vicinities poses accident risks for school-going kids, particularly by speeding vehicles (Abane et al. 2019). The safety of children is also compromised by the fact that many of them commute to school unaccompanied by adults, with resultant accident risks. Moreover, even in instances where buses are availed to convey children to and from school, these are usually determined by the needs of parents for convenience, rather than the safety of children per se (Poku-Boansi et al. 2019).

It is therefore evident that the main actors and interests for transport equity in Ghana are pedestrians, cyclists, physically challenged persons and children. Ghana's non-motorised transport strategy for 2019–2028 thus places a premium on values such as safety, gender balance, universal access, efficient spatial design and participatory planning. It promotes the adoption of non-motorised forms of transport through systems which prioritise the needs of pedestrians, bicycles and green spaces. Thus, the provision of parking facilities on streets should occur after cycling, pedestrian and public transit needs have been attended to (United Nations Environment Programme

et al. n. d.). It also articulates the creation of safe zones for children, particularly within the vicinity of elementary schools. The strategy stipulates the clear delineation of vendor spaces to prevent encroachment on places reserved for pedestrians. It seeks to minimise accidents by improving the design of road intersections (United Nations Environment Programme et al. n. d.).

Towards creating more equitable urban transport and mobility futures, local authorities in Ghana need to move away from the historical emphasis on modernism towards a postmodernist approach which is more sensitive to social context. This would entail planning with the needs of pedestrians, cyclists, the disabled and children in mind. Specifically, there should be a greater focus on the provision of physical infrastructure and social spaces to serve their needs. Moreover, there must be a better allocation of resources towards addressing the long-term mobility needs of these demographic groups. This should prioritise better access and spatial distribution of services or facilities.

10.4 Namibia

Having unpacked the situation in Ghana, the discussion on the environmental, health and equity aspects of urban transport now focuses on Namibia.

10.4.1 Environment

In terms of the environment, the history of urban transportation in Namibia is inherently linked with its colonial and apartheid heritage. Specifically, the colonial era planning system was based on low-density developments undergirded by monofunctional urban forms. This was subsequently reinforced by apartheid spatial planning which prioritised segmentation of the urban landscape on the bases of race and class. As a result, poor black residents were mostly confined to peripheral townships marked by poverty and poor service delivery (Müeller-Friedman 2006). Moreover, these places had relatively poor infrastructure such as road networks, as compared to the affluent suburbs.

In Windhoek for instance, many blacks to date reside in low-income north-western townships such as Katutura, Hakahana and Wanaheda. Even after independence, the socio-spatial polarisation has been compounded by the influx of people, especially from rural to urban areas. Given that cities are less equipped to meet the service and other needs of these new residents, there has been a proliferation of informal settlements at the urban periphery (Müeller-Friedman 2006). These places are especially marked by poor-quality infrastructure, portending negatively for transport accessibility.

Namibia has also been historically dominated by road transportation with the automobile as the preferred mode of travel. Specifically, the relatively poor public

transport system implies that taxis and private cars are the preponderant modes of transport in major cities (Robinson and Fisher 2018–2019). In Windhoek for instance, the breakdown of transport modal choices by residents is as follows: car (43%); taxi or bus (36%); walking (21%); and cycling (1%). The preponderance of a car-oriented mode of urban transport in Namibia (i.e. mostly four-seater sedans) which occupy more space on roads and create traffic congestion portends negatively on the environment. This problem is also compounded by the relatively less emphasis on non-motorised forms of transport such as cycling and walking which have less ecological impacts as opposed to motorised transport (Robinson and Fisher 2018–2019).

Greenhouse gas emissions in Namibia have thus increased steadily over the years. This may be attributed in part to air pollution from exhaust emissions associated with road transportation in the country (Nwagbara and Iyama 2019). Moreover, the construction of roads is associated with land encroachment, deforestation, as well as the destruction of natural habitats which portend negatively for the protection of the environment (Nwagbara and Iyama 2019).

From an environmental perspective, the main actors and interests in Namibia's urban transport system are also ordinary residents, community-based organisations and residents' associations. These persons or groups who are directly affected by the deleterious environmental impacts of urban transport have the most to gain from policy reforms or initiatives which seek to reverse the negative legacy emanating from the colonial and apartheid eras. Moreover, operators of taxi services and private car owners have important interests since their activities directly or indirectly contribute to the environmental challenges associated with the transport system.

Namibia's new road transport policy was launched in 2018. The new document sought to make up for the limitations in previous policy approaches by moving away from the narrow focus on road transportation. Thus, it stressed the need to prioritise other modes of transport such as air, water and rail. Moreover, it underscored the importance of sustainable transport options through the focus on people and goods, rather than just vehicles (Rasmeni 2018). Also, Namibia's road transport sustainability plan seeks to enhance transport access and mobility by improving public transportation. Moreover, it recommends the integration of land use and transport planning to achieve this goal. It also aims at protecting Namibia's ecology and physical environment by minimising the negative environmental impacts of transport. Additionally, it promotes the use of green construction materials and techniques to ensure ecological sustainability (Roads Authority & Texas A and M Transportation Institute, n. d).

The creation of sustainable transport and mobility futures in Namibia would occur when interventions such as the new urban transport policy result in the upending of the existing preponderance of road transportation as well as the concomitant reliance on taxis and private vehicles. Achieving this feat would however not be easy, given the fact that the fundamental building blocks which created the current status quo remain unchanged even after independence. It is therefore important to actively engage municipalities and residents in order to ensure the embracing of non-motorised forms of transport such as walking and cycling. Ultimately, however, the

main solution lies in dismantling the legacy of segregation through the creation of more mixed neighbourhoods which are equally served by facilities such as transport networks.

10.4.2 Health

As regards the health implications of urban transport for the Namibian context, the historical provenance of monofunctional urban forms coupled with apartheid spatial planning implies that physical access to health facilities could be a major challenge, especially in low-income communities. This situation may be especially exacerbated by urban sprawl which can result in the emergence of geographically dispersed settlements and facilities. Transport in Namibia is thus pivotal to accessing health facilities, especially by vulnerable groups such as persons infected with the Human Immuno Deficiency Virus (HIV) or the Acquired Immune Deficiency Syndrome (AIDS). Thus, in instances where residents are located far away from basic services, their health needs could be seriously compromised (Bicycle Empowerment Network Namibia et al. 2008).

The health aspect of urban transport in Namibia is also evident in terms of the negative health conditions such as respiratory infections and stress associated with the dominant car-oriented modes of transport. While the argument can be made that these conditions are not likely to be as dire given the relatively low population density in the country, the increased rate of urbanisation portends that residents are steadily being exposed to the same risks as those in other African countries with high population densities.

The main actors and interests when it comes to the health implications of urban transport in Namibia appear to be low-income residents who bear the brunt of the ailments associated with the dominant transport modes. Moreover, as already noted, marginalised groups who experience challenges in accessing health care are also affected. Towards dealing with the negative health aspects of urban transport in Namibia to ensure sustainable transport and mobility futures, contemporary policy emphasis should shift towards the adoption of non-motorised transit forms such as cycling and walking. Moreover, there should be the prioritisation of physical access to health facilities by residents of low-income neighbourhoods or communities.

Namibia has one of the highest levels of road traffic accident-related deaths per annum in the world. According to the WHO, this is estimated at 30.4 per 100,000 persons. The figure is higher than the average of 26.6 persons for sub-Saharan Africa. Across the continent, it is exceeded only by eight countries, namely Burundi, Democratic Republic of Congo, Central African Republic, Burkina Faso, Guinea Bissau, Liberia, Malawi and Zimbabwe. Moreover, Namibia is among the 17 countries in Africa which are actually experiencing increasing levels of death from road traffic accidents (WHO 2018; Jones et al. 2020: 297–298). The implications for quality of life are enormous, including reduced life expectancy and accident-related health challenges. The urban dimensions of Namibia's high level of road accidents are especially

evident given the relatively high concentration of these incidents within cities and towns, as well as the poor conditions of road infrastructure in some municipalities.

Namibia's road transport sustainability plan thus seeks to enhance the nation's road safety by protecting users and ensuring better public education. The ultimate goal is to reduce the number of fatalities from road accidents. The plan also seeks to maintain the country's road infrastructure through better funding mechanisms as well as cost-efficient techniques. Moreover, there should be better regulation of the number of vehicles and passengers who ply the roads (Roads Authority, Texas A and M Transportation Institute, n. d; Government of the Republic of Namibia: Ministry of Works, Transport and Communication 2000).

Urban planning in Namibia should also seek to ensure healthy futures through transport by enhancing access to health facilities, minimising pollution and ensuring better road safety. These can occur by shifting away from the dominant monofunctional urban forms characterised by sprawl towards mixed land uses and a more compact form of urban development. Moreover, an emphasis towards multi-modal transport will help to reduce pollution levels. Also, urban strategies should seek to localise national-level plans for enhanced road safety through better law enforcement, especially in terms of speed limits and driving under the influence of alcohol.

10.4.3 Equity

Besides health, the equity dimensions of urban transport in Namibia are evident in terms of the legacy of apartheid-era spatial planning which has resulted in low-income neighbourhoods being located away from employment and other economic opportunities. Many residents in these areas spend a significant part of their disposable incomes on transportation, portending negative ramifications for access to basic services (Robinson and Fisher 2018–2019). Moreover, the dominance of a car-oriented mode of travel (which primarily consists of privately owned four-seater sedan vehicles) has resulted in a situation whereby the public transport system is poorly developed (Robinson and Fisher 2018–2019).

Another equity issue in Namibian urban transport is the relatively less emphasis on non-motorised forms of transport. As a result, sidewalks and bicycle lanes are either non-existent or poorly developed. This is especially a major challenge in low-income neighbourhoods where residents would likely find these alternative forms of travel more affordable (Robinson and Fisher 2018–2019).

Overall, the urban equity dimensions of transport in Namibia are evident in terms of differences in levels of access, affordability, infrastructure and quality of service delivery. Generally speaking, residents in poor urban communities such as informal settlements have less access to transport services due to their locations away from major areas of economic activity. Moreover, the relatively high costs of transport (in relation to their disposable incomes), coupled with poor infrastructure and low quality of service delivery, put them at a disadvantage.

The main actors and interests regarding equity in Namibian urban transport thus appear to be low-income residents, pedestrians and cyclists. Moreover, as noted earlier, marginalised groups such as persons living with HIV/AIDS may also be included in this category. In order to create sustainable transport and mobility futures towards enhancing the residential quality of life, it is therefore important to prioritise the needs of these persons or groups. This requires a policy reorientation at both the national and municipal levels.

Windhoek appears to be a trailblazer when it comes to municipal transport policy-making in Namibia. Thus, the city boasts of both the Sustainable Urban Transport Master Plan (SUTMP) and the Non-Motorised Transport Strategy (NMTS). The SUTMP has the broad goal of promoting public and non-motorised transport to reduce overreliance on taxis and private cars (City of Windhoek 2013). Moreover, the NMTS seeks to address existing safety, infrastructure and equity gaps associated with non-motorised transport in the city. It thus prioritises the creation of sidewalks, bicycle lanes and other infrastructure which promote walking and cycling. Additionally, it focuses on the needs of women to promote gender equity in trip modes or choices (City of Windhoek 2018).

Generally, urban planning should prioritise the needs of both high- and low-income communities towards attaining equitable transport futures. This should entail strategic investments in infrastructure as well as the creation of an enabling physical environment for travel. Moreover, emphasis on cost-effective travel options such as walking and cycling would benefit low-income residents while also affording the wealthy opportunities for exercise.

10.5 Syntheses and Observations

Overall, the chapter observes a number of differences between Ghana and Namibia when it comes to urban transport and quality of life. To begin with, the respective historical contexts of the two countries may be distilled in terms of divergent population growth, colonial and postcolonial constructions, as well as government policies. In the case of Ghana, tremendous population growth has increasingly led to a more compact urban form associated with high levels of demand for transport services. The colonial era was initially associated with the prioritisation of rail transport, even though attempts were later made to switch to road transport. In the postcolonial epoch, there has been an overwhelming emphasis on roads as the preponderant mode of transport. However, government policies in the recent past have sought to emphasise multi-modality and non-motorised forms of transport in order to deal with challenges such as congestion and pollution.

In the case of Namibia, while the urban population has been growing steadily over the years, the relatively low level of growth in absolute terms implies that urban sprawl is common. This results in the need for increased accessibility across geographically dispersed locations. Moreover, the colonial and apartheid eras with their emphases on spatial polarisation resulted in the emergence of a highly unequal

urban landscape which was relatively unfavourable to the majority black population. Following independence in 1990, there was also a significant influx of blacks from rural to urban areas, resulting in the emergence of informal settlements, particularly at the urban periphery. These areas are characterised by poor infrastructure such as untarred roads leading to poor transport access by residents. Government policies have therefore sought to redress the ills of spatial inequality while simultaneously promoting sustainability through multi-modal and non-motorised forms of transport.

As regards the environment, urban transport in Ghana is characterised by challenges such as traffic congestion and pollution. In the case of Namibia, there is the problem of sprawl and poor physical access to communal facilities. For health, transport pollutants result in respiratory and other ailments in Ghana. The situation in Namibia is primarily associated with increased road accidents which have led to a tremendous cost in terms of human lives. As regards equity, the Ghanaian context reveals less prioritisation of the needs of pedestrians, cyclists, the physically challenged and children thus posing safety hazards for these demographic groups. And for Namibia, a spatial binary characterises transport use and access. The implication is that wealthy residential neighbourhoods tend to have better roads and physical access to communal facilities such as health care. However, low-income areas such as informal settlements are associated with poor road networks and less access to public facilities.

Overall, the creation of sustainable transport and mobility futures in sub-Saharan Africa requires strategic urban planning interventions. This is due to the fact that urban areas by virtue of their population densities and the extent of the built-up land areas are associated with many of the negative effects of transport such as pollution and congestion. Moreover, city authorities are best placed to initiate innovative plans or implement many of the national-level policies as a way of effectively responding to the highly localised nature of transport impacts. In the case of Ghana, urban planning interventions must promote multi-modality, reduce pollution, as well as ensure better access for children, the aged and the disabled. These can occur in terms of enhanced public transport, as well as the provision of infrastructure for non-motorised forms such as sidewalks and cycling. Moreover, the situation in Namibia requires a new mode of urban planning which prioritises the creation of mixed-income neighbourhoods in order to minimise sprawl and enhance transport accessibility. There should also be a stricter enactment and implementation of road safety by-laws to reduce transport-related fatalities.

10.6 Implications and Conclusion

Broadly speaking, an urban transport framework for enhanced quality of life is manifested in terms of positive environmental, health and equity outcomes (Fig. 10.1). This chapter articulates that a model for sustainable transport and mobility futures in African cities may be conceptualised in terms of multi-modalism, prioritisation of the public interest, as well as policy reforms. Specifically, emphasis should be

shifted away from the overreliance on road transport to embrace alternative forms such as walking and cycling which are more environmentally friendly. To make these alternative transport modes attractive to residents, greater awareness of their benefits must be created through public education. Moreover, the inconvenience associated with these modes of transport should be redressed through increased investments in infrastructure such as pavements and sidewalks.

The prioritisation of the public interest in urban transport must occur through greater resource commitments towards improvements in public transport. For instance, local authorities in both Ghana and Namibia should establish more reliable and attractive bus rapid transit systems widely available to the majority of the population. Part of the strategy should also encompass the creation of designated bus routes along major thoroughfares to reduce traffic congestion and make these services appealing to the masses. In terms of policy reforms, governments in both

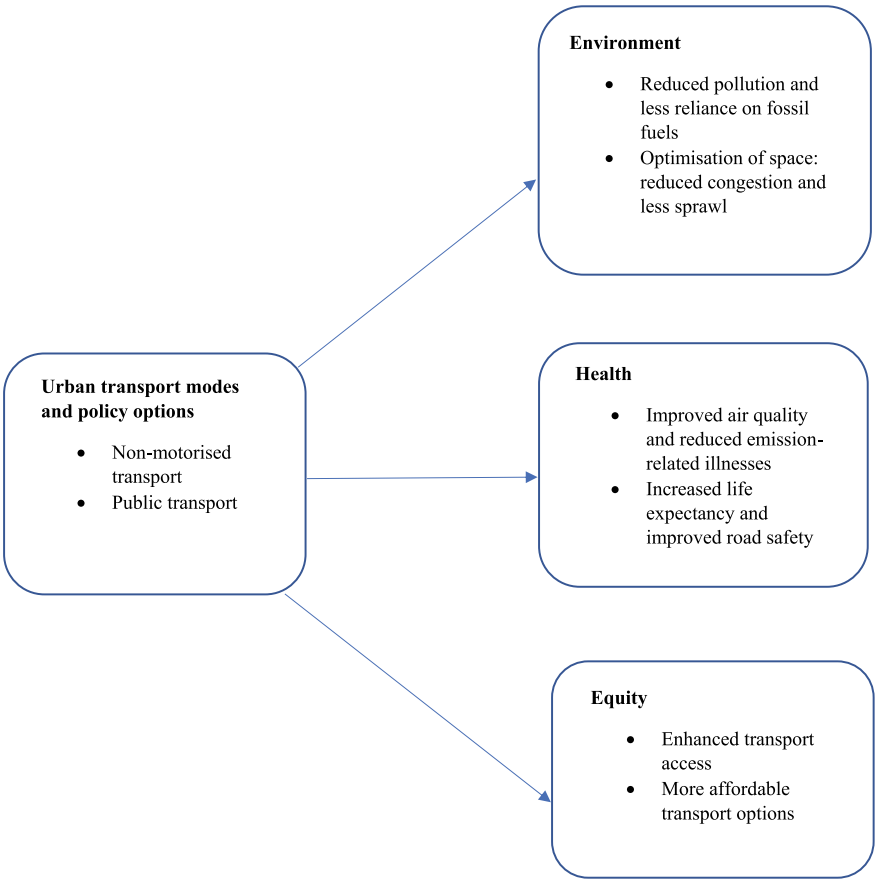

Fig. 10.1 Positive quality of life implications of urban transport framework *Source* Author's construct based on document and discourse analyses, as well as interviews

countries must adopt bottom-up approaches premised on regular engagements with the community and public interest groups to obtain their perspectives. These will form the bases for changes or innovations to policy initiatives adopted to improve the urban transport system.

This chapter contributes to the existing scholarly discourse in three main ways. To begin with, it unfurls conceptual relationships between urban transport and quality of life in the African context. Specifically, it distills these based on the broad themes of environment, health and equity. The advantage of this approach is that it unpacks transport as an evolving policy choice whose spatial and social impact must be considered in the urban planning process. This analysis also reveals the roles of unique historical and political-economic factors in shaping transport choices and their concomitant ramifications for the quality of life. Thus, it enriches understanding of how the national context affects the evolution of urban morphological patterns and resulting influences on residents. Finally, the chapter articulates a more sustainable approach to the design of urban transport systems. This occurs through the adoption of ecologically friendly modes of transit. The goal is to meet the ever-changing travel needs of residents while simultaneously protecting the urban landscape from deleterious impacts such as pollution and congestion.

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