

The Effect of Active Travel on Sustainable Transport Planning: Empirical Evidence from Selected European and African Countries

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1 ABSTRACT

In recent times, people have been advocating the adoption of active travel such as walking and cycling due to its benefits to the health of human beings and the overall quality of the urban environment. Urban transport, being one of the major challenges to sustainable development, remains the fastest-growing source of carbon emission in major cities of the world, and as a result, there is a need to adopt methods aimed at reducing over-reliance on vehicles, being the major contributor to carbon emission in our environment. Although various scholars have contrasting views on the role of active travel in sustainable planning, it is believed to be beneficial to improve health without necessarily make a significant impact on the economy and built environment. Consequently, this study reviewed literature on active travel use in the developed and developing countries of the world and its impact on sustainable urban transport planning and development. The study adopted the Prisma approach by extracting relevant information from peer-reviewed journal articles and proceedings. Findings from this study revealed that active travel reduces environmental health damage such as global warming as well as air and noise pollution caused by increased reliance on vehicles, and variations exist in the use of active mode in both the developed and developing countries of the world. The study recommends that stakeholders in the transport sector, as well as the government in the developing countries, should provide relevant transport infrastructures that promote and support active travel use in order to achieve sustainable transport growth and development.

Keywords: Transportation, Sustainability, Planning, Urban Transport, Active Travel

2 INTRODUCTION

How we plan, design and manage our built environment, including our public spaces and transport systems, significantly impacts our overall health and wellbeing (Wen, Rissel & Fu 2013). According to the United State Department of Health and Human Services (2020), Active transportation (AT), such as walking, cycling or using public transit as a means of transport offers an opportunity to move closer to reaching Healthy People 2020 objectives of increasing physical activity and “reducing the proportion of people who are considered ‘obese’. Several studies (Roberts, Mandic, Fryer, Brachman & Ray 2019; Wen, Rissel, & Fu 2013;) have been carried out on active travel in relation to healthy living, however little or no discussion has taken place on the impact of active travel/public transport on sustainable transport planning.

According to the World Bank (2021), road planning and design that place much emphasis on motorised vehicles such as private vehicles have detrimentally impacted air quality, greenhouse gas emissions (GHGs), road injuries and fatalities, congestion, and equity. These problems will only be exacerbated unless a meaningful shift to sustainable transport is encouraged by governments and relevant stakeholders in the transport sector. Active mobility or travel refers to walking, cycling, wheelchair users or other light device users, and other modes such as scooters and e-bikes. This form of travel provides the lowest emissions of all forms of transport and it equips people with active lives that bring health, social, and economic benefits. However, walkers and cyclists are the most vulnerable to road injuries, given the lack of safe infrastructure and speed management protecting them from motor vehicles. While some countries have already committed to vision zero and follow a safe system approach to their road infrastructure planning and design, car-centric practices continue to take the lead in most countries (Welle et al 2018).

Environmentalists have long touted the benefits of carpooling and utilising active travel/public transport to reduce greenhouse gas emissions and slow the effects of climate change. By utilising high-occupancy vehicles (HOVs), more people can be transported to the same place in one vehicle, against individuals driving themselves. The additional social benefits of increased active transport and reduced motor vehicle use include: transport benefits of reduced congestion, car space requirements and costs; environmental benefits of reduced air, noise, and visual pollution; energy use reductions through fewer cars, lower fossil

fuel use and greenhouse gas emissions. Moreover, communities are further strengthened through increased social interactions on the streets and within neighbourhoods. Despite the benefits associated with active travel, especially in the area of ensuring sustainable planning, it has been realised that some countries are yet to adopt and embrace this mode of transport. Hence, the main pursuit of this study is to examine the impact of active travel adoption and use on sustainable planning and development.

This paper starts by presenting a general overview of active travel, it goes on to examine the role of active travel in sustainable planning and ends by comparing active travel use in some selected developed and developing countries.

3 CONCEPTUAL SYNOPSIS

3.1 General overview of Active travel and Transport Development: Concept of Sustainability

As cities grew in the 20th century, expanded transportation networks furthered urban development but also created a series of challenges towards achieving transport sustainability. The rise in urbanisation, standard of living and rapid economic development have led to the growth and progress in the development of urban and intercity transportation systems. Based on this, the majority of the urban centres have been experiencing diverse transportation problems ranging from traffic congestion, accidents, inadequate transport infrastructure and poor maintenance policies from governments and stakeholders. Due to this, it is pivotal that relevant stakeholders in the transport sector adopt measures aimed at ensuring environmental sustainability. This can be achieved by exploring measures aimed at curbing the menace associated with transportation management in major cities of the world.

Transport systems have a crucial role to play in the development and growth of cities thus making human settlements inclusive; safe, resilient and sustainable (Gumbo et al 2022). One of the targets of the sustainable development goals calls for strengthening efforts to provide access to safe, affordable, accessible and sustainable transport systems for all. It also underlines the need to pay special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons. Globally, the trend in traffic volume is well known, as it has been on the rise for decades. Also, mobility demand has been rising due to increased car ownership in both the developed and developing countries of the world. Andrzej (2002) asserted that the consequential effect of this is seen in traffic congestion in major cities of the world. This has resulted in the loss of cities' attractiveness through tailbacks, noise pollution and exhaust fumes (air pollution). Sustainable urban transport systems require alternatives to the use of private cars that are competitive in terms of convenience and flexibility as well as cost (Dumba et al 2017). Based on this, the enlargement of existing transport infrastructures may not be the solution to the ever-growing traffic problems, thus the need to adopt alternatives, among them the use of active travel.

In a report by the Organisation for Economic Cooperation and Development (OECD). (2018), there is a need to generate alternatives to the use of private cars that are competitive in terms of convenience and flexibility as well as cost to achieve a sustainable urban transport system. One of the ways of discouraging over-reliance on private automobiles is to create an integrated urban transport system by incorporating non-motorised travel such as cycling and walking. Such sustainable transport planning and development would reduce over-dependence and reliance on roads. Chin and Foong (2005) defined sustainable development as one that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. Sustainable transport refers to transport that is sustainable in terms of social, environmental and climate impacts. It aims at a proper balance between current and future environmental, social and economic qualities. Sustainable transport is a key element in the development of sustainable cities (Gumbo and Moyo 2020). A city with sustainable transport should be a city that promotes integrated planning between transport and land use to reduce the need for travel, maximise the utility and value of space, and enhance the efficiency of energy use and the city's liveability (Toan 2018).

3.2 Active Travel Concept

Song et al (2013) defined active travel as any walking and cycling in which people engage for their respective trips. It is widely recognised that active travel (walking and cycling) helps to mitigate the adverse effects of auto-dependent and physically inactive lifestyles as well as traffic congestion, air pollution, and health problems (Brand and Boardman, 2008; Ogilvie et al, 2010; Pratt et al, 2000). Generally, countries that

promote and enhance active mobility contribute to economic and social justice in their territories. Investing in walking and cycling is a policy that responds to the needs and journeys of the poor that can change the livelihoods of the most vulnerable. In addition to improving the urban experience of people that generally cannot afford motorised private transportation, active mobility projects can unlock the health, environmental, and economic benefits of low-carbon lifestyles among the poorest residents. Moreover, making active modes of transportation safer and more efficient rather than a burdensome necessity can lead to mode share retention and future prevention of modal shift to private motor vehicles.

3.3 Benefits of Active Travel

The role of active travel is significant in the lives of people and the community and leads to reduction in the emission of harmful gaseous substances into the environment: Cities contribute more than 60 per cent of the world's GHG emissions and approximately one-third of these emissions stem from urban transport. A recent study that observed 3,800 people across seven European cities, showed that small changes in a person's transport habits can significantly cut their carbon footprint. The study concluded that if people switch just one trip per day from driving to cycling, they will reduce their carbon footprint by 67 per cent, about 0.5 tons per year (World Bank 2021).

In a similar study by Mason et al (2015), a high modal shift scenario modelled by the Institute for Transportation and Development Policy (ITDP) found that if urban passengers' use of bikes and e-bikes were to increase to 11 percent by 2030 and 14 percent in 2050, energy use and carbon emissions for urban transport would be reduced by seven percent in 2030 and 11 percent in 2050. Under this scenario, the high uptake of cycling and e-bike use would save the world a total of USD 6 trillion between 2015 and 2030, and USD 24 trillion between 2015 and 2050. The enabling factor behind the feasibility of such striking changes in travel behaviour lie in the fact that most trips made in urban areas are under ten kilometers, a distance easily cycled, especially when safe infrastructure is present. Also, the provision of more pedestrian walkways to support and encourage active travel will reduce air pollution in urban centres. For instance, Burgen, (2018) posited that city centres in Spain have been pedestrianised since 1999 and this has resulted in a 70 percent decrease in carbon dioxide emissions.

Apart from the reduction in emission of harmful gaseous substance to the environment, The benefits to health are also abundant with greater rates of cycling and walking. It has been noted that insufficient physical activity is one of the leading risk factor for noncommunicable disease. Around 3.2 million deaths per year, are related to physical inactivity (World Health Organization, (WHO) 2020). Essel and Spadaro (2020) further reiterated that active travel offers one way to mitigate some of these deaths. From the study it was discovered that scaling up sustainable mobility, such as safe cycling and walking, could save up to 5,500 premature deaths with improvements to air quality and an additional 33,000 lives from increased physical activity over a 35-year period, for a total of USD15 billion from averted healthcare costs.

According to Volker and Handy (2021), Active travel has also been found to promote economic development. This is evident in its positive impact which supports investment in bicycle and pedestrian infrastructure in local retail and food service businesses. It was asserted that most of the active mobility infrastructure had positive economic effects. Indicators such as retail or food sales, employment, and customer spending increased and that adding bicycle and pedestrian facilities encouraged more visitors by bike or on foot. The economic benefits of cycling and walking have also been realised in new industries, namely that of green tourism. Under this umbrella, bicycle tourism has long been one of its more popular forms. In Europe and the United States, bicycle tourism has had immense economic impact to the tune of USD 96.7 billion and 44 billion euros annually (Adventure Cycling Association 2017).

Improving active mobility in cities and other communities can also reap social benefits of social cohesion, perceptions of security, and liveability. Travelling on foot or by bike along with others is believed to promote feelings of positive fulfilment (McIlvenny, 2015). After the pedestrianisation of Istanbul's historic peninsula, a survey revealed that 68 percent of pedestrian respondents felt more comfortable being in that area than previously, and that 66 percent reported spending more time in the area. The lockdowns brought by the COVID-19 pandemic had serious impacts on people's physical and mental health. Active mobility modes increase opportunities for social interaction between diverse members of the community, which can broaden people's ability to engage with difference and, in turn, positively impact social cohesion.³³ Ultimately, people's physical, mental, social, and economic health will benefit from the ability to move in safe

environments. Active travel makes cities and human settlements inclusive, safe, resilient, and sustainable. Safe, inclusive, and sustainable cities require safe, inclusive, and sustainable streets. Improved safety for pedestrians and cyclists will be necessary to meet the road safety target to halve road traffic deaths. Providing safe public spaces that are accessible to all entails making cities bicycle- and walking-friendly (Risimati et al 20210. Safe, comprehensive active mobility networks when coupled with speed management will raise equal opportunities for city dwellers. Overall, Active travel not only promotes individual wellbeing but also promotes the growth of the environment and community at large.

3.4 The Place of Active Travel in Sustainable Transportation Systems

According to the International Energy Agency, greenhouse gas emissions from the transport sector are expected to increase by 120% from 2000 to 2050 (ITDP, 2015 in Tonnesen, Knapskog, Uteng & Oksenholt 2020). In response to this, a mobility shift, away from private car use and towards higher shares of walking and cycling has been routinely mentioned and to some extent adopted at different levels of governance. However, there is a need for substantial change or shift to making the non-motorised transport seamless to use. In the United States, children and adolescents from low-income or historically disadvantaged minority families experience more transportation obstacles, which not only profoundly restrict their access to basic needs, but also create a perpetual impoverished entrapment that limits their upward mobility. The benefits of strengthening active travel through improved access are diverse and multiple. From the climate perspective, reduced car use would likely reduce the carbon footprint, as more travellers will adopt the use of active travel in combination with climate-friendly modes of transport. In furtherance to this, reduction in private car use holds the potential to reduce other negative externalities relating to congestion, traffic accidents, local air and noise pollution.

In a study by Ostergaard et al (2013), active travel in combination with public transport will positively affect public health in comparison to door-to-door travel in private cars, as it helps to achieve healthy living through exercise and to reduce the obesity rate among people. Belcher, Berrigan, Dodd, Emken, Chou and Spruijt-Metz (2010) further reiterated that youth that use active travel have better cardiorespiratory and muscular fitness, increased energy expenditure, more favourable body composition and less weight gain compared to youth that do not engage in active travel. Overall active travel can help in both physical health development of people and environmental development of communities through the reduction of both air and noise pollution. For active transport to help achieve sustainable development, Cascajo, Lopez, Herrero, and Monzon (2019) posited that travellers tend to select the transport mode which they perceive to be the most attractive. Hence, a simple derivative to support sustainable transport goals is that land use and transport systems should be developed to make walking, cycling and public transport use attractive and simultaneously provide competitive advantages over private cars. Given that mode choice is not static and gets influenced by changes in service quality for each mode, the dynamic of choice and its interlocking with access, egress and transfer (AET) needs an in-depth scanning of policies. Though previous studies have highlighted that use of active travel increases when services and facilities are improved (Kjørstad & Nordheim, 2005 cited in Tonnesen, Knapskog, Uteng & Oksenholt 2020 ; Naess 2012), isolated measures directed at different transport modes are usually not sufficient to affect a major modal shift in urban areas. To make a dent in the current car-based mobility structures, it is expedient to adopt an integrated approach which can monitor and plan for the entirety of modes (car, public transport, bicycling, bike-sharing, e-scooters and walking) as one interconnected unit and consider the commute time as well from point of entry and stops (walking) to the next interchange (bus, rail station) etc which should not be too long in order to retain consumers and encourage active travel.

4 METHODOLOGY

The study adopted the Prisma approach in reporting the reviews on the use of active travel in both the developed and the developing countries. Information from this study was derived from the most recent academic literature on the subject matter, and was complemented by presenting and reporting the case studies from some selected countries in Europe and Africa. In this way, the case studies provided a fundamental source of information in defining the methodology and then its main application testbeds. The proposed multilayer approach was aimed at understanding the impact of active travel in the operation of a sustainable transport system.

5 FINDINGS (EXPERIENCE FROM EUROPE, SOUTH AFRICA AND NIGERIA)

This chapter presents information on active travel, its use and applicability in some selected countries in both the developed and developing countries.

5.1 Active Travel in the Developed Countries of the world: Case study from selected European Countries

Recently, many Western industrialized countries have encouraged and adopted walking and cycling because active travel increases daily physical activity, hence reducing obesity and other chronic diseases (Buehler et al, 2011). It is widely recognised that several countries already have a high share of active mode use in Europe, some of these include the Netherlands, Denmark, and Germany (Pucher and Buehler, 2008). In the Netherlands, the active mode share in terms of trip frequency was 44% in 2017 and more than half of these were cycling trips (CBS, 2018). Pucher and Buehler (2008) make a distinction between the cycling rich countries and other countries where cycling is uncommon, such as the USA, Canada, and the UK. From the study, it was discovered that even though more kilometers are cycled in the Netherlands, the fatality and accident rates are much lower compared to the cycling poor countries, indicating a very safe cycling environment. This is due to government policies that support active travel mode by providing a safe and enabling environment to encourage and support the use of non-motorised transport in the country.

In another study, Fishman (2016) identifies the Dutch mature and complete cycling infrastructure as the main contributor to the safe environment. Furthermore, Fishman (2016) stresses that in the Netherlands the cycling population is much more diverse in terms of socio-demographic compared to other countries. Women are known to cycle more than men (Heinen et al., 2010) and also elderly people are active bicycle users (Fishman, 2016). The study of Fishman (2016) identifies that there is a knowledge gap concerning active mode choice from countries like the Netherlands, that have mature infrastructure, are safe, and where cyclists' demographics are diverse. This would enable the possibility to make a comparison of relevant determinants for active mode choice between cycling rich and cycling poor countries. Furthermore, when investigating active mode choice in the Netherlands there is no need to oversample the cycling population, because a representative sample of the population suffices to ensure a large enough sample of cyclists. From the study, it was argued that the Dutch are 'blind to cycling', meaning that cycling is such an ordinary activity that it has not been warranted much attention, both by practitioners and researchers. Only recently this has started to change. Dutch transport planning models, such as LMS (Rijkswaterstaat, 2018), are used by governmental authorities to assess the impact of policies. These models are tailored to the car and public transport.

In line with Fishman's (2016) argument, the active modes have not received much attention. Walking and cycling are combined into 'slow modes' and often evaluated as 'rest-category' (De Jong et al., 2007). Ton et al, (2019), in a study asserted that the use of active travel goes beyond policies, the study identified six characteristics and determinants of active mode choice; they include, individual characteristics, household characteristics, trip characteristics, built environment, season and weather characteristics, and work conditions. Several studies (Central Bureau of Statistics, 2014; Harms et al, 2013; Fishman et al, 2015) have been conducted on active travel in the Netherlands using data collected by the Dutch National Travel Survey. Harms et al (2013), opined that even though the overall cycling shares have been relatively stable at around 27% for over decades cycling distances have increased by 14%. It was further reported that half of all trips made by those aged 18 years and above are by bicycle. However, almost all of the 14% growth in the distance cycled is due to those aged 50 years or more. Another trend which was reported in the study of Harms et al (2013) is a reduction in car use by those aged 18–30. Consistent with evidence from Delbosc and Currie (2013), women have a higher share of cycling as a proportion of all trips but men cycle greater distances. In another study by Scheepers et al, (2013), on exclusively short trips (under 7.5 km) using NTS data collected between 2004–2009. Walking and cycling mode share is analysed together in comparison to car use for different trip purposes (i.e. shopping, commuting, chauffeuring, and sports). It was found that for trips under 7.5 km, 44% are made by car, regardless of trip purpose. Bicycle use was highest for commuting (47%), falling to 35% for both chauffeuring and shopping. Walking was highest for chauffeuring, accounting for 21% of trips, reducing to 9% for commuting. Trip durations were found to be similar, on average, between car, bicycle and foot (around 10 minutes) although distance travelled varies from 3.3 km for cars, 2.1 km for cycling and 0.8 km for walking.

In Germany, Policies aimed at promoting sustainable transport have been implemented. These includes restrictions on car use, provision of high-quality, attractively priced, well- coordinated public transport services as a viable alternative to the car for many trips, especially in large cities. Thirdly, the provision of transport infrastructure to promote and encourage non-motorized travel has been vastly improved to increase the safety and convenience of walking and cycling. According to Buehler and Pucher (2009), German governments at all levels have influenced travel behavior through a series of policies enacted over decades. These includes Pricing, restrictions, and mandated technological improvements aimed at reducing the harmful impacts of car use. In addition to this, there has been integration of public transportation at the metropolitan and national levels which provide a viable alternative to the car. Apart from these, there has been improvement in the land use-planning, this is done by implementing regional land planning policies aimed at encouraging compact, mixed-use development, thus keep trip distances short and feasible for walking or cycling.

German cities have greatly improved non-motorised transport infrastructure used by pedestrians and bicyclists (BMVBS, 2002). For example, free zones that cover much of the city centre and wide sidewalks on both sides of every street for pedestrians. Other pedestrian friendly design features include pedestrian refuge islands for crossing wide streets, clearly marked zebra crosswalks, often raised and with special lighting for visibility; and pedestrian-activated crossing signals (Pucher and Dijkstra, 2003). Also, all residential and commercial developments have sidewalks for pedestrians, and many feature separate bike paths and extensive parking for cyclists. The bicycling and walking networks in virtually all German cities include numerous off-street short cut connections for cyclists and pedestrians to enable them to take the most direct possible route from origin to destination. The result of such a wide range of facilities is a complete, integrated system of bicycling and walking routes that permit cyclists and pedestrians to move either on completely separate paths and lanes or on lightly travelled, traffic-calmed residential streets without competing with cars on the road (Pucher and Buehler, 2008). The resultant effect is reduction in traffic congestion as there will be fewer vehicles on the road, accident reduction and an environment free from pollution arising from excessive car reliance. Overall, it can be asserted from these studies that the use of active travel is being embraced as a mode choice in Europe as majority of the respondents engage in the use of non-motorised transport (walking/cycling) for majority of their trips.

5.2 Active Travel in the Developing Countries of the world: Case study from selected African Countries

Walking is the most important mode of transport in the “Global South. ” Depending on the location, the mode accounts for between 33 and 90% of trips. Despite its importance and the notion that walking is available to all, there are vast parts of the population that cannot use the mode, as infrastructure is not conducive (Vanderschuren, et al, 2022). NMT in Africa is not driven by the type of benefits that have been identified by Litman (2012). The burden that the urban poor have to carry in Africa is not only economic. They also carry a road safety burden. Traffic accident rates are very high, nearly 30-40 times those in the European Union (Sub-Saharan Africa Transport Policy Program (SAATP) 2005). In 2002, global road traffic injuries accounted for 2.1% of all deaths, making them one of the leading causes of death. Most of those killed or injured, due to road crashes globally, are pedestrians in developing countries. They are also breadwinners for their families. In addition to these deaths, an estimated 20 million to 50 million people are injured in road crashes each year (Vanderschuren, 2006).

A recent analysis of the South African Household Travel Survey (2013) revealed that approximately 75% (also representative of Cape Town) of inhabitants require special consideration in planning, designing, and implementing of transport infrastructure. That percentage includes children, females, and persons with disabilities. From the study, it was discovered that there is an overwhelming lack of support of walking and cycling in most African cities. Many countries and cities in the region do not include the active travel modes in plans and, where infrastructure is provided, implementation is often not fit for purpose. In many instances, this is further compounded by a lack of supply of suitable infrastructures that supports active mobility, with a failing or weak bicycle industry notably lacking in official government support.

From a transportation perspective, Kershaw and Forer (2010) opined that users make mode choices based on a variety of factors. They include economic, or service driven ones, based on individual roles, habits and interests or age, income, life cycle, gender and ability. As transport involves the human movement from one

place or neighbourhood to another, the power dynamics that flow from race, gender, class, and other systems of subjugation or privilege will, generally, transcend the boundaries of any given space, place or neighbourhood. Analysis reflects different mobility patterns for males and females and suggests that harassment experiences have a significant effect on user choices (Vanderschuren, et al, 2019). From the experience of developing countries on the use of active mobility, it was discovered that even though the residents make use of some active mode (walking), it is not as a result of the benefits derives from its use, but rather because of the low income being generated by households which often deprives them of using the motorised mode of transport. In addition to this, the governments do not make provision for transport infrastructures which support active travel when designing and formulating transport policies.

5.3 Active Travel in the Transitional Countries: Case study of Armenia

World Economic Situation and Prospects (WESP) classified all countries of the world into one of three broad categories: developed economies, economies in transition and developing economies. The basis for the classification is to reflect basic economic country conditions. Several countries (in particular the economies in transition) have characteristics that could place them in more than one category; however, for purposes of analysis, the groupings have been made mutually exclusive. Within each broad category, some subgroups are defined based either on geographical location such as the subgroup of “major developed economies”, which is based on the membership of the Group of Seven. Geographical regions for developing economies are as follows: Africa, East Asia, South Asia, Western Asia, and Latin America and the Caribbean. As defined by WESP (2014), countries in transition include Ukraine, Albania, Serbia, Belarus, Armenia among others. Based on this, it is pivotal to examine the use of non-motorised transport in these countries to know its impact on their mobility and development.

For the purpose of our study, we examined active travel use in Armenia, a country in transition. Being a landlocked country, Armenia has an economy that depends on transport and cross-border access. However, Armenia’s location presents a significant problem for the transport sector due to the few international borders and poor climatic condition which has impeded the growth in the transport sector. These problems result in high transport costs, particularly for traded goods, and expensive infrastructure development and maintenance. Armenia has a few railway lines and an extensive road network. While car ownership has been growing steadily in recent years, it is still relatively low. Public transport plays a critical role, especially in cities. Armenia’s urban transport system faces several problems among which are the declining use of public transport, a lack of pedestrian safety and traffic congestion (Asian Development bank, ADB 2011). The demand for public transport has changed dramatically in recent years with the introduction of minibuses and a decline in large bus, trolleybus, and metro services. But little attention has been paid to the use of active travel/ non-motorised transport in the country.

6 PLANNING AND DESIGNING ACTIVE MOBILITY – RECOMMENDATIONS

Across the globe, many cities in the developed countries have high rates of cycling and walking. This is as a result of good policy and investment in transport infrastructures that support active travel, but for others, especially in the developing countries, it may be attributed to a lack of public transit or the high expense of driving. According to the World Bank (2021), cities in the United States, such as Portland, Minneapolis, and Washington, D.C., have grown their cycling rates. For example, Portland has seen a 374 per cent increase in the bicycle commuters between 2000 and 2017, largely attributable to its 385 miles of bikeways.³ The city also has the highest number of bike commuters in the United States, which in 2014 peaked at 7.2 per cent. In middle-income countries such as Colombia, the city of Bogota has grown its rates of cycling from 0.58 per cent in 1996 to 9.1 per cent in 2017 through the development of its bike network (Rosas-Satizábal & Rodriguez-Valencia 2019).

To encourage and support the use of non-motorised transport, there is a need for the provision of an infrastructure policy that protects pedestrians and cyclists to make active mobility safer for existing users and more attractive to potential new users. City dwellers should be able to walk or cycle across their city via safe, convenient, and comfortable routes, free from traffic-related dangers and stress, regardless of their age, gender, and abilities. Infrastructure planning and design, along with other policies like traffic enforcement, need to protect people from collisions with motor vehicles. These measures include separated facilities like sidewalks and cycle tracks, and speed management with reduced speed limits, traffic calming, and safe

intersections. Infrastructure planning and design for active mobility should contribute to the articulation of networks that connect places and neighbourhoods in a city. Car-centric planning led to city- and country-wide networks that allow motorists to reach most places in most cities around the world. Likewise, a paradigm shift that prioritises active transport should lead to repurposing street networks to safely and conveniently connect most origins and destinations for people that walk or cycle. The following are some of the most important components of neighbourhood walkability: walkways; crosswalks; visually active frontage; physically permeable frontage; shade and shelter; small blocks; prioritised connectivity; complementary uses; access to local services; driveway density; and roadway area. SLOCAT (2021), also reiterated that to support active travel, pedestrian networks should be designed to be:

(1) Continuous and connected: pedestrians must be able to enjoy multiple continuous, well-linked routes that reach key destinations.

(2) Accessible and comfortable: streets must offer universal access to users from all walks of life and must provide enough capacity for people to walk comfortably next to someone else.

(3) Safe: streets must always guarantee personal and traffic safety through well-lit, obstruction-free, and accessible spaces, as well as short, direct, and visible pathways at intersections.

(4) Relevant to context: networks must adapt to the scale, character, identity, topography, and green elements of the streets.

7 CONCLUSION

The study revealed that the benefits derived from the use of active travel outweigh the disadvantages. While a majority of cities in the developed countries such as Europe (the Netherlands among others) have policies that support and encourage active mobility, the reverse is the case in many of the developing countries. South Africa being a case study in the developing country, it was discovered that the residents adopted active mode of transport as a result of the low-income generation which does not allow them to have access to private automobiles or access public transport such as the train. The built environment does not support the use of active travel as the government contributes little investment in active travel. In view of this, governments and relevant stakeholders should invest in the provision of relevant infrastructures that support and encourage active mobility in both the developed and developing countries of the world.

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