Chapter 8
Community Severance in Urban Africa

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Abstract Community severance arises when transport infrastructure and motorised traffic are physical or psychological barriers to the movement of pedestrians. This is increasingly the case of many African cities, due to the expansion and upgrade of the road network and the increase in the number of motorised vehicles. These are becoming major barriers to walking, the main mode of transport for large sections of the population. This chapter examines how the problem of community severance is felt in African cities and its consequences on mobility, accessibility, safety, livelihoods, health, wellbeing, and inequalities. We first review existing evidence on community severance across urban Africa, focusing on how the problem reproduces and reinforces social inequalities. We then analyse the extent of severance in a medium-sized city (Praia, Cabo Verde), which is facing fast growth of population, built-up area, road infrastructure, and motorised traffic. Finally, we discuss the potential consequences of inaction in the face of current pressures and the potential for transformation to improve the mobility of pedestrians, proposing pathways and policy solutions to the severance problem.

Keywords Community severance · Barrier effect · Pedestrians · Walking · Social equity

8.1 Introduction: What is Community Severance?

Urban roads and other transport infrastructure are crucial for economic development. They connect people with distant places in the city, where they can access employment, education, shopping, leisure, and other opportunities. However, transport infrastructure can also disconnect people and places. As linear structures, they

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Fig. 8.1 The road as a barrier—Thika Highway, Nairobi. © Cardo (Reproduced with permission)

often cut across neighbourhoods and block the movement of pedestrians. Sometimes, this is because of the infrastructure design. For example, motorways and railways usually have walls or fences preventing pedestrians from crossing except at a small number of points. Other times, it is because of vehicles using the infrastructure: motorised traffic can be so dense or so fast that road crossing becomes dangerous and unpleasant, even when crossing facilities are present. Transport infrastructure and traffic can thus become physical and psychological barriers separating communities (Fig. 8.1). This disconnection effect of transport on pedestrians is known as community severance (Anciaes et al. 2015; Bradbury 2014).

This chapter examines how the problem of community severance is felt in African cities and its consequences on mobility, accessibility, safety, livelihoods, health, well-being, and inequalities. The hypothesis is that recent trends in most African cities are characterised by four factors leading to community severance: (1) an expanded and upgraded road network and (2) increased motorised traffic volumes, but still (3) a dominance of walking in the modal share, and (4) poor pedestrian infrastructure. This is compounded by aspects specific to the African continent (or to low-income countries), including the high relevance of walking to urban livelihoods, land use patterns that originated from colonial systems, hot climate, poor public transport systems, and funding of urban mobility projects closely linked to international agencies.

We acknowledge the diversity of urban environments in such a large continent—the problem is not felt in the same way in all countries or in cities of all sizes. Our aim was to draw on aspects that apply across many African cities, while mentioning differences across cities. We have also attempted to give a balanced view of existing knowledge, drawing not only from English language but also from French and

Portuguese language sources, and to produce new knowledge about a context that is often neglected: the capital of a small island country (Praia, Cabo Verde).

The rest of the chapter is split into three sections. Section 8.2 looks back to what is already known about community severance in African cities, focusing on how the problem reproduces and reinforces inequalities. Section 8.3 looks more closely at community severance in Praia, a city experiencing a fast growth of population, built-up area, roads, and motorised traffic. Section 8.4 looks ahead, placing severance in the context of mobility futures in urban Africa. We discuss possible consequences of inaction and the potential for transformation and then propose pathways and policy solutions to the problem.

8.2 Looking Back—What Do We Know About Community Severance in Africa?

8.2.1 Unequal Infrastructure Provision

African cities are growing fast in population, built-up area, income, and motorisation rates. This growth has been reflected in larger volumes of cars, motorcycles, and informal paratransit vehicles on the road. In most cases, this has led to traffic congestion, because there is not enough road capacity to accommodate the increase in the number of vehicles. However, where and when roads are not congested, the problem becomes high traffic speeds, as speed limit enforcement tends to be weak. As an example, Damsere-Derry et al. (2008) observed 60–98% of vehicles above the speed limit on urban roads in Ghana. In both cases (high traffic volume and speed), pedestrians find it difficult to cross the road—and severance arises. In some cities, this is aggravated by road design. For example, a report by the World Bank (2020) on Maseru, Lusaka, and Harare identified squares as a problem for pedestrians. Some were built in the colonial period and were large (to accommodate monuments in the centre island) and closely spaced, becoming barriers to pedestrian movement.

To accommodate the growth in road traffic demand, new roads have been built in many cities, and other roads have been upgraded with more traffic lanes and better surfaces. However, more lanes also mean longer crossing distances for pedestrians, and better surfaces increase both traffic volume and speed. Nevertheless, the severance problem still exists even when surfaces are not improved, as the combination of mud and traffic on unpaved roads during the rainy season makes crossing the road difficult and unpleasant. There is also severance during road construction (which often lasts for long periods). In some cases, the upgrade of roads is started but is never completed because of a lack of funding or unexpected technical complications. Mains (2019, Chap. 2) describes an example of an incomplete road in Jimma (Ethiopia) which was left with wide ditches on either side, creating a physical barrier, especially for elderly people, whose houses became obstructed.

New controlled-access roads also become physical barriers separating neighbourhoods. For example, Ndiaye (2018) describes severance caused by a new motorway crossing through a densely populated area in Dakar. The proportion of nearby residents who stated they only make 'rare' visits to meet others increased from 26 to 81% after the road was built. This suggests that the presence of barriers weakens people's ability to maintain social networks in their local area.

Some larger cities in the continent have also introduced bus rapid transit and light rail systems, to improve accessibility and relieve congestion on roads. The effectiveness of these modes, compared to conventional buses and paratransit, relies on the continuity of the infrastructure, which is achieved with the physical segregation of the road lanes used and with a reduced number of intersections with other roads (ITDP 2016). Inevitably, this also acts as a barrier to pedestrians. For example, after the launch of the Addis Ababa Light Rail Transit system in 2015, 23% of local residents reported a decrease in social interactions (Deyas and Woldeamanuel 2020).

The contradiction is that new and improved roads have poor or no pedestrian infrastructure, despite the fact that many people in African cities still rely on walking as their main mode of transport. As an example, the Thika Superhighway, an 8-lane road in Nairobi, was originally built with few crossing facilities (Maina and Wachira-Towey 2020). In New Juaben (Ghana), Obeng-Atuah et al. (2017) estimated that the average spacing of crossing facilities on main roads was 157-1067 m and the red-phase time for pedestrians at signalised facilities was 76–110 s—insufficient for seamless walking trips. However, the mere existence of crossing facilities would not be enough to remove the barrier effect of busy roads. Marked or signalised crossings are unhelpful for pedestrians if drivers do not comply with them. For example, Masaoe (2017) found that only 19% of drivers yielded to pedestrians at a marked crossing in Dar-es-Salaam. The alternatives—grade-separated facilities like footbridges and underpasses—are even less helpful. In African cities, as elsewhere, these facilities are inconvenient and intimidating: Maina and Wachira-Towey (2020) report footbridges in Nairobi being used by motorcycle taxis during the day and as a hideout for gangs at night. Steps and steep ramps are unsurpassable barriers for many pedestrians with mobility restrictions. For these reasons, pedestrians avoid grade-separated facilities if possible. In the study of Mfinanga (2014) in Dar-es-Salaam, footbridges and underpasses were the preferred crossing type for only 26% and 15% of pedestrians, respectively.

Non-crossing infrastructure also has its problems. Footways and street lighting are the exception, not the norm on most roads in African cities. As an example, an inventory made by Obeng-Atuah et al. (2017) in New Juaben (Ghana) showed that out of 14 roads, only 6 had footways and only 3 had lighting. Elsewhere, even when infrastructure is provided, it can fail to meet pedestrian demand or protect pedestrians from motorised traffic. The study of Mitullah and Opiyo (2017) in Nairobi revealed a series of problems. Pedestrian infrastructure followed the routes of busy arterial roads, rather than quiet roads. Even where paved footways existed, pedestrians often preferred to walk on nearby unpaved paths, because the footways were too close to the road carriageway. In other cases, they were forced to walk on the carriageway

itself, because footways were too narrow or were being used by street vendors or by vehicles (parked or moving).

8.2.2 Unequal Risk

That roads are a barrier to pedestrians in African cities seems obvious from most statistics, which invariably show a large number of pedestrian fatalities (although almost no studies compare the relative risk of a walking trip with the risk of trips by other modes). As in other parts of the world, pedestrian collision risk is partly explained by high traffic speeds on roads crossing populated areas. But there are specific factors, common to most low-income countries. One factor is walking patterns. As noted earlier, pedestrians often walk on the road carriageway, as it is the only option. Some walk long distances (if public transport is absent or unaffordable). Others walk at night, along roads with poor lighting, and face headlight glare from vehicles. And some spend the whole day near or on major roads, hawking goods to drivers, due to the absence of designated areas or other forms of livelihood. A second factor increasing the risk for pedestrians is driving patterns. Urban transport is dominated by disorganised but highly competitive paratransit systems. Drivers of paratransit vehicles tend to drive fast, to increase the number of runs, and often encroach on pedestrian space when cruising for passengers.

Poor pedestrian infrastructure also leads to risky crossing behaviour, including jumping barriers and crossing several lanes of fast-moving traffic on motorways. The study of Sinclair and Zuidgeest (2016) in Cape Town found that 50% of pedestrians always crossed motorways at grade (i.e. not using footbridges) and another 24% crossed sometimes. Behrens and Makajuma (2017) found that 82% of pedestrians in Nairobi and 85% in Cape Town crossed (non-motorway) roads away from signalised crossings. The lack of pedestrian compliance may be because the crossings are not aligned with pedestrians' desired lines and, in the case of at-grade crossings, because some drivers do not stop for pedestrians. There are almost no studies quantifying how pedestrians balance risk and convenience when crossing roads, or estimating the monetary value of increased perceived safety on African urban roads. The exception is the stated preference study of Mofadal et al. (2015) in Khartoum and Nyala (Sudan), which found that 92–95% of pedestrians attached a (hypothetical) monetary value to being able to cross the road using safe crossing facilities.

8.2.3 Unequal Mobility

The considerations above assume that crossing the road is possible, although risky. But crossing may not be possible in the locations where pedestrians need to cross, leading to detours and delays in walking trips. For example, Ndiaye (2018) reports a case where walking distances increased sevenfold after the construction of a new

motorway in Dakar. The risk may also lead some people to stop walking. In Yaoundé, Zogo et al. (2017) estimated that propensity to walk was 31% lower when people felt unsafe to walk because of traffic. Whichever the effect of traffic on walking (delays to existing trips or suppression of trips), the result is a loss of mobility (ability to move around), which in turn results in a loss of accessibility (ability to go to places in the city). Both contribute to a higher risk of social exclusion. While there are studies relating mobility and accessibility and social exclusion in African cities, the role of community severance is an unexplored topic.

There is more evidence on the indirect effects of severance on health. In a study in Maiduguri (Nigeria), Oyeyemi et al. (2012) found that perceptions about less safety from traffic for pedestrians were associated with lower levels of physical activity. In South Africa, Malambo et al. (2017) found that perceptions of high traffic levels were related to less walking for leisure (and related physical activity) among urban residents.

The losses in mobility and accessibility, and their indirect effects on social exclusion and health, are not equally distributed, reinforcing existing inequalities. The poor, children, the elderly, people with disabilities, and women are the most affected.

The poor are disproportionately affected by severance due to historical, economic, and geographic reasons. First, there is spatial segregation of income and ethnic groups in many African cities, a legacy of colonialism and apartheid. The poor tend to live on the fringes of cities. This means not only longer trips, with longer walking sections, but also walking nearer to arterial roads. Second, it is more likely for the areas abutting busy roads to be poor areas, as richer households can afford to pay a premium for housing in areas away from traffic. Furthermore, the alignment of new roads often crosses poor areas (Ndiaye 2018). Third, the poor are more reliant on walking due to lack of access to private cars, costs of public transport, and, in some areas, inexistence (or distance to) public transport routes. For example, in Nouakchott, Diagana (2010) found that 36–49% of residents in two communities walked for all trips (not only local trips or short trips to public transport stops). Fourth, losses of mobility have a high negative impact on the livelihoods of the poor, as many poor households rely on street vending and on informal job opportunities (and information about those opportunities) provided by the community. Restricted access to the parts of the city beyond busy roads means fewer opportunities.

For children, the restrictions brought about by severance are twofold. Children who are allowed to walk without the supervision of an adult are vulnerable to collision risk when crossing roads. But those who are not allowed to walk lose independent mobility and opportunities for physical activity. Most children in African cities are in the first group and walk on their own to school, because parents have no access to a car and have time constraints due to conflicting responsibilities. Some studies have looked at inequalities in exposure to collision risk. In a survey in Cape Town, among low-income households, 88% of children walked to school and 67% of seven-year-olds travelled unsupervised. In sharp contrast, among high-income households, 87% of children went to school by car and 0% of seven-year-olds travelled unsupervised (Behrens and Muchaka 2011). In Ouagadougou, children who play on the streets were more likely to have been involved in a traffic collision than others (Ouedraogo

and Bonnet 2019). Other studies looked at the negative effects of risk avoidance. In Dar-es-Salaam, the study of Bwire (2011) suggested high risk but also perceived loss of independent mobility among children: 40% of those who were not allowed to cross main roads stated they would like to do so. In Nairobi, Muthuri et al. (2016) found that a lack of crossing facilities was associated with less walking and a lower probability of meeting physical activity guidelines among children.

Older people and those with disabilities are also vulnerable to severance caused by road traffic. Amosun et al. (2007) showed that 30% of elderly pedestrians could not cross the road within the allocated time in signalised crossing facilities in Cape Town. 45% of participants also reported apprehension. This may lead to suppressed walking trips, both for transport and for leisure, decreasing independent mobility. There is evidence of an association between lack of traffic safety and lower physical activity among older people in several cities—see for example Oyeyemi et al. (2019) in Maiduguri (Nigeria). Less walking and independent mobility then affect health and wellbeing.

Women are also disproportionately affected by severance. The livelihoods of many women involve informal selling on street markets, which means higher exposure to road traffic. The need to walk to several street markets, and lower access to motorised transport, also mean longer walking trips, often along major roads (because they are the only roads linking peripheries with central areas). Severance is compounded by fear of crime—a major deterrent to the mobility of women in all countries. Women may choose to walk on roads and use crossing points that are less safe from traffic simply because they are safer from crime. For example, in a study in Cape Town, safety from crime was the main reason influencing the choice of crossing point along a road for 65% of women (compared with 53% of men) (Behrens and Makajuma 2017).

8.3 Looking Closely—Community Severance in Praia, Cabo Verde

As it is obvious from the group of cities mentioned in the previous section, existing evidence covers mostly large cities (e.g. Dakar, Addis Ababa, Nairobi, Dar-es-Salaam, Cape Town, Khartoum, Yaoundé, and Ouagadougou). This section complements that evidence by looking in some detail at community severance in a smaller city (Praia, capital of Cabo Verde). The methods used are descriptive and illustrate the extent of the problem, even in a small city, rather than attempting an explanation of the causes and consequences of the problem, which the literature reviewed above already provides extensively. The statistics mentioned in the next three paragraphs come from the Praia municipal master plan (CMP 2016), except where noted.

Cabo Verde is a small, lower-middle-income island country off the coast of Senegal. Praia is the largest city (Fig. 8.2). In 2010, it had about 132,000 inhabitants, 27% of the country's population. According to forecasts, by 2023, it will have

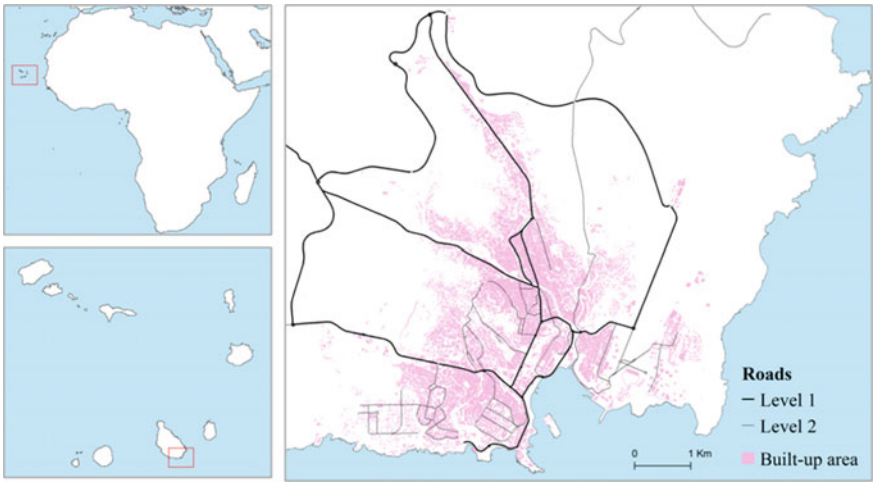

Fig. 8.2 Praia: context, built-up area, and major roads

188,000 inhabitants. Informal settlements represent 57% of urban space and are located either in inhospitable areas (e.g. hills, floodplains) and/or in the periphery. They have little or no employment or urban facilities, which are mainly concentrated in the central areas. As an example, the North part of Praia (which includes mostly poor neighbourhoods) has 36% of the population but only 24% of shops, 15% of public services, and 9% of health facilities in the city. Travel outside the local area is therefore a necessity for most people.

According to the latest population census, only 19% of households own a car, but this value varies from 2 to 89% (in the poorest and richest neighbourhood, respectively). Unlike most cities in Africa, the formal bus network, provided by private companies, is more important than paratransit (which is illegal for intra-urban transport). However, some areas are more than 2 km away from the nearest bus stop (Anciaes et al. 2014). Walking varies from 6% to 11–15% of the trips (for the highest- and lowest-income individuals, respectively) (Anciaes et al. 2014). In informal settlements, streets are the main places for relaxing and socialising, given the lack of suitable squares or green areas (Furtado 2008). However, these settlements have poorer walking conditions than more affluent neighbourhoods (Anciaes et al. 2017).

Walking is becoming less safe and less pleasant due to the increase in traffic levels—the number of vehicles has been increasing at a rate of 8.8% per year. Commuting trips per person may be double that in other capital cities: typically, car owners return home for lunch. The growth in travel demand has led to the expansion and improvement of the road network. Radial national roads connect Praia with the rest of the island and have high volumes of inter-urban paratransit vehicles and freight vehicles. There are also busy arterial roads inside the city. Several roads have been constructed or reconstructed recently and are now paved, allowing for high

speeds. In some sections, they are more than 30 m wide and have four traffic lanes, with a median strip. These roads have a large imprint on the urban fabric, separating neighbourhoods (Fig. 8.3), and are a barrier to pedestrians because of high traffic volumes (or speeds) (Fig. 8.4).

Due to the topography of the city (hills, plateaus, and valleys), some roads have few access points to local streets and the existing ones are often along steep slopes. Unpaved (cobblestoned) arterial roads are also problematic because some sections have poor drainage and open ditches for utilities. Bus routes run along major roads, which means that, away from the centre, they do not provide inter-neighbourhood connections, which are made by walking—across those major roads.

Even on good-condition asphalt roads, footways are either non-existent or are in bad condition. In the centre, local streets are also a barrier to pedestrians due to illegal car parking on footways—the only car parking area that existed in the city was removed in the 1990s when car ownership was still low. Crossing facilities, where they exist, are either inconvenient or dangerous (Fig. 8.5).

Fig. 8.3 Roads separating neighbourhoods. Left: central areas. Right: informal settlements. *Note* Extracts from Ortophotomap, provided by Praia Municipal Government

Fig. 8.4 Aspects of severance in Praia

Fig. 8.5 Crossing facilities in Praia: footbridge and signalised crossing

Problems related to walking caused by busy roads are particularly impactful for three groups: older people (only 5.6% of the population are aged above 65, but many live alone and have mobility restrictions); people with disabilities (3% of the population, only 24% of them in employment); and women (heads of 40% of households, and facing cost and time restrictions to travel, thus being more likely to walk).

Severance caused by roads is likely to reduce the walking accessibility of local residents, but there is no available data quantifying this reduction. We have estimated the magnitude of severance by calculating an indicator of severance for each building, covering the whole city. The indicator assumes that severance restricts walking access to buildings on the other side of roads. This captures both restricted access to social networks (in residential buildings) and to job opportunities, shops, or services (in non-residential buildings). We used spatial data provided by the Municipal Government on the location and hierarchical classification of roads and on location, shape, and number of stories of all 66,795 buildings in the city.

We then calculated, for each building, the total area of other buildings within 600 m straight-line distance. This was split by area on the same side and on the other side of major roads (Levels 1 and 2 of the road hierarchy). The area on the other side was discounted by a factor representing the barrier effect of the road, assumed to be 75% for Level 1 roads and 50% for Level 2 roads. The indicator of severance is finally the ratio of the discounted area on the other side of the road and the total area.

Figure 8.6 maps the indicator of severance across the city. There is some severance in most areas of the city, except for isolated places in the periphery. The maximum value of the indicator is 75%, i.e. roads are estimated to curtail more than three-quarters of the potential for pedestrian movement. The indicator is above 50% in four zones, as follows.

Zone A—the main shopping and services centre (see also the left side photos in Fig. 8.3 and Fig. 8.4). This is a densely developed area, with buildings on both sides of a busy road. The population has income above average. The area is also close

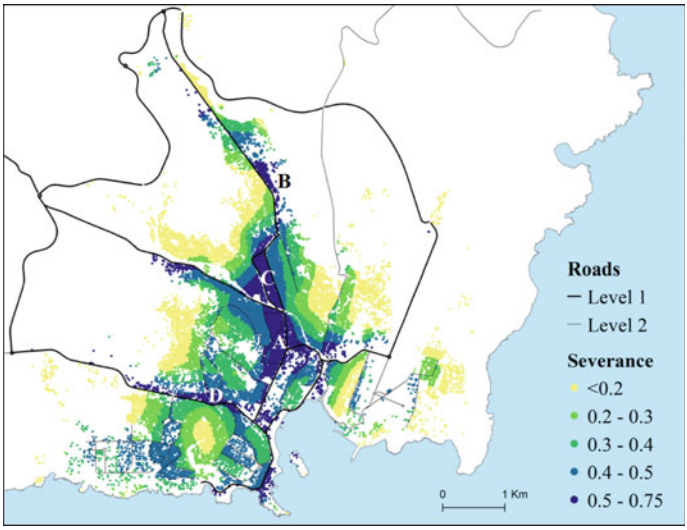

Fig. 8.6 Indicator of severance

to the main market in the city and so it is used as a link for many walking trips. The market can only be reached by crossing the road in a section with large traffic volumes generated by the inter-urban paratransit terminal, located nearby. Women are the majority of sellers in the market. The area also has day care facilities for older people, used by residents in other neighbourhoods, who have to cross busy roads to reach those facilities.

Zone B—northern suburbs (see also the left side of Fig. 8.5).

This area is crossed by the main road linking Praia with the rest of the island. The area was originally settled precisely because of the location near the road, so the population and (the few) facilities are distributed along a narrow strip around the road. The road is also a border between informal settlements on the east and formally planned areas on the west. The neighbourhood has a secondary school (on the west side), used by students from surrounding neighbourhoods, and a mobility rehabilitation centre, used by people from across the city and beyond. The indicators of severance are higher on the east side of the road.

Zone C—between centre and northern suburbs, just south of Zone B (see also the right side photo in Fig. 8.3). This area is surrounded by two branches of the same major road. It is a densely populated area but it has few facilities and the internal street network is irregular—so the main destinations for pedestrians are the facilities on the main road (including bus stops). Income is below average and 76% of household heads are women (Gonçalves 2007).

Zone D—west of the centre (see also the right side of Figs. 8.4 and 8.5).

This area is crossed by a busy road and has high indicators of severance on the north side of the road (as most buildings are on the south side). The road is the main link between Praia and the southwest part of the island, but also a major link within the city, connecting the main centre with the most important secondary centre, the main industrial area, and new car-oriented developments in the western suburbs. The part most affected by severance (an informal settlement) is poor and densely populated, with few shops and services, and no public spaces (Furtado 2008).

Overall, the analysis above showed that 'hotspots' of severance are mainly areas with high levels of need to cross major roads, as these roads concentrate local trip attractors (the neighbourhoods that the roads separate have few attractors themselves). Furthermore, the areas are mainly informal settlements or are used by vulnerable groups (e.g. poorer women and older people).

The calculation of the indicator of severance has some caveats. It is based on potential, rather than actual, need to cross the road. The latter would vary from individual to individual, depending on age, gender, disabilities, employment status, and personal preferences. Furthermore, the indicator is not split by different types of destinations (e.g. homes of other people, jobs, shops, or services). The barrier effect caused by each road was based on its functional classification (not width, traffic volume, the existence of crossing facilities, or pedestrian perceptions). Finally, we assumed a maximum distance of 600 m walking distance—adequate for most pedestrians but not some older ones. Previous research has not been conclusive regarding how acceptable walking distances depend on the characteristics of pedestrians and trips, especially in the urban African context.

Despite these caveats, the map in Fig. 8.6 clearly illustrates the extent of the severance problem across the city and the locations of the most-impacted areas. The implication for transport and urban policy is that projects for new or improved roads should account for the effects on communities severed by those roads. Severance is likely to increase in the future, as new national-level roads and an inner ring road will cut through dense neighbourhoods, with some areas becoming surrounded by busy roads on all sides. New and improved arterial roads are also planned, to decongest existing ones. Some will have viaducts and sunken sections, becoming physical and visual barriers to pedestrians. Some roundabouts will be enlarged and others redesigned, with at-grade pedestrian crossings replaced with underpasses. These projects will generally improve mobility in the city but may restrict the mobility of some groups. The needs of older people should be considered because forecasts indicate that they will be a greater proportion of the city's population than now. As income inequality grows, there is also a risk that new roads (and continued lack of public transport) contribute to the increased isolation of some neighbourhoods, leading to the social exclusion of their populations.

At the same time, it is reassuring that one of the proposed actions of the municipal master plan is to eliminate barriers posed by the built environment in order to improve pedestrian accessibility—a rare case of explicit reference to severance in master plans of African cities (CMP 2016, Vol. II, p. 27). The pedestrianisation of a street in the city centre and the requalification of the waterfront road have proved to be successful, increasing pedestrian footfall and use of streets for exercise. There is now a plan for

a pedestrianised street in each neighbourhood. These types of interventions provide safe and pleasant places, away from road traffic, reducing barriers to pedestrian mobility and to the use of streets as social spaces.

8.4 Looking Ahead—Community Severance and the Future of Urban Mobility in Africa

This chapter showed that community severance poses distinctive challenges in African cities. Across the continent, pedestrians are being literally and symbolically pushed to the margins, as the number of motorised vehicles on the road increases. Roads become barriers to the movement of pedestrians and impede access to the opportunities that cities have to offer. This problem reinforces existing inequalities as it mainly affects vulnerable groups, including the poor, children, the elderly, people with disabilities, and women. In different ways, severance is a growing issue in all African cities. This chapter showed a glimpse of the diverse ways in which severance is felt by the population (by drawing from studies about various cities) and studied by researchers (by drawing from material in languages other than English). We found little evidence from North African cities, but that is because searches were conducted in English, French, and Portuguese, not Arabic. However, cities like Cairo, Algiers, and Casablanca have also seen massive construction of large roads cutting through residential neighbourhoods. Other cities not mentioned in our review but with severe problems of road-based severance include Lagos, Kinshasa, Johannesburg, and Abidjan. In this chapter, we have also looked in some detail at a rarely studied case: the capital city of a small island country.

It is clear from this chapter that community severance caused by roads and other major transport infrastructures creates challenges for the future of mobility in African cities. As car ownership and use grow, walking will become an even more marginal activity, causing problems such as insufficient physical activity, isolation, and lack of independent mobility for children, the elderly, and people with disabilities, especially those who do not have access to private cars. As African cities become larger, more roads and passenger transit infrastructures need to be built and more urban land will be encroached upon to accommodate increases in populations and their associated activities, causing urban sprawl, and even higher dependence on motorised transport to overcome the need for increased travel distances to navigate the city.

The consequences of inaction are clear when we look at cities in Asia and Latin America that are already at a more advanced stage of motorisation than most African cities. In those cities, walking became so risky and unpleasant that whenever possible, pedestrians shifted mode and become users of motorised vehicles themselves. In fact, the tendency in many low- and middle-income countries is for households to acquire motorcycles, and then cars, as their income grows. This increases their mobility and accessibility, reducing poverty, and contributing to economic growth. It also gives status and shields car drivers from crime and the risks and ignominies of being a

pedestrian—see the detailed description of the case of Luanda in Pitcher and Graham (2006). However, car ownership also increases traffic volumes, which not only causes enormous problems of congestion and pollution, but also reinforces the barrier effect of roads and the separation of communities, affecting the same vulnerable groups who are already disadvantaged and not reaping the benefits of economic growth.

Despite the potential threats ahead, at the moment most motorised trips in African cities are still shared, in paratransit vehicles, and private car ownership and use are still relatively low. Most African cities, particularly small and medium-sized ones, are at a crossroads and can follow two possible pathways. The first pathway is the one that was followed by North American and Middle Eastern cities, and some Asian and Latin American cities, where population and income growth were accommodated by ever larger provision for motorised modes of transport. This meant more and larger roads, and roads over other roads, when these became too congested. Walking and street activities almost disappeared.

The alternative (and more hopeful) possible pathway is the one followed by some Northern European cities, Hong Kong, and Singapore, where car ownership and use never reached the high levels followed elsewhere, and have increased less and less until eventually they started declining. This was due to investment in public transport and, later, in safe walking infrastructure and attractive public spaces. Many African cities can short-circuit the evolution of their mobility systems and move from the current still low motorisation stage directly to a walking-centred stage, without passing through a high motorisation stage, preserving walking as an important mode of transport—but in better conditions.

A challenge to following a pedestrian-friendly urban mobility pathway is that community severance is still an underused concept in urban transport planning in Africa. Pedestrian problems are usually framed as a traffic safety issue. Consequently, a typical solution has been to segregate motorised and non-motorised road users, in a bid to reduce traffic collisions. In practice, this meant footbridges over motorways and busy roads. However, as noted in this chapter, these solutions rarely remove the physical and psychological barriers caused by roads.

Radical solutions such as removing or burying roads, now more palatable than before in other parts of the world, seem to be out of the question in contemporary urban Africa, for political and financial reasons. Reducing road capacity, by removing traffic lanes and reallocating space to pedestrians, also tends to be politically infeasible, given the current congestion problems on most roads. However, there is an extensive menu of other possible interventions to choose from to reduce severance. The obvious solutions are to add new at-grade crossing facilities (not footbridges or underpasses) and improve existing ones. Speed reduction is essential and can be achieved by lowering (and enforcing) speed limits. Traffic calming measures (e.g. raised speed humps, chicanes) increase safety but are more effective on minor roads in residential areas, not on arterial roads. Inevitably, any attempt to reduce speeds on arterial roads can lead to increased congestion where it is already high. This means that long-term solutions to reduce severance need to involve modes of transport that are less demanding on road space, i.e. mass public transport, complemented with measures to increase urban densities and reduce sprawl.

Reducing severance also calls for some changes in governance, with a higher emphasis on the coordination of different actors (e.g. national and local governments, road authorities, non-government organisations, and international agencies) and engagement with communities, to understand mobility needs, especially of vulnerable groups. Crowdsourced data can be useful, for example, to provide information on problems that pedestrians encounter and identify where to install or improve pedestrian infrastructure or apply traffic regulations. Lack of funding is a challenge. In several countries, the improvement of pedestrian infrastructure has been supported by international programmes. However, it is difficult to secure funding for retrofitting existing roads to make them more amenable to pedestrians, as this usually involves reallocating road space away from motorised vehicles.

The diversity of conditions across African cities means that there is no single solution to solve severance. Attention (and funding) is usually focused on megacities, but smaller cities—such as Praia, our case study—are also facing problems caused by rising traffic volumes and barriers to mobility caused by large roads. Another source of diversity is the intensity of the problem. In some cities, the severance problem is only emerging. In others, it is already difficult to revert, given the dependence on motorised traffic.

While most of the chapter paints a gloomy picture of the current situation for pedestrians in African cities, there are also reasons to be hopeful. Walking is increasingly being accepted as part of mobility plans and active travel strategies in some cities. For example, Cape Town and Nairobi have developed strategies aimed at non-motorised modes. In Nairobi, this included a commitment to allocate 20% of the road construction budget to those modes. This type of policy commitment is essential to ensure that the future of mobility in African cities includes walking—which is the same as saying that it includes everyone, regardless of income, gender, age, or ability to walk.

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