

Urban public transport in informal settlements: Experiences from Kisumu City, Kenya

George Mark Onyango^{CDPFMR}

Maseno University, Private Bag, Maseno, Kenya; e-mail: georgemarkonyango@yahoo.com

How to cite:

Onyango, G.M. (2018). Urban public transport in informal settlements: Experiences from Kisumu City, Kenya. *Bulletin of Geography. Socio-economic Series*, 40(40), 145–156. DOI: <http://doi.org/10.2478/bog-2018-0020>

Abstract. Kisumu has had a massive growth of informal settlements forming a belt around the urban core. These settlements house more than half of the city's population. Because of the unplanned nature of these areas there has been very poor road infrastructure development, with narrow, unpaved roads constituting the road infrastructure. This situation has limited the opportunities for regular urban transport minibuses providing transport for the majority of the urban poor who live in these settlements. The coping mechanism and the development of alternative coping strategies are explored and assessed to see how effective they are in providing public transport for this majority of unserved urban population.

Article details:

Received: 20 November 2017

Revised: 06 March 2018

Accepted: 17 March 2018

Key words:

public urban transport,
unplanned settlements,
Kisumu,
Kenya

© 2018 Nicolaus Copernicus University. All rights reserved.

Contents:

1. Introduction	146
2. Methods	146
3. Results	147
3.1. Urban morphology	147
3.2. The road infrastructure	149
3.3. Public transport means	149
3.4. Linkage to city activity areas	151
3.5. Shape, function and use	153
4. Conclusion	153
Note	154
Acknowledgements	155
References	155

1. Introduction

Transport needs in urban areas all over the world are diverse. These needs might vary in terms of people, travel purpose, distance, and time. Some people, such as the captive NMT users, are more or less locked up in their transport-prison; but at macro-level it is justified to state that a multi-modal system is often required and in place (Servaas, 2000). This situation is also found in Kisumu where the only available means of transport for certain inhabitants are walking and cycling. This is either due to poverty or the location of areas where they live; for example, the informal settlements have no infrastructure for motorised transport. In this case, one might therefore speak of transport markets; for each segment of that market a suitable supply should be provided.

Kisumu, a middle-sized city and the third largest city in Kenya, is one of the fastest growing cities in the country covering an area of 417 km², 120 km² of which comprise Lake Victoria. The city is principally the leading commercial/trade, fishing, industrial, communication and administrative centre in the Lake Victoria basin, serving as a transport hub for the western region, linking Kenya to the East African countries via rail, road, water and air. With a population estimated at 500,000, the city is surrounded by an agriculturally rich hinterland mainly supporting a large-scale sugar industry and rice irrigation, contributing significantly to the national economy. As such, it attracts numerous migrants, the bulk of whom mostly settle in the peri-urban areas.

The growth and expansion of the “slum belt” has created transport challenges for this population which forms the bulk of the city’s residents, constituting over 60% of the population. Kisumu has no formal public transport. The public transport in the city is run by the private sector which operates individual vehicles whose owners form Cooperative Groups for the administration of fleets of vehicles covering various routes. These cooperatives aim at operations on profitable routes and routes which would not have a negative impact on their vehicles, whereas the slum areas are often a no-go zone.

This study therefore examines urban transport dynamics for the population that resides in the

“slum belt” of Kisumu. The key research question is: what is the status of public transport in the informal sectors and how does it contribute to the movement of goods and people in the area to enable them to be an integral part of the city mosaic? The objective is to assess the public transport sector in Kisumu and how it impacts the informal “slum belt” of Kisumu. It is important to note that the public transport is made up of private individual vehicles organized as cooperatives to provide service in given transport corridors.

2. Methods

Investments in transport are a central component of slum-upgrading programmes, yet knowledge about transport use in the informal settlements of Kisumu is inadequate and the impacts of previous efforts to improve transport remain barely understood or analysed.

The study was carried out in close collaboration with Kisumu County Government and involved structured consultations with members of the business community, government officials, city officials and selected members of the community to obtain their views on various aspects of the urban transport in Kisumu. The study reviewed the progress made so far in the implementation of strategic development plans, identifying challenges and opportunities, and attributes that stimulate urban transport development. Secondary data and selective primary interviews were applied to obtain information on urban transport in the “slum belt” of Kisumu City.

The study was undertaken during the first months of the year 2017. It covered the “slum belt” of Kisumu which includes Nyalenda, Manyatta, Obunga and Bandani (Fig. 1). A scoping exercise was undertaken to get a broad picture of the status of transport in the study area. The observations were captured and documented under four categories: urban morphology, road infrastructure, public transport means, and linkage to city activity areas. Literature review was undertaken to allow for an analysis of the state of public transport in the study area in comparison to other comparative study areas. Supporting literature from the county was also

used to validate the primary observations. Key Informant Interviews were undertaken with key actors in the transport sector to validate some of the observations and helped anchor the study within the ambits of the informal sector urban development.

3. Results

3.1. Urban morphology

Kisumu was planned as a garden city with low densities in the upmarket areas, extensive intra-urban distances, large housing plots and lavish recreational space developed in the colonial town. This forms the urban core. But in present-day Kisumu this has meant exorbitant expenses on road, sewer, electricity and water systems to the effect that there is very little capital left for investment in new land development.

Surrounding this urban core is a belt of unplanned slum settlement that has developed as almost a complete semi-circle around the old city, creating a huge contradiction in the rates of urbanisation between the two zones (Fig. 1). It is evident that part of the slum formation process may be attributed to the selective process of urbanisation practised by the colonial administration and bequeathed to the independent government that has since perpetuated it. Slum development due to high poverty has resulted in over 50% of the town residents having a poor living environment.

Beyond the “slum belt” lies rural land incorporated into the town as a result of boundary extension. Part of this land in Kanyakwar has been subdivided and allocated to individuals for development. The rest of the land is on freehold tenure used for residential/agricultural purposes. This is supposedly a land bank for future development of the town. Parts of this land adjoin the slum areas and have provided avenues for further expansion of such housing structures. This results from the fact

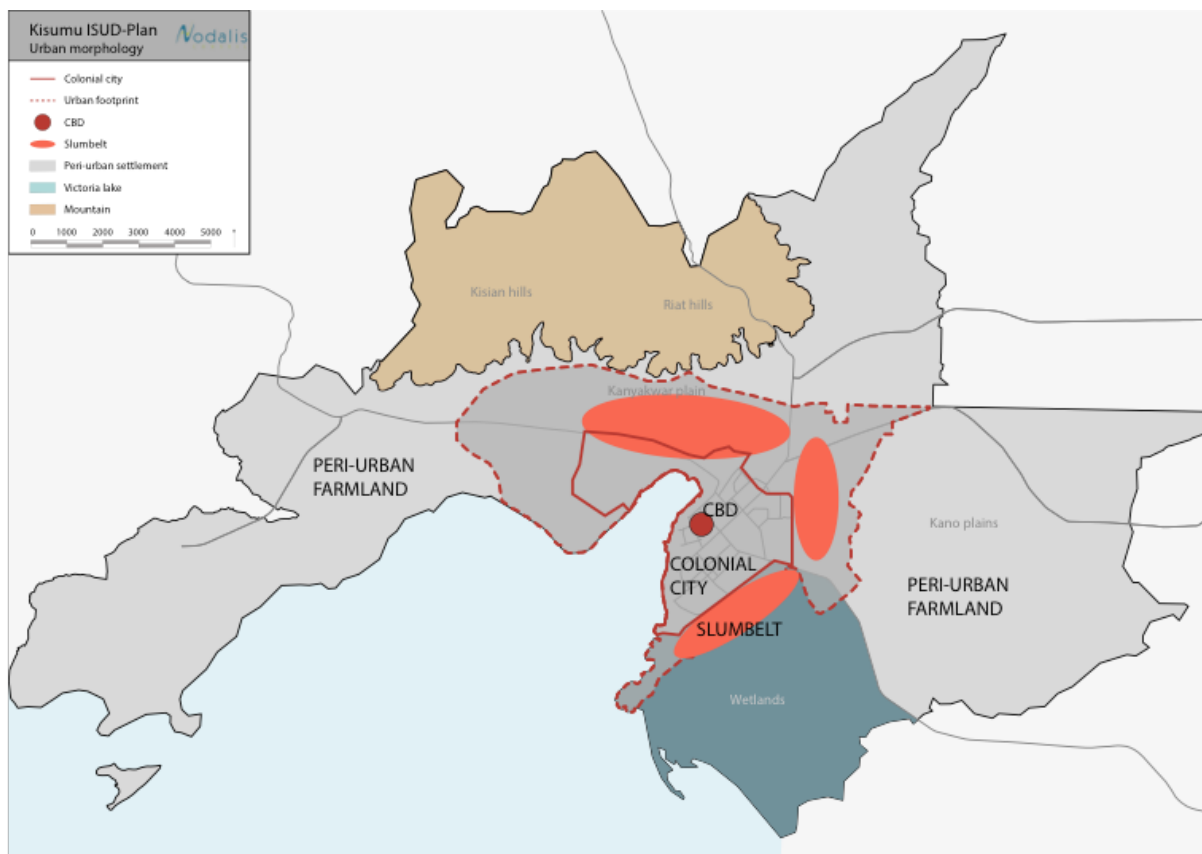


Fig. 1. Urban morphology of Kisumu

Source: Kisumu Integrated Strategic Urban Development Plan (Republic of Kenya, 2013)

that the landowners have changed the land use from agriculture to a more lucrative provision of cheap slum housing. Unfortunately, these areas have developed with poor accessibility.

The rise of the automobile gives users greater flexibility of location and the CBD has subsequently lost its prominence with new residential areas being developed in areas as far as Kibos where public transport enables residents to commute to places of work. There have also been changes in the location of industries, especially with the development of tertiary industries and the changing fluidity of residential location. The Otonglo area in the Korando sub-location is one such area. We thus see development 'jumping over' the "slum belt" to areas further away from the CBD, creating a new belt of better housing in Nyamasaria and Kanyakwar (UN Habitat, 2005).

Kivell (1993: 79) points out that one of the most powerful forces prompting changes in urban land use patterns in recent years has been connected with transport development. Each successive phase of transport technology has brought with it widespread changes in location advantages and disadvantages of different cities, as well as more detailed changes in localised urban land uses. With regards to the slum development in Kisumu we see this relationship in the change from walk as the main means of movement to motorised transport which makes the paths within the area non-functional in a motorised urban system. This is comparable to studies in Rio de Janeiro slums where there are improvements in the slum areas—*Favelas* (Koch et al., 2013).

Andersen (2009) points out that approximately 70% of the urban population in Sub-Saharan Africa are slum-dwellers, many living in health-threatening conditions, with inadequate infrastructure and lack of security of tenure. In Kisumu, this population is approximately 66% of the urban population. The slum environments are far from static. The peripheral slum and squatter settlements are improving noticeably over time, others seem to stagnate and all the time people are moving in and out of the slums (Lloyd, 1979: 27). However, the movement out of the slum areas is not significant. An image of impermanence is created by the decrepit appearance of many of the shanty town's dwellings. However, MacEwen (1974) in studies in Argentina

shanty towns found that only 28 families in a total of nearly 250 moved out within a period of four years, of which 18 returned to rural areas. The presumption therefore is that the slum areas are to a large extent permanent as a feature within the urban mosaic and must be integrated in the development of the town. In Kisumu, the City Planner estimates that about 30% of the population migrates within the slum belt. They simply shift their housing but within the same neighbourhood. This is attributed to default in rent payment in pace with tenants experiencing paucity of income from intermittent employment. An assessment of informal residential transformations and how they are driven by interventions in the transport sector are demonstrated by Blanco *et al.* (2009) in studies in Colombia. These are the same changes that are noticed over time in the informal settlements in Kisumu. As incomes improve, tenants move to areas with comparatively better road access. About 60% of the slum belt has poor vehicular access. It often requires demolition, in whole or part, of structures to provide space for public functions such as roads for public transport.

Roy (2005) builds on studies previously carried out by scholars that urban informality is a response by citizens to an environment in which the state is not able to appreciate the intricacies of demand for housing and other services in urban areas against a backdrop of enterprising individuals able to take advantage of the informality in urban areas in developing countries. To deal with informality means addressing how the formal processes creates informality. This echoes Schuurman's (1985: 44) earlier contention that availability of transport is but one aspect of access to space, be it access to absolute space (land either for production or residential use) or relative space (distance to be overcome to reach an activity location). Transport must firstly be available, and secondly users must be able to pay for it. Studies have established that transport is a great burden for the low-income groups living on the outer edges of towns. Most spend about 20% of their income on public transport, and that is if they have a chance of using such transport. Most of them use public transport to reach the city centre to be able to sell their merchandise. If they were to walk, they would lose valuable time in which they could earn more money than they would gain by not us-

ing public transport (ibid. p. 345). Wolch (1981) came to the same general conclusion that both the service-dependant poor and their support facilities face budgetary constraints on the location choices, serving to restrict them to the poverty-ridden central city neighbourhoods (read: *slums*). This model holds well in a capitalist economy where the forces of colonisation have not deliberately created an underprivileged population with restricted spatial mobility. The residents of the “slum belt” in Kisumu spend about KSh 50 per day per person on transport. In an average household of five people this would translate to KSh 250. However, in most instances the children walk to school so the average daily expenditure on transport per month is KSh 3000. This is almost 30% of the average monthly income of KSh 10,000 per month (USD100). This transport cost is a result of an uncontrolled public transport sector run by cartels with mini-bus (*matatus*) transport. The other means of transport base their fees on these *matatus*.

Werlin (1984: 193) rightly observes that most urban poor are dependent on their own feet to get them where they have to go. In many cities half of all work trips are made on foot, often covering long distances. For poor people, the cost of motorised transport can be a severe impediment to finding employment. Of those able to afford motorised transport, between 2/3 and 3/4 use the bus, but service tends to be unreliable and inadequate. However, in most LDC peri-urban settlements the public transport is generally inefficient and costly and walking remains the only viable means of transport. In Kisumu, such transport operates on the peripheral roads that skirt the slum areas.

3.2. The road infrastructure

The road infrastructure in the “slum belt” falls well below urban planning standards in Kenya (Republic of Kenya, 2007). An access road is expected to be at least 9 metres wide if it is serving more than one plot. However, in rural areas it is usually 6 metres wide. With the expansion of the city into the rural landscape these rural roads have been absorbed into the urban mosaic with no changes at all. These extended areas of the town form the unplanned settlements hence the predominance of 6-meter roads.

The Kenya Urban Roads Authority (KURA) has been established with a mandate for management, development, rehabilitation and maintenance of Urban National Trunk Roads. These are roads that are classified. The County Government is often not certain where their mandate starts and in the first phase of the devolved government there have been tuff wars between KURA and the County Government, especially with regards to the allocation of resources for road development. In this process, the informal settlements have received little consideration. The net effect is the lack of good roads that would attract motorised mass transport (Fig 2).

The challenges of resources for road upgrading have also led to little improvements in these unplanned areas. One of the major reasons is the engineering requirements for roads that are not achievable in the narrow road reserves. Road infrastructure improvement would require expansion which would lead to the demolition of existing structures. The municipal authority is constrained in terms of resources for such development.

It is noted that as road conditions deteriorate, first there is an increase in the charges for motorized services, and then they gradually withdraw altogether. The least robust vehicles cease operations first, but with continued deterioration all services stop. Town buses are often among the first vehicles to withdraw because their long-wheel base makes them particularly vulnerable to uneven surfaces (Howe, Bryceson, 2000: 86). This sets the stage for more versatile and flexible means of transport such as the motorbike, bicycles and the *tuktuk*.

3.3. Public transport means

Glaeser et al. (2008) argue that across cities, the poor are likely to live in cities with more public transport and are less centralized when the suburb-central city gap in public transit is less profound. This argument implies that improvement in public transport should see a commensurate increase in population. The population living in the informal settlements of Kisumu has continued to grow over the years as means of transport have been improving, and today this area houses over 50% of the town’s population. However, Kisumu has no formal public transport infrastructure and so the nu-



Fig. 2. Typical roads in the informal settlements.
 Source: The author (December 2017)

merous vehicles plying the roads to provide public transport are competing with other means of transport on the same roads.

Farkas and De Rouville (1988: 89) look at alternative means of public transport, the jitney. In Kenya they are referred to as *matatus*. They note that, in the LDCs, jitneys are preferred because they run faster, provide a source of income for many and operate without subsidies. But of great importance is that they operate economically in areas of low demand and unpredictable flow of commuters, requiring circuitous routing to collect riders. Takyi (1990) points out that *matatus* generally follow the same routes as buses and charge about the same fare but they also travel through narrow roads and serve low-income areas. They are flexible in their operation, able to relieve peak-hour loads and serve low-density routes. This may be compared to a study by Cervero (2001) where he also notes that today Manila's colourful and ornately decorated jeepneys are the workhorses of the city's transport system, carrying some 35 percent of passenger

trips. Jeepneys are popular because they are cheap, operate virtually all the time, and stop and pick up anywhere. Their intermediate sizes are an advantage as well: compared to buses, they can navigate Manila's crowded streets more easily.

Howe and Bryceson (2000) note that cost reduction for individual travellers and urban households is key in improving access to transport. In the longer run, the goal of policy ought to be that a significantly lower percentage of the city income is spent on transport. East African experience is that in low-income households in a large city, the percentage of income that is spent on daily transport (bus fares) can reach as high as around 30%. The experience from the studies is that even this level of expenditure only allows the income earners, and other members, a few incidental bus trips per month. All other trips must be made on foot or cannot be made at all.

The hallmark of informal entrepreneurial transit is open competition. Services are designed and priced to satisfy customers. Operators receive no

subsidies or monetary assistance. Unencumbered by rules and bureaucracy, independent operators are ultra-responsive to emerging and shifting market trends. Typically, hard work and no-frill services keep costs in check (Cervero 2001). However, most people who live in the slum areas of Kisumu do not make use of the *matatu* public transport because they cannot afford it. They would spend almost half their income (an average of USD 100) on transport if they were to use the *matatus* daily for their journey to work. The few who can afford the transport cost, however, require an improvement in the road network that they may have better transit points to the public transport.

The Dutch funded Sub-Saharan transport programme on urban mobility first aimed to improve the safety and efficiency of the pedestrian route network. Second, efforts were directed at the other modes of transport, one by one, in order of highest basic performance/cost ratio, i.e. lowest unit cost of travel per passenger km. The modal ranking was: (i) bicycle (up to 12 km trip distance); (ii) bus transport; then a big gap in unit costs with (iii) motor scooter (high safety risk); and (iv) car (cf. Howe, Bryceson, 2000: 83)

Bicycles as an alternative means of transport emerged in the last three decades as the youth found them to be an easy employment opportunity that enabled them to control their source of income. It is estimated by the County Government that there are about 20,000 bicycle transport opera-

tors. In the last decade, this has been supplemented by motorbikes. Motorbikes are sold for about KSh 80,000 (USD100) and hence are not easily affordable for most youths who have little or no means of income. There are people who buy motorbikes and lease them to the youth and require a daily payment. Unfortunately, most of motorcycle operators are not licensed and the vehicles are not insured. All these three means of transport share termini and jostle for passengers (Fig. 3).

Cervero (2001) notes that in many cities, informal carriers provide much-needed and much-valued mobility for the poor. They enable tens of thousands of janitors, assembly-line workers, street vendors, and chambermaids to reach their jobs. During night shifts, when buses are no longer running, they sometimes are the only means of getting around. Increasingly, informal carriers are catering to the middle class. In Kisumu, the *tuktuk*, motorcycles and bicycle taxis perform this function. Discussions indicate that they provide a critical function linking long-haul transport, which usually arrives in the central station at night, to the slum areas into which regular taxis loath to venture at night.

3.4. Linkage to the town activity areas

Thynell (2009) observes that the expansion of urban areas leads to longer person trips as commuters



Fig. 3. Terminus with matatus, motorbikes and bicycles.
Source: The author (December 2017)

strive to get to places of work. This is a phenomenon that is observed not only in developed countries but also in developing countries. An efficient transport system will facilitate the expansion and function of towns. This argument is reinforced by studies in Rio de Janeiro, Brazil (Lemos et al., 2005). Public transport as a mode that links residential zones with activity areas defines the spatial relationship in a city. The means of public transport for the unplanned settlements in Kisumu comprise bicycles, motorbikes and *tuktuks*. The growth of the vehicles' operators exhibits a transition from a bicycle to a motorbike, and eventually to a *tuktuk*. The transition of the various means is tied to the cost, although motorbikes and *tuktuks* are operated on a daily hire. Bicycles cost about KSh 4,000 (USD 40) and tend to be owned by their respective operators. Motorbikes cost between KSh 80,000 and 140,000 (USD 800–1,400). The owners lease them to operators and expect a daily return of about KSh 300 to 500 (USD 3–5). *Tuktuks* cost up to KSh 500,000 (USD 5,000) and are leased with an expected daily return of about KSh 1,000 (USD 10).

The bicycle has also played a significant role in poverty reduction in rural communities in Africa. The choice of different modes of transport is highly dependent on income. In many poor countries, only a very small portion of trips is undertaken using motorised vehicles. In sub-Saharan Africa, both rural and urban transport is largely undertaken by foot. In medium-sized towns in India, between 50% and 80% of trips are made using non-motorised modes (bicycles, rickshaws and animal carts). Non-motorised transport also plays an important role in freight transport: 90% of non-motorised traffic in rural Africa is freight transport (Pirie 2013). This is a typical situation observed in the unplanned

settlements of Kisumu where *matatus* have declined to extend their services.

The City Development Strategy (UN Habitat, 2004) indicates that there are opportunities for urban transport in the unplanned settlements, namely non-motorised intra-city public transport which is an environment-friendly mode. This assessment has been vindicated in the last couple of years as bicycles have dominated transport in these informal settlements. The more versatile motorbikes are a phenomenon that has peaked in the last five years. Pirie (2013) noted the initiatives undertaken in other Sub-Saharan Africa, including rapid bus transit systems, which were launched in several Sub-Saharan cities like Lagos, Johannesburg, and Cape Town. The formal, metered sedan taxi sector occupies a minor niche in these cities. The shared taxis (*matatus*) led to the elimination of cross-subsidies on low-demand routes and withdrawal of fare reduction for children. Uncontrolled parking and competition from street vendors make it difficult for passengers to find appropriate vehicles. It is noteworthy that in many studies and policies on urban transport the informal residential areas are given scant consideration because of the fact that public transport is not controlled by city authorities and hence they have little influence over the routes that the vehicles choose, namely high-volume radial routes.

Middleton (2016) policy brief sees the need for integrating informality into city development and states that a planning approach is urgently needed to actively encourage links between the formal and informal sector and create opportunities to use informal activities for sustainable development. Many opportunities for the informal sector could be created by decentralising infrastructure provision and service delivery to create a more

Table 1. Transport services in the “slum belt” of Kisumu.

Type	Routes	Schedule	Passenger capacity	Service niche	Service coverage
Minibus (Matatu)	Fixed	Flexible	16–30	Mixed	City-wide
TukTuk	Flexible	None	4–6	Distribution/ Feeder	City-wide
Motorbike	Flexible	None	1–3	Feeder	City-wide/Neighbourhood
Bicycle	Flexible	None	1	Feeder	Neighbourhood

Source: The author, based on fieldwork in Kisumu 2017.

competitive market that extends services to all. One solution is to support the development of low-cost, labour-intensive models of service delivery. Innovative approaches can help provide infrastructure and create jobs. Urban planners need to be firm but flexible, ensuring adequate standards are followed in the provision of infrastructure and services, while avoiding unnecessarily rigid approaches.

3.5. Shape, function and use

The analysis of a particular traffic problem can apply the approach presented in Fig. 4. A planner must design a road with certain ideas in mind about the road's purpose or functions for various modes, its shape and expected use.

Function is usually determined by traffic regulations. There are several functions such as access, distribution, or transit for each kind of mode. Since the interests of various modes differ (and conflicts also occur), the planner develops a functional classification of roads, and adopts a road hierarchy (Servaas, 2000). Like function, the *shape* of a road can also change over time, e.g., by lack of proper maintenance or because of a reconstruction of the road. The third component is “*use*”, i.e. the actual traffic composition and behaviour plus all other activities carried out within the road reserve. It can be different from the intended one. If a traffic problem arises, there is an imbalance or incompatibility between function, shape and use. For example, bicyclists who are cycling on the main (collector) road

might be forced to do so by parked cars blocking the bicycle track. In unplanned settlements of Kisumu these three functions do not work in consort, hence the poor accessibility of these areas. Poor or no maintenance makes earth roads impassable by car especially during the rainy season what makes motorbikes and bicycles the main vehicles that operate in these areas. These motorcycles and bicycles also line up along key roads, turning them into unofficial termini or passenger collection points (Fig. 5).

Heinrichs et al. (2014) note that perceptions of safety and comfort can improve the use of public transport especially for women passengers for whom safety is paramount. In the informal settlements we see use and function which do not promote safety leading to low use of whatever kind of public transport. The rise of the *tuktuk* as a more stable, versatile vehicle in the informal settlements has been promoted mainly because of this consideration. It is as cheap as a motorbike but provides shelter from the elements, can manoeuvre through bad roads (see Fig. 6) and has lower accident incidence than the motorbike.

4. Conclusion

Urban transport in informal settlements in the short term is anchored on access to public transport. Improvement in public transport enhances access to transport for the urban poor who live in these informal settlements. In Kisumu we note the great potential of the *tuktuk* as the best strategy for providing affordable, safe and flexible public transport in these areas. Improvement in road infrastructure will allow for an appreciable rise in the providers of this service and also reduce times spent by *tuktuk* passengers walking to the termini. Motorbikes and bicycles will always find their niche in this competitive environment. The growth and expansion of the informal settlements should therefore be seen against the backdrop presented in this paper.

The following considerations could improve access public transportation:

- Better design of the road improvement programmes in the slum areas to allow for bet-

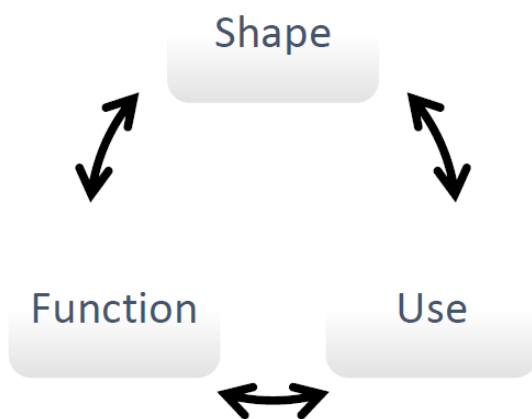


Fig. 4. The triangle of shape, function and use.
Source: Servaas (2000)



Fig. 5. Motorcyclists waiting for passengers in the Nyalenda settlements.
Source: The author (December 2017)



Fig. 6. A *tuktuk* picking up passengers in the slum area.
Source: The author (December 2017)

ter pedestrian access routes with enough capacity for vehicular flow;

- Construction of NMT routes to allow for quicker access to public transport termini and promote cycling;
- Improving the roads would allow for larger vehicles to access the slum areas and hence provoke a reduction of fares due to the lower overhead costs by mass transport vehicles.

Use should be made of the urban transport network as a land-use planning instrument. In the absence of adequate land-use legislation, zoning

enforcement, and control mechanisms, the urban transport network may be the only, yet powerful instrument at the disposal of the municipal government to improve the environment in the slum belt of Kisumu, enhance access to public transport, and make the zone an integral part of the city fabric.

Note

(1) This article is part of the 40th issue of *Bulletin of Geography. Socio-economic Series* entitled “Sus-

tainability—differently”, edited by Mirek Dymitrow and Keith Halfacree (Dymitrow, Halfacree, 2018).

Acknowledgements

This article is an output from support by the Mistra Foundation through the Mistra Urban Futures-Kisumu Local Interaction Platform (KLIP).

References

- Andersen, J.**, 2009: Meanings and perceptions of the built environment in peri-urban areas of Maputo, Mozambique. In: Bakker, K.A. editor, *Proceedings of African Perspectives 2009: The African inner City*, Pretoria: Department of Architecture, University of Pretoria.
- Blanco, C. and Kobayashi, H.**, 2009: Urban transformation in slum districts through public space generation and cable transportation at North-Eastern Area: Medellín, Colombia. In: *The Journal of International Social Research*, Vol. 2(8), pp. 75–90.
- Cervero R.**, 2001: Informal transit: Learning from the developing world. In: *ACCESS Magazine*, Vol. 1(18), pp. 15–22. Available at: <https://cloudfront.escholarship.org/dist/prd/content/qt9z37m0t1/qt9z37m0t1.pdf>, DoA: 06.03.2018.
- Dymitrow, M. and Halfacree, K.**, 2018: Sustainability—differently. In: *Bulletin of Geography. Socio-economic Series*, Vol. 40. DOI: [10.2478/bog-2018-0011](https://doi.org/10.2478/bog-2018-0011)
- Farkas, A. and De Rouville, M.**, 1988: The potential of the jitney: A case study of the Baltimore metropolitan area. In: *Transportation Quarterly*, Vol. 42(1), pp. 89–105.
- Glaeser, E.L., Kahn, M.E. and Rappaport, J.**, 2008: Why do the poor live in cities? The role of public transportation. In: *Journal of Urban Economics*, Vol. 63(1), pp. 1–24. DOI: doi.org/10.1016/j.jue.2006.12.004
- Heinrichs, D. and Bernet, J.S.**, 2014: Public transport and accessibility in informal settlements: Aerial cable cars in Medellín, Colombia. In: *Transportation Research Procedia*, Vol. 4, pp. 55–67. DOI: [10.1016/j.trpro.2014.11.005](https://doi.org/10.1016/j.trpro.2014.11.005)
- Howe, J. and Bryceson, D.**, 2000: Poverty and urban transport In East Africa: Review of research and Dutch donor experience. Delft: International Institute for Infrastructural, Hydraulic and Environmental Engineering.
- Kivell, P.**, 1993: Land and city: patterns and processes of urban change. London: Routledge.
- Koch, J., Lindau, L.A. and Nassi, C.D.**, 2013: Transportation in the favelas of Rio de Janeiro, Working Paper. Cambridge, MA: Lincoln Institute of Land Policy. Available at: <http://www.lincolninst.edu/publications/working-papers/transportation-favelas-rio-janeiro>, DoA: 22.01.2018.
- Lemos, D.S.C.P., Santos, M.P.S. and Silva, L.S.**, 2005: Transport accessibility and urban development: A case study of the city of Rio de Janeiro, Brazil. In: *WIT Transactions on The Built Environment*, Vol. 77, pp. 385–393. Available at: <https://www.witpress.com/Secure/elibrary/papers/UT05/UT05038FU.pdf>, DoA: 06.03.2018.
- Lloyd, P.**, 1979: Slums of hope? Shanty towns of the third world, Manchester: Manchester University Press.
- MacEwen A.M.**, 1974: Differentiation among the urban poor: An Argentine study. In: De Kadt, E. and Williams, G. editors, *Sociology and development*. London, Tavistock.
- Middleton, L.** 2016: Working with informality: To make informality work for Africa (Policy Brief No. 2 of the African Urban Research Initiative). Cape Town: African Centre for Cities Available at: https://www.urbanafrica.net/wp-content/uploads/2016/06/Informality_ENG.pdf, DoA: 06.03.2018.
- Pirie, G.**, 2013: Sustainable urban mobility in ‘Anglophone’ Sub-Saharan Africa. Nairobi: UN Habitat. Available at: <https://unhabitat.org/wp-content/uploads/2013/06/GRHS.2013.Regional.Anglophone.Africa.pdf>, DoA: 06.03.2018.
- Republic of Kenya**, 2007: Physical planning handbook. Nairobi: Physical Planning Department.
- Republic of Kenya**, 2013: Kisumu integrated strategic urban development plan: Kisumu City. Kisumu: State Department of Urban Development and Kisumu City.
- Roy, A.**, 2005: Urban informality: Toward an epistemology of planning. In: *Journal of the American Planning Association*, Vol. 71(2), pp. 147–158. DOI: [10.1080/01944360508976689](https://doi.org/10.1080/01944360508976689)
- Schuurman, F.J.**, 1985: The access to space for urban low-income groups: The case of public transport. In: *Third World Planning Review*, Vol. 7(4), p. 344–349. DOI: [10.3828/twpr.7.4.n8h53v6057074700](https://doi.org/10.3828/twpr.7.4.n8h53v6057074700)

- Servaas, M.**, 2000: The significance of non-motorised transport for developing countries: Strategies for policy development. Utrecht: I-CE.
- Takyi, I.K.**, 1990: An evaluation of jitney systems in developing countries. In: *Transportation Quarterly*, Vol. 44(1), pp. 166–177.
- Thynell, M.**, 2009: Social change and urban transport: Sustainable urban transport technical document #2. Eschborn: Deutsche Gesellschaft für Technische Zusammenarbeit.
- UN Habitat**, 2004: Kisumu City Development Strategy 2004–2009. Nairobi: UNON.
- UN Habitat**, 2005: Situation Analysis of Informal Settlements in Kisumu. Nairobi: UNON.
- Werlin, H.H.**, 1984: Urban transportation systems in the developing world. In: *Ekistics*, Vol. 51(306), pp. 192–196.
- Wolch, J.P.**, 1981: The location of service-dependant households in urban areas. In: *Economic Geography*, Vol. 57(1), pp. 52–67. DOI: [10.2307/144224](https://doi.org/10.2307/144224)



The proofreading of articles, positively reviewed and approved for publishing in the 'Bulletin of Geography. Socio-economic Series', was financed from the funds of the Ministry of Science and Higher Education earmarked for activities popularizing science, in line with Agreement No 509/P-DUN/2016.

