

The effects of public transport on the living conditions in Kampala city

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Les effets des transports publics sur les conditions de vie dans la ville de Kampala. Transport public dans la ville de Kampala ; font face à divers défis et ne peuvent donc pas offrir la qualité de services souhaitée par le public. Cela affecte la qualité de vie des habitants de la ville de Kampala. L'objectif principal de cette étude était de découvrir les effets des transports publics sur la qualité de vie des habitants de la ville de Kampala. Les résultats ont indiqué que, à court terme, la sécurité des déplacements, l'application des politiques de stationnement, les voies réservées et l'utilisation accrue des systèmes de transport intelligents ont un impact plus important sur les transports publics à moindre coût. Les solutions à moyen terme comprennent ; l'utilisation des stations de radiodiffusion, l'expansion des routes et, l'extension et l'amélioration du temps de trajet. Les solutions à long terme incluent l'utilisation des feux de signalisation, la fiabilité, le transport de masse, la construction de nouvelles artères et de nouvelles autoroutes. Par conséquent, l'étude recommande que l'Autorité de la capitale de Kampala mette davantage l'accent sur l'amélioration des infrastructures en donnant la priorité aux investissements dans l'entretien, la construction et la modernisation des routes non pavées et en installant des feux de circulation à tous les carrefours pour améliorer le développement et le bien-vivre dans la ville.

Mots clés : transport public, solution de transport, embouteillage, mobilité, Kampala.

The effects of public transport on the living conditions in Kampala city. Public transportation in Kampala city; face various challenges and thus cannot offer the quality of services desired by the public. This is affecting the quality of life Kampala City residents. The main purpose of this study was to find out the effects of public transport on the quality of life of residents of Kampala City. The findings indicated that, in the short term; travel safety, enforcing parking policies, dedicated lanes and increased use of intelligent transport systems have greater impact on public transport with less cost. The medium-term solutions include; the use of broadcasting stations, road expansion and, extension and improving travel time. The long-term solutions include the use of traffic signals, reliability, mass transport, construction of new arterial roads and new freeways. Therefore, the study recommends that the Kampala Capital City Authority puts more emphasis on infrastructure improvement by prioritizing investment in road maintenance, construction and upgrading unpaved roads and installing traffic signals on all junctions to enhance development and good living in the city.

Key words: public transport, transport solution, traffic congestion, mobility, Kampala.

1. INTRODUCTION

Public transportation refers to transportation by a conveyance that provides continuing general or special transportation to the public and excludes school buses, charter and sightseeing service. Public transportation includes various modes like buses, subways, rail, trolleys, and ferryboats (Tran & Kleiner, 2005). According Dridi, Mesghouni & Pierre (2005) and Belwal & Belwal (2010). Public transport services must follow regular schedules, be safe and rapid, guarantee high service quality, utilize resources efficiently and meet users' needs. Fitzgerald (2012) defined public transport as a means by which larger proportions of urban dwellers gain physical access to the goods, services, and activities they need for their livelihoods and well-being. Public transportation plays a very important role in both the developed and developing world cities. It serves to reduce reliance on private car-ownership by providing an affordable alternative for urban commuters (Salau, 2015). It is also well known that public transport is the key measure to deal with transport consequences like traffic congestion, traffic accident and air pollution. Public transport creates economic opportunities for people who are not able to access private vehicles (Ngoc, Hung, & Tuan, 2017). Within the last decades, society has witnessed a fundamental change, as urbanization progresses faster than ever before. The global number of people living in urban areas is 54%, and urbanization is expected to continue in coming decades. In Africa, 40% of the populations live in urban areas and is projected to become 56% by 2050 (United Nations, 2014). In an urbanized society, an efficient transportation system is one of the basic components of the social, economic and physical structure and it has to be competitive and attractive to the transit seekers (Belwal & Belwal, 2010). Consequently, urban areas often face significant transport and mobility challenges which lead to environmental, economic and social decay within the entire urban space. Many of today's challenges with fossil fuel dependency, global warming, poverty and social exclusion are highly relevant for the transport sector (Vanessa et al, 2016). These urbanization patterns are exerting pressure and unprecedented challenges to urban mobility systems, particularly in developing regions like Africa (UN-Habitat, 2013). According to Cervero (2000) when rapid urbanization has no correlation with urban public transport infrastructure, mobility challenges are likely to happen which may cause unending traffic congestion. Vanessa et al (2016) note that the value of public transport in contributing to an increased quality of life and to increased equality also came up occasionally. In low-income countries like Uganda, public transport systems are the major provider of inner-city mobility for the clear majority of the urban populations but have been left in the hands of the private sector that do not have the organizational capacity to efficiently operate it. Kampala is one of the fastest growing African cities with an annual growth rate of 5.6%. Kampala is Uganda's national and

commercial capital bordering, Lake Victoria, Africa's largest lake. It needs facilities and urban infrastructure to provide convenience. With an area of 189 square kilometers, Kampala is inhabited by 1.507 million inhabitants and is the most populous city/town in Uganda (UBOS, 2017). According to Hanley (2016), the resident population of Kampala City is estimated at 1.5 million, while the day population is estimated at 4 million people. Kampala is comprised of five divisions which are Kampala Central, Kawempe, Makindye, Nakawa and Lubaga Divisions (UBOS, 2017), with approximately 2,110 kilometers of road network where 27% is paved and 73% unpaved (Hanley, 2016). The focus of this research was directed towards determining the effects of public transportation on the living conditions of people in Kampala. What is the mode of the current public transport system in Kampala? What are the causes of public transport challenges? How can the public transportation system in Kampala be improved?

2. METHODOLOGY

In this chapter, the research study will focus on the methodology used to collect data for this thesis. It includes research methods, instruments, sampling and describes how the data was analysed in detail as well as the limitations of the study. Quantitative methodology was used to generate results through a literature study as the theoretical basis for this study in an effort to improve public transportation in Kampala City.

2.1. Conceptual framework

A conceptual framework was developed to review the existing literature in relation to the existing transport problem in Kampala. It explains the Korean experience with transport and suggests solutions to improve the public transport conditions in Kampala (Figure 1).

The problems of Kampala public transport according to this study will be solved with the shared experience of a developed country like South Korea (Seoul City) and how it has, which finally upgraded the system to a world-class organized transport level. The reforms over time, tried to improve its public transport system, culminating with the 2004 reforms that were instrumental to the improved transport system and living conditions of people in Seoul involved a bus information system (BIS), convenient payment of transport fares based on distance travelled through T-money card, and the introduction of other transport intelligent systems. With this experience, the study will be able to come up with solutions helpful to improve the public transport in Kampala thereby improving the living conditions of the residents.

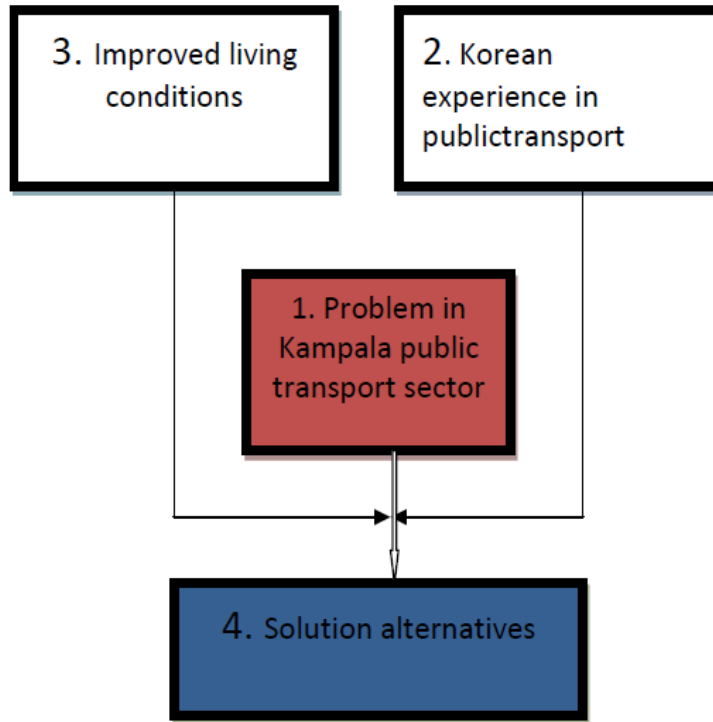


Figure 1. Conceptual Framework developed by the researcher

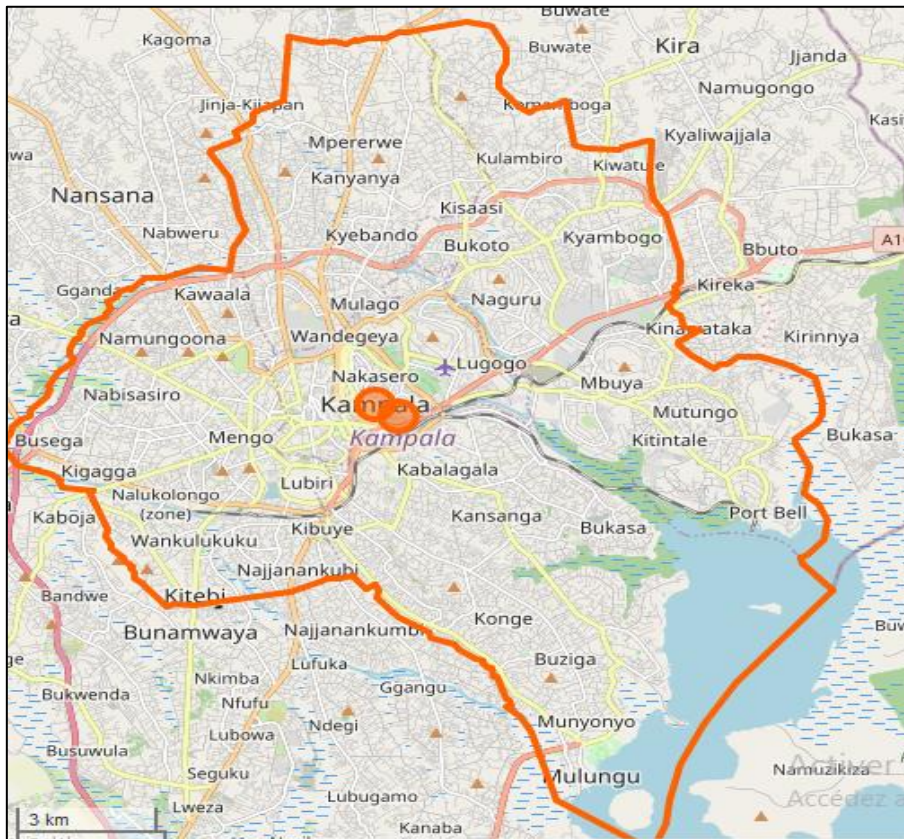


Figure 2. Network highway in Kampala

Source: www.openstreetmap.org

2.2. Description of alternative solutions

The alternative solutions (Figure 3) for this study have been generated, evaluated and grouped according to the cause of the problem in public transport. They include operation, infrastructure provision and travel demand management (TDM) solutions.

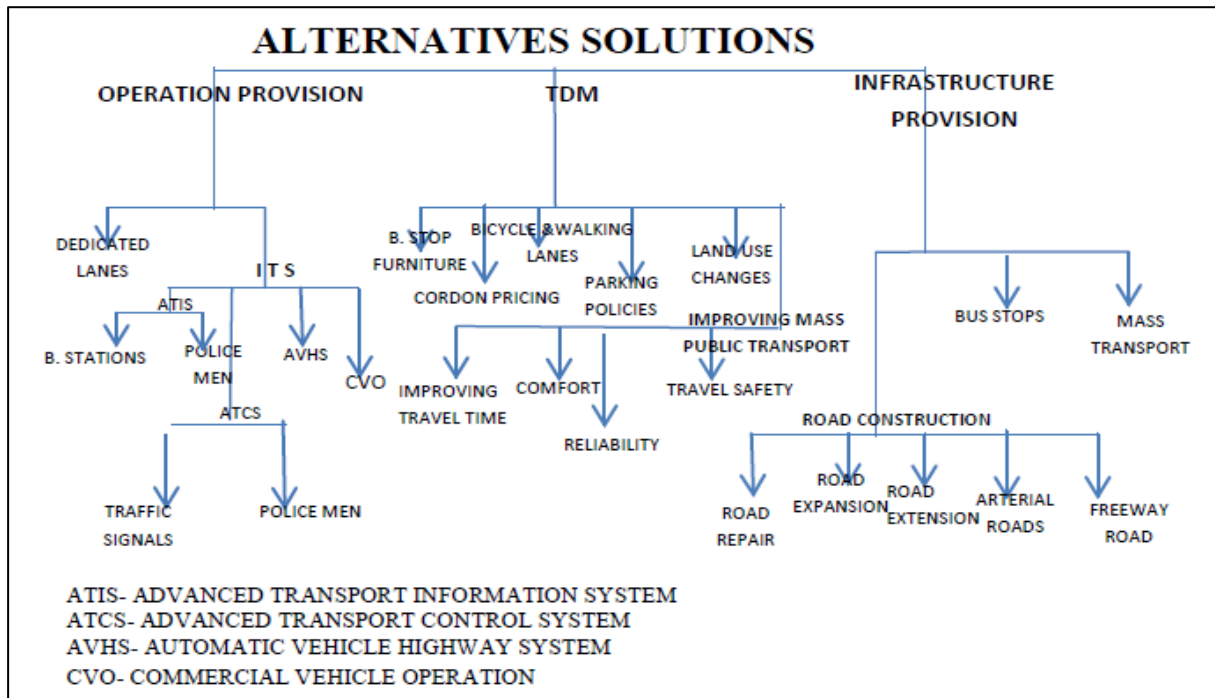


Figure 3. Suggested alternative solutions

The study considered the alternatives that can be employed to counteract the challenges that are faced in operation e.g. the use of dedicated lines and use of intelligent transport systems (ITS) technology. Regarding the infrastructure alternative, the study considered the construction of roads as very important. This included the repair of existing roads, extension and expansion of roads, construction of new arterial roads and new freeways. Other solutions in this category include putting in place bus stops and mass transport that include buses and BRT facilities. Regarding the travel demand management solution, the study considered the use of bicycles and walking lanes, cordon pricing, parking policies, bus stop furniture/shelters, land use changes and improved mass transport which includes dedicated lanes to improve travel time, comfort, reliability and travel safety. They all have a great influence on improving the public transport system.

3. RESULTS

A costing and scoring method were used and the evaluation that was used here was subjective because data collection was not available for this study.

While the solution scores were analysed using costing and scoring as shown in Tables 1 and 2 a threshold score of 10 was considered significant for the solution alternatives for this study. This is because all solution alternatives with scores below the threshold could be addressed by the ones above the threshold score.

Table 1. Scoring weights

Very good	1
Good	0
Weak	-1

Table 2. Costing weights

Very high	1
High	2
Medium	3
Low	4
No/Less cost	5

In this chapter, analysis of performance measures against solution alternatives was done by plotting the costs against the benefit of each solution alternative to help assess their effectiveness in the improving public transport and therefore living conditions in Kampala City (Figure 4).

Further analysis was done by costing the solution alternatives for the possibility of implementation determined by the cost involved in the period of time (short, medium-term and long-term). This was done in order to know which solution alternative would be used within the period the funding budget and policy makers, might have to do it. This is because some alternative solution requires huge budget allocations by the government. Finally, a threshold score of 10 was selected to establish which alternative solutions offered the most significant impact in this study (Figure 5).

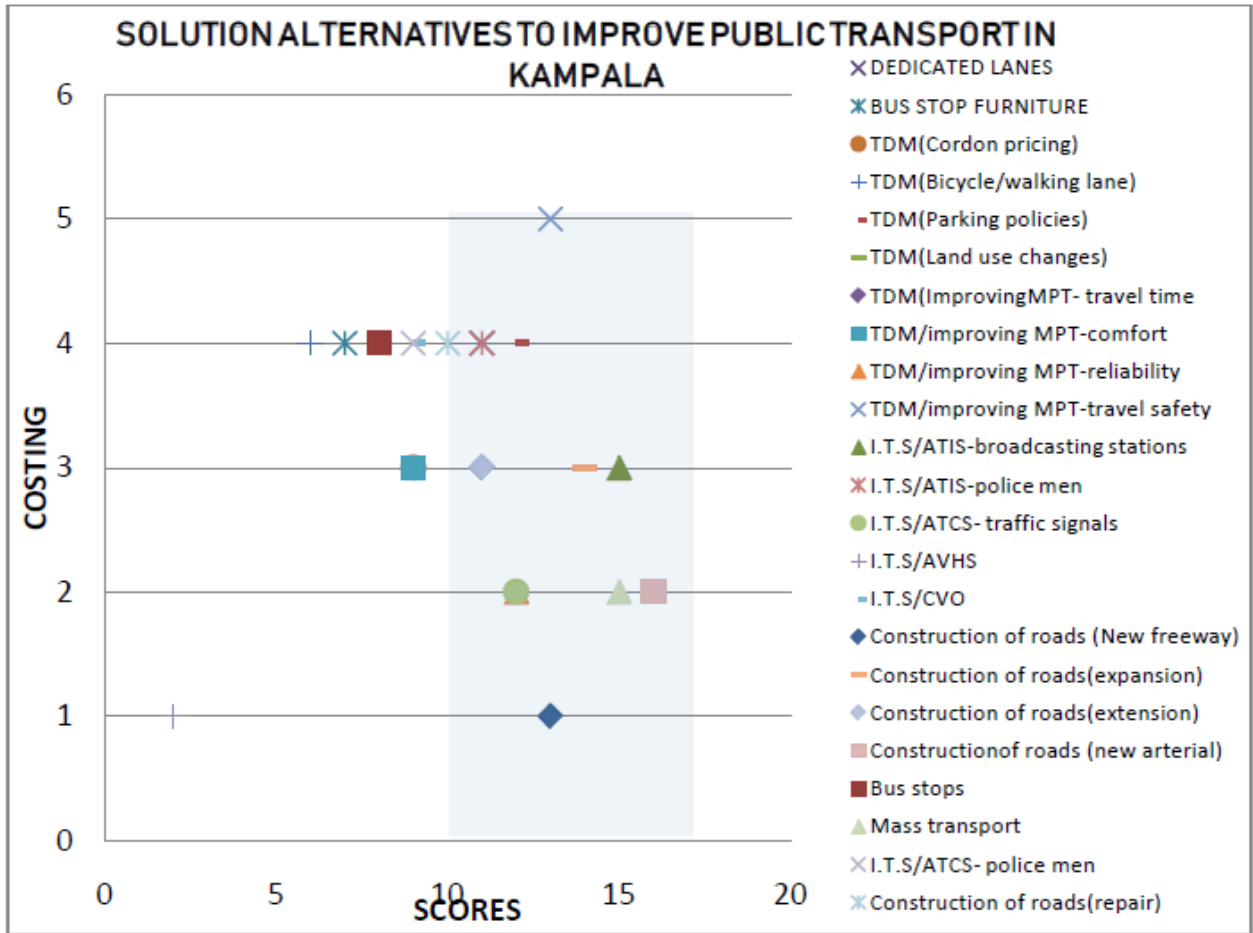


Figure 4. Summary of the results of the findings

4. DISCUSSION

According to Kamuhanda and Schmidt (2009) the boda-boda and matatu transport industry is having the highest growth rates of 600% and 250% respectively and take up approximately 14% of the total space on the road. Moreover, because all matatus are second hand and uncomfortable with increased accident risk operate without fixed schedules on different routes which makes them unreliable and have long waiting times, commercial motorcycles have been promoted as the last option even though they are expensive. These are directly linked to the lack of a proper regulatory framework control and enforce transport fares by operators of matatus. The resultant effect is the illegal charging of high transport fares by conductors (Isaac, 2016) and because of direct cash payment, passengers sometimes lose their money because of unavailability of change. The matatus and boda-boda operators are indiscipline are the root cause of most of the accidents in Kampala due to careless driving and riding, especially during times of

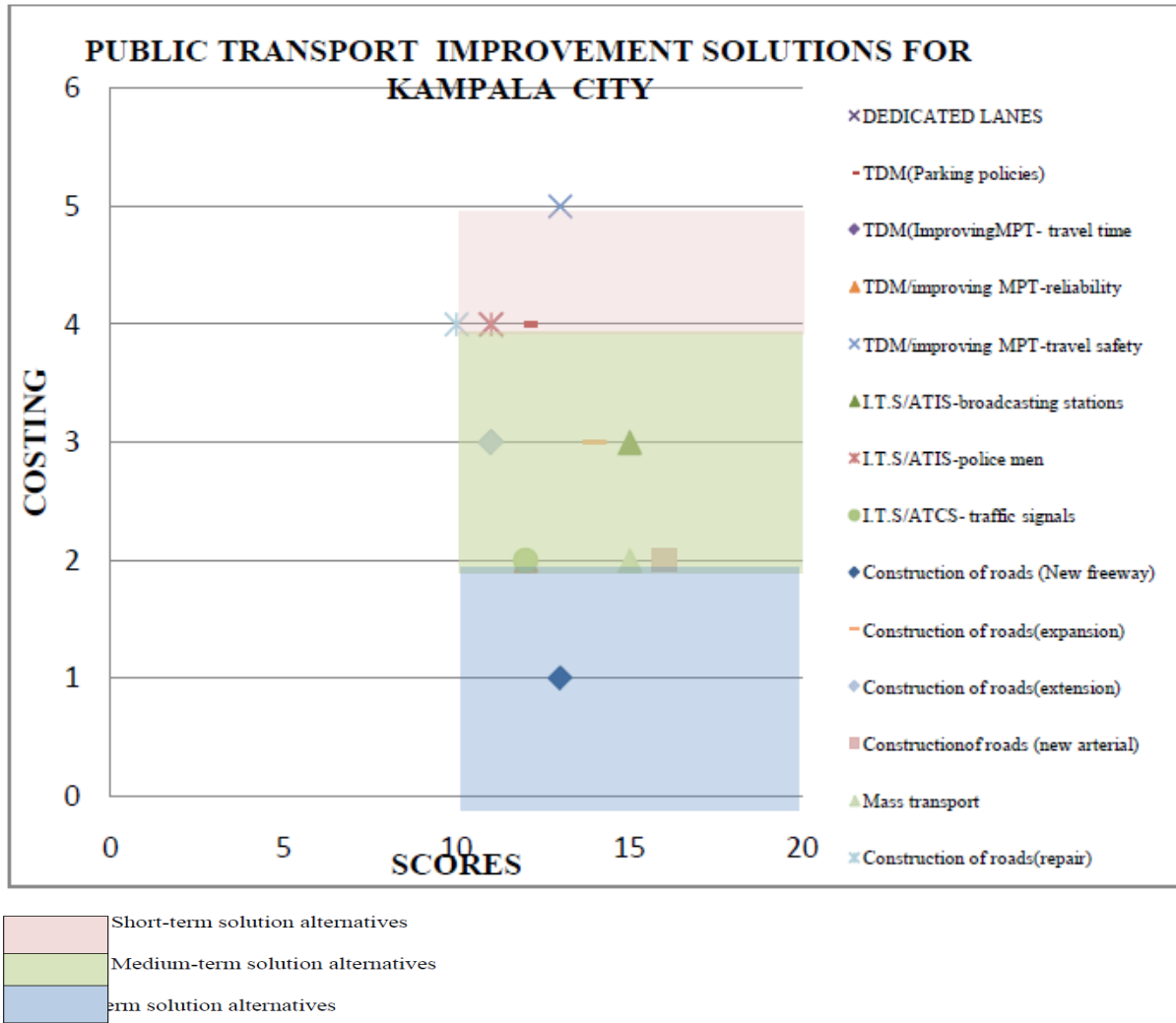


Figure 5. Public transport improvement solutions for Kampala City

traffic congestion, on top of not obeying traffic signals and the fact that most of them have no driving license to allow them to operate on the road (Kisembo, D. 2014). This has to be controlled in situations where mass public transportation systems are functioning to protect the passenger’s safety from unqualified personnel.

The road capacities of most cities like Kampala do not accommodate the available demand and consequently congestion is the resultant effect of long travel time, which less productive to the economic living of the people (KCCA, 2016). Most roads were constructed in the 1960s for less than 100,000 vehicles and today over 400,000 vehicles occupy the same roads without any upgrades. The mobility and delivery of services are always delayed, which affects the efficiency of the economy. Additionally, traffic congestion increases the rate of air pollution affecting both people and the environment as a result of increased fuel consumption. The road congestion affects school, hospitals, businesses and employment places with limited access. (Van der Griend & Siemonsma, 2011).

The city lacks a quality road network, which has significantly increased the congestion in the city. The existing highway is not wide enough to have segregated lanes that may influence the easy flow of traffic, thus making it shared by all motorized and non-motorized modes of traffic (Abimanya, 2013; Kisebo, 2014; Kwikiriza, 2016). This makes it impossible to have public infrastructure in place like segregated exclusive bus lanes and bus stops for passengers for easy operation of mass transport. An organized public bus system makes the city attractive to tourists and investors in business. Similarly, motorized transport in Kampala is unaffordable and costs 41% of the income of the urban poor who make up 20% of the city residents. The people make up 70% of pedestrians who walk to work, and with no sidewalks cause more accidents.

Kampala City has poor road maintenance, which has made the existing roads less useful to the current urbanization trends, and it is essential to upgrade the roads (MoWT, 2010; KCCA, 2016) to effectively serve the increasing motorist and pedestrians. The increased number of potholes in the city has become a risk hazard causing accidents in all modes including pedestrians. This clearly shows how the government has failed to invest in road maintenance and upgrades to increase the flow of traffic and accessibility to city services. Thus, approximately 24,000-man hours are lost daily (KCCA, 2016) which has a direct cost on the living condition of people such as increased cost of travel and risks involved, reduced environmental quality due to increased pollution, reduced health due to fatigue and stress.

Kampala's public transport is not streamlined with good governance and trained transport officers which is why bus companies have continued to collapse from UTC and other city buses in the 1990's leading to the privatization of most of the enterprises many private operators who lack professionalism getting in with small taxis (minibuses) (MoWT, 2009; Abimanya, 2013; Kisebo, 2014). Since then, this sector has failed to have a policy in place to regulate the public transport operation in the city leading to the many matatus on the same route with buses ("no exclusivity of route operation") hence out-competing them, which has increased the accident level. This is the reason why bus infrastructure, like exclusive bus lanes, predetermined slots for picking up and dropping off passengers, upgrading of roads and city service bus terminals in the city is lacking. The city lacks a transport operating system able to address the increasing private vehicle numbers with an estimated increase rate of 11% per year, which is increasingly the main cause of traffic jams in Kampala that has 1,000,000 commuters daily (World Bank, 2015).

As a result of poor planning, Kampala's poor networks of roads are facing ever-increasing traffic (Kwikiriza, 2016) and out of 43 of the most significant junctions only 20 are installed with functional traffic signal systems (MoWT, 2010). All these problems would gradually be solved increased government investment in city roads to increase road capacity and install automatic traffic control systems on the road junctions. But Dr.

Amin Tamale Kiggundu, a senior lecturer of urban planning at Makerere University, says the major cause of Kampala's traffic jams is the number of private cars and other means of transport like taxis which, he says, consume a lot of space yet they accommodate very few people: "The state of our roads in Kampala is appalling, but what authorities ought to do is construct roads with wider lanes and consider upgrading the access roads which can be used as short cuts" (Ngwomoya and Wandera, 2018, Daily Monitor newspaper March 22, 2018). This makes transport facilities in Kampala accommodate less than 10% of the urban population and the 90% who commute by walking and cycling do not have adequate spaces because of vendors trading within these spaces designated for the purposes of walking and cycling (UN-HABITAT, 2013).

The implementation of road safety regulation in Kampala is lacking with the police enforcement due to corruption, which has allowed the practice of passenger transport to be infiltrated by people with no qualifications or training to be on the road. This has however increased the rate of indiscipline cases and failure to respect traffic laws/ signals especially during peak hours at the overcrowded road intersections thus causing more congestion, delays and accidents. This is attributed to drivers lacking driving licenses and driving vehicles, which are not road worthy (Kwikiriza, 2016). The law should be strict to reduce accident risks and improve travel safety by getting rid of all the culprits who do not fulfil the training requirements and fail to observe the traffic rules.

5. CONCLUSIONS

Currently, Uganda does not have a comprehensive transportation policy to control and harmonize the public transportation sector through which majority of the people commute. This study, therefore, recommends for a National Transportation Policy to be enacted serving as a guide especially for the sustainability of mobility within the urban space. By this, the study offers various recommendations for the proposed transportation policy to improve the quality of public transportation in the city of Kampala.

Based on the findings, the infrastructure solution which scored above the threshold but having the lowest cost implication is road repairs. The study, therefore, recommends that KCCA should put more emphasis on infrastructure improvement by prioritizing investment in road maintenance construction and upgrading unpaved roads.

Other solutions which also scored above the threshold but having high-cost implications maybe taken under future consideration based on the availability of funds. These solutions include road expansion, extension, construction of new arterial roads and freeways. This policy will help to keep and improve the good conditions of all urban roads which will eventually attract investors into mass public transport thus mitigating the problem of congestion in the city.

According to the findings of this study, mass bus transport emerged with an almost perfect score of 15 out of 16 measured factors as a solution for the public transportation problems. This highlights the importance of a policy that would adopt the use of bus transport in the city to replace the estimated 14,000 matatus and 100,000 boda-bodas. The government/KCCA should promote the use of mass transport based on developed BRT facilities with a regulated systems network to increase accessibility connections reducing travel time and reliability enhancement. With this policy, the government will restrict the use of low-capacity vehicles for public transport. This established system will eliminate the use of inexperienced and untrained drivers, low-capacity taxis and boda-bodas which have been the cause of congestion, indiscipline and road accidents caused by reckless and unprofessional driving in the city. It will promote the mass bus public transport by use of technology in the median lanes at intersection to be given priority while stopping other private cars attracting more people into use public bus transport. Among the ITS technology variables, the highest score under operation solutions was ITS/ATIS broadcasting solutions with a score of 15 but also having a medium cost. Consequently, this study recommends a, ITS/ATIS policy which will provide information and communication technologies (ICT) in public transport to improve the traffic congestion condition and road safety by providing real-time traffic information to users. This policy has a high probability of addressing most urban transport issues. Supporting technologies will include introduction of smart phone applications to give city dwellers information on available bus transport at which stage/route, expected travel time, and costs/fares for that route. The technology will provide broadcasting stations with instant traffic condition at different intervals. The implementation of the use of ITS technology will lead to use of traffic signal systems, CCTVs, system tracking using GPS, electronic toll collection, bus information system, electronic fare ticketing services, transport control Centre and parking control to raise the level of public transport. This technology will lead to improved travel time, improved vehicle speed, decreased delay, reduced road traffic accidents and improved environment due to reduced vehicle emission and fuel consumption.

6. REFERENCES

- ABIMANYA, J. K.** 2013. The trouble with Kampala's public transport system. Daily Monitor newspaper Tuesday February 26, 2013 [accessed on 12th July 2018].
- ALLSOP, R.E.** 2008. Transport networks and their use: how real can modelling get? Centre for Transport Studies, University College London, Gower Street, London WC1E 6BT, UK. *Phil. Trans. R., Soc. A* (2008) vol. 366: 1879–1892.

- BELWAL, R., & BELWAL, S. 2010. Public transportation services in Oman: A study of public perceptions. *Journal of Public Transportation*, Vol. 13(4): 1-21.
- BRYCESON, D. F., MBARA, T. C., MAUNDER, D. 2003. Livelihoods, daily mobility and poverty in sub-Saharan Africa. National Academy of Science. [Accessed in 11may 2018].
- CERVERO, R. 2000. *Informal Transport in the Developing World*. Nairobi: United Nations Centre for Human Settlements (Habitat).
- CH'NG S, Yi. 2016. Rethinking Sustainable Mobility. Understanding the use of boda-boda motorcycle taxis in Kampala, Uganda. In IIIIEE master's Thesis IMEN56 2016. [Accessed 5th June 2018].
- CRAIG, R. 2016. On-demand, not in demand. Rebecca Craig TNCs and the provision of transport services in Kampala, Uganda. [Accessed on 21 feb 2018].
- DRIDI, M., MESGHOUNI, K., PIERRE, B. 2005. Traffic control in transportation systems. *Journal of Manufacturing Technology Management*, Vol.16 (1): 53-74.
- FITZGERALD, G. 2012. The social impacts of poor access to transport in rural New Zealand. Wellington: NZ Transport Agency.
- FLAUSCH, A. 2014. Why cities need public transport to be competitive. Retrieved September 18,2018.
- HAAS, A. 2017. From moving vehicles to moving people: Designing a mass public transportation system for Kampala. International Growth Center.
- HANLEY, J. 2016. Jjslist. Retrieved September 15, 2018, from The Importance of Public Transportation in Your Community.
- HAAS, A. 2017. From moving vehicles to moving people: Designing a mass public transportation system for Kampala. International Growth Center.
- KAMUHANDA, R., SCHMIDT, O. 2009. Matatu: A case study of the core segment of the public transport market of Kampala, Uganda. *Transport Reviews*, Vol.29 (1): 129-142.
- KCCA, 2013. Presentation: Promoting Non-Motorized Transport: Case Study of the NMT Pilot Corridor by Andrew M Kitaka, UNEP Share the Road Event, Nairobi, Kenya June 2013 <www.unep.org>.
- KCCA. 2012. Kampala Capital City Authority Updating Kampala Structure Plan and Upgrading the Kampala GIS Unit.
- KCCA. 2016. Policy challenges in urban transport &. Infrastructure: the case of Kampala.2nd Annual IGC Cities Research conference; January 2016. London.
- NGOC, A. M., HUNG, K. V., TUAN, V. A. 2017. Towards the development of quality standards for public transport service in developing countries: Analysis of public transport users' behaviour. *Transportation Research Procedia*. vol. 25: 4560-4579.

OTAGE. S. 2017. Was Pioneer bus case study for Kampala city transport? Daily monitor.

UGANDA BUREAU OF STATISTICS (UBOS). 2017. The National Population & Housing Census 2014 –Area Specific Profile Series. Kampala: Republic of Uganda.

VANESSA. S, OLA, M. 2016. The Role of Public Transport in Society—A Case Study of General Policy Documents in Sweden.

WORLD BANK. 2018. Inclusive growth policy notes 4 planning for Uganda 's Urbanization.