

# MANAGING TRANSPORTATION INFRASTRUCTURE IN NIGERIAN CITIES

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## **Abstract**

*This paper evaluates the management of urban transportation infrastructure in Nigeria. It does so by defining transport infrastructure to include both the locative and distributional role of transport. The argument is general because transportation is similar in most cities, except in Lagos and Abuja with greater coordination and control. Nigeria's urban transportation is driven by the private sector, and should be regulated, but it is not. There is confusion in its management partly because the sector is in the jurisdiction of state and local government thereby constraining full federal intervention, as all tiers of government perform different functions in the sector. Excessive traffic demand is choking most cities even when car ownership is moderate due to poor city structure and narrow roads. Further increased traffic demand is expected in over 23 cities by the year 2030. Reforms are therefore needed to introduce economic regulation, corporatize public transportation, and adopt transport demand management measures in most cities. The creation of the Lagos Metropolitan Area Transport Authority (LAMATA) is highlighted as a model which other cities could adapt as an institutional framework for economic regulation and the management of transport demand.*

**Keywords:** *urban transportation, infrastructure, transport demand, economic regulation, LAMATA.*

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## **2. Introduction**

Transport can be viewed as a public utility which supplies essential goods and services, where essential means they cannot be cut off without danger of total or partial collapse of an economy (Bos, 2003). Along with power and communication, transport is one of the social overhead capitals which must be developed to a critical minimum level in order to facilitate the development of the other sectors of the economy. From the allocative point of view transport contributes to the infrastructure of the economy, while from the distributional point of view it contributes to providing consumers with the necessities of life. The subject of this discourse is the management of transport infrastructure in Nigerian cities. This concern is understandable for two reasons. In the first place, there is a pressing need to rebuild the infrastructure of the country as a whole, and secondly, the urban transport sector in particular has been in crises due to inadequate and decaying infrastructure, poor management or lack of management and control, in the absence of institutional framework to regulate the sector. In the circumstance, the distributional aspects of transport cannot be overlooked, at a time when the entire national transport system is in the process of transformation, following global trends.

It is useful to define infrastructure more closely so as to clarify the use of the term in this paper. According to Juma (2006), the term infrastructure may be used to mean facilities, structures, associated equipment, services, institutional arrangements that facilitate the

flow of goods and services between individuals, firms and governments. Infrastructure therefore includes public utilities, such as power, schools, housing as well as transport with its usual modes, such as roads, railways, ports, waterways, and airports. We should however draw attention to infrastructure as a service, and define infrastructural service to include the provision, operation and maintenance of the physical facilities of the types of infrastructure listed. If we bring together all of the above elements, it means that transport infrastructure can be viewed fairly broadly to include the provision, operation and maintenance of transport facilities as well as the institutional arrangements for organizing the transport sector. It also means that the associated road furniture as well as public transport is all parts of road infrastructure.

The above definition helps to delimit the scope of this paper with a focus on management. When we talk of management, it seems that the meaning is specialized, but much of what we do with transport is related to management. For example, transport is owned, provided, operated and maintained; it is also coordinated and regulated by an institutional arrangement. Therefore, in order to address the topic of managing transport infrastructure in Nigerian cities we will tease a variety of themes including aspects of demand and supply of transport as well as their control. That is, we will glance at traffic situations in the cities, the ownership structure of public transport, and the reforms that may be needed to improve service delivery in the cities, in terms of institutional arrangements. The discussion will be general because Nigerian cities share a lot in common, in their use of para-transit modes, in their market structure, and in the absence of regulation by government. Only Lagos and partly Abuja would seem different, although Port Harcourt has an urban transport master plan that could modernize transportation in the metropolis.

In the course of sourcing materials for this study, I was surprised at the virtual absence of research completed in the area of urban transportation management in Nigeria, evident in the findings on some indexes that could characterize the system. To give an example, there is no clear information on car ownership rates in Nigerian cities and on the saturation level of car ownership, whereas these data are available for India and Egypt, to mention a few other developing countries. For this reason, much of the arguments of this paper will be drawn from the wider setting of Africa, and the case of Lagos will be highlighted, as an illustration of a Nigerian context.

The rest of the paper is structured as follows: After the national transport policy and the urban transport situation in Nigeria have been discussed, the next section focuses on the institutional arrangements for urban transport management and control. This is followed by a discussion of the general traffic demand management measures available to enhance service delivery and combat traffic congestion. The concluding sections focus on some reflections and recommendations about reforms that are needed to modernize the urban transport sector.

### **3. National Transport Policy**

We make a brief comment on the subject of the national transport policy in order to provide a setting for the discussion on city transportation in Nigeria. Going by our constitution, urban transport is in the concurrent list and in the jurisdiction of state and local governments. This may be one reason why the sector has not attracted so much attention from the Federal Government before the urban mass transit initiative of 1988. The Blue Print on VISION 2020 constitutes a transport development strategy that is

private-sector-driven, providing an environment capable of addressing the issues of wealth creation, employment generation and poverty reduction. This overarching strategy formed the basis of the fundamental objective of the country's National Transport Policy which is "to develop an adequate, safe, environmentally sound and efficient transport system in the context of a progressive and competitive market economy" (The Draft National Transport Document, 2010).

According to the national transport policy document, the transport sector would take advantage of the private sector initiative to do the following:

1. Improve efficiency of operatives and management of transport parastatals.
2. Achieve the desired reduction in the cost of providing transport services.
3. Facilitate further development in the nation's transport infrastructure.
4. Eliminate congestion both in the intercity and infra-city traffic flows.
5. Encourage the emergence of Nigeria as a transport hub for West and Central Africa Sub-region.

The Draft National Transport Policy has addressed urban transport in greater details than the previous policy documents. In this sector, the document envisages a more modern transportation system that is capable of meeting the needs of a rapidly growing urban population, noting that in the country, 11 cities have a population figure of above one million, while 23 cities have a population over and above 200,000, according to the 2006 National Census. What is new about the thrust of the draft policy is the proposal for far reaching reforms in the sector, including legislation on improved institutional framework, and on the use of conventional buses and light rail. Sourcing the finance for the sector has remained a critical issue. To surmount this problem, the draft policy has proposed the establishment of an urban development fund which, when implemented, could serve the purpose of financing new initiatives in the sector and also provide the vehicle for funding subsidies which are necessary to sustain urban transportation, regardless of who is responsible for providing the service.

The implementation of the above initiatives will require a lot of commitment on the part of government considering that, sometimes, what the government envisages is not what is implemented. There is no doubt that the critical factor in the successful implementation of the new policy lies in the correct interpretation of the policy itself by the implementation agencies, and also in the ability of government to encourage the incorporation of indigenous enterprise in the sector for the citizens to acquire the appropriate skills in the organization and management of urban transportation. Clearly, a new kind of training and orientation will be needed for effective service delivery in the urban transport sector, especially because it is technically demanding to provide the service, and the investment in the sector is somewhat unattractive in terms of returns; hence the need for subsidy is often canvassed.

### **3. Urban transportation**

Urban transportation in Nigeria is largely an unregulated market and small scaled. The technology used is of a combination of para-transit modes, consisting of shared taxis, mini-buses, motor-cycles and converted motor-cycles, locally known as *kekenapep*. Only in the cities of Lagos and Abuja are conventional buses in use similar to what obtains in most cities worldwide; but even in both cities the use of para-transit modes of transport is clearly dominant. For this reason, Nigeria remains the only country in the world where densely populated cities with over 6 million people do not have an organized urban

transport system based on a combination of conventional buses and rail. The Federal Government had made an attempt to establish a technology of urban transportation based on bus transit through the Urban Mass Transit Programme of 1988-94. The programme failed because the implementing agency diverted the programme funding, implementing instead inter-urban mass transit services in most states to the neglect of the critical element of government strategy of inducing indigenous capacity building through a matching grant system requiring the participating firm, or company, to have at least a fleet of 6 (six) big buses for urban service provision (Ogwude, 1988).

### 3.1. The Infrastructure

By international standards, the road network in Nigerian cities may be described as poor, with the exception of Abuja which is a new city with modern roads and an extensive network of pedestrian walkways. In general, the roads in most cities are far from dirt roads and are mostly paved.

Table 1 Paved Road in Selected African Cities, Compared with Developing World Average

City	Paved roads (m per 1000 pop)
Abidjan	346
Conakry	174
Dakar	467
Dares Salem	150
Kampala	225
Kinshasa	63
Lagos	400
Average Sample	318
Average Developing Countries	1000

Sources: City Authorities; UN Millennium Cities Data Base. Kumar and Barrett(2008): *Stuck in Traffic: Urban Transport in Africa*

This may be the reason for their relatively good standing in terms of pavement compared to Sub-Saharan African roads (Table 1). However, the city roads in Nigeria share the common problems of other African city roads with a significant percentage consisting of one lane that is poorly maintained and prone to flooding due to poor drainage. The implication of this is that capacity is limited in most cities, and service lanes are absent, thereby putting more strain on existing capacity. Of course, inadequate capacity and poor road conditions reduce vehicle speeds, engender traffic congestions, reduce productivity for all vehicle types, and increase the cost of vehicle maintenance.

An insightful World Bank Study (Kumar and Barrett, 2008) had noted that the above unfavourable road conditions contributed to promote the use of para-transit modes of transportation in African cities, namely, minibuses, taxis, and motorcycles. These para-transit modes are more flexible and can maneuver their way through more than large buses but are not as efficient as means of urban mass transit. According to the study, the buses, both large and small, are the most common mode of public transport in most African cities (Table 2). In Nigeria the use of minibuses, as already stated, is more prevalent than conventional (larger) buses, except in Lagos where the recently introduced Bus Rapid Transit (BRT) has the potential to alter the composition, and also in Abuja where large buses and taxis have a good share of the market.

Continuing on the state of urban roads in Africa, Kumar and Barrett (2008) observed that part of the constraints on city transportation is that most roads were laid when cities had a single centre, and before the rapid growth in car ownership, or what it referred to as personalized forms of motorized transport. This kind of city structure is such that the primary network radiates from the city centre to surrounding areas, and orbital or circumferential links are missing. This attribute is largely true of Nigerian cities, with the notable exception of Abuja which as a new town has avoided the design of such a structure. Where roads are narrow in a city structure as described, it may still not be possible to improve traffic flows by a significant widening of the roads, or restructuring, without possible environmental degradation or infringement on human rights.

### 3.2. Poor Road Furniture

Of course, narrow roads increase congestion in Nigeria regardless of city structures, making the use of larger buses more difficult as a means of relieving traffic congestion. Across the cities, there are hardly any dedicated bus lanes; bus routes are not designated; there are hardly any bus stops and bus shelters. A recent survey of road furniture in Nigeria (Federal Road Safety Corps (2008)) showed that bus terminals are altogether lacking, except in Lagos where they are overcrowded, and in Abuja where they are few. In most Nigerian cities, a proliferation of motor parks has replaced the bus stops as terminals. In the Kano metropolis alone, there were over 200 motor parks and stops, but only 40 of them had official recognition (Dangogo (2004); Falola (2000)). When the Federal Road Safety Corps (FRSC) did an enumeration of the motor parks in Nigeria in 2009, about 2,476 of them were identified. Of this large number over 60 percent are located in urban areas. However, the FRSC survey also found that there were no illegal motor parks in the country in 2009, although Nigerian motor parks are largely unorganized and unintended sources of traffic congestion in the cities.

Table 2 Shares of Modes of Transport in Use in 14 African cities

City	Large bus	Mini bus	Taxi	Motorcycle	Private Car	Walk	Others
Abidjan	11	19	29	0	18	22	1
Accra	10	52	9	0	13	12	4
Addis Ababa	35	20	5	0	7	30	3
Bamako	1	10	5	56	19	-	9
Conakry	1	14	6	0	1	78	0
Dakar	3	7	3	6	6	11	1
Dares Salaam	0	61	1	1	10	26	1
Douala	10	-	13	12	2	60	3
Kampala	0	41	-	20	35	-	4
Kigali	1	75	10	0	10	5	0
Kinshasa	-	-	-	-	-	High	-
Lagos	10	75	5	5	5	High	0
Nairobi	7	29	15	2	-	47	0
Ougadougou	8	0	-	58	14	-	20
Average	7	30	8	12	12	37	4

*Source: City Authorities, Published Documents. Quoted from Kumar and Barrett (2008), Stuck in Traffic: Urban Transport in Africa*

*Note: - means not available. Rows may not total to 100*

Beside the overcrowded motor parks, most cities have not planned for pedestrians. Pedestrian walkways are virtually absent in the cities, with the notable exception of

Abuja which has a good network, as already remarked. In other places, pedestrian crosswalks and bridges are provided mostly at city centres, if at all. The poor state of road furniture in Nigerian cities has increased the need for enhanced traffic management to improve traffic flow and safety.

#### **4. Traffic Management**

To summarize the context of traffic management in Nigerian cities, we list some of the characteristics of transport demand that engender the need for proper management. These include:

- a. Demand is high in most cities relative to the capacity of the system to accommodate the flow of traffic. In Lagos alone, over one million person trips are generated daily carried mostly by *danfobuses*, BRT, cars with occupancy rate of about 2.0, and other means including adapted motorcycles (*kekenapep*).
- b. The urban population is surging in most cities, growing by more than 4% on the average. At present, one third of Nigerians live in cities; by 2030 half of the population will be living in cities. The population of Lagos, for example, is growing at 6% yearly; it will be 25 million by the year 2030. With a road density of 0.4, the road network is certainly overloaded.
- c. Demand for transport is growing nationally at pace with the gross domestic product (GDP) envisaged to grow at between 10-13% up to the year 2030. This means that transport demand will have a growth rate of between 13-16% in the same period. The associated growth in freight transport will exert a lot of pressure on city ports like Lagos and Port Harcourt. Truck transportation increases congestion greatly in Nigerian cities as much as they add to the incidence of road crashes in the cities.
- d. Traffic congestion in cities is wide spread throughout the country. It is very severe in all of Lagos metropolis with travel time exceeding two hours and mildly severe in the approaches to Abuja Township from Nasarawa State.
- e. Traffic control measures like traffic lights are used to ease congestion generally. However, in some cities these devices are ineffective, or needless, due to choking congestion levels with traffic standing still for up to 30 minutes at a time. Traffic lights are increasingly being used to manage transport flows in Nigerian Cities, but in general they are not demand actuated and cannot respond to priority needs at junctions. Manual control of traffic is more common in most cities, even where demand is high and differentiated. For this reason some traffic builds up more quickly and others, like buses, may not be accorded some priority at junctions where area-wide bus priority schemes are lacking.
- f. Car ownership in Nigeria is low. In the cities, a rough estimate is 40 cars per 1000 population, which translates to about 0.04 cars owned per person in urban areas. Even with such a relatively low level of car ownership, the cities still experience a lot of congestion; this is interesting and would suggest that saturation levels of car ownership in the cities are already being exceeded.
- g. To provide a crude benchmark, according to Dargay, Gately and Sommer (2007), the vehicle saturation rates in some countries are as follows: Brazil 0.831; Argentina 0.8; South Africa 0.825; India 0.683. If vehicle growth will be twice the growth of income globally by 2030, and car ownership in Nigeria will be similar to the rate of Egypt and India, there will be a greater necessity for proactive measures for traffic management in Nigerian cities.

#### **4.1. Traffic Management Measures Practiced in Nigeria**

The practice of traffic management has a long history in Nigeria even though there is still a lot of room for improvement in the area. The concern with traffic was the initial preoccupation of civil engineers and city planners until the fad of land use transportation planning started in the late 1960s. Since that time, urban transportation concerns have widened in scope and focus by drawing on the social science concept of a system, which enabled the city to be viewed as an urban system with transport as a sub-system of the urban area or the city. Yet some stakeholders still think in terms of traffic planning and management despite the wider objectives of transport, thus limiting the scope of the initiatives and the instruments that may be available for sustainable mobility in the urban area.

The following short-term measures have been used in the management of traffic movement in Nigeria: (1) traffic control by use of traffic police or wardens, and by use of traffic lights, as already mentioned (2) traffic control by use of speed breakers, such as speed bumps or humps (3) enforcement of existing regulations, such as violations of safe driving and the use of defective vehicles.

Both the Vehicle Inspectorate Divisions of state Ministries of Works and Transport and the FRSC conduct periodic checks on vehicle users in cities as a means of controlling unsafe road usage that can lead to vehicle break-down which slows or completely obstructs the traffic. The FRSC free vehicle safety checks take place every quarter of the year. The exercise conducted in the last quarter of 2010 revealed that of the total of 15,198 vehicles (including 618 motorcycles) that were checked, 21,475 defects were detected in them. This brings the prevalence of defects in vehicles in use at that time to about 1.4 per vehicle.

Another enduring means of traffic control used by FRSC is the use of policy orders. The major objective of policy orders is the prevention of road crashes through proactive regulatory enactments aimed at influencing behaviour. The most prominent existing policy orders of FRSC are (1) the Use of Seat Belts (2003) (2) the Use of Safety Helmet (2009); (3) prohibition of overloading and (4) prohibition of phoning while driving (2009). The impacts of these policy orders are yet to be formally evaluated in the context of a research programme, but there is no doubt that the import of the orders has affected transport-behaviour in Nigeria.

#### **4.2. Travel Demand Management (TDM) in Nigeria**

The object of travel demand management is to control rising congestion levels, deter further growth in car use and address the negative impacts of traffic and congestion on transport efficiency and the environment (CFIT World Review of Road Pricing, 2006). Nigeria is yet to try any of the standard methods of travel demand management used to combat congestion. Although road pricing is often canvassed, the TDM method previously employed in the Lagos area was described as the Even-Odd Number System of road use allocation. Under the system; cars and vehicles with even registration numbers alternated with cars and vehicles with odd registration numbers in the week days when they were prohibited or allowed to travel to the central areas of Lagos. The scheme appeared to have worked well for some months and there were claims of substantial improvements in congestion levels before it was aborted, obviously, on political grounds.

After that, no further efforts have been made to use a similar TDM measure in a Nigerian city.

#### **4.3. The Role of Road Pricing in Travel Demand Management**

According to CFIT Review on Road Pricing (2006), road pricing has been successful as a travel demand management measure in some countries notably

- a. In Singapore where Road Pricing has been operating successfully since 1975, with Electronic Road Pricing (ERP) introduced in 1988. The ERP scheme reduced traffic in the area by about 13% and increased average speed by up to 24%.
- b. In London, where the Central London Congestion Charging scheme has been successful by reducing traffic in the central London charging zone by up to 30%.
- c. In Stockholm where a six month trial of Road Pricing ended in July 2006. Overall, 51% of the residents of the Stockholm area voted in favor of a permanent Road Pricing scheme.
- d. In Trondheim, Norway, where a Road Pricing system operated between 1991 and 2005 and reduced traffic by up to 10%.

#### **4.4. Parking and Transport Demand Management (PTDM&TDM) in Cambridge and Boston**

We report also an example of TDM practice in North America, where the programme combines marketing and incentives aimed at reducing the use of single-occupant vehicles (SOV). In the city of Cambridge and Boston, TDM also encourages a range of transport options, including public transport, bicycling, walking and ride sharing. The goals of the TDM program in the city are to improve mobility and access; reduce congestion and air pollution as well as increase safety. The programmes reduce the level of drive-alone travel by promoting walking, bicycle use, carpooling, vanpooling, public transport and other sustainable modes.

The city works cooperatively with residents and institutions in Cambridge and Boston to implement TDM measures. To achieve its goals, the city has implemented a Parking and Transport Demand Management Ordinance that requires developers to submit a PTDM Plan for development projects that meet certain criteria. This means that the programme has a public-private partnership (PPP) component which can be adapted in the Nigerian context. It is also important to note the use of public transport option as a travel demand management measure. This option has clearly been adopted in the city of Lagos and partly in Abuja and in Port Harcourt.

#### **4.5. Public Transport and Travel Demand Management in Lagos Metropolis**

From the goals of TDM stated above, it seems clear that the use of large buses can be conceived also as a travel demand measure in the Nigerian cities. The arguments are clear. The conventional buses have the capacity to carry a large number of persons at a time, say some 350,000 passengers per day, which is equivalent to taking up to 80, 000 cars off the road network, assuming a car occupancy rate of 3 persons.

#### **4.6. The Bus Rapid Transit**

The Lagos Bus Rapid Transit (BRT) system introduced in 2008 is an example of the use of this option. It is operated by the Lagos Metropolitan Transport Authority (LAMATA).



According to LAMATA, BRT is a transport option which relies on the use of dedicated, "Interference free", segregated lanes which make the buses run faster in a situation where there is traffic congestion in other parts of the system or network. The operational features of the BRT System are: 220 buses operated on a 22 km corridor with 65% segregated lane, 28 stops and 1 depot. The daily trips exceed 180,000 and average waiting time is 10 minutes. The other travel demand management options available in the Lagos Metropolitan Area are the use of light rail, heavy rail and conventional buses.

#### **4.7. Lagos Urban Rail Mass Transit (LRMT) Scheme**

In addition to the BRT programme, LAMATA has also introduced the light rail mass transit system in Lagos as an option of the travel demand management measure. Seven rail networks have been proposed, but the programme is taking off with the two rail lines that have been approved and commissioned, namely, Red Line, (Agbado-Marina) and Blue Line (Okokomaiko-Marina). The two lines are seen by LAMATA as the most important solution to the congestion problems of Lagos. The arrangement for funding the program is illuminating. It is being financed as a travel demand management initiative in Lagos as follows: Federal Government- 45%; Lagos State-40%; Ogun State-15%, under a public-private partnership (PPP) arrangement in which a private partner is the developer.

#### **4.8. Ferry Transportation Scheme**

Ferry transportation is also another option that is being developed as part of the travel demand management measures to relieve congestion in Lagos. It has been argued that at present the share of water transportation in Lagos is below 1%, which is not good enough in comparison with other coastal cities, like London, Rotterdam, Hong Kong, Bangkok, Sydney and New York. It is estimated that the ferry system will be able to carry about 5-10% of the commuters in Lagos. The service will be developed through a PPP arrangement whereby LAMATA will finance the infrastructure, namely; jetties and landings, car parks and access roads, while the private operators will run the ferry service, under the regulation of LAMATA. Seven service routes have so far been identified for the purpose.

#### **4.9. Institutional and Regulatory Framework**

As has already been remarked, urban transportation is in the jurisdiction of local and state governments. Although that is the case, none of the three tiers of government appears to have taken a clear leadership in the organization and management of the urban transport sector. In practice, the federal, state and local governments have a hand in the sector. According to Kumar and Barrett (2008), some tiers of the government plan in the sector, others regulate and still others allocate resources, or monitor compliance. Some perform several functions, and often their jurisdiction overlaps with that of other institutions. The study concludes frankly that institutional weakness and confusion lies at the heart of growing transport problems of African cities.

The above appraisal applies to Nigeria to a large extent. Clearly, it can be argued that regulation in the urban transport sector is too light handed. No one is clear about which government agency is responsible for the control and regulation of the sector, except that we can repeat what has been said earlier that the urban transport sector is virtually in the private sector by default and is self-regulating. In the sector, the transport unions are both

the operators as well as regulators; they set and regulate fares, manage parks and often set standards. Because urban transport is in the jurisdiction of local government, there is further confusion in ownership and control in the management of city transportation since there are many local governments in most big cities. For example, the cities of Kano, Lagos and Ibadan have many local government areas within them.

In general, Nigerian cities lack a common transport authority whose function is to organize and manage transport in the city the way LAMATA is now doing in Lagos on the initiative of the Lagos State Government. It is commendable that the Lagos State Government has taken the leadership in the attempt to create some institutional framework for addressing the urban transportation problem in a Nigerian city. There is a need to reform the urban transport sector in order to modernize and professionalize it along with the other transport sectors in Nigeria.

#### **4.10. Reforms in Urban Transport Sector**

The ongoing reforms in the transport sector have been described elsewhere (see Ogwude, 2008 & 2010). The Bureau of Public Enterprise (BPE) has been driving the reforms on behalf of the Federal Government. However, urban transportation is not in the schedule of enterprises or businesses in the BPE portfolio, even though the BPE role can be interpreted to include all reform efforts intended to increase competition and fair trading and institutionalize regulation. The ongoing reforms in the transport sector should be harmonized with the reform programme proposed by the federal government in the urban transport component of the *National Integrated Infrastructure Master Plan* (National Planning Commission, 2015), which is intended to modernize the sector in line with best global practices. The transport reform programmes of government include (1) reforms in the rail sector (2) reforms in the inland waterway sector and (3) reforms in the road transport sector. These reforms should be completed in order to deregulate the sectors and enable open participation and fair trading in the sectors, that is, to encourage competition and private sector participation in all modes of transport.

In the urban sector itself, reforms are needed to establish some institutional framework for setting technical and economic standards for urban transportation. As already remarked, the Lagos State Metropolitan Area Transport Authority created by an Act signed into law in 2002 with comprehensive functions (See Banjo and Mobereola, 2012) can be taken as a model institutional arrangement that can be adapted to regulate urban transportation in Nigerian cities. However, further key strategies should also be adopted to implement a sustainable and modern urban transport system in Nigeria. These strategies include:

- \* Initiating a programme for *corporatization* of urban bus services in Nigeria, that is, a scheme for encouraging bus operators to form viable bus companies for the purpose of providing urban transport service based on conventional buses.
- \* Establishing urban mass transit agencies (UMTA) in each state of the federation as proposed in the Vision 2020 Document.
- \* Enacting legislation on UMTA to give it effect.
- \* Establishing a training programme for the operators of urban bus transit.
- \* Initiating a programme to encourage effective UMTA in Nigeria, by the use of subsidies, guarantor role of government and the use of PPP arrangements.

## 5. Conclusion

The major argument of this paper has focused on the need to rebuild the urban transport infrastructure of Nigeria in order to expand and modernize it. The demand for urban transport is growing with the urban population surging throughout the country. By the year 2030 about half of the Nigerian population will be living in the cities, increasing the pressure on transport infrastructure in urban areas. At present, urban transport infrastructure is inadequate to meet transport needs resulting in choking traffic congestions in most cities. Transforming this infrastructure is therefore imperative and will cost about \$12.4 billion annually.

The urban transport infrastructure is worth transforming because it is even more costly to manage city transportation in their present form. Being a social overhead capital, transport cannot be neglected in the cities because the poor state of infrastructure generally is costing the urban economy a lot, in terms of reducing economic growth by at least 2% yearly and business productivity by about 40%. The cost of poor management of urban transport infrastructure, or of not managing it at all, is equally high.

It is therefore imperative to commit to proper management of the urban transport sector by reforming the sector in the ways suggested in this paper, so as to establish the framework for economic and technical regulation of the sector and to improve its funding by honest and judicious subsidy, and by wise investments driven by public-private sector partnerships.

**Biographical note.** Innocent Chuka Ogwude is the first Professor of Transport Management in Nigeria and a lecturer in the Department of Transport Management Technology, Federal University of Technology, Owerri, Nigeria. He is a Fellow of Chartered Institute of Logistics and Transport.

## References

- Bos, D. (2003), "Regulation: theory and concepts", In David Parker and David Saal (Editors), *International Handbook on Privatization* (Cheltenham: Edward Elgar Publishing Limited) pp. 477-497
- Banjo G. and D. Mobereola (2012), Lagos Metropolitan Area Transport Authority (LAMATA): Its Genesis, Design,, Performance and Future Prospects. Paper presented at CODATU XV Meeting, Addis Ababa, Ethiopia, October
- CM World Review of Road Pricing (2005), Phase Two Report on the ATKINS project on Road Pricing. Document no, 061205
- Dargay,S, Gately,D. and Sornmer, M. (2007), *Vehicle Ownership and Income Growth Worldwide: 19660-2030*. Extract of a Report prepared for the International Monetary Fund. [dgs\\_vehicle%20ol.vnerhip\\_2007.pdf](#)
- Dangogo, K. I. (2004), *The State of Infrastructure in Kano Zone*. A report prepared for the Central Bank of Nigeria. [Http://www.mnbank.org/out/publications](http://www.mnbank.org/out/publications)
- Federal Ministry of Transport (2010), *Draft National Transport Policy*, Federal Ministry of Transport, Abuja
- Falola, J. A. (2000), *Kano State*. In A.B. Maman, 1,0, Onybanji and S.W. Peters (eds.), *Nigeria: A People United, A Future Assured*. Federal Ministry of Information, Abuja, VOL.2, pp. 266-287
- Federal Road Safety Commission(2008), *A Survey of Road Furniture in Nigeria*, Vols. 1&2. Report prepared for the Road Safety Commission, Abuja

- Juma, C. (2006), *Redesigning African Economies: The Role of Engineering in International Development*. The 2006 Hilton Lecture, Royal Academy of Engineering, U.K.
- Kumar, A. and Barrett, F. (2008), *Stuck in Traffic: Urban Transport in Africa*. World Bank, Draft Final Report).
- National Planning Commission (2015), *National Integrated Infrastructure Master Plan*. Abuja: Federal Republic of Nigeria.
- Ogwude I. C., (1988), Transport in the 1988 Budget, In J. S. Odama, A. K. Kolawole and O. Ojowu (Editors), *Reflation for Growth or Stagnation- An Analysis of the 1988 Reflationary Budget* (Zaria: Centre for Social and Economic Research, Ahmadu Bello University), pp. 66 - 74.
- Ogwude I .C. (2008), Investments and Strategies for Achieving Effective Transportation, in S.O. Akande and M. S. Olomola (eds.), *Strategies and Implementation of the Seven Point Agenda of President Yar'dua*. (Ibadan: Nigerian Institute of Social and Economic Research), pp. 139-1
- Ogwude, I. C. (2011), Transport Infrastructure and Mobility in Nigeria, *Journal of Research in National Development (JORIND)*, Vol. 9, Number 1b, pp. 456-467