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TOPIC:

A SPATIO-TEMPORAL  
RESTRUCTURING OF  
TRANSPORTATION SYSTEM  
IN NIGERIA

By

PROFESSOR SAMUEL IYIOLA ONI

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2017

# **A SPATIO-TEMPORAL RESTRUCTURING OF TRANSPORTATION SYSTEM IN NIGERIA**

An Inaugural Lecture Delivered at the University of Lagos  
Main Auditorium on Wednesday 19th April, 2017

By

**PROFESSOR SAMUEL IYIOLA ONI**  
*B.Sc. (U.I.) M. A., Ph.D. (Unilag), FCILT, FNIS*  
**PROFESSOR OF TRANSPORTATION GEOGRAPHY**

**Department of Geography**  
Faculty of Social Sciences  
University of Lagos

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### Protocol

The Vice-Chancellor, Sir  
Deputy Vice-Chancellor (Academics and Research),  
Deputy Vice-Chancellor (Management Services),  
Deputy Vice-Chancellor (Development Services),  
The Registrar,  
The Bursar,  
The University Librarian,  
The Provost, College of Medicine,  
Deans of Faculty,  
Members of Senate,  
My Lords Spiritual and Temporal,  
Heads of Department,  
Distinguished Academic and Professional Colleagues,  
Distinguished Non-Teaching Colleagues,  
Dear Students, Past and Present,  
Gentlemen of the Press,  
Distinguished Guests, Ladies and Gentlemen.

### Preamble

The Vice-Chancellor Sir, it is a great privilege and honour for me to stand before you today to deliver my inaugural lecture. I am humbled to present this lecture today and I give thanks, glory and adoration to Almighty God for making today a reality. To the glory of God, and with all sense of modesty, I am today inaugurating my Professorial chair in the field of **Transportation**.

Mr. Vice-Chancellor Sir, immediately I completed my first degree at the Department of Geography, Faculty of Social Sciences at the Premier University, University of Ibadan in December 1983, with the privilege of an invaluable mentorship of the late Prof. Michael Olanrewaju Filani of blessed memory, I registered for the Masters Degree in Geography domiciled in the Faculty of Arts, University of Lagos, "the University of first choice and the Nation's pride" where I obtained a Master of Arts Degree in 1985. In 1987, I enrolled for the Doctorate Degree Programme (Ph.D.) and completed this in 1991 under the supervisorship of Prof. Isaac Ayinde Adalemo - the first Dean, School of Postgraduate Studies. The Department of Geography was later moved to the Faculty of Environmental Sciences.

I, however, became Professor of Geography in the Faculty of Social Sciences, and later became the first Dean from the Department of Geography of this great Faculty in the year of our Lord 2015. Mr. Vice Chancellor Sir, you will agree with me that as a "**transportant**", I am the most mobile Professor having started my career from the Faculty of Social Sciences in Ibadan; had a spell respectively in the Faculties of Arts and Environmental Sciences, Unilag before consummating my career in the Faculty of Social Sciences, Unilag, even though my office never moved out from the Faculty of Arts Block for one day.

At the University of Lagos, Geography Department has moved from Arts, through Environmental Sciences to Social Sciences without relocating from its original office location in the Faculty of Arts Block (landlord), which is now arguably the most beautiful academic building in the University of Lagos. These movements have broadened the horizon and perspectives of Geography.

## INTRODUCTION

### What is Geography?

Geography has been defined as a subject which aims at understanding the phenomenon of variation in the specifiable attributes of places and tries to find out what places are like (Barbour, 1983) - He also asserted that "The geographer has been defined as one who attempts to **answer three questions** concerning any phenomena of interest, namely: **What? Where? and Why?**". Today, geographers are no longer restricting themselves to these traditional questions. Rather, two other questions have been added: **how?** and **when?** These are essentially cultural in dimension.

Mr. Vice Chancellor Sir, a poor cognition of the geographic essence poses a huge risk to correctly activating Nigeria's holistic development particularly in the transportation sector. Inadequate geographic comprehension contributes significantly to flawed policy-making and implementation. Geography widens our horizons with immeasurable rewards. If it were possible for one to come back to earth, I would still opt to be a **geographer**. The primary aim of geography is to discern the underlying order in the arrangement of a given phenomenon.

Geographer's contributions are very vast and diverse as it forays into the frontier zones shared with allied disciplines and professions such as Environmental Planning, Urban, Regional and Spatial Planning, Surveying and Geo-informatics, and Transportation and Logistics to mention but a few. The field of *transportation and logistics* has emerged as the "**numero uno**" among the progeny of Geography. Mr. Vice Chancellor Sir, Geographers have a major role to play in Nigeria's national rejuvenation and multi-faceted transformation particularly at this time when the country is embroiled in economic recession.

### Transportation Geography

It is quite useful to highlight the issues of space and time, since the basic function of all forms of transport is the conquest of space and time, which are fundamental to the whole problem of transport. Transportation Geographers are concerned with the movement of people, goods and services, which alter their positions spatially only by the consumption of time. Spatial interchanges have become indispensable since the locus of the production of utilities often do not coincide with that of their consumption. This separation can be bridged only by the establishment of effective means of transport. These means may be termed space-adjusting techniques. The cumulative effect of transport is the shortening of the distances between places on the earth's surface.

### Definition of Transport

Transport is the movement of people, goods and services from one location to the other, or from the point of **origin to destination**. In economic parlance, the demand for transport is a **derived demand**, as it is not required for its own sake, but satisfying other needs. It is also a factor of production since it provides a service. The fundamental functions of transport are simply to move things from place to place, by employing the logistics of the **what, where and how** methods.

Mr. Vice Chancellor Sir, the entire transportation system would perform its role efficiently if we recognise their specific attributes and plan their uses in line with their characteristics to meet the needs of our different activities such as agriculture, industrialization, settlement development, trade and commerce which generate spatial interactions. In this respect, transport modes are identified as **land, sea, air and pipelines**. Each of these modes

has its character, areas of strengths and weaknesses; while road provides door-to-door and feeder services, rail is the king/pillar of transport system and pipeline - most suitable for carrying liquid or gas. One can imagine what the traffic will look like, for instance, on Lagos roads if oil/gas, kerosene, water-tankers and aviation fuels are piped. Non-motorised transportation, pedestrianisation or walking should also be accorded their rights of place, since every journey starts by walking.

In essence, all that the combined efforts of all transport professionals have been endeavouring to do is to achieve optimisation of the transportation activity over varying degrees of definable space, which is either micro or macro or mega in scale. I need to emphasise the fact that various attempts at achieving this goal have not yielded the expected result. The journey to harmonised, environmentally-friendly and economically efficient transportation system appears to be very daunting when indeed all we need to do is to assess our perception and approaches to solving the transportation problem in the past and re-strategise. Such sustainability we want to achieve will lead to a reliable and efficient transportation system which all of us would be proud of.

Mr. Vice-Chancellor Sir, you will agree with me that the need for us to take a trip down the historical lane of the Nigeria transportation development is inevitable at this juncture to identify the processes behind our transport system quagmire; however, permit me to briefly state the concept of "spatio-temporal restructuring of transportation systems" for its eventual relevance to this lecture.

### **Concept of Spatio-Temporal Restructuring of Transportation Systems**

Restructuring transportation systems refers to plans and processes at modifying, strengthening and improving the transportation systems operations and structures. Currently, the Nigeria's transportation is close to a debacle, and requires a drastic or fundamental internal change that alters the relationships between different components or elements of the transportation system.

The current systems are operated in an ad-hoc and piece-meal manner, with a fire-brigade approach. Various sub-systems are handled and

operated in different dimensions without coherence and in an incomprehensive manner. The route-way, the vehicle, administration, control, and respective policies are not synergised. Roads, seaports, airports are operated without common centralised policies and standards. The current approach leads to nowhere. Therefore, it is imperative to restructure and step-up the integrative move, over space and time.

Spatio-temporal restructuring will create an integrated and coordinated transportation system for national and sustainable development. It will also bring about better integration of the various modes of transportation. As such, there is a need to sensitise and secure the cooperation and contributions of all stakeholders in Nigeria's transportation development to guarantee the movement of people, goods and services from the point of origin to destination at an affordable price, in a reliable, economical and environmentally-friendly manner. This will enhance the quality of life and liveability, and also enable appropriate re-distribution of resources from areas of production or surplus to the areas of need. All these attributes should be inclusive, intelligent, innovative, integrated and coordinated.

### **Historical Development of Transportation in Nigeria**

Past studies show that in the four national development plans in Nigeria, the road transportation system has been given more priority, followed by water and air. The history of transportation in Nigeria dates back to the pre-colonial era; and within this period, transportation facilities such as roads, railways, air transport facilities were really non-existent, (Ighodaro, C.A.U. 2009). Various governments in Nigeria have given priority attention to road development over the years during the First National Development Plan (1962-68). During the Second National Development Plan (1970-1974), the general policy on transport was to promote coordination and rationalisation of investment decision in transport sector (Federal Government of Nigeria, FGN, 1970).

Under the Third National Development Plan (1975-1980), road development shared 73.12% out of the amount allocated to the transport sector. In the Fourth National Development Plan (1981-1985) about 70% was allocated to road development. The other transport modes such as rail, air and water shared 30%. In spite of government efforts in encouraging road development, its contribution to the gap has been on a

downward trend. It is therefore necessary to undertake a complete restructuring of the sector.

### **Nigeria's Public Transportation Development**

Historical development shows that government has actively participated in the operations of public transport even till date. Notwithstanding, public transport in Nigeria is still riddled with uncertainties arising from poor or no schedule template and aggravated accident rates. Some other problems associated with public transport include: the non-existent 'handshake' between mobility infrastructure, national development and productivity, poor multimodal integration, poor institutional arrangement, weak policy enforcement and poor funding, amongst others.

The entire world is agglomerating to the urban centres, for obvious reasons, and this development has led to increasing population in urban centres with consequent increased travel demand, growth of vehicles especially car, but declining public transport use, traffic congestion, traffic noise, traffic-induced pollution, negative visual impact, community severance, road-accidents, pedestrians/vehicular conflict, street-trading, hawking, and poor maintenance of motor park infrastructure.

Lagos megacity is a socio-cultural melting-pot of Nigerians and foreign nationals because of its economic (about the 3rd largest economy in Africa) and socio-political importance. This megacity may also be described as the leading terminus for all transport modes, the fastest growing city and the most heavily motorised part of Nigeria. It is also one of the most congested cities in the world, traffic wise. Of all the urban centres in Nigeria, Lagos megacity has played the most significant role in the wholesale absorption of rural and semi-urban population. Its transport system has been modified on many occasions to accommodate the rapidly changing land-use pattern, and unfortunately these adjustments have usually been made "in response to" rather than "in anticipation of" crisis situation in traffic management that have been generated by development in the city.

Mr. Vice-Chancellor Sir, it is important at this point to briefly highlight public transportation in Lagos State.

### **Brief History of Public Transportation in Lagos State**

#### **The Lagos Steam Tramway**

The Lagos Steam Tramway was built in 1902. It ran between 1902-1933 and was operated by the Lagos Government Railway, before the establishment of commercial road transport services (see The Railway Magazine, July 1964, p. 581). It continued to operate over its mid-town route, until 1933. With its closure, the island of Lagos lost its only remaining railway. See Plate 1.



**Plate 1: The Lagos Steam Tramway**

#### **Bolekaja**

In the 1920s, road-based bus transportation was pioneered in Lagos by two Nigerians, Obasa and Dawodu. This was followed by the establishment of J.N. Zarpas, which dominated the Lagos transportation scene until their buses were acquired by the Lagos Town Council in 1958 to form the Lagos Municipal Transport Service (LMTS).

The situation remained the same until the 1960s when many operators went into the transport business. This resulted in the emergence of the Bolekaja, which literally means "come down and let's fight" in Yoruba, plate 2 shows typical example of Bolekaja.

Bolekajas were usually made from Bedford lorry heads and locally made wooden passenger compartment. The government later banned the use of boleka for commercial passenger transport services and they are now used to carry foodstuff in rural communities.



Plate 2: Bolekaja

### **Molue (Bedford Bus)**

*Molues* took over when government banned the use of Bolekajas, for commercial passenger transport services. *Molue* is a large commercial passenger bus usually painted yellow and black. Thus, the first *Molue* buses were of the Bedford variety. However, with time the Mercedes Benz 911 flatbed truck, which had been fitted with locally made passenger compartments became the preferred brand for *Molue* operators, see plate 3a. These buses are also usually over-crowded, and it is not unusual to have preachers or hawkers trying to sell their wares to passengers inside the bus. At that times, *Molue* buses were a common sight on Lagos roads, (the king of the roads). It carries more passengers, fares on *Molue* are often times cheaper than the smaller commuter buses. The afro-beat maestro, Fela Anikulapo-Kuti sang about them in his song "*Shuffering and Shmiling*", singing that in a *Molue* we had "44 sitting, 99 standing". Due to numerous issues, *Molue* buses have been banned from operating in certain parts of Lagos.

### **Danfo (Volkswagen Kombi) Buses**

*Danfo* like the *Molue*, emerged in the 1970s. The first *Danfo* buses were Volkswagen Kombi buses which seat twelve passengers. *Danfo* buses are yellow mini-buses that travel on set routes around the Lagos Mainland and on the Islands. These buses are often over-crowded, uncomfortable and not always reliable, see plate 3b. Since the early 2000s the Lagos State Government has tried to reform or ban the *Danfo* system. However, *Danfo* cannot continue to be the symbol of transportation in Lagos megacity, its being reformed with modern buses BRT and light rail.

In my candid opinion, Lagos deserves a more befitting facility than the *Danfo* or *Molue*. This informed the proposed replacement of *Danfo* buses with large and mid-capacity buses by the Lagos State Government.



Plate 3a: *Molue*



Plate 3b: *Danfo* Buses

### **Lagos State Transport Corporation (LSTC)**

The Lagos State Transport Corporation (LSTC) was a state owned company that ran transport services in Lagos. The buses were mainly Mercedes Benz buses which were painted red and white. However, the corporation became bogged down by mismanagement. By the late 1990s, it had practically collapsed. See plate 4a.



Plate 4a: LSTC Bus



Plate 4b: BRT Bus at Mile 12 Terminal

Source: LAMATA, 2017

### **Bus Rapid Transit (BRT)**

The BRT is a relatively new system that has somewhat improved the transport and eased traffic congestion in Lagos. BRT vehicles, painted blue, operate on segregated or dedicated lanes to guarantee fast and

reliable bus travels. The BRT buses run on physically segregated lanes and thus make them run faster, see plate 4b.

### Taxis

There are a number of taxi companies that operate in Lagos; these are either metered or have fixed fares. It is possible to hail a cab from the street, although a safer option is to phone and order one ahead of time. **Uber** and **Taxify** are here with us now.

### Ferries

Despite the abundance of waterways in Lagos, ferries are not as popular as road transport to get around the city. The Lagos State Waterway Authority (LASWA) has been working to promote water transport in Lagos in order to ease road congestion by building a number of jetties.

### Cable Car

This initiative is akin to park-and-ride scheme in which Victoria Island bound traffic drops the car at Ikoyi and joins cable car across to Victoria Island. See plate 5.



Plate 5: Cable Car



Plate 6: Overloaded Train

Source: LAMATA, 2017

### Rail

The Lagos Rail Mass Transit (LRMT) networks is a major component of the strategic transport master plan, which has been developed to guide as a compass for the development of public transport infrastructure in the state. See plate 6.

## RURAL TRANSPORTATION

### Transportation in a Typical Difficult Rural Riverine and Sahelian Terrain

Nigeria's march towards transportation development cannot be achieved, unless considerable and effective attention is given to the rural areas of the country. The rural areas, especially the riverine and sahelian regions, have been denied meaningful and genuine transport development. Transportation as a means to other ends can assist by serving as a key to overcoming the hunger and poverty in the rural parts of Nigeria particularly those with difficult terrains such as Yusufari and Yunusari local governments in Yobe State, as well as Akuku-Toru LGA in Kalabari land in the Niger Delta region. A cursory study of water transportation situation in a typically difficult terrain and rural environment in a section of Kalabari land was evaluated. The result of a study on rural transportation in Akuku-Toru LGA shows that transport improvement must focus on women and children in order to reduce the poverty gap and reduce the cost of food transportation to the urban centres (Oni, 2004).

### REGIONAL TRANSPORT SYSTEMS

This involves the movement of people, goods and services from a specific region to the other within the country and between neighbouring countries. The state of intra and inter-regional mobility is still disorganised and faced with series of issues and challenges.

### THE TRANSPORTATION DEBACLE

#### National Transportation Policy – National, Urban, Rural and Regional

Transport policies can be described as set of principles that guide decision-making or the processes of regulation and control in the provision, planning and management of transport. It is the development of a set of propositions that are established to achieve a functional transport system.

The fundamental goal of this National Transport Policy is to develop an **adequate, safe, environmentally sound, efficient, affordable and integrated transport system** within the framework of a progressive and competitive market economy; while, the Urban National Transport Policy contains featured guided participation of the three-tiers of government. The

various governmental bodies involved have been unable to respond to the functions they are supposed to be rendering due to certain human, technical and financial constraints. More importantly, previous recommendations on institutional reforms have been largely ignored.

### **INAPPROPRIATE NATIONAL POLICIES AND LIMITED IMPLEMENTATION OF NATIONAL, SUB-REGIONAL AND REGIONAL AGREEMENTS**

A quick critique of Nigeria's national transport policy shows the lack of continuity, appropriate, well-formulated policies and strategies, as well as slow implementation of policies and agreements remain major obstacles to the development of sustainable transport. Available, but inaccessible policies slow down the private sector participation in transport infrastructure development and operation.

#### **Factors Hindering Implementation of National, Sub-Regional and Regional Agreements**

##### **i. Poor Transport Network Connectivity and Poor State of Network**

Transport networks are still characterised by several missing links between the road, rail, air and inland waterways within the country, forcing a significant percentage of the rural population to live without access to markets and essential economic and social services. In addition, a large proportion of the existing transport infrastructure is ageing and in a poor state.

##### **ii. Inadequate Human and Institutional Capacity**

The availability of skilled personnel is limited in most transport organisations. In addition, institutions do not have appropriate powers and technical capacity to formulate, plan and manage infrastructure development and services as well as to regulate and enforce policies and regulations.

##### **iii. High Transport Costs**

Transport costs are high in Nigeria when compared to the average incomes of the citizens. The already high transport costs have been exacerbated in the past few years by the energy crisis associated with the

high and volatile oil prices. This has brought about undue high cost of food products.

##### **iv. Poor Transport Safety and Security**

The prevailing poor state of road safety remains a serious challenge in Nigeria. The major constraint is funding and financial resources. Alternative funding sources had been proposed but still awaiting the approval of the National Assembly.

##### **v. Poorly Developed Transport Information Systems**

In Nigeria, statistical information and data, where available, is not accessible most times. The transport sector is yet to take full advantage of the technology due mainly to lack of a proper policy for ICT integration in transportation.

##### **vi. Limited Financial Resources**

Huge gaps still remain between the demand and available resources for sustainable transport development because it requires huge financial outlays to build infrastructures.

### **INSTITUTIONAL ARRANGEMENTS AND CONFLICTS**

The symptoms of institutional failure manifest from the lack of clear definition of responsibilities among the three-tiers of government and has led to institutional conflicts in several areas, especially enforcement, transport infrastructure provision and use, policy formulation and coordination. In addition, the absence of long-term strategic planning, resulting in reactive planning i.e. ad-hoc decisions is another symptom, as well as poor regulation and enforcement.

A common trend running through these problems is weak local institutions. For example, Nigerian states are highly over-centralised; local governments are often mere agents of the central government. Everyone needs to travel to Abuja for everything; if all Americans agencies have to travel to Washington for everything, then what happens? *Palaver*. Donors, unwilling to entrust implementation to dysfunctional local governments have often perpetuated the weakening of local institutions by assigning projects to central government ministries.

Although, presently federal system arrangement puts urban transportation predominantly under the control of the local government authority. Indeed, the local government manages **67% of urban roads, state government 27% and federal government only 6%**. Ironically, the local government is grossly under-funded and lacks the fund generating drive, technical expertise and other resources to provide for efficient urban transport infrastructure and service delivery. Thus, the functions and the level of involvement of the three-tiers of government are unfortunately not clear. Their roles are overlapped, duplicated and confused, whereas, a successful implementation of urban transport policy can only be meaningful within the context of an effective, coherent and well-coordinated institutional framework.

Other problems include, poor coordination and fragmentation of responsibilities among federal ministries, agencies and regulatory bodies that do not relate to one another in any way. Several ministries and bodies are responsible for the urban transport, and this creates the need for coordination.

From the foregoing, it is obvious that the government agencies that are expected to control the activities of unions and operators have conflicting interests and overlapping functions, with the resultant effect of poor or inadequate control, allowing some responsibilities to be taken over, with the multiplicity and fractionalisation of the transport unions. However, the under-listed transport unions in the urban centres play some key roles in the operations of the urban transport system.

- ❖ National Union of Road Transport Workers (NURTW)
- ❖ Road Transport Employers Association of Nigeria (RTEAN)
- ❖ National Association of Road Transport Owners (NARTO)
- ❖ Amalgamated Commercial Motorcycle Riders Association of Nigeria (ACOMORAN)
- ❖ Articulated Motorcycle Owners and Riders Association of Nigeria (AMORAN)
- ❖ Tricycle Owners and Riders Association of Nigeria (TORAN)
- ❖ Luxurious Buses Owners Association of Nigeria (LUBOAN)

But, their activities have to be clearly defined in order to ensure sustainable mobility. The need for a properly structured or restructured governmental

organisation or agency to regulate activities in the road transport sector in Nigeria is therefore expedient.

### Mass Transit System

This is a high capacity means and modes of transporting a large number of people within a given network, with a reasonable turn-around time. Broadly speaking, mass transit comprises mainly the rapid rail system, light rail system, tramways and monorails, bus system, and where feasible, water transport system. In addition, any or a combination of the above systems can be adapted to suit individual intra-city and inter-city network. It is only a genuine mass transit structuring that can provide an efficient transportation system.

The following constraints are inherent in existing policy and its implementation: poor and uncoordinated guidelines for urban mass transit policy implementation, as well un-informed long-term strategic planning; and absence of a regulatory body that has made urban mass transit an all-comers affair in Nigeria.

### ROAD TRANSPORT

For too long, the government has placed undue emphasis on the road transport system mono-mode. The pre-occupation with road transport has led to the neglect of alternative means of transport and of the evolution of a viable mass transit system for Nigeria's urban centres. This has simply compounded rather than ameliorate the perennial traffic congestion and pollution in the metropolitan areas.

Traffic on many of the existing roads have surpassed their design carriage capacities and this has led to serious damage and loss of lives on some of the road network, for instance the Lagos-Ibadan (plate 7), Sagamu-Ore-Benin, Abuja-Lokoja and Akwanga-Lafia (*many-have-gone*).



Plate 7: Lagos-Ibadan Expressway (2015)

There is poor networking between road transport administration agencies, resulting in the rivalry between the **Vehicle Inspection Service (VIS)** and the **Federal Road Safety Corps (FRSC)**; **Federal Road Maintenance Agency** and **States Road Maintenance Agencies**; conflict between the Traffic Units of the Nigerian Police and State and Local Government owned Traffic Management Agencies, just to mention but a few. These conflicts have increased, the rage on our roads to the extent that it was once described as "highways to hell" (Oni, 2008, *et. al.*).

### Traffic Congestion

This manifests not only in urban centres, but along highways, Lagos-Ibadan, Lokoja-Abuja, Asaba-Onitsha, Ilorin-Mokwa etc. Unguided and uncontrolled urbanization growth has put an increased pressure on the existing transport infrastructure, thereby giving rise to a perpetual state of congestion. Currently, the problem has assumed a frightening dimension whereby commuters are seen daily at bus-stops endlessly waiting for buses that take too long to arrive and when they do, they are often filled up so that the waiting commuters get stranded for several hours. This has a consequent effect on the productivity, optimal manpower utilisation, and the rapid depreciation of roads, intolerance, increased accidents, pollution and health.

In response to the problems associated with travels in the metropolitan regions, for instance, the Lagos State government had over the years implemented many traffic management and transportation schemes among which are the introduction of the **odd-and-even number edict**, the expansion of some primary and secondary roads, the completion of Ikorodu road dualisation, the introduction of the Bus-Rapid-Transit (BRT),

expansion of local government traffic personnel, the establishment of Lagos State Traffic Management Authority (LASTMA), and the introduction of bus franchise programme in the Ipaja/Ikotun traffic corridor. In her (Lagos State Government) continuous effort to addressing this situation, the Lagos Metropolitan Area Transport Authority (LAMATA) commissioned the setting-up of Traffic Planning Units (TPUs) at local government levels. Despite all these efforts, the pressures of increased demand for transport facilities in the local and metropolitan areas have remained high and outstripped whatever efforts that have been made (plate 8).

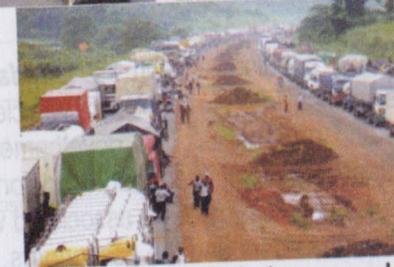


Plate 8: Traffic congestion scenario in Lagos and Lagos-Ibadan Expressway  
Source: LAMATA, 2017

A significant damage being done to this very vital transport link is triggered by the current state in which goods (wet and dry) are presently being conveyed up-country using mainly trailers.

### An Analysis of Traffic Flow: A Case Study of Lagos-Ibadan Expressway

This study reveals the general trend in traffic flow on the Lagos-Ibadan expressway in terms of the amount of vehicles that ply this expressway; the days of the week which experience the greatest volume of traffic and the type(s) of vehicles that are most frequently used on this very important trunk road. Table 1 shows the traffic trend on Lagos-Ibadan Expressway.

**Table 1: Traffic Trend: Vehicle Type/Day (Lagos-Ibadan Expressway)**

| Type of Vehicle | Day 1         | % Composition | Day 2         | % Composition | Day 3         | % Composition | Day 4         | % Composition | Day 5         | % Composition | Day 6         | % Composition |
|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Car             | 99187         | 40%           | 121835        | 41%           | 113426        | 39%           | 106699        | 42%           | 107144        | 42%           | 89698         | 38%           |
| Bus/Jeep        | 89476         | 36%           | 108850        | 37%           | 105552        | 37%           | 98329         | 39%           | 100294        | 39%           | 85797         | 36%           |
| Luxury Bus      | 1892          | 1%            | 2172          | 1%            | 2370          | 1%            | 1393          | 1%            | 1465          | 1%            | 1605          | 1%            |
| Light Truck     | 13951         | 6%            | 15299         | 5%            | 17251         | 6%            | 7803          | 3%            | 7857          | 3%            | 14434         | 6%            |
| Heavy Truck     | 44576         | 18%           | 47775         | 16%           | 49249         | 17%           | 40401         | 16%           | 40578         | 16%           | 46600         | 20%           |
| <b>Total</b>    | <b>249082</b> | <b>100%</b>   | <b>295931</b> | <b>100%</b>   | <b>287848</b> | <b>100%</b>   | <b>254625</b> | <b>100%</b>   | <b>257338</b> | <b>100%</b>   | <b>238134</b> | <b>100%</b>   |

Source: Fieldwork, 2016

A noticeable trend in the figures is the sizeable number of Heavy Trucks (About 20% or 1 in every 5) on the expressway.

### Commercial Motorcycling

Commercial motorcycling popularly known as '*Okada*' or '*Achaba*' or '*Going*' contributes significantly to the number of vehicles on the roads in both Nigeria's urban and rural areas. This development occurred as a result of poor public transport supply, bad road conditions and high levels of unemployment. The use of motorcycles is associated with high accident rates both on the side of the riders and the passengers, with orthopaedic treatment implications, as evidenced in National Orthopaedic Hospital, Igboi.

Commercial motorcyclist activities are characterised by overloading, speeding and the non-use of crash helmets. The recognition of commercial motorcycle as a means of public transportation in cities and megacities is an aberration, for its fragility and vulnerability when emphasis should have been on rail based networks.

### Vehicular Parking

All over the world, the growth of private car use has brought in its trail, the need for more efficient use of available road spaces, by both moving and parked vehicles.

When due recognition is given to the fact that car parks are integrated and functional component parts of the urban landscape, it becomes evident, that the car parking policies presently in place in Lagos (Nigeria) are characterised by apparent ad-hoc and piece-meal formulation and implementation (Oni, 1994), see Table 2. The under-listed parking standards are just not enforced.

**Table 2: Parking Standards in Lagos State (1999) and (2005) Reviewed**

| S/N   | Land use   | Standard Spacing Required (1999)  | Standard Spacing Required (2005)   |
|---|--|---|--|
| 1.  | Commercial <ul style="list-style-type: none"> <li>• Offices</li> <li>• Restaurant</li> </ul>                                     | - 1 parking space per 90m <sup>2</sup> of lettable space.<br>- 1 parking space per 75m <sup>2</sup> | - 1 parking space per 90m <sup>2</sup> of lettable space.<br>- 1 parking space per 75m <sup>2</sup>  |
| 2.  | Industrial   | - 1 parking space per 90m <sup>2</sup> + space for loading and off-loading                          | - 1 parking space per 90m <sup>2</sup> + space for loading and off-loading   |
| 3.  | Residential  | - 2 parking spaces per dwelling unit  | - 2 parking spaces per dwelling unit   |
| 4.  | Institutional <ul style="list-style-type: none"> <li>• Places of worship</li> <li>• School</li> <li>• Clinic/Hospital</li> </ul> | - 1 parking space per 65m <sup>2</sup> or 1 per 40 worshippers<br>- No standard<br>- No standard    | - 1 parking space per 65m <sup>2</sup> or 1 per 40 worshippers<br>- No standard<br>- 1 parking space per 65m <sup>2</sup> for three (3) bed spaces |
| <b>Car Park Standard</b><br>A car parking space shall not be less than 2.5meters x5meters in size |  |   |  |

Source: Ministry of Environment and Physical Planning, Town Planning Services, Lagos (2005)

### Rail Transportation

Mr. Vice Chancellor Sir, please permit me to reiterate the importance of rail transportation. When compared with other modes of transportation, the rail transportation provides a better option. Most prominent of its importance are as follows: **high haulage capacity and largest means of urban mass transit; safety:** rail transportation is relatively safer than other means of transport; **speedy movement of bulky cargoes on long distances;**

**relatively cheaper transportation; and provision of convenient transit services** such as restaurants and toilets.

Empirical works have shown that rail transport provides the most cost-effective, affordable, energy-saving and environmental friendly form of transportation, especially in areas where traffic densities are high (Oni & Okanlawon, 2013).

However, rail transportation (the king of transport) has witnessed many years of neglect, technical problems, underfunding, and huge operating cost losses, inconsistent government policy and programmes, loss of patronage to the road transport sector, over-bloated workforce and inefficiency, technical problems such as tight curves and steep gradients, worn-out and obsolete infrastructure, and poor communication. The current rail network which is structured to evacuate farm produce from North to South has no East-West link and has remained that way till date. These have left a once vibrant sector in a comatose state as shown in plate 9.



**Plate 9: Old and overloaded worn-out train**  
Source: *Daily Trust Newspaper, March 20, 2017*

What may ultimately be required to resuscitate the railway system in terms of funding, investment and expertise is far beyond the financial and managerial profile of the government. There is, therefore, the urgent need for private sector participation in ensuring smooth and efficient operation in the railway sector back to what it used to be. The port concessionaires, the Dangotes, Flour Mills, cement producing factories (Lafarge and Portland) should invest in railway transportation.

## Air Transport

Nigeria's aviation industry is dated back to 1925, when the first flight operated by British Overseas Airways Corporation (BOAC) into Nigeria landed in Kano from Sudan. Since then Aviation has become an integral part of the socio-economic life of the country. The Nigerian domestic aviation industry is tethering on the brink today, probably facing its own great depression. This industry will require a new deal to save it from collapse and spur it on to new growth (Economics Newsletter, Feb. 2017). According to the Nigerian Civil Aviation Authority, only nine i.e. 6 percent of the 150 registered domestic airlines that existed at the beginning of this millennium still remain. Most of these operators collapsed because they were unable to meet the stringent regulatory requirements while the surviving nine seem to be the outliers. Aviation sector is still weakened by inadequate capitalisation, and poor corporate governance that could further undermine its long term prospects and also affect passenger safety. Only a few airlines comply with the economic regulation requirement to retire the financial health report.

According to Aisuebeogun (2017), some of the factors which generally characterises airline failure in Nigeria include: inadequate infrastructure, bankruptcy and shut-downs; rising costs of operation (fuel, labour, maintenance and security); inappropriate business plan, over-expansion; Airline ownership and control; debt profiles necessitating the Central Bank of Nigeria intervention through the Asset Management Company (AMCON) in 2008; AMCON's acquisition of both Aero and Arik is as a result of the failing of these airlines to meet obligations to their creditors. Airports had no perimeter fence and herdsman usually take their cattle across the tarmac. For example, on July 23<sup>rd</sup>, 2005, a Lufthansa aircraft crash-landed at Lagos Airport and was badly damaged. Another incident happened in Port-Harcourt where herdsman abandoned their cattle on tarmac and caused a plane to crash into them. See plate 10.



**Plate 10: Cattle across the tarmac**  
 Source: Aisuebeogun (2017)

**A Plane Crash Site**

In 2009, three airlines - Bellview, Afri-jet and Capital had to shut their operations, and of those airlines remaining in the skies, few were without significant debts.

Nigeria has twenty-three airports, many airstrips, 10 active domestic airlines; 554 licensed pilots, 913 licensed engineers and 1700 cabin crew personnel, with **no single national carrier**.

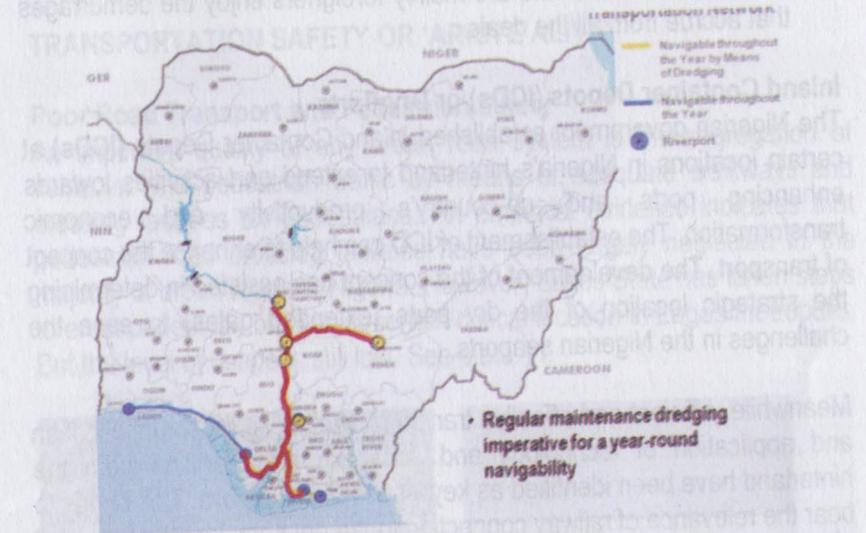
Right now, all sorts of international carriers are in Nigeria, feeding fat on Nigeria's market with **no** impact from **National carriers - Etihad, Qatar, Emirates**, etc. from the Middle East, Ethiopian, and Kenya apart from the European, American and other Africans airlines. Naturally, Nigerians travelling to America or Europe would fly first to the carriers' home base thereby increasing the journey distance and time, after luring Nigerians with relatively cheap air fares.

Airports across the states are in bad shape sometimes informing a total shut down for repairs or reconstruction. For instance, in 2014, the Port-Harcourt International Airport was closed to traffic due to rehabilitation and planes were diverted to Owerri; and recently, Nnamdi Azikiwe International Airport, Abuja had been closed for rehabilitation, and planes were diverted to Kaduna. So where do we go from here!

Airfares are hiked daily due to galloping inflation and the scarcity of aviation fuel. Many travellers are often stranded for hours at the airports due to flight delays, cancellations or total re-scheduling.

### Inland Waterway Transportation

Of all the four modes of transportation, the worst hit in Nigeria is Inland Waterway Transportation which is often perceived in terms of its slowness and safety. Due to long period of neglect, poor funding and navigational channel problems, the **IWT** has not made much impact on the lives of the people and the country. The dredging of certain strategic waterway has not significantly made much impact on the transport system. Fig. 1 shows the proposed dredging of the Inland Waterway Network.



**Fig. 1: Proposed Dredging of the Inland Waterway Network**  
 (Source: Fed Min. of Transportation, Abuja, 2015)

### Maritime Transport

The coastal and inland shipping (Cabotage) Act 2013 is an Act restricting the use of foreign vessels in domestic coastal trade to promote the development of indigenous tonnage. The purpose of this Act is to provide for more indigenous ship owners participation in the maritime industry for economic gains and sustainability. However, the Nigerian Maritime Carriages are being dominated by foreign operators, and emphasis has been on **importation** with little attention on **export**, leaving a wide gap and trade imbalance.

### Some of the challenges facing the Nigeria's maritime sector:

- Manpower development: The Maritime Academy of Nigeria, Oron is yet to upgrade to the level of producing skilled manpower for the maritime sector. Currently, the academy is producing only seafarers that are unemployable.
- Lack of adequate facilities/laboratories for the practicalisation of theoretical works.
- The Nigerian Maritime Sector still relies on chartering of vessels; while the brokers/owners who are mainly foreigners enjoy the demurrages that accrue from all the deals.

### Inland Container Depots (ICDs) or Dry Ports

The Nigerian government established Inland Container Depots (ICDs) at certain locations in Nigeria's hinterland to extend port activities towards enhancing ports and up-country's productivity and economic transformation. The establishment of ICD can help to enhance the concept of transport. The development of the concept has assisted in determining the strategic location of the dry ports (extended gates) to ease the challenges in the Nigerian seaports.

Meanwhile, efficient and effective transportation, logistics, communication and application of technology and poor export generation from the hinterland have been identified as key issues in this regard. This brings to bear the relevance of railway connection to the dry ports locations, as well as that of multimodalism concept. Nigeria's rail system is not linked to any airport, probably only Lagos seaport (Apapa) and bus terminus. (An example of very poor inter-modal linkages).

### Transport and Environment Policy Issues

Transportation generates about the highest percentage of atmospheric pollutants such as **lead particulates and carbon monoxide emissions** injurious to the environment. This lecture confirms the need to pay adequate attention to the quantitative assessment of the urban Lagos air pollution problem. It is particularly worrisome that data on the status of the ambient air quality are lacking. The existing ad-hoc, uncoordinated and in-exhaustive assessments of the Nigerian air are unsatisfactory.

Universities, research institutes and agencies should work together to formulate cleaner fuels and more environmentally friendly technologies. Natural gas, methanol, liquefied petroleum gas and various oxygenated blends of hydrocarbons should be considered as a cleaner burning fuel. Strict compliance to the regulation aimed at restoring ambient air quality will enhance sustainable development, reduce health risks and promote a pollution free atmosphere. Effective enforcement and compliance should assist in this desired goal.

### TRANSPORTATION SAFETY OR 'ARRIVE ALIVE'

#### Poor Road Transport and Pedestrian Safety

An important quality of any urban road system is the segregation of vehicular and pedestrian traffic by means of adequate walkways and crossing facilities for pedestrians. An empirical evidence indicates that pedestrian road crossing facilities have been largely neglected in the majority of urban roads in Nigeria. However, Lagos State has taken steps to erect pedestrian bridges at certain critical location in Lagos metropolis. But the level of usage is still low. See plate 11.



Plate 11: New Pedestrian Bridge at Ojota

Source: LAMATA, 2017

#### Road Traffic Education

The deficiency in, and lack of the basic traffic safety education has also been responsible for the greatest part of Nigeria's road traffic accidents, manifesting mainly as human-related-psychological, psycho-graphical, attitudinal and behavioural tendencies. The inherent issues include poor enforcement of road traffic laws and highways code, indiscipline, non-

compliance, incomprehension of road signs and traffic signals, absence of well-structured socio-culturally oriented traffic bye-laws and regulations.

#### **Rail Transport Safety**

Rail transport has been relatively safe in Nigeria. However, it is confronted with certain challenges such as many road intersections across rail lines without provision for overhead bridges and poor signalisation.

#### **Inland Waterway Safety**

The large numbers of private operators are highly unorganized and unregulated; hence, inland waterway operation is characterised by poor safety standards. This sub-sector regularly records accidents, resulting from lack of regulation, boat over-loading, poor bunkering systems in the riverine areas, little knowledge of safety regulations, recklessness and over-speeding, poor jetties at the seashore, poor maintenance of boats, unmarked buoyed navigation routes, and poor dredging.

#### **Air Transportation Safety**

Despite the fact that air transport is the most regulated, however, safety is still a critical issue as we can remember air crashes involving Sosoliso, Bellview, Dana, ADC, etc. Therefore, aviation must be strictly regulated to guarantee safety as there is **no bus-stop or stop-over** in the sky.

#### **Pipeline Transportation Safety**

Pipes are laid underground and on the ground in some cases thereby causing dangers to the community; and now with incessant pipeline vandalisation, the safety situation becomes more dangerous.

Mr. Vice-Chancellor Sir, we have first undertaken a survey of our transportation system which is in a quagmire, yet there are governing principles that if properly applied will assist in redressing the present challenges. Permit me to focus my attention on this as I examine a model prognosis for mobility sustainability in Nigeria.

### **A MODEL PROGNOSIS FOR MOBILITY SUSTAINABILITY IN NIGERIA**

The highest level of integration occurs when transit across the different transport modes are available and seamlessly achievable without compromising convenience and efficiency. Therefore, all modes – road,

rail, air, water and pipeline should be managed and operated as an integrated system complementing and supplementing each other. Transportation infrastructure, operations, management, planning and policy framework should focus on an integrated intermodal coordination with efficient geo-database infrastructure and informed personnel. This development will help improve access to information, intermodal passengers and freight transport services, rural-urban transport, intra and inter-regional system. Therefore, a holistic, comprehensive and total view of transportation services and operations should be taken in an integrated manner. This approach will result in a system that is actually a system of systems, with multiple interfaces, shared information and infrastructure elements. Unless this approach is adopted, we will continue to spend Hundreds of Billions of Naira in the coming decades on old, mode-specific concepts that cannot even handle today's demands, let alone those of the future. Therefore, Nigeria needs a new integrated, systems-architecture approach to transportation planning and management that will maximise public and private-sector investments in meeting both our current and future transportation needs. This could be achieved through the following options:

- providing reliable and seamless transportation options by improving system and modal efficiency.
- improving operational management by enhancing inter-institutional arrangements –often crossing public and private lines to overcome current jurisdictional and sectorial fragmentation.
- optimising system design and operations above the individual mode level to create efficient interface of movement i.e. land-to-air, land-to-sea and sea-to-rail.
- increasing the coverage of feeder connections as well as expanding from a 'hub-and-spoke' system to a 'distribution-grid-network' for national and regional services.

#### **Intermodal and Multimodal Concepts**

The concept of intermodal transportation describes a coordinated interchange between two transportation modes to complete a movement. In view of this, intermodal movements involve either the physical transfer of people or individual items from one mode to another, or the transfer of one loaded transport vehicle to continue the journey. The fundamental objective of inter-modalism is to integrate all the modes into an optimal and

sustainable system. Such a system should be characterised by efficiency, safety, mobility and economic growth. The system should provide the optimal route with the least cost and the overall travel cost. There is the need for advanced information and technological systems for shared mobility and services with mass transport modes, advancement of new technologies. Such information can be obtained by a model encompassing all modes in one network, with all possible changes between modes and with different travel costs (distance, time, money, effort) can help commuters make travel decisions. This is the essence of modeling prognosis for mobility sustainability.

All the available modes of transport should be integrated and coordinated for the fullest benefit and value derivable from transport system. It is very pertinent to develop strong unifying transport authorities, as well as the political-will and vision to move towards integration; so also the incorporation of multiple aspects of integration, including service, information and payment interaction, Cheng-Min Feng (2014).

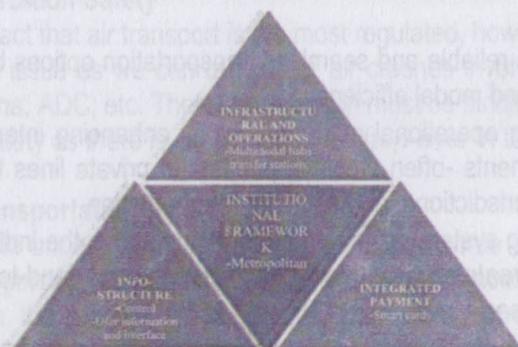


Fig. 2: Key Building Blocks of Multimodal Integration  
Source: Cheng-Min Feng (2014)

In order to build a high quality integrated multimodal system (Fig. 2), cities must achieve integration in both infrastructure and operations.

### Prospects of Transportation Mobility

In the recent time, there has been increasing demand for improved quality, spread and efficient transportation service. Coincidentally, latest technologies have been evolving at a rapid pace. Creative, innovative and digital thinking are very key at shaping transportation policies and actions.

Instant, fast, resilient, affordable, sharing, seamless, integrated and coordinated multi-modal transportation are keys for sustainable transportation. Cheng-Min Feng (2014) asserts that commuters want to move more quickly, cheaply, safely, conveniently, comfortably, reliably and with more information. Transportation operators want to provide service in a more efficient and profitable way, while the regulators look for less congestion and less energy consumption. The new trends in transportation mark a paradigm shift in innovative solutions to transportation problems and needs.

Seamless inter-modality is a key vision for transportation mobility. The ideas of requiring only one ticket per journey, ensuring easy transfer between modes and providing real time and dynamic information for changing modes are just a few components of this goal. The **“one ticket per journey”** concept relies on an integrated smart card or intermodal e-ticketing. Translating this vision into reality requires standardized systems, coordinated and integrated different modes.

The concept comprises the four dimensions of seamless inter-modality: “seamless time”, “seamless information”, “seamless space” and “seamless service”, while the transport services require high quality time-table of buses, trains and other modes. It also includes train movement networks, feeder services, maximum and minimum capacity of various modes, models for predicting departures and delays, etc. Cheng-Min (2014) gave an excellent chart of a typical multi-modal transportation system in Fig. 3.

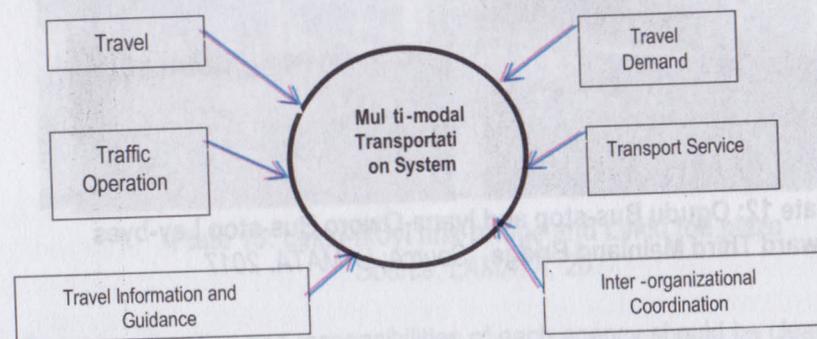


Fig. 3: Multimodal Transportation System  
Source: Cheng-Min Feng (2014)

## Organisational Structure for Public Transport Management and Operations

**Local Government Level** - At the local level, each local government is to establish a local government transport authority to be responsible for the urban transport matters including the overall planning, monitoring and management at the local level.

**State Government Level** - the state government should plan and effect the implementation of traffic management schemes and the monitoring and evaluation of the players in the transport sector. There should be provision of technical support to cities with many local governments such as Lagos megacity, Kano metropolis and Port Harcourt, as well as, the creation of a single authority named **Metropolitan Area Transport Authority** which is very imperative. This body is the mechanism by which effective standardisation, unification and coordination of transport policies and programmes can be constituted and implemented for the metropolitan area.

The development of this is a long-term institutional reform objective. In addition, a comprehensive road furniture infrastructure and other *traffic system management schemes* including lay-byes to create access are being embarked upon as evidenced in plates 12 to 15.



**Plate 12: Ogudu Bus-stop and Iyana-Oworo Bus-stop Lay-byes inward Third Mainland Bridge** Source: LAMATA, 2017



**Plate 13: Berger Bus-stop (Oworoshoki) and Ogudu Lay-byes inward Ketu** Source: LAMATA, 2017



**Plate 14a: Mile12 Terminal showing buses**



**Plate 14b: BRT Shelter showing Passenger's Walkway from the main Entrance**

Source: LAMATA, 2017



**Plate 15: Lekki-Ikoyi link bridge and Lekki toll plaza**

Source: LAMATA, 2017

Powers, authorities and responsibilities of each agency should be clearly delineated and with coordinating responsibility clearly identified, resourced

and empowered. Such linkages should be across different tiers of government.

### Restructuring the Aviation Sector

The Federal Government deregulated the aviation sector in 1982 wherein private entrepreneurs began to invest in Airline operations by setting up Airlines. This development gave birth to the first generation private airlines such as the defunct Okada, Aero Contractors, KABO, Oriental, and so on. After the establishment of these airlines, more licences were granted to the second generation of private airlines such as ADC, Chanchangi, Sosoliso, Bellview, Albarka Air, Triax, EAS, etc. Thereafter, with new licensing came the third generation of airlines like Overland Airways, Arik, Dana, Medview, Azman, Air Peace, etc. All these airlines are run by private equity holders. **Air Transport** has suffered a major setback in recent times and the worse hit by the economic recession that has accounted for the demise of more than three-quarter of the existing airline.

To forestall the problems associated with indebtedness, the Federal Government in May 2010 instructed the Central Bank of Nigeria to make available **\$3.3 billion aviation intervention fund to airlines** so that they could re-finance their loans with the country's banks and amortise them over a period of 10-15 years, as well as meet the aircraft lease obligations. The fund was expected to stave-off any further airline closures and create an opportunity for growth. Currently, **AMCON** has taken over the management of **Aero-Contractors** and **Arik Airways** due to indebtedness. Nigerian airlines should immediately embark on strategic review of their business models. They should consider strategic mergers, acquisitions and alliances to facilitate access to international capital market, supply chain integration and increased corporate versatility for sustenance of their operations with a sensible strategic consolidation for the emergence of about 2 or 3 formidable airlines.

Financial health of the airlines must be monitored for its adequacy and compliance with economic regulation framework, and beneficiary airlines should provide monthly reports on bailout fund utilisation. The Nigerian aviation industry must seek sustainable funding initiatives.

### Restructuring the Nigeria Railway

Efforts at making the rail a first choice in mass transit have included the granting of operational licence to states to build their rail lines which informed the failed attempt to construct the Lagos Metro Line, the on-going construction of the Lagos-Blue Line rail, the Abuja rail, the Port-Harcourt Mono-Rail, the proposed East-West Rail from Calabar to Lagos, among others.

Of all the government efforts to resuscitate the railway system, the most ambitious was the preparation of the 25 years (2002-2027) strategic vision document for the Nigerian railways. The strategic vision is aimed at re-establishing the railway as a key driver in the transport sector by transforming the railway system from a non-performing and debt ridden corporation to a dynamic player in the transport sector through strategic investments, new policy initiatives and by encouraging investment from the private sector. The most important point in the strategic agenda is the recognition of the role of the private sector investment in the revitalisation of the railway system. The government has also gone ahead through the National Council on Privatisation (NCP) to establish the Transport Sector Reform Implementation Committee (TSRC) to coordinate and oversee the implementation of the railway reform process. The TSRC has also on its part produced a reform agenda that will lead to the concessions of the railway sector through a phased programme of activities. These include:

- Formulation and implementation of a new transport policy for Nigeria (Enactment of a new Railway Act);
- Creating a new legal and regulatory framework within the context of the proposed National Transport Commission;
- Restructuring of the Nigerian Railway Corporation;
- Introduction of private participation by granting concessions for both freight and passenger operators.

Plate 16 shows the new train facility.



Plate 16: New Train Facility

Source: Nigeria Railway Corporation (2015)

### Restructuring Rail in Lagos

The Lagos State Government has commenced the development of an extensive urban rail system through the Public-Private Partnership (PPP) option. LAMATA is working with seven lines rail network: **Red, Blue, Green, Yellow, Purple, Brown** and **Orange**. The urban rail project has already commenced with the simultaneous construction of the Red and Blue lines. The 30km. long Red Line is being developed on the city's North-South axis through some of the most densely populated areas in Lagos, beginning on the Island to Agbado through a total of thirteen (13) stations. On the other hand, the 27km. Blue Line will run from Okokomaiko to Marina – another densely populated corridor in the city. The Blue line is being developed in conjunction with the Badagry Expressway Project and will run on an exclusive 15 metre right of way in the middle of the expressway. It will carry 400,000 passengers daily with capacity increased to 700,000 passengers daily when the rail route becomes fully operational. Upon completion, the horizon of Lagos is bound to change and the impact of the rail will no doubt significantly reduce congestion on the city's roads and improve mobility with the attendant positive impact on economic activities. The types of trains proposed for the blue line rail project are **Electric Multiple Units (EMUs)**. EMUs are emissions free and therefore do not pose problems of environmental pollution usually associated with conventional diesel locomotives. Plate 17 shows the newly EMU trains for the rail project and the newly built National Theatre Station at Iganmu terminal.



Plate 17: EMU Trains



National Theatre Station

Source: LAMATA, 2017

### Efforts at Improving Inland Waterway Transportation

The National Inland Waterway Authority (NIWA) attempted the dredging of major waterways in Nigeria with the sole aim of encouraging inland water travels. The history of ferry service in Lagos State can be traced to the 1970s when Lagos was still the federal capital. Later, the state government under the Lateef Jakande administration also came up with its ferry service when it purchased its ferry boats "*Baba Kekere*" and "*Ita Faji*".

Recently, Lagos State government has been constructing jetties at Ikorodu, Osborne and Badore, in addition to dredging ferry routes. These include Ikorodu-Badore via Oreta, Baiyeku-Ijede, Ikorodu-Osborne, Badore-Lekki, Oke Afa-Mile jetties. When all the designated corridors for the ferry service become fully operational, this will certainly reduce reliance on roads as sole means of transportation.

Lagos is now running water transport on 12 routes under the supervision of Lagos State Waterways Authority, while passenger traffic has grown to over one million passengers per month. The routes are Ikorodu-Marina/CMS; Marina-Mile 2; Ikorodu-Addax/Falomo; Ikorodu-Ebute Ero; Marina-Ijegun Egba-Ebute-Ojo; Mile 2-Marina/CMS-Mekwen-Falomo; Badore-Ijede; Badore-Five Cowries; Marina-Oworonshonki; Ebute Ojo-Ijegun Egba; Oworonshonki-Five Cowries; and Baiyeku-Langbasa. See plate 18.

The Lagos State Government has rejuvenated water transport in the state with the establishment of new **Lagferry**. The boat service has the mandate to purchase and operate new mass transit boats with a view to decongesting the roads.

## The Way Forward

There is the need for effective regulation of the inland water transport and licensing of operators and their boats to guarantee safety and encourage users patronage; NIWA should partner with the Marine Police Division of the Nigerian Police Force and the respective state agencies, such as Lagos Inland Waterway Authority (LIWA) towards ensuring compliance with the rules and regulations of inland waterways navigation; and the waterway must be marked with direction signs with waterway traffic signs mounted at appropriate locations.

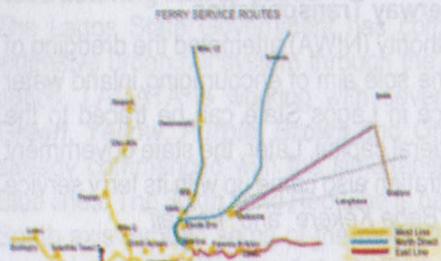


Plate 18: Ferry Service Routes

Source: LAMATA, 2015

Jetty

## Efforts at Improving Road Transportation

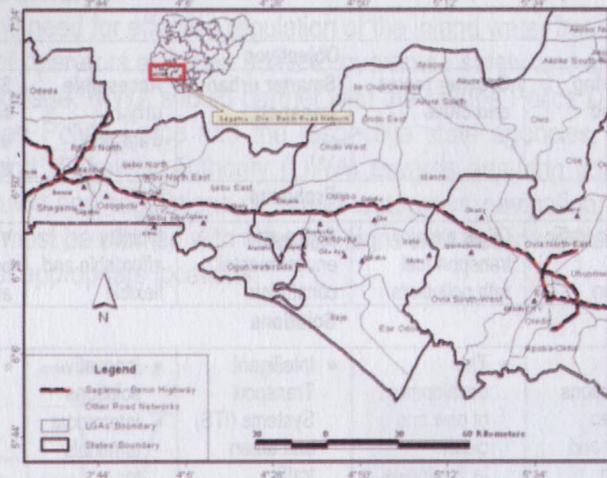
Rural roads are left in the hands of the Federal Ministry of Agriculture and Rural Resources. It has been observed that rural roads had been unattended to over the past decades and have been consequently left in deplorable conditions. The impact could be felt more in the agricultural sector and food prices soar because of poor transportation. Objectives and solutions for sustainable urban mobility are however suggested by the author, see table 3.

Table 3: Objectives, Problems and Solutions for Sustainable Urban Mobility

| Objectives   |   |  |   |  |
|--|---|--|---|--|
| Free flowing towns and cities  | Greener towns and cities  | Smarter urban transport  | Accessible urban transport  | Safe and secure urban transport  |
| Problems   |   |  |   |  |
| Increasing traffic leads to congestion   | Oil as a major transport fuel with pollutants   | Space and environmental constraints  | Mobility affordable and flexible  | Vulnerable pedestrians and cyclists  |
| Solutions  |   |  |   |  |
| <ul style="list-style-type: none"> <li>• Good connections between modes and parking facilities</li> <li>• Better traffic management and information</li> <li>• Car pooling and car sharing</li> <li>• Efficient freight transport</li> </ul> | <ul style="list-style-type: none"> <li>• The development of new and clean technologies</li> <li>• Traffic restriction and green zones pedestrianisation, speed limits,</li> </ul> | <ul style="list-style-type: none"> <li>• Intelligent Transport Systems (ITS) and urban traffic management</li> <li>• Smart urban charging systems, better traveller information</li> </ul> | <ul style="list-style-type: none"> <li>• Innovative solutions</li> <li>• Intermodal terminals for collective transport, and good links</li> <li>• An appropriate and improved legal framework.</li> </ul> | <ul style="list-style-type: none"> <li>• Behaviour change and strict enforcement of traffic rules</li> </ul> |

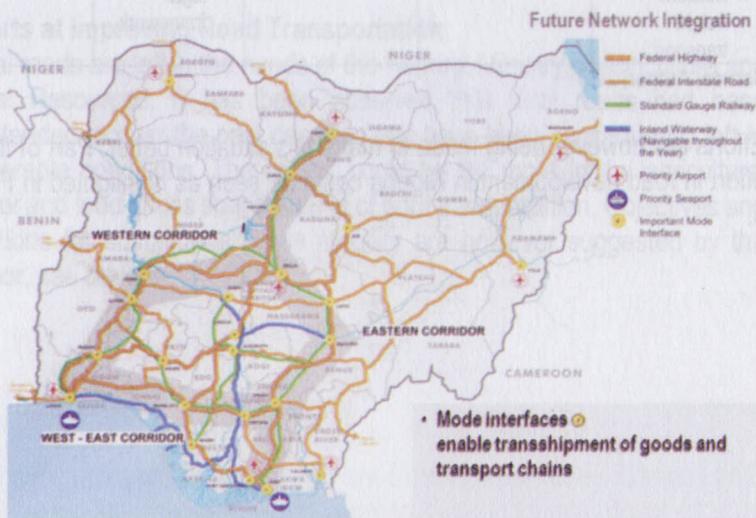
Source: Author, 2017

Efforts are however being made to make this situation better. Part of this effort in road development in Nigeria could be seen as highlighted in Fig. 5.



**Fig. 4: East-West Road Dualisation Project**  
Source: Fieldwork, 2016

Fig. 4 shows the East-West Road dualisation project but, we are yet to appreciate the East-West Railway necessity.



**Fig.5: Proposed Modal Interface**  
Source: Fed Min. of Transportation, Abuja (2015)

## Unlocking Road Traffic Congestion Gridlock in Lagos and Safety Audits

Unlocking road traffic congestion gridlock, in Nigeria's city centres, especially Lagos requires rigorous land-use planning and compliance in urban centres; traffic control and enforcement; efficient traffic communication and information system; traffic management schemes e.g. pedestrianisation of shopping areas and one-way system; vehicular access restrictions to the Central Business Districts (CBDs); road pricing and parking management; and public transport improvement with modern fleet. On road safety, it is of fundamental interest to understand **where, when, why** and **how** road accidents occur. In this regards, Mr. Vice Chancellor Sir, I have successfully carried out two different studies systematically, formally and independently for FRSC to ensure that unsafe features are not introduced into new schemes; they are: (1) *understanding of road traffic signs and symbols*, and (2) *road furniture assessment on Nigeria's major highways*.

## INTERVENTIONS

### Manpower Training and Research Issues

Training and research in transport have not received adequate attention in Nigeria even though there are institutions dedicated to transport training. However, there have been complaints of paucity of training equipment and funding by these institutions. For some skilled manpower in the transport sector, the country still depends on overseas training for technical expertise, especially in the aviation and maritime sub-sector, our seafarers are not well rated internationally.

### Contributions to Human Resource Development in Transportation

Transportation Programmes in UNILAG are coordinated under my supervision. They include Master in Transportation Planning and Management (MTP&M) programme, Advanced Diploma in Shipping, Ports Administration and Management, Advanced Diploma in Transportation Logistics and Management, and B.Sc. (Hons) Transport and Logistics by Distance Learning Institute (In View). They have contributed significantly to the development of the Nigerian transport industry through scientific research, training and policy formulation in the maritime, aviation, rail, road sub-sectors. They have also further enhanced the linkages between theories, practices and management skills. Mr. Vice-Chancellor Sir, I have

supervised successfully 9 Ph.D. graduates, 3 others are about to defend their theses while 3 are on-going respectively as listed below.

### Ph.D. Graduates Supervised (9)

| S/N   | Names   | Thesis Topic & Year Of Graduation   | Current Organisation                                 |
|---|---|---|--|
| 1.  | Auwalu Farouq Ph.D. (Deceased)                | "Crude Oil Transportation in Nigeria" (2004)  | Nigeria Customs Service                              |
| 2.  | Samuel G. Odewunmi Ph.D. (My First Professor) | "Transportation of Solid Waste in Lagos Metropolis" (2005)  | Dean, School of Transport, LASU                      |
| 3.  | Abimbola Odumosu Ph.D.                        | "A Study of Bus Transport Service in Lagos" (2005)  | Director, NIIT, Zaria.                               |
| 4.  | Charles Asenime Ph.D.                         | "A Study of Inland Waterway Transportation in Metropolitan Lagos" (2008)  | Senior Lecturer/ Sub-Dean, School of Transport, LASU |
| 5.  | Tunji Odeleye Ph.D.                           | "A Study of Road Traffic Congestion in Selected Corridors in Metropolitan Lagos" (2008)                           | Director, NIIT, Zaria.                               |
| 6.  | Vincent Olatunji Ph.D.                        | "Dynamics in Public Transport Provision and the Operations of Two-Wheeled Transport in Metropolitan Lagos" (2008) | Former Ag. DG., NITDA                                |
| 7.  | Emmanuel Ege Ph.D.                            | "Intercity Passengers Bus Terminal Locations in Lagos" (2009)   | Senior Lecturer, UNILAG                              |
| 8.  | Kayode Olagunju Ph.D.                         | "Motorcycles: Para-Transit Mode and its Safety Implications in Adamawa State, Nigeria" (2009)                     | Assistant Corp. Marshal, FRSC                        |
| 9.  | Kemi R. Ojekunle (Nee Okanlawon) Ph.D.        | "A Study of Rail Mass Transit in Lagos and its Environs" (2009)   | Senior Lecturer, UNILAG                              |
| <b>Ph.D. Students about to Defend their Theses and On-Going</b> |   |   |  |
| 1   | Kemi Amure                                    | An Evaluation of BRT Lite Operations in Lagos Metropolis  |  |
| 2   | Mark Oyewo                                    | Civil Aviation Operations and Safety in Nigeria   |  |
| 3   | Umoh Edemeka                                  | on Split-Sight Ph.D. Programme with Institute of Transportation, Leeds University, UK.                            | Former Chief Pilot Aero-Contractors                  |

| S/N | Names               | Thesis Topic & Year Of Graduation | Current Organisation |
|-----|---------------------|-----------------------------------|----------------------|
| 4   | Taofeek Hammed      | On-going                          |                      |
| 5   | Richard Aisuebeogun | On-going                          | Former M.D. FAAN     |

### Contributions at Departmental Headship Level

1. 'Operation catch them young' to save the study of Geography at higher education from extinction is now yielding fruits, through mentorship, symposium and seminar workshops. In addition, "**Iyiola Oni Prize Award**" is offers to the best Geography students in SS I, SS II and SS III at the International School, UNILAG.
2. Promoting scholarships and mentoring through regular Ph.D. seminars, conferences and introducing new journals in the department.
3. With the grace of God, under my headship at the departmental level, we were able to nominate 5 professors at once for emeriti professors and 3 were made, viz.: Profs. I.A. Adalemo, Peter Adeniyi and Lekan Oyebande, the first of its kind in the University.
4. Association of Nigerian Geographers (**ANG**) National Conference was initiated and hosted successfully by the Department in 2016.
5. Brought about student employment and career initiatives which have been yielding enormous result nationally and internationally; and also student split-sight Ph.D. supervision with the Center for Transportation Studies, University of Leeds, UK.
6. Excellent relationship between Geography Department and other departments such as Urban and Regional Planning, and Architecture which was able to produce young scholars like Omoyena Yar Adua (**UN-HABITAT**, Nairobi, Kenya) and Dr. Paul Obi respectively.

### Contributions at the Faculty Deanship Level

1. The Faculty of Social Sciences (FSS) is endowed with human capital and multiple skills of which I have been harnessing using modern technology to produce competent graduates, a typical example is Ayodele Dada who had a score of **5.00** over **5.00** 'a perfect score', first of this in UNILAG's history.
2. With our e-learning and resources, we are trying to develop a digital and smart faculty and probably the first of an *all-encompassing* Social Science Research Laboratory (**SSRL**) in Nigeria. National

Information Technology Development Agency (**NITDA**) is strongly supporting the Social Science Research Laboratory with necessary infrastructure and resources.

3. FSS is being repositioned through drive and self-determination to be international, self-sustaining and leader-in-academic excellence as well as professional growth. This is evident from our internationalisation drive, and collaborative relationship with United Nations Institute for Training and Research (**UNITAR**), Kennesaw State University, USA, University of Leeds and Coventry University (UK); Carlton University in Ottawa and University of Saskatchewan in Saskatoon (Canada).
4. Our core actions have geared towards accelerated development through inclusive innovation and transformational leadership as evident in the rejuvenation drive in the faculty with beautiful landscaping and superb environment congenial for academic exercise.
5. Faculty library development - we have established a Road Safety Section in the faculty library and encouraged our past Deans/Professors to contribute some of their collections to the faculty Library. Some of our senior colleagues who have responded include Profs. Siyanbola Tomori and Isaac Ayinde Adalemo.
6. Initiation of the *Unilag Workstation* through Federal Road Safety Corps (**FRSC**), Motor Vehicle Administration (**MVAA**) and Vehicle Inspection Service (**VIS**) for **drivers licensing** and **motor vehicle documentations**; with the fullest support of FRSC management.

### My Modest Contributions to Technical Surveys in Nigeria's Transport System and Lagos in Particular

Mr. Vice-Chancellor Sir, I could remember vividly that I have provided by professional support on at least 50 transportation/traffic technical surveys in Nigeria, from 1988 to date.

| S/N | Technical Surveys  |
|-----|--|
| 1   | Transport Parastatal Studies (TRAPARS) – World Bank Assisted Project for the Federal Ministry of Transport, Lagos, Nigeria – <b>1988</b> |
| 2   | Transportation Inventory and Analysis in Lagos Afro Planning Consulting Group - 1988/89 for the World Bank – <b>1989</b>                 |
| 3   | 'Commercial Motorcycling in Nigeria'? for Federal Urban Mass Transit Agency (FUMTA) - <b>1991</b>  |

| S/N | Technical Surveys  |
|-----|--|
| 4   | Land Use Planning for Transport and Traffic Planning in the Abuja Region (FUMTA) – <b>1992</b>   |
| 5   | A Study of Informal Cross Border Trade in 14 West African countries –the World Bank – <b>1992</b>  |
| 6   | Transportation/Traffic Survey of Akuku-Toru Local Government, Rivers State - the World Bank - <b>2002</b>  |
| 7   | Regulatory Framework for Road Transportation in Nigeria for Federal Ministry of Transport Land Transport Department – <b>October, 2005</b>   |
| 8   | Transportation Infrastructure and Traffic Survey of Pilot Bus Route Scheme (Iyana-Ipaja/Ikotun/Ijegun Road, Lagos), Lagos Metropolitan Area Transport Authority (LAMATA)/World Bank – <b>October, 2005</b> |
| 9   | Technical Advisor, Iddo-Agbado Light Rail Project – <b>June, 2006</b>  |
| 10  | Household Survey and Traffic Demand Surveys - LAMATA/World Bank – <b>July, 2006</b>  |
| 11  | Transport Cost Recovery Study in Lagos State - Alpha-Beta Consulting Limited – <b>February, 2007</b>   |
| 12  | Establishment of Traffic Management Units (TMUs) in Ikeja and Alimosho Local Government Areas of Lagos State, LAMATA / Lagos Urban Transport Project (LUTP)/World Bank – <b>April, 2007</b>                |
| 13  | Preparation of Traffic Operations Manual (TOM) for Urban Roads in Lagos, LAMATA/ World Bank/Parkman Ltd; Kaduna - <b>May 2007</b>  |
| 14  | Household Survey and Demand Surveys on Ferry Services in Lagos Metropolitan Region Royal Haskoning, The Netherlands – <b>2007</b>  |
| 15  | Integrated Databank Generation for the Nigeria's Aviation Sector, Federal Ministry of Aviation, Abuja – <b>October, 2007</b>   |
| 16  | An Investigation of Transport Investment Opportunities in Nigeria - Federal Ministry of Transportation, Abuja – <b>2007</b>  |
| 17  | Establishment of Road Regulatory Agency for Nigeria ( <b>NARTA</b> ) - Federal Ministry of Transportation, Abuja – <b>December, 2007</b>   |
| 18  | National Transport Surveys and Projections (Phase 1) - Federal Ministry of Transportation, Mabushi, Abuja – <b>December, 2007</b>  |
| 19  | Generation of Time Series Data on Motor Vehicle Statistics in Nigeria - The Honourable Minister, Federal Ministry of Transport, Abuja - <b>2007-2008</b>   |
| 20  | Household/Origin–Destination for the Development of Lagos Transportation Master Plan Survey, Lagos, Nigeria - ROM Transportation Engineering Co. Ltd., - <b>February, 2008</b>                             |
| 21  | Household Survey Traffic Count Blue Line Rail Project on Okokomaiko to Marina (OM) LINE (01170) - CPCS Transcom International Ltd., Bridgetown, BARBADOS and Canada - <b>May 2008</b>                      |
| 22  | Follow-Up Assessment to the Baseline Survey of Transportation Infrastructure in Metropolitan Lagos, LAMATA/World Bank - <b>2007</b>  |
| 23  | National Inventory on Road Furniture on Nigerian Roads: Its Impacts on the Driving Culture of Nigerians - Federal Road Safety Corps (FRSC) - <b>Feb-June, 2008</b>   |
| 24  | National Consultant (Urban Engineer) for the Preparation of Structure Plans/Urban Profiling - Nassarawa State UNCHS–Habitat - May – <b>September, 2009</b>   |

| S/N | Technical Surveys  |
|-----|--|
| 25  | Inventory and Mapping of Blighted Road Sections on Selected Nigerian Roads: Lagos-Badagry, Sagamu-Ore-Benin and Abuja-Kaduna - Visinoni Stabilini Ltd/ Bi-Courtney Highway Services Ltd. – <b>2008</b>                                 |
| 26  | Environmental, Traffic and Socio-economic Impact Assessment and Regulation/ Follow-Up Survey of East-West Road (Warri-Port-Harcourt-Eket-Oron Road – <b>2009</b>   |
| 27  | An Assessment of Impact Regulation / Follow-up Survey and Traffic Impact Assessment on Oshodi Market and evolving strategies for effective Traffic Flow for Lagos State Metropolitan Transport Authority (LAMATA) – <b>March, 2009</b> |
| 28  | National Consultant (Urban Engineer) for the Preparation of Structure Plans for Nassarawa State Government – <b>May – September, 2009</b>  |
| 29  | Follow-Up Assessment to the Baseline Survey on All LAMATA Road Rehabilitation and Periodic Contracts, Lagos State Metropolitan Transport Authority (LAMATA) – <b>June, 2009</b>  |
| 30  | A-24hour – 7-Day Traffic Count Survey on Lagos-Ibadan Expressway for Toll Gating/Collection- Bi-Courtney Highway Services Ltd. – <b>2009</b>   |
| 31  | Traffic Count, Vehicle Occupancy and Origin-Destination Survey, for Lagos-Badagry Master Plan - Dar-Al-Handassah, - <b>October, 2009</b>   |
| 32  | Traffic Impact Assessment of Lekki Free Trade Zone - Oilfield Environmental Support Services Limited (OESSL) – <b>October, 2009</b>  |
| 33  | Environmental Evaluation Studies of Ilorin International Airport – Federal Airport Authority of Nigeria (FAAN) – <b>April, 2010</b>  |
| 34  | Traffic Count and Traffic Modelling on Lagos-Ibadan Expressway for Toll-Determination – <b>2010-2011</b>   |
| 35  | A Traffic Survey of Sagamu-Ore-Benin Expressway - ENL Consortium Apapa, Lagos – <b>2011</b>  |
| 36  | Urban Profiling of Ifako-Ijaye Local Government Area, Lagos – <b>November, 2011</b>  |
| 37  | Environmental Evaluation Studies of Zaria Airport, Kaduna State by Federal Airports Authority of Nigeria (FAAN) – <b>December, 2012</b>  |
| 38  | Truck and Tanker Drivers' Behavioural Analysis in Apapa, Lagos State for ICAP (Phases I and II) – <b>March, 2012 and October, 2013</b>   |
| 39  | Road Safety Audit on Some Sections of Lagos-Ibadan (Berger) Ministry of Transportation, Lagos State – <b>2013</b>  |
| 40  | National Consultant (Urban Engineer) for the Preparation of Structure Plans for State of Osun Government – <b>September 2013</b>   |
| 41  | Implementation of Resettlement Action Plan (RAP) for Mile 12-Ikorodu Town Bus Rapid Transit (BRT) Scheme, for Lagos State Metropolitan Transport Authority (LAMATA) – <b>March, 2013</b>   |
| 42  | National Roadmap for ICT Deployment in the Nigeria Transport Sector for National Information Technology Development Agency (NITDA) – <b>May, 2014</b>  |
| 43  | National Roadmap for ICT Deployment in Tourism and Culture in Nigeria Contract by National Information Technology Development Agency (NITDA), Federal Ministry of Communications, Abuja – <b>June, 2015</b>                            |
| 44  | The Development of Federal Road Safety Commission in Nigeria, 1988-2015 for Federal Road Safety Commission (FRSC) – <b>May, 2015</b>   |
| 45  | Gap Analysis of ICT Needs in Nigeria Universities for National Information Technology Development Agency (NITDA) – <b>September, 2016</b>  |

| S/N | Technical Surveys   |
|-----|---|
| 46  | Level of Understanding of Road Signs and Markings by Nigerians: A study of selected Cities in Nigeria for Federal Road Safety Commission (FRSC) |
| 47  | Historical Development of FRSC in Nigeria with Prof. Ademola Adeleke, a Professor of History / Current DSA, UNILAG – <b>2016</b>                |
| 48  | Review of FRSC Policy Order and Research for Federal Road Safety Commission (FRSC)  |
| 49. | Establishing an Alternative Route (New Ring Road) for Ibadan and Environs – ENL Consortium - <b>2017</b>  |
| 50. | Developing an Intelligent Transport System (ITS) for Lagos Megacity – <b>2017</b>   |

Mr. Vice Chancellor Sir, please permit me to emphasize some specific projects:

### 1. The Oshodi Traffic Project

Oshodi is one of the hubs of commercial activities in Lagos and reputed to be one of the most difficult places to transit. Here, the traders use the **Right-of-Way** of the major highway and railway line as market and for marketing activities. The indiscriminate use of market and disorderliness in marketing operations spills over on the road system, and disrupts traffic flow and grounds it to a halt most of the times. Traffic System Management (TSM) technique was adopted in bringing about sanity by taking back the right of way and discontinued with the commuters crossing the road.

### 2. National Transport Survey Plan (NTSP)

This study provided a comprehensive database for transport planning and a long-term perspective plan for the Nigerian transport sector. Adequate and sound database for transport planning and forecasting, and a clear understanding of the existing conditions with a view to planning for the future was provided. The following studies were carried out under the **NTSP**: An inventory of a comprehensive survey of the different modes of transport with specific reference to: quantity and quality of transport infrastructure and facilities by mode (road, air, water, rail and pipeline); transport system operation with reference to activity level, coordination and organisation; traffic volume and distribution; origin and destination survey and movement pattern as a scientific basis for future prediction of traffic and consequent infrastructural facilities required.

### 3. Traffic Operation Manual (TOM)

The Traffic Operator's Manual (TOM) is a 465-page report that assures effective and efficient planning, organising and coordinating the inventory of maintenance plan, as well as guaranteeing safety. The manual is for exclusive use by highway engineers, road designers and engineers, administrators, insurance companies, departments of motor vehicles and traffic law enforcement. The safety of all Nigerians and Lagosians in particular relies on it. Every stakeholder should work from the same rulebook.

### 4. Drink-Drive Survey on Petroleum Tanker Drivers

In an attempt to reduce the harmful effect of drinking in Nigeria, international research programmes were carried out by me with the support of **International Centre Alcohol Beverage Producers and Organisation (ICAP)** between March and June, 2012, as well as between August and October, 2013. These researches launched Global Actions on Harmful Drinking.

The survey investigated drink-driving amongst trailer and tanker drivers in Oil Depots in Apapa, Lagos State. See plate 19. The result concluded that many drivers had only a thin knowledge about the effects of alcohol on the ability to drive safely, the legal limits and the consequences of driving above the limit.



Plate 19: Showing an FRSC Official testing the BAC level of a driver with the Breathalyzer at Mobil Depot Apapa  
Source: Fieldwork, 2013

### 5. Unlocking Gated-Streets / Disuse of Street Roads for Socio-Cultural Events

Roads within residential areas which serve as feeder routes are gated and padlocked thus, forcing traffic to move only on major roads with consequent traffic congestion. In response, surveys were carried out and the results generated the need to open the gates for traffic to flow. See plate 20 above.

### 6. Transportation Roadmap for ICT Integration

This report presented a roadmap for the institutionalisation and integration of ICT application and as a reference model for ICT solutions deployment in Nigeria's transportation system for economic growth and sustainable development. The study emphasised adequate integration of ICT into all transport agencies operations for enhancing the functioning of their various components that include computerised booking and ticketing systems, tele-conferencing and management information system, etc. It identified **action plans** for system improvement within the transport sector.

### 7. Establishment of Traffic Planning Units (TPUs) in Ikeja and Alimosho Local Government Areas of Lagos State

This was a study on 'establishing a functional Traffic Planning Units (TPUs) in the Ikeja and Alimosho Local Government Areas' in a participatory manner. The report showcased what a TPU should do and the method of operations. The report could be used to establish the same for other urban local governments in Nigeria. The established structure and ideas would form a basis for further investigation and improvement as a benchmark for local government traffic management schemes. They are expected to be responsible for the effective traffic management of local government roads hierarchy in their respective areas, and go on to prepare and implement appropriate traffic management plans for their areas. TPU's capability should include the ability to manage on-street parking, junction treatments, provision for non-motorised traffic movements, accident remedial and road safety measures, and traffic and accidents data collection and analysis.

This report advocates that all urban local government areas should establish a **TPU** for efficient traffic flow and enhanced safety on the road.

## 8. The Study of Mile 12-Ikorodu Traffic Corridor for the Extension of the BRT Services

This was the Resettlement Action Plan (RAP) study for the Mile-12 to Ikorodu Town BRT Route Development Project. The report was generated from the detailed studies and analyses of data on the characteristics of people and assets that were to be affected by the proposed project. This report becomes very useful as a benchmark / best practice to design similar projects.

## 9. A Study of Pilot Bus-Franchise Scheme on the Iyana-Ipaja-Ikotun Bus Corridor

The current bus system has been characterised by poor bus speeds and service frequency, longer waiting-time between buses, poor passenger comfort, lack of information on bus destinations and schedules, minimal access and poor coverage at the fringes, as well as un-guaranteed safety of passengers. A pilot project for financing and provision by the private sector of improved quality bus service was prepared at the instance of LAMATA. Changing these trends and moving toward more sustainable transport was imperative. Consequently, bus operations along the corridor were dramatically improved.

## 10. Generation of Time-Series Data on Motor Vehicle Statistics in Nigeria

This study generated time-series data and its analysis on motor vehicle statistics in Nigeria, which became necessary since data collection forms the bedrock of planning. The study was able to show the volume of vehicles in some States in Nigeria.

### Institutional Reforms

The objectives of the reforms in the transport sector are intended to improve service delivery in the sector; rejuvenate institutional structures; delineate policy functions, regulations and implementation of works and services; and involve the private sector in financing and managing the sector through Public-Private-Partnership (PPP). However, in many cases, the enabling legislation has been drafted, but is yet to be presented to the National Assembly and enacted. The creation of the **National Transport Commission** as the economic regulator in the transport sector and the creation of the Federal Roads Authority are very crucial reforms which will

be critical in the implementation of the improvements needed to achieve the transport component of Vision 2020. It is important to ensure that these new institutions have the skills and resources to manage the planning, financing, regulation and operation of services across the sectors.

Other activities include:

- ❖ Reviewing and strengthening the enabling transport policy and transformation of institutions;
- ❖ Constructing a focused transport development with benchmarks and feedback mechanisms for measuring her progress and continuous appraisal of transportation development strategies and the changing role of the state in the development process.
- ❖ Implementing plans and policies enhancement.

### Suggestions and Recommendations

- i. Generate sound and reliable data (land-use, standardization and institutional definitions) which form the empirical basis for good transport policy making.
- ii. The deployment of non-transport solutions to the mobility problem by restructuring the land-use such that the demand for transport services is diffused throughout the various parts of the urban systems, and **staggering of working-hours** with improved ICT and telecommunication services.
- iii. Institutionalisation and intensification of effective **traffic system management** schemes (TSM) for Nigeria's urban centres, particularly Lagos megacity.
- iv. There is an urgent need to develop **mass transit policy** that is smooth, safe, secured, comfortable, efficient and affordable by all groups of users; especially the use of the railway system for intra, inter and regional transport system's sustainability.
- v. Rural Accessibility improvement through massive investment, especially on roads and other means of movement should be given adequate attention.
- vi. Non-motorised transport forms the start of a journey, therefore, urban transportation should consider pedestrianisation in urban mobility planning.
- vii. Parking policies require an enabling environment for full private sector participation that sees parking as serious financial investment; while enforcement on car parking standard

- requirements for high-rise buildings and high traffic generating land uses should be strictly enforced.
- viii. Transport restructuring essence must ensure a fully integrated system that relies on all modes of transportation complementing rather than competing against one another, with enforcement measures, and proper accident reporting and training of commercial motorcyclists if we cannot eradicate them.
  - ix. The Federal Government Draft National Transportation Policy should be made open and implemented to ensure the overall development of the transport sector for the benefits of the people and the economy. There should be adherence to business principles and sustainable development of the transportation industry, with proper restructuring.
  - x. The Federal Government should complete the road sector reforms, and establish a road authority and a road fund to enhance best world practice in the administration of road network development and management in the country; and should ensure the approval of the **tolling policy** so that some of the major dual carriage-ways can be concessioned for maintenance and tolling.
  - xi. The Federal Government should invest massively in transportation and terminal infrastructure, leveraging on private-sector investments, especially in **first order cities** such as Lagos, Port Harcourt, Kano etc. to deliver critical projects, such as roads, rails, seaports and airports, as well as their integration structures.
  - xii. Finally, all the existing modes and relevant institutions – road, rail, aviation, pipeline and maritime sectors must work together as a whole for optimal utilisation of the system.

### Conclusion

Mr. Vice-Chancellor Sir, kindly permit me to conclude this lecture; the starting point for transport restructuring in Nigeria therefore, is the generation of sound, qualitative and up-to-date data. Without this, research, planning and development in this sector will only continue to be guesswork, and planning would continually be done on erroneous scales. An effective, efficient, coordinated and integrated multimodal transportation system is the ultimate for a sustainable Lagos megacity and Nigeria's development.

This presentation has further synthesised the contemporary problems in rural, intra-urban, inter-urban and regional travels. It has also provided an enduring and sustainable framework towards achieving liveable urban, rural and regional transportation and modal systems in a coordinated and integrated manner. Therefore, a structure must be put in place with appropriate comprehensive guidelines and necessary infrastructure.

The resultant derivative of our restructuring and transformative model prognosis will be mobility sustainability, higher living standards, and fuller employment of resources, reduced income inequality and poverty, and consequently heightened economic growth rates and social development. Mr. Vice Chancellor Sir, I wish to submit that a restructured, smart, integrated and coordinated transportation system with alternative energy sources will assist in bailing Nigeria out of her current recession, when we implement the entire adduced strategic management plan underscored above.

## Acknowledgement

First and foremost, I return all honours, praises and adoration to my creator, who is the fountain of all knowledge and wisdom. I owe the greatest debt of gratitude to the Almighty God, who spared my life to see this day. I glorify God for the great things He has done in my life.

Mr. Vice-Chancellor Sir, distinguished ladies and gentlemen, I would like to express gratitude to all those who have immensely contributed in one way or the other to my transformation from an Ilesa boy to Ibadan boy and now a Professor of Transportation at the University of Lagos, the University of First Choice and the Nation's Pride. Those people are too many to enlist. I feel honoured and grateful by the presence of **all** who have come from far and near to listen to this Inaugural lecture. May God repay you abundantly.

I thank God for my wonderful, loving and most caring Grandmother – Late Madam Marian Olamiju Onigbogi who set me on the right track and did not turn me to a house-help when my parents were abroad. She taught me to be persistent and resilient and gave me the fullest support for my early childhood education. I remain indebted to my parents – my inspirational father and lover of peace late Mr. Micheal Olaosebikan Oni and my mother Madam Elizabeth Modupeola Oni – a teacher par excellence and very strict disciplinarian whose passion in life was to see her children well educated. To my siblings Barrister Ayotunde Oni and Mr. Oluwaseun Oni and my cousin Mr. Niyi Agbetusin; I say thank you all for your constant, unfailing support and love. To all my extended family, my in-laws Mr. Ayoade Adeniji and Mama Adenike Adeniji and other Adenijis, the Adeugas, the Coles and the Ogunlelas, especially Mr. Bode Ogunlela, I say thank you. My uncle, Mr. Olanrewaju Onigbogi, I salute you sir for always believing in me that I will reach the peak of my career.

My teachers in the primary school – Holy Trinity Omofe 'B', Ilesa in particular Mrs. Mary Owoeye and Late Mrs. Hannah Osunloye gave me a solid foundation in life. I am greatly indebted to my secondary school teachers, most especially, Mr. Coker who taught me Geography at Ilesa Grammar School with great penchant for geographic studies and impacted me for a life-long career in Geography, also, Dr. James Oludotun who taught me modern mathematics at an early stage and Prof. Peter

Okebukola, my Biology teacher in Ilesa. At the University of Ibadan, where I was moulded into a scholar – researcher, I was privileged to train under late Prof. M. O. Filani (the doyen of Transportation) who inspired me to love Transportation Geography. At the University of Lagos, where I earned my higher degrees, Profs. Nurudeen Alao, Isaac Ayinde Adalemo, Peter Adeniyi, D.A. Oyeleye, J.O. Arikawe, O.Y. Balogun, Jonathan Ekpenyong, etc. trained me. I am very grateful. I salute my former Vice-Chancellors, in particular Prof. Oye Ibidapo-Obe and Late Prof. Babatunde Sofoluwe.

I thank the Vice-Chancellor, Prof. Rahamon Adisa Bello and the three Deputy Vice-Chancellors – Profs. Toyin Ogundipe, Ben Oghojafor and Sade Ogunsola and all other members of the University management.

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I acknowledge the impact of the past Deans of Faculty of Social Sciences in moulding younger ones like me: Profs. Siyanbola Tomori, Michael Adejugbe, Lai Olurode, Tunde Makanju and Omololu Soyombo. I am very grateful to all the academic and non-teaching staff of Faculty of Social Sciences including the Head of Departments - Profs. Brown Onuoha,

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**TOPIC:**

**A SPATIO-TEMPORAL  
RESTRUCTURING OF  
TRANSPORTATION SYSTEM  
IN NIGERIA**

**By**

**PROFESSOR SAMUEL IYIOLA ONI**

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