

# CONTEMPORARY ISSUES IN TRANSPORT DEVELOPMENT IN NIGERIA

Editors

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# Contemporary Issues in Transport Development in Nigeria

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# ATTITUDE TOWARDS PUBLIC TRANSPORT INFRASTRUCTURE USE AND MAINTENANCE IN NIGERIA

By  
Olusiyi Ipingbemi

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## Abstract

Infrastructure is indispensable to the socio-economic development of any nation. Transportation infrastructure is even more critical because the functioning of other infrastructures depend on it. However, the condition of some of the transport infrastructure particularly public transport infrastructure is appalling due to neglect, poor maintenance and the attitude of the citizens using them. For instance, refuse are dumped into drains, walkways converted to parking lots while road shoulders serve as platform for drying food stuffs, especially in rural communities. Roads are cut for water pipes, electricity and mobile phone cables without adequate repair. This aggravates the spate of deterioration of these facilities. The runways, rail tracks and jetties are not left due to long years of neglect. The paper calls for shared responsibility among the citizens, community and government in ensuring adequate maintenance of public transport infrastructure in Nigeria.

## Introduction

Infrastructure comprises of water, health, transport, and power among others. The provision of infrastructure is widely regarded as indispensable to economic development. The World Development Report (2004) observed that infrastructure supports economic growth, reduces poverty and makes development environmentally sustainable. In any society, infrastructure plays a pivotal role in determining the overall productivity and development of a country's economy, as well as the quality of life of its citizens.

Central to these various infrastructure is the transport infrastructure. Transport infrastructure is the platform that facilitates the movement of goods and persons within and between different land uses. The infrastructure includes the right of ways over which travels occur; the signal systems that control flows, terminals and other facilities required to operate and maintain the transportation systems. It also includes the routes and schedules that govern the operation of services and procedure for operating the system (Vandu-Chikolo, 2004). Transport infrastructure is as complex as the city and the types of modes of transport that service it. This is because different modes have different but complimentary facilities. According to Conor (1993) the transport infrastructure needs of any city



may include among other bus terminals, bus shelter, rail tracks, escalators and elevators, depots, as well as security systems.

However, in Nigeria the condition of most transport infrastructure (such as road and its furniture, jetties, rails as well as runways, tarmac and apron) is in deplorable condition due to neglect, poor maintenance as well as the extremely poor attitude of citizens to the use or maintenance of transport infrastructures. It is not uncommon to see people throwing refuse into the drains and turning the walkways and road shoulders to parking lots and street trading. This aggravates the spate of deterioration on these facilities. Also, road furniture and rail tracks/equipment are sometimes vandalized or stolen by members of the public. Similarly, the framework for preventive and routine maintenance of transport infrastructure is weak; hence response to maintenance needs is deeply worrisome. Maintenance plans, even when in place are hardly adhered to, until sometimes a small pothole on the road degenerates into trenches. This paper considers the attitude of all stakeholders (providers and users) to the use and maintenance of public transport infrastructure, the problems and challenges arising from this and the way forward. This introduction is followed by sections on the concept of maintenance, infrastructure (specifically on transportation infrastructure) and the attitude of the public to transportation infrastructure use and maintenance. The paper concludes with some recommendations.

### **The Concept of Maintenance**

Maintenance involves the tasks and processes carried out to preserve, restore or improve a system or an asset with its elements to sustain its utility and value. It is a work done in anticipation of a failure or after the failure. It is a combination of any action carried out to retain an item in or restore it to an acceptable standard. It has to do with the totality of activities embarked on to sustain the performance or functionality of a given property/asset/infrastructure with the aim of prolonging its useful life, at optimal capacity and minimum cost, so as to yield maximum benefits to the owner. According to Bello (1999) maintenance is the entire endeavour to keep physical facilities – structures, equipment, machinery and services at a satisfactory level of technical performance and quality of the lowest total cost. It is the gamut of activities involved in keeping an infrastructure in a state to continue to fulfill its functions effectively and safely. It involves the planning and coordination of activities geared towards keeping and or restoring asset to peak performance.

British Standard Institution (1984) categorized maintenance into planned and unplanned. Planned maintenance is described as the maintenance work organized and carried out with forethought, control and the use of records to a



predetermined plan, while on the other hand, unplanned maintenance work is the work carried out with no predetermined plan. With respect to planned maintenance, it can also be categorized into preventive and corrective maintenance. Preventive planned maintenance covers work carried out or directed at prevention of failure of facility so as to ensure its continue efficient operation. It can also means all maintenance works executed in anticipation of facility failure. It is normally carried out at predetermined intervals or corresponding to prescribed criteria and intended to reduce the probability of failure on the performance degradation of an item (Oyebamiji, 2000). Maintenance plan and maintenance schedule are very crucial to preventive maintenance. Corrective maintenance is a type of maintenance activity carried out after a failure has occurred in order to restore the component to operation, or an acceptable standard. This may involve the replacement of damaged or deteriorated component(s) or to make a repairable component(s) serve longer. On the other hand, unplanned maintenance is referred to as maintenance work carried out without any predetermined plan. It is accidental and could also be described as a fire brigade approach to maintenance. Generally, maintenance prolongs the life span of the assets, reduces depreciation and saves cost and adds to its economic value.

### **Transport Infrastructure, Trade and Nigeria Global Competitiveness**

Infrastructure including transport infrastructure could be described as those components of the internal architecture of the economy which enables it to consistently grow and provide increasing improvement to the quality of life of the citizenry. Juma (2006) defined it as facilities, structures, associated equipment, services, institutional arrangements that facilitate the flow of goods and services between individuals, firms and governments. Infrastructure, therefore, includes among others public utilities such as power, schools, housing as well as transport with it usual modes such as roads, railways, ports, waterways and airports.

Extensive and efficient transport infrastructure is inevitable to the effective functioning of the national economy. The availability of efficient transport infrastructure is crucial to trade facilitation and economic developments, as transport infrastructure and services are essential for reaching world markets, strengthening global integration and attracting foreign investment. Freight transport and logistics service providers such as shipping companies, coastal and barging operators, stevedores, airline, air freight companies, toad haulage companies, train operating companies and many others depend on transport infrastructure (waterways, ports, airports, air and maritime navigation systems, roads, railways) and various kinds of intermodal transfer, storage and terminal facilities for service delivery (Vandu-Chikolo, 2004). The resultant transport costs



depend partly on the quality and capacity of the transport infrastructure used. World Bank (2008) noted that transport costs do not only include tariffs but many other hidden costs that affect free flow of trade among countries. Such hidden costs sometimes include excessive handling and storage costs due to poor terminals infrastructure; losses due to pilferage; deterioration and damage to goods as well as bribes paid to official. High transport costs magnify the impacts of distance and reduce trading opportunities. For example, a container shipped from Yokohama (Japan) to a town of 500km inland from a port in Mozambique is likely to cost more for the last 500km than the first 14,000km due to poor transport infrastructure (World Bank, 2008). It must be noted that the quality of transport infrastructure has implications on the logistics chains as well as on trade and the global competitiveness of any country.

World Bank (2006) observed that poor infrastructure impedes nation's economic growth and international competitiveness. For instance, poor infrastructure (basically from transport) was the second most problematic factor for doing business in Nigeria in 2010, accounting for 21.1% of the total problems (see figure 1). This hampered Nigeria global competitiveness as Nigeria dropped in ranking in global market from 99<sup>th</sup> position in 2009 to 127<sup>th</sup> position in 2010 (WEF Report, 2010). Also, compared with countries that had the same Gross Domestic Product (GDP) and GDP per capita in the 1960s, Nigeria is poorly ranked with respect to poverty rate and Global Competitiveness Index partly because of poor infrastructure. Table 1 shows that the poverty rate in Nigeria increased from 47% in 1975 to 70% in 1999 while that of Malaysia decreased from 65% in 1975 to 8% in 1999.

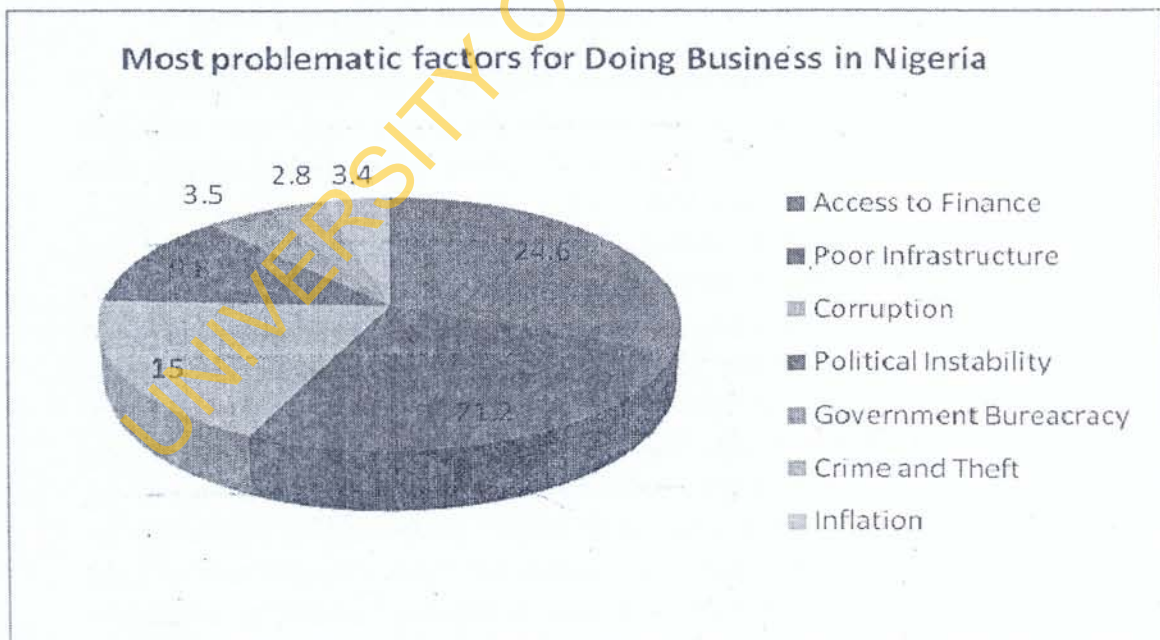


Figure 1: Most problematic factors for doing business in Nigeria

Source: WEF Report (2010)



**Table 1: Global Competitiveness of Nigeria**

Country	Year of Dev. Planning	GDP per Capita US \$		Poverty Rate		GCI
		1975	1999	1975	1999	
Malaysia	45	808	14,800	65	8	26
India	55	430	2,440	58	36	51
Singapore	40	2505	27,597	-	-	3
Indonesia	40	1504	2,046	60	14	44
Nigeria	15	454	325	47	70	127

Source: WEF Report (2010)

### Transport Infrastructure in Nigeria

Transport infrastructure is a vital socio-economic asset. It structures space and determines mobility. It influences trade flows as well as industrial and residential location. Efficient transport infrastructure, in terms of quantity and quality, acts as catalyst for the development of any nation. Effective transport infrastructure including quality of roads, rails, ports and air transport enable entrepreneurs to get their goods and services to market in a secure and timely manner and facilitate the movement of people from one location to another.

### Road Transport Infrastructure and its Furniture

The road infrastructure includes among others the carriageway, the pedestrian facilities, drainage system, culvers/bridges, street light installations, traffic signs and traffic islands. The network of road infrastructure in Nigeria grew from 3,200km in 1914 to 44,414km in 1951 and 193,200km in 2010 (Arosanyin, 2004 and FRN, 2010). This comprises of 34,123km of Federal roads, 30,500km of state roads and 129,577km of local government roads. The responsibility for the planning, developing and maintaining the nation's road infrastructure is shared among the three tiers of government. The Federal government is responsible for the highways which account for 17% of the road infrastructure. The state government takes care of intra-state roads which constitute 16% while the local government that is responsible for feeder roads overseas 67% of the total road infrastructure (FRN, 2010). Apart from the astronomical increase in the length of road in the country over the years, the share of road mode in the intermodal allocation of public investment over the years is higher than that of other modes as shown in table 2. The table shows that there has been steady increase in the

amount of public investment in the road transport sub sector. In addition, road has taken the lion's share of the overall public fund allocated to the road transport sector. However, in the rolling plans between 1996-1999 both road and rail transport almost received equivalent allocation.

**Table 2: Modal Distribution of Public Sector Planned Capital Investment in transport Sector.**

Plan Period	Road %	Rail %	Water %	Air %
1962-68 <sup>+</sup>	54	14	25	7
1970-1975 <sup>+</sup>	59	17	13	11
1975-1980 <sup>+</sup>	72	11	9	8
1981-1985 <sup>+</sup>	70	15	9	6
1990-1992*	70.14	14.03	7.24	8.60
1991-1993*	52.42	12.95	19.41	15.22
1993-1995*	59.65	6.23	15.91	18.21
1994-1996*	56.67	1.33	22.92	19.09
1996-1998*	40.23	42.16	15.98	1.62
1997-1999*	32.03	32.93	26.19	8.86

*Sources: Filani (2003); Extracted from Rolling Plans 1990-1999.*

*+ National Development Plans*

*\*Rolling Plans*

In spite of the huge public fund committed to road subsector, the condition of road infrastructure is still very deplorable due to high intensity of usage especially by heavy trucks and poor maintenance. For instance, the percentage of road infrastructure in poor condition increased from 23% in 1985 to 50% in 2001 and 85% at present (Ogunsanya, 2004; Foster and Pushak, 2011). With respect to paved primary roads in Nigeria, the percentage of the length of roads in good condition in the country decreased from 30% in 1991 to 15% in 2006 (World Bank, 2000; 2007). Furthermore, compared to some countries in Africa, Nigeria road condition can still be regarded as poor. Table 3 indicates that the percentage of paved road in good and fair condition in Nigeria in 2010 was 67.4% compared to Malawi with 85.5%; which also had 26.3% of her rural population within 2km of all season road, compared to Nigeria with 19.7%. Even more worrisome is the fact that only 33 percent of unpaved roads in Nigeria are in good or fair condition.



**Table 3: Comparative Analysis of Road Indices in Selected Countries in Africa**

Country	Road Indices		
	% of Paved Road in Good or fair Condition	% of Unpaved Road in Good or Fair Condition	% of Pop within 2km of all-season Road
Ethiopia	87.7	59.6	10.3
Malawi	85.5	89.4	26.3
Zambia	83.0	25.0	16.8
<b>Nigeria</b>	<b>67.4</b>	<b>32.9</b>	<b>19.7</b>

*Sources: Foster and Punshak (2011); Foster and Dominquez (2010); Foster and Morella (2010) and Foster and Shkaratan (2011).*

The problems of road infrastructure deterioration are apparently much more severe at the sub-national level. Oyesiku (2002) specifically studied the condition of roads in some cities in Nigeria. He found that out of the length of roads that were paved in cities of Ibadan, Zaria, Abeokuta, Uyo and Lokoja, only 30.2%, 38.2%, 32.1%, 38.6% and 48.3% were in good condition. Poor road infrastructure reduces public transport speeds, engender traffic congestions, reduce public transport productivity and increase the cost of vehicle maintenance. Also, rural accessibility remains a serious problem in Nigeria, with major repercussions for agricultural and rural development. The rural road infrastructure in the country is in more deplorable condition compared to federal and state road infrastructure. The quality of Nigeria's rural road infrastructure falls short of what is needed to service the rural economy. The indicators in table 3 are themselves evident that maintenance activities are not being adequately funded or implemented in the country. The poor attitude of different governments over the years towards road maintenance has resulted in serious road deterioration in the country with its attendant implications on Nigerian economy. For example, CBN (2002) estimated N133.5 billion yearly losses to Nigerian economy due to road deterioration. This represents about 5.5% of the GDP.

In order to curb the spate of road infrastructure deterioration in the country, the Nigerian government in 2002 established the Federal Road Maintenance Agency (FERMA) to address the problem of poor road maintenance. Similar agencies were directed to be established at state and local government levels. The objective is to have an institution that is solely responsible for road maintenance in the country. While FERMA has recorded modest achievements, its continue reliance on traditional budget allocations to fund road maintenance and rehabilitation could be disastrous. For instance, between 2001 and 2006, Nigeria spent just over



\$700 million on the federal network per year (Foster and Pushak, 2011). However, the authors noted that network simulations model indicated that a yearly budget of around \$580 million would be adequate both to maintain the federal network and to complete pending rehabilitation works within a five-year horizon. They further observed that the basic problem lied in the fact that only \$50 million per year has been allocated to preventive maintenance, compared to a benchmark requirement of \$240 million. The amount currently being allocated to maintenance is just about adequate for routine maintenance, but does not cover periodic preventive activities. In addition, at present, the FERMA governance structures and procedures are still overshadowed by public service norms, presenting an obstacle to the organization's independence, efficiency, and accountability.

Moreover, while some communities have shown much enthusiasm in assisting the government to maintain some road infrastructure in their domains, they sometimes lack the requisite technical knowhow and required funds needed to ensure the sustainable maintenance of road infrastructure. Similarly, unemployed youths have also been helpful in rendering road maintenance service through spot improvements on road sections that are extremely bad. Their efforts are sometimes rewarded by motorists.

Furthermore, the road furniture infrastructure helps in directing and providing information to road users. For instance, the traffic signs are the principal means of conveying information about the road to drivers and as the road becomes extensive the number of traffic signs increases. Similarly, guide rails and parapet rails are provided to protect road users. Guard rails to prevent vehicles from running over high embankments and parapet rails on bridges to safeguard pedestrians. Also, a well maintained drainage system is vital to successful operation of roads. The drainage performs specific functions; convey water from the carriageways to outfalls, control the level of water table in the sub grade beneath and intercept water flowing towards the road. Road shoulders are to provide lateral support for the carriageway. They also provide accommodation for stopped vehicles and on narrow roads provide room for passing vehicles. Aside this function, road shoulders are also used by pedestrians and cyclists. In the same vein, terminals such as bus stops and motor parks are to provide shelter and other conveniences for the commuters. However, the current condition of most of these facilities in Nigeria and other African countries is appalling due to misuse and poor maintenance.

Kumar and Barret (2008) provide a snapshot of the condition of public transport infrastructure and services in African cities thus;



“The road networks in all cities are substandard. Capacity is limited, service lanes are absent, pavement is deteriorating, and street lighting minimal. Bad condition reduces vehicle speeds, sapping the productivity of the bus fleet and increasing the cost of vehicle maintenance. The majority of the roads have one lane in each direction; where the roads are wider, one lane is often taken up by pedestrians and parked vehicles. Intersections are spaced closely together and are ill-designed for turning. Beyond these general failings, little attention has been paid to matter that facilitate the operation of public transport systems. Dedicated bus lanes are rare; or absent altogether. Bust stops, bus shelters and other facilities for passengers are scarce and in poor condition. Bus bays along the roads are narrow and cannot accommodate multiple buses so that one lane of the road is often obstructed by waiting buses”.

This situation above is not different from what we have in many Nigerian cities. For example, Ogwude (2011) reported that the Federal Road Safety Commission (FRSC) assessed the condition of some road furniture in 2002 and the results are shown in table 4. This shows that most of the road furniture in the country is in either fair or poor condition.

**Table 4: The Condition Of Some Road Furniture in The Country in 2002**

ROAD FURNITURE TYPE	LAGOS				ABUJA				IBADAN				KANO				ENUGU				PORT HARCOURT			
	N	G	F	P	N	G	F	P	N	G	F	P	N	G	F	P	N	G	F	P	N	G	F	P
ROADS			+			+						+				+				+				+
PEDESTRIAN FACILITIES			+			+						+	+				+				+			
BUS ROUTES			+				+					+	+				+							+
BUSWAY/PRIORITIES				+	+							+				+				+				+
BUS STOPS/			+				+				+				+				+					+

SHELTER																				
BUS TERMINALS/ LOCATION OF PARKS		+				+				+						+				+
SPEED BUMPS/HUMPS	+					+				+						+				+

Source: Adapted from Ogwude (2011)

Note:

N= NOT AVAILABLE; G= GOOD; F=FAIR; P=POOR.

### Rail Transport Infrastructure

The Nigerian railway system has the potential to provide efficient and cost effective means of transport particularly on long distance routes serving high density traffic flows. The network of rail lines in Nigeria is about 3,500km of narrow gauge. Due to poor maintenance of rail infrastructure, the railway system has deteriorated in all areas resulting in declining traffic and dwindling revenue (Adesanya, 2002 and FRN, 2010). Many of the lines and networks are characterized by low axle loads and low speeds as well as ill suited to modern requirements. Many structures and tracks are over 100 years old. Due to deficient performance and erratic service, traffic volumes have been on a long term decline from 3 million tonnes in 1960 to about 280,000 in 2006 (Adesanya, 1998; Ademiluyi and Dina, 2011). Similarly, passenger traffic has declined from 3 million to 500,000 per year over the same period. An assessment of some railways indicators for Nigeria and other African countries showed that Nigeria railways is still trailing other countries in terms of freight density, passenger km/coach and ton-km/wagon (see table 6). The failure of the government in the past to maintain rails tracks and its associated infrastructure may be responsible for the previous rail derailment and accidents in the country (see table 7).



**Table 6: Railways indicators for Nigeria and Selected African Countries**

Indicators	NRC (NIG)	GRC (GHANA)	OCBN (BENIN)	CAMRAIL (CAMERO OM)	SPOORNET (S/A)
Freight density,1000 tonne-km/km	15	242	148	1091	4319
Staff: 1000 UT per staff	37	84	40	603	3037
Coaches: 1,000 passenger km/coach	737	416	900	4738	596
Cars: 1,000 tonne-km/wagon	59	458	74	868	925

*Source: Adapted from Bullock (2009)*

*Note: UT= Unit Tariff*

**Table 7: Train Accidents**

Train Accidents	2004	2005	2006	2007	2008
Collisions	17	7	14	14	19
Derailments	55	31	19	35	50
Washout	4	3	7	19	7
Broken Rail	11	5	13	13	2

*Source: NBS (2009)*

### Sea Port Transport Infrastructure

The seaports infrastructure represents a complex structure in the country transportation system. It provides a ship-harbour interface (piloting, dredging, provision for berths); ship-port interface (loading and unloading of cargoes) and port-land (delivering cargo to and from the hinterland). Currently, the Nigerian Ports Authority (NPA) has 13 major ports, 11 oil terminals, 128 private jetties, 102 hard quay berths and over 650 different cargo handlings plants and equipment (FRN, 2010). In spite of the recent reforms in this sub-sector leading to the concessioning of some ports and terminals, the country is still struggling with port congestion resulting in high demurrage. Similarly, most of the roads that connect ports to hinterland are in a state of repair. As of 2006, the performance parameters

of Nigeria major ports were very poor by global standards. (see table 8). The global benchmark for container dwell time was around 7 days compared with 30 to 40 days in major Nigerian ports at that time. Similarly, for a truck cycle time, global best practices is on the order of one hour, compared with around one day in some Nigerian major ports. And for crane productivity, the figure for Apapa in 2006 was 12 moves per hour compared to 25-30 moves internationally (Ocean Shipping Consultants, 2009). The poor performance of Nigerian ports as well as its dwindling productivity stems in part from the dilapidated port infrastructure especially the cargo handling plants and equipment at the port.

**Table 8: Some Ports Indicators for Nigeria and some African Countries**

Indicators (Efficiency)	APAPA (NIG)	ONNE (NIG)	ABIDJAN (CV)	COTONOUN (BENN)	TEMA (GH)	DAKAR (SEN)	DURBAN (S/A)
Dwell Time in terminals (days)	42	30	12	12	25	7	4
Average truck processing time for receipt and delivery of cargoes (hr)	6	24	2.5	6	8	5	5
General cargo vessel pre – berth waiting time (hr)	36	6	2.9	48	9.6	24	-
General cargo vessel turn -around time	-	38	2.2	48	48	60	-
Crane productivity	12	-	18	-	13	-	25

*Source: Ocean Shipping Consultants (2009)*

### Inland Waterways Infrastructure

The Nigerian waterways are a major natural resource, traversing 20 out of the 36 states in Nigeria. An efficient coastal inland infrastructure system will relieve pressure on road and rail transport infrastructures as bulk goods could be transported over long distances at very low rates. For example, Baro which is one of the terminals on River Niger was very prominent as feeder to international ports in the 60s and 70s. However, port activities have waned down considerable in this port due partly to lack of dredging and the existing physical constraints that inhibit navigability. Though inland waterway is widespread along the coastal length of the country but the development of ports along Rivers Niger and Benue



is limited. There are few places along both rivers that have adequate infrastructure for the transfer of cargo between barges and railways or trucks. Locations such as Yelwa, Baro and Lokoja along river Niger and Makurdi, Ibi, Lau, Numan and Yola along River Benue are just landing places. Little investments are made in some facilities in these locations and most of them are minimally equipped. The failure of government to attend to inland waterways infrastructure over the years has led to high sedimentation, appearance of wrecks and other obstruction, defective communication and navigational aids among others. However, government has commenced dredging along Lokoja-Port Harcourt axis but not much progress has been recorded.

### **Air Transport Infrastructure**

The air transport infrastructure includes airport runways, and associated taxiways, airport passenger and freight terminals and associated aircraft parking (apron) as well as air navigational system. Nigeria has about 22 airports and 62 airstrips distributed over the country. Based on the design, characteristics and level of service, the airports may be categorized into three groups; international, domestic and local private airstrip. Because of the poor, inadequate and obsolete nature of some airport infrastructure in the country only three airports operate at a commercial self-sufficiency while the others operate at a substantial loss (FRN, 2010). Data on the condition of airport infrastructure such as the runways as well as passengers and freight terminals are scarce in Nigeria. However, an assessment of the condition of runway infrastructure in Sub-Sahara Africa showed that only 46% of them are in good condition (Bofinger, 2009). Though in recent times, some airport runways (such as Enugu, Owerri, MMA etc) have either been rehabilitated or under rehabilitation, other airport terminals facilities such as the elevators, cooling system and toilet facilities among others are not regularly maintained.

### **Pipeline Infrastructure**

Pipeline transport as a mode of overland transport dates back to 1955 following the discovery and exploitation of petroleum in Nigeria. Today, the country has a total of over 4,000km of pipeline owed by both the public and private sectors (FRN, 2010). The pipeline infrastructure is used for the transportation of crude and refined petroleum products to NNPC pump station and depots. Due to inadequate and irregular maintenance of pipeline infrastructure, there has been frequent bursting of pipeline resulting in devastating fire outbreaks and its attendant consequences of loss of lives and properties. Similarly, there is poor



monitoring of activities in and around pipeline infrastructure making them completely vulnerable to vandalization.

The consequences of poor public transport infrastructure maintenance are costs that are either borne by the users or providers. For instance, poor roads result in road crashes leading to destruction of property, loss of lives and permanent injuries. For example, over 300,000 people have been killed on Nigerian roads between 1960 and 2009 (FRSC, 2007; The Punch, 2010). The other arm of this cost (social cost) is the security problem that arises as a result of poor road networks. Road users (especially drivers) are sometimes waylaid on the road by robbers when they slow down at locations where there are deep potholes. In the same vein, the continue wear and tear of vehicles add significantly to Vehicle Operating Costs (VOC). For example, the cost of operating vehicles in Nigeria was put at N487 billion per annum with each small car owners spending a total of N219,500 for every 10,000 kilometres of roads used (Nwankwo and Onwuenyi, 2008). The economic costs are even more burdensome for the government. It adds to the cost of doing business for already established organizations. This may result in job cuts and dwindling revenue to the government. In addition, deteriorating public transport infrastructure drives away potential investors.

#### **Attitudinal factor in Public Transport Infrastructure Use and Maintenance**

Maintenance involves the tasks and processes carried out to preserve, restore, or improve a system or an asset with its elements to sustain its utility and value. With respect to road infrastructure, road maintenance means preserving and keeping road structures as near as possible in its original state. It comprises of the activities to keep pavement, shoulders, slopes, drainage facilities and all the structure and property within the road margins as near as possible to their as constructed or renewed condition (PIARC, 1994). Road maintenance is vital in order to prolong the life span of roads. A well-maintained road reduces cost of operating vehicles by providing good running surface. Proper maintenance keeps the roads open and ensures greater regularity, punctuality and safety of transport services. Effective road maintenance is the most important prerequisite for safeguarding the investment and ensuring that the road serves its purpose over the anticipated lifetime.

Road maintenance could be classified into routine, recurrent, periodic as well as emergency (CBN, 2002). Routine maintenance comprises of small scale works conducted regularly aimed at ensuring the passability and safety of existing roads in the short-run and to prevent premature deterioration of the roads (PIARC, 1994). Frequency of activities varies but it is generally once or more a week or month. Typical activities include drainage clearing, carriageway repair, clearing



of silted ditches, bridges and culverts maintenance, grass cutting and potholes repair among others. Recurrent maintenance on the other hand is required at intervals during the year depending on the topographic and climatic characteristics of the area as well as the volume of traffic. It involves the maintenance of pavements, filling of potholes and grading for unpaved roads. The periodic maintenance covers activities on the section of the road at regular and relatively long intervals, with the aim of preserving the structural integrity of the. Lastly, emergency repair takes place when road is abruptly cut or bridge washout which could be due to seismic activities.

It has been said repeatedly either in public fora or in normal discussions that 'Nigerians have no maintenance culture' or Nigerians have poor attitude to maintenance. Attitude has to do with the way an individual behaves or thinks about something. Culture on the other hand has to do with shared beliefs, values, customs and practices as well as social behavior of a group ( Onohaebi and Lawal, 2010; Adedokun, 2011). It, therefore, follows that the way we think as individuals or behave as a nation towards the maintenance of public infrastructure is poor. It begins with an individual as we often fail to maintain our body or the property that belongs to us. This is extended to what we believe is the responsibility of government because it does not belong to us. The usual attitude of people towards public infrastructure (especially Public Transport Infrastructure) is that it is government's property that does not belong to anybody. Therefore, such facilities are used indiscriminately. On the part of the government, there is backlog of maintenance because funds are not released as when due and when such funds are even released they are inadequate to cope with the magnitude of the problem.

### **Individuals/Community Attitude**

The manner in which ordinary Nigerians use public transport facilities is appalling. It is common to see refuse being disposed directly on the carriageway which affects the traffic flow as well as the life span of the road. Sometimes the refuse are thrown directly inside the drains especially when rain is falling resulting in block drainage which contributes to serious flooding in the cities. The resultant 'ponding' on the road increases the rate of deterioration of the carriageway. Furthermore, burning of tyres on the roads during major strikes or public protests weakens the road structures and shortens its life span. Similarly, cutting of road ways to lay water pipes, electricity wire and mobile phone cables aggravate road deterioration. In the same vein, spreading of food stuffs or cash crops on the carriage ways or road shoulders, particularly in rural areas, leads to wear and tear of roads.



Also, where sidewalks exist they are broken and poorly maintained. Some of them have been taken over by the expansion of adjoining facilities such as kiosks. Except in Abuja and probably Lagos where there is effective enforcement on parking, in most cities in Nigeria the sidewalks and the road shoulders have been converted to on street parking facilities forcing the pedestrians and motorized vehicles to share road space. Similarly, bus terminals such as motor parks and bus stops are in a state of disrepair. Aside Abuja and Lagos, a cursory look at some designated bus stops indicated that most of them have deteriorated to the point that they are no longer in use. All available facilities such as shelter and seats are absent. In fact, some of them they have been converted to commercial use and an abode for lunatics and destitute. Another important behavior of the public towards public transport infrastructure occurs where an individual willingly vandalizes or carts away some road furniture such as guard rails and parapet purposely to be sold for monetary gain at the expense of public use.

With respect to rail transport Infrastructure, it is very common to see people trading directly on the rail tracks. The frequent interaction of people with the rail tracks weakens the base because some supporting facilities (e.g ballast) are removed in that process. Also, the right of way of rail system is mostly abused by individuals who build structures along it without approval from either the Local Government Planning Authorities or Nigerian Railway Corporation (NRC). Where the rail line passes through remote villages or slum areas, people intentionally vandalize the slippers (wooden plank) and sometimes use them as firewood. Similar situation occurs in the pipeline transport where the pipeline infrastructure right of way is also encroached upon and there is a high level of vandalization of pipeline infrastructure. In the area of air transportation, most of the airports do not have perimeter fencing thereby providing unrestricted access to the use of airport infrastructure and this contributes immensely to their deterioration.

### **Government Attitude**

There are three ways in which government respond to the maintenance of public transportation infrastructure. Government sometimes adopts 'No Action' strategy. In this strategy, the government does not react at all to maintenance of public transport infrastructure. The government folds its arms and seems not to bother with the dilapidated infrastructure. In the second strategy, government may react on time but with insufficient funds. In this way, little fund is available but may not be enough to prevent the continued deterioration of such public infrastructure. This strategy is term 'Had I known Action'. The third strategy is "Too Late Action". This can also be regarded as medicine after death. For instance, government waits sometimes until a small pothole on the road snowball in to a trench before taking action. Such late action costs government between three to four times of what supposed to have been the initial expenditure. Burningham and



Stankevich (2005) noted that if road defects are neglected, the repair costs rise to six times maintenance costs after 3 years and eighteen times after 5 years. With respect to public transport infrastructure, it seems that the government does not have an effective framework yet for preventive (planned) maintenance. Government prefers reactive or corrective (rehabilitation). It is not surprising that most of the road networks are deteriorating very fast. In fact, most roads leading to ports are poorly maintained. Some airport, rail navigational equipment as well as road furniture are in dilapidated condition and require urgent attention.

### **Recommendations**

It is clear from the foregoing that Nigeria has a very large public transport infrastructure base but without any strong framework for ensuring that it is adequately maintained. Based on this, the following recommendations are made:

The maintenance of public transportation infrastructure must be seen as a Shared Responsibility- Individual, Community and Government. Each unit should be aware that they have a lot to offer the country when it comes to maintenance of public transport infrastructure. The National Orientation Agency should provide further awareness to the citizenry on the need to see public infrastructure especially transport infrastructure as theirs. This should be carried out aggressively through radio and television programmes as well as organizing seminars and workshops on Maintenance Culture.

In view of the manner in which the public facilities are used, it is imperative that maintenance culture should be incorporated into school curriculum right from primary to tertiary institutions. Furthermore, Government through the National Assembly should enact a law tagged 'Public Infrastructure Misuse Act' to deal decisively with anyone found misusing public infrastructure.

Government should establish Maintenance Fund. This Fund should be driven by private sector by setting aside certain percentage of their profits for Public Infrastructure Maintenance. Such money could also be sourced through proposed Road Fund and Road Toll. Also, government should introduce maintenance charges for users of Public Transport Infrastructure. Government should put in place or intensify the aerial monitoring or policing of transport infrastructure such as pipeline, port terminals and rail lines.

## Conclusion

Efficient infrastructure is a precursor for sustainable development of any country. The transport infrastructure that provides links among different types of infrastructure is very central to such development. However, the way in which public transport infrastructure is being maintained in the country is still appalling. The manner of use by the citizens aggravates the level of deterioration. The public still sees public infrastructure as government property, implying that little attention should be given to its maintenance. This is compounded by the fact that the government does not seem to have an effective framework for maintaining public transport infrastructure. It is therefore imperative for the citizens and government to understand that the maintenance of public transport infrastructure is a shared responsibility.

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