

# Review of Modal Transport Operations in Nigeria

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**Abstract**— Analysis so far has shown the operation of Nigerian transport system to be modally deficient and developmentally skewed occasioned by the existing imbalance between resources allocation to modes and inadequate infrastructures. The goal of modern government in its transport sector is to have an efficient operation and to achieve a well developed sustainable transport system, more so, in the development of its economy. This calls for policy review that will not only develop improved strategic framework for committed operation and infrastructural development, but formulate sustainable operation and viable long term maintenance of the developed infrastructure and the existing ones. This paper exposes the deplorable state of existing transport operations and infrastructures in Nigeria, reviews the impact of integrated transport infrastructures on national economy and identifies transport infrastructures that need accelerated investment geared towards national development. It also establishes the need and area of immediate policy review and suggests possible policy recommendations.

**Index Terms**— Policy, Transport, Integrated, Operations, Technology, Infrastructure, Nigeria

## 1 INTRODUCTION

Transportation is a process that involves the movement of commuters, goods and services from a given point of origin to a specific destination [1]. It determines the regional patterns of development, economic viability, environmental impacts, and maintenance of socially acceptable levels of quality of life. It is a means to access business activities, education, employment and recreational opportunities, thus contributing to policy effectiveness and enhancement of security through reduced isolation as well as providing job opportunities [2].

Transportation provides efficient means of moving large number of people with considerable flexibility in order to meet demand throughout the city [3]. It plays a key role in shaping urban and rural landscape through its influences on the form and size of settlements, the style and pace of life by facilitating trade, permitting access to people and resources, and enabling greater economies of scale [4].

Transport is an indispensable element of development and socio-economic growth. As engines of economic integration, transport operations and infrastructural facilities constitute a precondition for facilitating trade and the movement of goods and persons. Transport operations and infrastructure remains a pillar for sustainable development with a view to accelerating growth and reducing poverty. Given the challenges of globalization, Africa still lags behind in the development of regional trade, particularly because of the unreliable and inadequate transport system. Indeed, the existing transport facilities for trade are completely outward-looking with the result that transport infrastructure and services have been little developed and the physical network poorly integrated [5].

There is a clear correlation between the quality of a country's transport infrastructure and its growth potential. The understanding of this fact made China invest heavily in their transport infrastructure. One of the links between transport and economic activity is the relative efficiency of moving goods to the market, and access to a wider pool of skilled labour and suppliers.

Inefficient operation and failure in physical and social infrastructures had been identified responsible for low productivi-

ty and poor efficiency of the Nigerian transport sector. This is a rider to the fact that transport infrastructure constitute a major part of the deteriorated infrastructure. Transport infrastructure provides a strong veritable platform for efficient transport modal operations and service delivery.

The problems of inappropriate and overly skewed allocation of resources and infrastructure underdevelopment as well as poor maintenance have impacted heavily on Nigeria economy. This implies that The Nigerian transport network infrastructure and service is still very disjointed.

In spite of the Federal Government of Nigeria's huge expenditure on transport sub-sector, the transport infrastructural facilities have been deteriorating on daily basis and this has impacted negatively on service delivery [6]. The deterioration of the facilities has resulted to inefficient transport system, which has caused great havoc to the economy [7].

For the Nigerian market to function smoothly, there is need for an efficient operating system that allows the free movement of goods and people within country. This is important for economic growth. The challenge with the Nigerian transport policy has been incompetent operations, disintegration of transport infrastructure, equipment, regulation and uncoordinated transport infrastructure [8].

## 2 OVERVIEW OF NIGERIAN TRANSPORT SECTOR

The history of transportation in Nigeria dates back to the pre – colonial era. Within this period, transportation facilities such as roads, railways, air transport facilities were really non-existent with emphasis then on the bush path. At present, the modes of transport in Nigeria include road, railways, airways, inland waterways, coastal waters, the deep sea, and the pipeline [9].

The administration of transportation in Nigeria follows the structure of government administration, that is, the three-tier form of government; federal, state and local. Statistics however shows that about 67% of the total road network in the country is under the local governments. Thus, the responsibility of providing and managing transport services and road net-

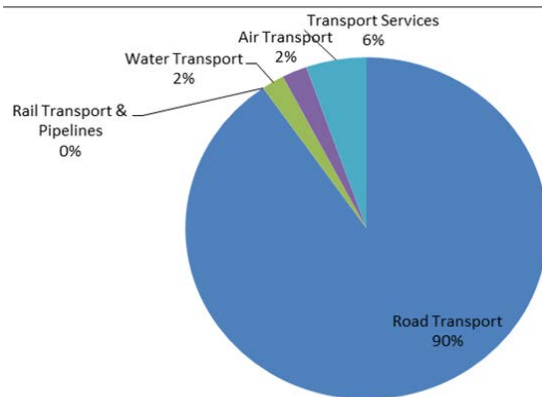
works fall on the lowest level of government which is the least able to respond both financially and technically.

Transportation is central to economic development as it entails the movement of people, goods and services from one place to another. Thus, it has impact in every other sectors of the economy whether major or minor [10], influencing development and the welfare of the populations. This implies that an efficient transport system will provide ample support for other sectors of the economy in the form of employment generation, easier accessibility to market and in effect, contributing additional investment to the economy. Current realities in Nigeria's transport sector do not leave much to be desired. Ninety percent of the movement of goods and services in Nigeria is done by road. Presently about 193, 500 km of road network is available in Nigeria [11]. Only 35, 000 km constitute federal roads. Fifty percent of federal, 70% of state and 95% of local roads are in bad shape. Most of these roads are overused and lack adequate maintenance. It is difficult to see any significant impact from huge government budgets on roads. Some of the problems associated with execution of road projects stems from flawed contracting processes and fraud in the road construction industry. It is common to see roads supposedly designed to last for decades failing within a mere couple of years of usage. One way out of the roads problem is to decongest traffic on our road networks. The rail transport sector that was in comatose is being resuscitated as some states government like Lagos, Rivers amongst others are currently at various stages of rail transport developments. The industry was almost a complete state of neglect. According to the United States Commercial Services (2010), the near collapse of the Nigerian rail system and the increasing need to move goods nationwide has made road haulage indispensable. Transportation by road now accounts for more than 80% of all haulage activities. It has been well documented by many scholars that Transportation could account for a GDP contribution between 6-12% in the developed countries [10].

In Nigeria, the contribution of transportation sector to GDP is still relatively low unlike what has been observed in the developed economy of the world. It fluctuates between 2% and 3% since year 2000 though the figure still dominated the services sector in Nigeria after Real Estate and Business services [12]. As at 2010, Road Transport accounted for 94% of the entire Transport service, followed by Water and Air (2.2% each), while Rail and Pipeline Transport accounted for the least i.e. less than 1% of the Transport service [12]. Budgetary allocation to the transport sector was N56 Billion in 2011 and N52.3 Billion in 2013 (approximately 30% of the 2011 budget) [13].

### Trends of Transport Indicators in Nigeria

Figure 1: Structure of output in the transport sector in 2011



Source: NBS/NPC

Growth in value-added in transport, including transport services rose from 6.71% in 2010 to 6.75% in 2011, on account of

**Table 1: Value-added in the Transport Sector (2010-2011)**

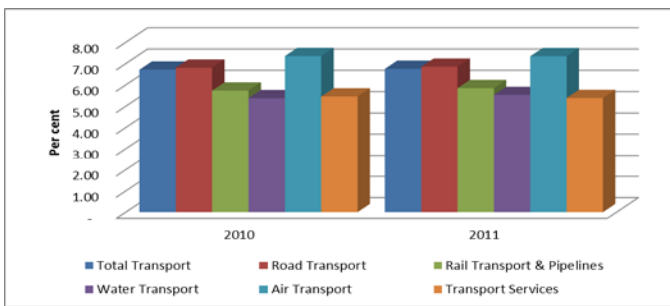
Source: NBS/NPC

improvement in trade related activities as shown in Table1.

Sector	Nominal GDP (Naira Billion)		Real GDP (Naira Billion)		Growth Rate (%)		Contribution to Growth (%)		% of GDP	
	2010	2011	2010	2011	2010	2011	2010	2011	2010	2011
<b>Total Transport</b>	528.99	565.04	20.75	22.15	6.71	6.75	2.28	2.45	2.67	2.66
<b>Road Transport</b>	495.76	528.49	18.73	20.01	6.81	6.85	2.08	2.25	2.41	2.40
<b>Rail Transport &amp; Pipelines</b>	0.01	0.01	0.00	0.00	5.73	5.85	0.00	0.00	0.00	0.00
<b>Water Transport</b>	1.35	1.51	0.43	0.45	5.37	5.53	0.04	0.04	0.05	0.05
<b>Air Transport</b>	5.87	6.57	0.46	0.49	7.35	7.34	0.05	0.06	0.06	0.06
<b>Transport Services</b>	26.00	28.45	1.14	1.20	5.45	5.38	0.10	0.11	0.15	0.14

Road transport grew by 6.85% in 2011 compared with 6.81% in 2010, due to completion of construction and rehabilitation works on roads in the country. Growth in air transport fell slightly to 7.34% in 2011 from 7.35% in 2010. However, growth in rail transport and pipelines accelerated from 5.73% in 2010 to 5.85% in 2011. The development is in tandem with government's efforts at rehabilitation of certain rail tracks and equipment, combined with reduction in pipeline vandalism.

**Figure 2: GDP growth rates of transport sector components (2010-2011)**



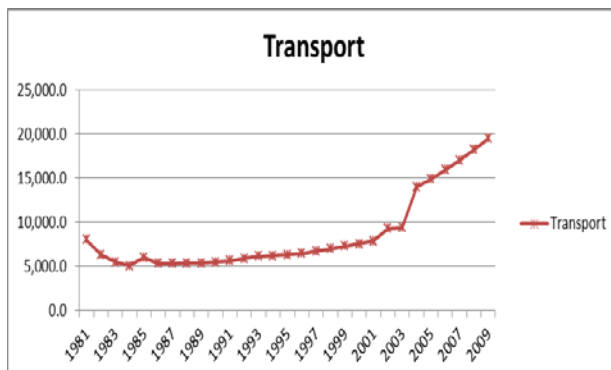
Source: NBS/NPC

**Table 2: Sectorial Output of Transport Sector from 2010-2011 in Nigeria**

Sector	2010	2011
Total Transport	6.71	6.75
Road Transport	6.81	6.85
Rail Transport & Pipelines	5.73	5.85
Water Transport	5.37	5.53
Air Transport	7.35	7.34
Transport Services	5.45	5.38

Source: NBS/NPC

**Figure 3: Trend of Transport Sector Output from 1981-2009**



Source: CBN 2010

### 3 SITUATION OF VARIOUS TRANSPORT MODES IN NIGERIA AND EXISTING INFRASTRUCTURE

Nigeria today, has an extensive infrastructure of roads, railroads, airports, water and pipeline systems. Over the years, the federal government has consistently accorded a key role to the transport sector in all the country's National Development and Rolling Plans, in appreciation of its development facilitating roles in the movement of people and goods [14]. The first, second and third National Development Plans gave the transport sector the largest share of revenue allocation (an

average of about 22.4%) while the fourth National Development Plan received 15.2% in the nation's public sector investment programme. The sector however appears neglected in the succeeding Rolling Plans as evidenced by the meager percentage allocation to the sector during the Rolling Plans of 1993 to 1998 (an average of 10%).

#### a. Road Transportation

[9] documented that the history of road transport in Nigeria dated back to 1904 when Lord Laggard attempted the construction of a mule road linking Zaria and Zungeru both in the Northern States of Nigeria. The road was later extended from Zaria to Sokoto, Katsina and Maiduguri. However, the road linking Ibadan and Oyo constructed in 1906 is recorded to be the first motorable road ever constructed in Nigeria.

The major road transport infrastructure in Nigeria consists of 32,000 km of Federal highways including seven major bridges across the Niger and Benue Rivers, the Lagos ring road, the third mainland axial bridge; 30,500 km of state roads; and 130,000 km of local roads [15]. Buhari stated further that as at June 1996, only 50% of the Federal roads and 20% of the State roads were in reasonably good condition. Only an estimated 5% of the local rural roads were freely motorable. The rehabilitation programme carried out by the PTF in the years 1996 to 1999 covered selected portions of the Federal roads totalling about 12,000 km, along with township roads in about 18 selected cities.

The last evaluation for UNTACDA II (year) indicated that roads remain the dominant mode of transport in Africa, accounting for 90% of interurban transport. Less than a third (62,000 kilometers, or 27.6%) of Africa's 2 million kilometers of roads are asphalted. At 6.84 kilometers per 100 square kilometers, road density is well below that in Latin America (12 kilometers per 100 square kilometers) and Asia (18 kilometers per 100 square kilometers). (*Sectoral Analysis, Economic commission for Africa*) as the rail, pipeline and inland waterway systems have deteriorated.

This is also true for Nigeria. In the [15], Nigeria has become increasingly dependent on the road system to meet virtually all its inland transport needs as the rail, pipeline and inland waterway systems have deteriorated. At the same time, the road network itself has suffered from continuing lack of maintenance and investment by the three levels of government, Federal, State and Local. In 1985, about 23 percent of national roads were in a bad state. This rose to 30 percent in 1991 and 50 percent in 2001.

Road transport is by far the most important element in the country's transportation network carrying about 95 per cent of all the nation's goods and passengers. Also, about 70% of public sector investments in the transport sector have on the average been on highway [16]. Nigeria has a total of 193,200 km of roads, made up of 34,123km of Federal roads, 30,500km of state roads and 129,577km of local government roads. As provided for in the Constitution, the different tiers of government have independent responsibilities for the planning, financing and maintenance of their roads. Three major factors affecting the road network are:

- misuse particularly as a result of axle overloading causing damage to roads
- neglect of periodic routine maintenance and an absence of emergency maintenance
- Poor design and construction.

Key note here is; more than 50% of the roads are failing and except roads and bridges are kept in good conditions they cannot support the desired socio-economic development of the country.

## **b. Ports and Maritime Transport**

The sea ports serve as the terminal support for the maritime operations. Efficient sea port administration is crucial to ships turn-around and through-puts. Port and maritime transportation sector is further discussed under sea ports Inland Waterways and Airports and air transport below.

### **i. Sea ports**

Sea ports are fundamental outlets of international trade for both coastal and land-locked countries. Sea transport has a significant cost advantage over surface transport for dry and liquid bulk cargoes or containerized cargo. The importance of maritime transport emanates from the fact that over 90 per cent of the world international trade transits through ports. Maritime transport is even more dominant in Africa as it accounts for 92 to 97 percent of Africa's international trade. However, poorly maintained port infrastructure and inefficient operations remain major bottlenecks for African trade. The Lagos seaports for example, handled a total of 19,340,901 metric tonnes of cargoes in 2012 whilst in 2013, there was a slight increase to 19,849,258.

Nigeria's port productivity is low compared to the rest of the world. It is estimated that the average productivity in African ports is about 30 per cent of international norm. Poor management and poorly maintained equipment account for the low productivity.

### **ii. Inland Waterways**

An efficient coastal and inland waterway system will relieve pressure on the country's rail and road transport infrastructure as bulky goods can be transported over long distances at very low rates. The energy demand of the Waterways is low and the negative effect on the environment is minimal. The use of the waterways for transportation should therefore be encouraged as a matter of principle. Despite its advantages, the use of this transport mode has diminished particularly over the past three decades due to physical, investment and operational constraints.

Key note here is; Cost of doing business at the ports is high—as a result of multiple taxes and levies imposed on operators. This has resulted in diversion of cargo to other countries within the West African sub-region. Low level penetration of inland waterways in most states of the country is due to the lack of infrastructure.

## **c. Airports and air transport**

Air transport has a great potential role to play in the economic development of Nigeria. It has provided, and continues to provide the fastest means of movement of passengers and air cargo in the country. Besides, air transport is regarded by the Nigerian Government as a critical focal point in the effort to open up the country to foreign investors and thereby narrow the existing wide gap between available and required levels of domestic investment capital [16].

From an intermodal perspective, the major airports are well integrated with road infrastructure, and all access roads to airport have federal status. Land transport connections are, however, poor. Trips to airports are by cars, taxis or hotel shuttle transport. There is no access to the airport by the conventional mode of public transport, namely, bus or rail.

Nigeria has a total of 23 airports distributed all over the country due to the high fixed costs and relatively low income involved in running these airports, only three of the airports operate at a commercial self-sufficiency, while the others operate at a substantial loss. Indeed, there has been an increase in traffic across some airports in the country. For example, in 2008, 5,117,034 passengers used the airports whilst in 2012; 7.2m passengers used the airport. There was also a corresponding increase in the movement of aircrafts from 84,198 in 2008 to 105,334 in 2012 respectively. The air transport sector is largely deregulated with domestic airlines competing in the market, but it is not clear how much economic regulation of the sector is provided by the National Civil Aviation Authority whose main focus appears to be primarily on aviation safety. The reform in the sector should include as well the unbundling of the Federal Airport Authority of Nigeria to reflect the countervailing structure needed to guarantee autonomy or financial independence and to promote competition and fair trading among domestic airports.

## **d. Railways and rail transport**

Railways are the most cost-effective mode of transport for moving bulk cargo for long distances over land. They are suited to container traffic between ports and capitals. Railways can provide the most cost-effective, affordable, energy saving and environmentally friendly form of transport, when traffic densities are high.

The Nigerian railways network includes approximately 3,500km of narrow gauge lines. The network has been extended by a narrow gauge line between Onne and the Enugu-Port Harcourt line and a yet to be completed 320km standard gauge line from Ajaokuta to Warri.

With all these potentials, unfortunately, due to past neglect, the Nigerian railway system has not been able to meet this need. It has deteriorated in all areas, and caught up in a vicious circle of declining traffic, endemic deficits, decreasing capacity to serve its customers resulting in further loss of revenue. In short the railways have ceased to be economically viable. If the present imbalance of the transport sector is to be corrected and the goals arising from increasing industrialization be actualized, the Nigerian railway must be resuscitated.



Evidently, the Nigerian Railway is grossly underdeveloped and in a deplorable state of near extinct.

#### e. Pipeline Transport

Pipeline transport development has been closely associated with the expansion of the oil industry and with the growing use of the automobile. Many factors were responsible for the development of pipeline transport in the country. First was the discouraging state of roads in 1970's which necessitated the need for an alternative mode in place of road tankers. Secondly the location of the Kaduna refinery over 800 Km inland necessitated its being fed by a pipeline complex. Third, the industrialization phase of Nigeria in the late 1970's made it necessary for a pipeline network to be developed. In 2004, Nigeria had 105 Km of pipelines for condensates, 1896 Km for natural gas, 3,638 Km for oil and 3,626 Km for refined products. Various pipeline projects are planned to expand the domestic distribution of natural gas and to export natural gas to Benin, Ghana and Togo through the West African Gas Pipeline and potentially even to Algeria (where Mediterranean export terminals are located) by the proposed Trans-Saharan gas pipeline. Some of the problems facing pipeline transport in Nigeria include the worrisome rate of pipeline canalization which often results in environmental degradation and where fire occurs, the loss of lives and property [16].

### 4 TRANSPORT OPERATIONS / INFRASTRUCTURE AND LOGISTICS - IMPACTS.

#### a. On Agriculture

Most farming communities' especially small scale commercial and peasant farmers face considerable difficulties in marketing their products largely because of inadequate, unreliable and often unaffordable transport services, due in parts to un-trafficable roads as well as poor interconnectivity of transport modes. This situation described above has meant that;

- High losses occur due to lower carrying capacities
- Opportunity to produce more profitable crops are not taken
- Integration of the largely disparate markets is hindered
- Cost increment for both the producer and end-user
- Production for market is truncated

It is clear from the points discussed above that the development of adequate transport infrastructures and logistical arrangement to cater for the farmer has the effect of mainstream local economies.

#### b. On Education

The impact of the poor transport network has high level of absenteeism, the late delivery of learners support materials and school nutritional program. Overall effect of dwellers in these areas been disconnected from reality and resultant illit-

#### c. On Health sector

The impact of the poor transport network has been shortage of machines and equipments at rural hospitals and clinic, reduced access to health services and difficulties in providing ambulance and other essential services. The underdeveloped transport network has seriously affected delivery of key health products and program to this hinterland.

#### d. On Poverty Reduction

Transport constraints have also compromised the poverty reduction efforts of government. Poverty and isolation are directly linked. To further buttress the above mention points, the Bankers committee national retreat in their report [17] noted that inadequate supply of infrastructure is one of the most problematic factors for doing business in Nigeria. Investment in integrated transport infrastructure provide accelerated national development as seen in South Africa's tremendous growth [18].

### 5 CHALLENGES FACING TRANSPORT OPERATIONS AND INFRASTRUCTURE IN NIGERIA

From the above, the following can be said to be the major challenges facing transport operations in Nigeria.

- i. Poor condition of Transport Infrastructure
- ii. Poor maintenance culture
- iii. Inadequate allocation of funds
- iv. Ineffective enforcement of traffic laws and poor traffic management
- v. Institutional conflict

### 6 CONCLUSION AND POLICY RECOMMENDATIONS

For transport to sustain economic growth and economic integration and also to promote Nigeria's economic and social development, genuine policy commitment, tremendous and sustained efforts will have to be invested in this sector. Accordingly, it is recommended that:

- Government should promote training of operators and the dissemination of road transport information;
- Government should encourage compliance to road traffic regulation with specific reference to vehicle weight limitations;
- Government Improve operators' managerial, technical and economic capacity;
- An integrated approach to transport development policy should be adopted, taking all transport modes into consideration;
- The transport sector should continue the reforms;

- The building of missing links in transport infrastructure should be promoted;
- The financing of transport infrastructure should be promoted with emphasis on innovative approach;
- A regulatory framework should be instituted providing for broader participation of the private sector in transport management and financing;
- Greater safety and security should be provided in all transport modes;
- Human institutional capacities should be strengthened and training institutions rehabilitated;
- Databases should be created for measuring progress made in transport sector development;
- Further use should be made of ICTs in transport development.

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In 1993, he joined ABC Transport Plc – a foremost logistics Transport Company in Sub-Sahara Africa as the General Manager, Operations and Logistics and handled the operations of the company till 2007 when he was poached by LAMATA. During his tenor in ABC Transport Plc, he contributed in driving technical reform in the intercity bus service sector.

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