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A New Economic Perspective on the Role of Integrated Transportation Systems in Promoting Long-Term Sustainability

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Abstract: Any nation's economic progress and social health are greatly impacted by its transportation infrastructure. The transportation infrastructure in Nigeria has not always been up to the task of achieving sustainable growth, despite the country's investments in the sector. The relationship between sustainable development and integrated transport was the focus of this article. This article utilizes a combination of primary and secondary sources of data, namely surveys and statistics bulletins. The data was analyzed using both descriptive and inferential statistics. Sustainable development and integrated transport systems were shown to be highly correlated. The research showed that any developing country may benefit greatly from an integrated transport infrastructure when it comes to long-term sustainability. Developing nations like Nigeria benefit from integrated transport since it increases GDP by using several means of transportation. The transportation industry's revenue should also go toward funding the sector, which would increase the sector's GDP, productivity, and sustainability.

Keyword: integrated transportation network, GDP, eco-friendly growth

1. Introduction

When it comes to developing or using national or international economic resources, transportation is a dynamic and crucial infrastructure. Because of this, resources may be redistributed from places of low to high utility (Branch, 1986). As long as people have a want to and need to go from one location to another, transportation will continue to face significant changes (Kuhn, 1970).A derived demand is one that isn't sought after for its own sake but rather to fulfill other needs. Transportation falls under this category. Its importance is felt in the political, social, and economic spheres, and it generates worthwhile demands among regions, economic activity, and individuals. Modern commerce, industry, and business are dependent on many forms of transportation and communication.

Having said that, matters pertaining to the transportation industry in Nigeria have mostly focused on passenger travel, disregarding the critical importance of freight. Transporting products and commodities as quickly and cheaply as possible is a crucial component of effective economic performance. Roads are the most common means of local freight distribution since they provide for door-to-door service and complement other forms of transportation due to their versatility and adaptability (Waheed, Kadiri and Dele, 1996). Regrettably, as compared to other emerging or industrialized countries, Nigeria's transport system cannot be considered sustainable. Poor or nonexistent drainage systems, potholes, and poorly maintained bridges characterize the route. “Today, Nigeria’s economy at last depends on road mode for sustenance of its economic exercises,” Odeleye (2010) said. In contrast to rail transport, the road mode is ironically heavily constrained in its conveyance capacity. In addition, the legislature’s national development plan allocated a large portion of the plan’s funding to

the road network's expansion and upkeep, as well as the limitations of rail travel.
Sea transport is seen as a driving force behind national growth since it provides access to essential

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infrastructure and serves as a valuable economic hub. It is vital to achieve realistic economic development to shape its potential into national economic power. Unfortunately, according to Somuyiwa and Ogundele (2015), port productivity and performance in Nigeria are negatively impacted by congestion. Congestion and delays in cargo processing at Nigeria's ports have severely undermined their operational performance. The operational inefficiency of the Nigerian ports is a direct outcome of the port exercises' stagnation; as a result, a number of issues have arisen, such as increased demurrage on shippers' operating costs, block stacking of containers, poor ship turn-round time, inadequate berth and space utilization, and so on. Ports in neighboring countries, such as Togo's Lome, Ghana's Tema, and Côte d'Ivoire's Abidjan, are now seeing increased traffic from shippers due to these economic factors. Smugglers in Nigeria often sneak these shipments meant for Nigerian ports across the border (Abiola, 2011).

According to Wikipedia (2011), air transportation is the process of moving people or goods via the air with the use of airplanes.These days, it's pretty much the only way most people travel by common carrier. An efficient kind of transportation, air transport carries people and goods from one place to another in a safe, timely, and undisturbed manner, free from delays, cancellations, and other restrictions. It helps the economy expand and thrive as well. The country's two international airports, Lagos and Kano, are, alas, overcrowded. Comforts including chairs, air conditioning, a conveyor belt, restrooms, and more

up front are. Because they have not been updated to accommodate the increase in human traffic, this situation has arisen (Suleiman, 2012).

2.Literature Review

Transportation plays an essential role in the political, economic and social development of any society and whether in rural or urban societies, transportation constitutes the main avenue through which different parts of the society are linked together. As a society develops regarding populace and capacities, the requirement for collaboration among its different segments additionally develops in this manner requiring quality and effective transportation systems (Aderamo and Magaji, 2010).
Transport system grants goods to be sold to customers in places far inaccessible from the locale where they are created. Economists state that production is not complete until they have been transported to the final consumers who will fulfill their needs (utility) by the utilization of the goods. It implies transportation by moving goods from the point of production to the point of consumption is satisfying profitable and productive services of creation of utility.

2.1. Integrated Transport System

The term ‘integrated public transport’ is commonly characterized as a system that provides door-to-door public transport services or passengers (Janic and Reggiani 2001). An integrated transport system infers the advancement of a seamless chain of associated and complementary transport which implies connecting different modes of transport so that each mode has the opportunity of satisfying its distinct potentials in a collaborating way. Integrated transport offers public transit user the likelihood to utilize different transportation means that work in coordination through infrastructure, fare structure, and normal approval systems. The integrated transport systems constitute three intrigue components and they are distinguished as:

i. Suppliers of public passenger transport – they must be eager to give the interconnection of their systems as far as transport, economic, hierarchical and levy;
ii. Users of public passenger transport – it very well may be said they are the leaders in terms of decision

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making, they make the interest and they choose about the achievement of transport system by their conduct,

iii. Authorities: they make the legislative structure how the integrated transport framework ought to be worked, they change the prerequisites from occupants to the operators.

For operators engaged with the integrated transport framework the fundamental issue is to give integration in the accompanying fields such as;

1. Modal integration, which decreases journey time from the origin to destination. In this manner, time loss by passengers will be Minimized
2. Organizational-economic integration: the main piece of this integration is to oversee and acknowledge monetary related streams between the included subjects. It implieschiefly partitioning the incomes from fares and subsidy streams to take care of the costs which are not secured by incomes (Bibiana, 2013).
3. Tariff integration: it incorporates the making of unit levy system which is intelligible to passengers. The region of integrated transport system is separated into to regular or irregular zones, the duty is made in agreement to tax structure, and the scope of ticket is made for ordinary and sporadic passengers. The levy and transport conditions are joined as well. It included likewise the selling and checking system (Bibiana, 2013).

2.2 Transportation systems in Nigeria

The system of transportation components are the road systems, railway system, water transport and Air transport. The road systems include the transit systems and paratransit services, including private vehicles and pedestrians. This accommodates the mobility of people and goods in an urban area. Transportation in an urban region is profoundly unpredictable on account of the modes included, the large number origins and destinations, and the sum and assortment of traffic. Rodrigue, Comtois, and Slack (2013) opined that rapid urban development over the globe infers an expanded number of travellers and cargo moving inside urban areas and thus creates an interest for mobility. Consequently as population increases in urban regions through urbanization, travel needs additionally increment and that the expanding numbers of travellers are better off and overseen by successful transportation infrastructure (Fawcett, 2000).

The presence of heavy vehicles such as trailer, lorries and tankers constitute problems to megacity in Nigeria. A good example is Lagos. Be that as it may, underinvestment in transport system could have dire outcomes on travellers' mobility, logistic system and the entire social and economic activities (Eddington, 2006; Chopra and Meindle, Lambert, 2006).

Heggie (1995), which completed an investigation on road maintenance for the World Bank in Sub-Saharan Africa saw that by 1990, almost a third of $150 billion invested on roads in the area had been dissolved through lack of maintenance. The World Bank through the International Development Association (IDA) in July, 2008 approved a credit of USD39 million for Nigeria roads (Saliu, 2010). Yet most mega city in Nigeria such as Lagos still experience congestion. Distribution systems that depend upon on-time conveyances are especially helpless to congestion.

The Nigerian railroad appeared as a government department in 1898 kept running by the civil service design which implied that it needs to rely upon the government for budgetary support and direction. In 1955, Nigerian Railway Corporation was set up to assume control over the obligations of the then railroad department. In any case, government investment in rail transport can't be contrasted with road transport.

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For example, the Shagari regime invested $32 million in 1983 toward the beginning of his civilian regime, and afterward there was no further investment funding from that point for

five years until Babangida came to power in 1986, when his military system invested $88 million in 1988; Also 8 years after, Abacha came to power in 1994 and invested
$528 million in 1995; Similarly, an additional four years went until Obasanjo came in 1999 and he invested in 2003, 2004 and 2006 separately. Thusly, there is practically zero increment of cargo traffic contrasted with road transport. Sustainable development has not been accomplished till date(Oye, Kadom and John, 2016).

Water transport represents over 90% of cargo development in Nigeria (Waheed, Kadiri and Dele, 1996). It is viewed as the major impectus for growth in Nigeria. In spite of a few national, sub provincial, territorial and worldwide endeavors, existing instrument for the management of marine and coastal condition assets have not constantly demonstrated competent for accomplishing sustainable development and thus coastal assets and the coastal condition are being debased and disintegrated in numerous parts of the nation (Oyesiku and Gbadamosi, 2008).

In September 2008, the late president Yar'Adua invested N71billion naira to the Nigeria Civil Aviation Authority (NCAA) under Bilateral Air Services Agreement (BASA) finance. This assets was diverted to infrastructural development in the 21 airport under its regime (Saliu, 2010).

3. Methodology

Nigeria is a nation in West Africa, circumscribing Niger in the north, Chad in the north east, Cameroon in the east, and Benin in the west. Its coast in the south is situated on the Gulf of Guinea in the Atlantic Ocean. The federation contains 36 states and 1 Federal Capital Territory, where the capital, Abuja, is found. The constitution characterizes Nigeria as a democratic secular state. The number of inhabitants in Nigeria is 140,431,790 based on 2006 populace enumeration. The researcher gathered data based on various locations across the nation through telephone meeting, surveys and web by getting some information about the best technique in evaluating the perspective of integrated transport systems in Nigeria. 210 respondents were selected. Thusly, Descriptive was used and Analysis of Variance (ANOVA-one way) was adopted.

4. Result

Figure 1 showed the demand for passenger service. The demand for mini bus (Danfo), midi bus (Coastal) and BRT in Lagos state recorded the highest level of patronage compared to others means of transportation. This is due to affordability, accessibility and availability. Both train and ferries recorded the lowest level of patronage by the passengers. The demand for road transport is very in Lagos.

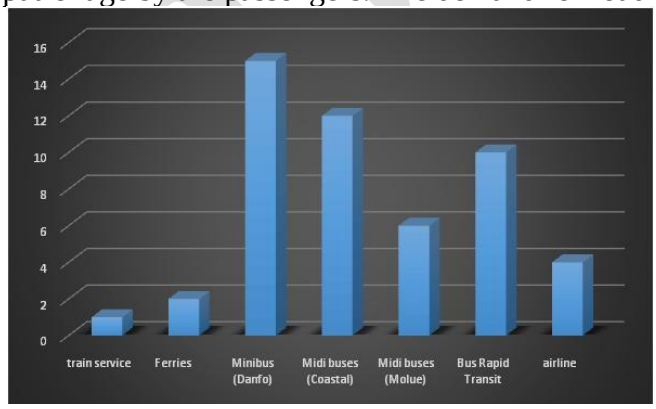

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Figure 1: levels of patronage Source: Author's Field survey (2018)

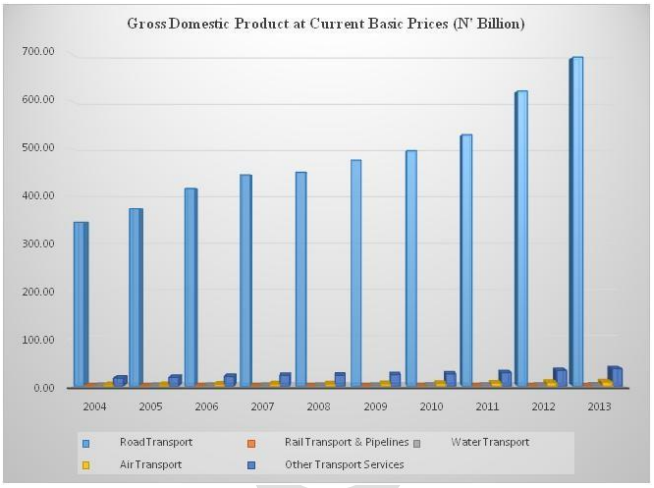

Figure 2: Gross Domestic Product at Current Basic Prices (N' Billion)
Source: CBN Statistical Bulletin (2014)

Figure 2 demonstrated that the GDP for rail transport service among the various modes of transport is at the lowest ebb. Although the trend increases across the years.
i.e. from 2004 to 2013 at a low pace. In spite of government spending in respective years, of which, notwithstanding the Goliath measures of cash spent, the rail transport, water transport and air transport service provision are as yet inadequate in correlation with other developing or developed nations. However, Dosunmu and Adepoju (2016) concluded that, revenue generated from transport should not be diverted to finance other sector. However, revenue diverted to finance other sector mar the productivity of transport sector which in turn affects the Gross Domestic Product of the sector.

Table 1.0: correlation between integrated transport and sustainable development

		Integrated transport	Sustainable Development
Integrated transport	Pearson Correlation	1	.906**
	Sig. (2-tailed)		.000
	N	210	210
Sustainable Development	Pearson Correlation	.906**	1
	Sig. (2-tailed)	.000	
	N	210	210

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Author fieldwork (2018)

Table 1 showed that there is a strong correlation between integrated transport and sustainable development. The integrated transport system will enhance sustainable development in the country. However, Solanke (2013) opined that integrated transport is needed towards improving urban transport challenges in the country.

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5. Conclusion and Recommendations

It was concluded that an integrated transport system is a vital instrument for sustainable development in any developing nation. Integrated transport also boosts the GDP of any developing nation like Nigeria by harnessing the various modes of transport. It was recommended integrated policy should be enacted, enforced through various concerned agencies. Revenue generated from this sector should also be used to finance the sector in order to boost the GDP of the sector and also enhance productivity and sustainability of the sector.

Reference

[1] As stated by Aderamamo and Magaji (2010). A Case Study of the Edu LGA in Kwara State, Nigeria, on Rural Transportation and the Distribution of Public Facilities
2 Abiola M. (2011). The theory and practice of Nigerian freight forwarding.
As stated in the CBN Statistical Bulletin in 2014. Every year's statistical report. Economic output at current prices (in billions of dollars).http://www.cbn.gov.ng/documents/Statbullet in
Fourthly, Bibiana P. (2013). Key success criteria of Integrated transport. "Reliability and Statistics in Transportation and Communication" is this year's thirteenth annual international conference. Pages 83–90
[5]Chapter A. (1986). Part of managing and operating a port, New York's Shapman & Hall
[6]"Chopra S. Meindle P." is from 2007. The three pillars of supply chain management are strategy, process, and execution. (3rd edition), Prentice Hall, New Jersey.
See, for example, Dosunmu A. Adepoju (2016). Transportation infrastructure financing for long-term growth in Nigeria: a critical analysis. Research and Science in International Journal.
The source is Eddington (2006). The Eddington Transport Study's Key Findings: The Function of Transport in Maintaining the Competitiveness and Productivity of the United Kingdom.The transport department of the United Kingdom is located in London.Accessible at:
http://www.dft.gov.uk/about/strategy/transportstrategi es/eddingtonstudy"(Accessed on April 10, 2012)"
Noted by Fawcett in 2000. The Definitive Resource for Managing Passenger Logistics: A Guide to Transportation and People.
Kogan Limited, London,
Heggie, I. (1995) [10]. No. 275, World Sbank, road management and finance
In 2001, Janic and Reggiani published a paper. An outline of current advancements in the European Union's integrated transport networks, Transportation Research, volume 21, issue 4, pages 469–497.
Kuhn, T. (1970) [12].Chicago: ScientificPress, 1998, pages 5–6. According to Kuhn, a paradigm shift or transformation was necessary whenever people started looking for fresh explanations and new insights.
Referenced in Saliu (2010). Logistics management, policy considerations, and the economics of transportation across all modalities (p. 304).
the work of Solanke (2013). Problems with Nigeria's urban transportation systems. Pages 891–901 in the 2013 edition of the International Journal of Development and Sustainability, volume 2, issue 2.
[15] In a 2015 publication by Somuyiwa and Ogundele. Tin Can Island Port, Apapa, Lagos: A Correlation of Port Productivity Components
According to Suleiman (2012), the number sixteen is... Analysis of air transportation in Nigeria.Item number: 1596–8308.
www.ajol.info/journals/jorind, www.transcampus.org./journals
Odeleye, J. (2010) said [17]. The Political Aspects of Developing Nations' Rail Networks: The Nigerian Example. Portugal, Lisbon, 12th WCTR, July.

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ISSN: 1934--9955 www.ijise.net

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Aye, Kadom, and John (2016) were cited as [18].Evaluating the function and influence of railway transport in the Nigerian economy, alternatives and choices: Case of Nigerian Railway Corporation. The Ash-Ese Journal of Economics, Volume 2, Issue 4, October 2016, Pages 103–113. Item number: 2396-8966.

The year 19Gbadamosi K. Oyesiku (2008). Development and management of ports

In [20],In 2013, Rodrigue, Comtois, and Slack were the authors. Abingdon, Oxon, 2 Park Square, Milton Park, OX14 4RN, United Kingdom: The Geography of the Transport System, Third Edition

[21]Gbenga A., Waheed A., and Dele B. (1996).Transportation of goods in Nigeria arranged and overseen.

[22] is a“Wikipedia” from 2011.

Delta Air LinesAccording to Wikipedia, Air Nigeria is a development limited company.