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Examining China's Intervention in Nigeria's Transport Infrastructure

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Abstract
For a country with over 200 million people and a severe infrastructural deficit, the reality is that Nigeria has no wherewithal to meet the demand for fixing its transport infrastructural deficit, alone, without external financing and technical assistance. With the rising constraint on public resources and fiscal space, it is obvious that the government alone cannot provide the resources necessary to address the transport infrastructural deficit in a country like Nigeria. Hence, the importance of China's intervention in reducing the transport infrastructural deficit. This study examines the nature of transport infrastructure in Nigeria, the causes of the infrastructural deficit in Nigeria and further identifies some Chinese transport infrastructural projects and investments in Nigeria and their impact. This study employed both qualitative and quantitative research methods by collecting and analyzing both quantitative (closed-ended) and qualitative (open-ended) data. The present study found a huge infrastructural deficit in Nigeria transport sector. The study identified corruption among other causes as the main cause of infrastructural deficits in Nigeria. Some of the major BRI infrastructural projects in Nigeria identified in this study include: Abuja Rail Mass Transit Project, Nigeria Railway modernization project (Abuja to Kaduna section), Nigeria Railway Modernization Project (Lagos-Ibadan Section), and Abuja Airport terminal project among other. The paper concludes that there is a deliberate effort to fix the severe transport infrastructural deficit in Nigeria evident in the cooperation between the Nigerian and Chinese Governments. And the Chinese intervention in Nigeria's transport infrastructure has been largely impactful and beneficial to Nigerians.
Keywords: Infrastructural Deficit, Transport Infrastructure, Sino-Nigeria Relations, Infrastructural Development, Chinese Investments
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1.0 Introduction

Across the world, China has continued to invest in various infrastructural projects from Asia to Europe to Latin America and of course across Africa. The level of Chinese infrastructural investments in various Countries has almost tripled since the introduction of the Belt and Road Initiative (BRI) in 2013 by President Xi Jinping (Kuo and Kommenda, 2018) with over 120 Countries signing the BRI Memorandum of Understanding (Matthew and Jonathan, 2019). At the time of this study, there were 3,000 BRI projects and investments with a combined value of $4 trillion currently ongoing across various Countries of the world. At the Centre of China-Africa relations, especially with the introduction of the BRI is infrastructural connectivity. If this infrastructural connectivity can be accomplished, it will lay a better foundation for Africa's overall development (Kaczmarek, 2019).

The diplomatic relations between Nigeria and China dates back to the early 1970s (Kaczmarek, 2019) and this diplomatic friendship between both Countries has steadily grown over the last decade. According to Aid Data, Nigeria is one of the ten biggest African beneficiaries of China's Official Development Assistance, collectively receiving US$23.3 billion (Kaczmarek, 2019).

Nigeria is the most populous country in Africa with a population of over 200 million people (Simona, 2020) with over 80 million of her people living below the poverty line. As a developing country, with such a booming population, Nigeria is in dire need of infrastructural development especially its transport sector. Moving people and goods from point A to B in Nigeria is a herculean task, whether it's by air, road or land. And the reality is that Nigeria has no wherewithal to meet the demand for fixing its transport infrastructure, alone without external financing and technical assistance.

With the rising constraint on public resources and fiscal space, it is obvious that the government alone cannot provide the resources necessary to address the transport infrastructural deficit in a country like Nigeria. With huge infrastructural deficit and investment gaps in terms of development. A challenge that has defied all known and tried remedies with attendant havoc on economic growth and wellbeing of its citizen.

Transport infrastructure (roads, rail, ports and airports) is generally poorly developed with only 16% of roads paved and the road density is low at 21km per 100 km^2 (the Federal Republic of Nigeria, 2015). The Nigerian railway has less than 5,000 km of rail track. Quality of built transport infrastructure is often poor with a lack of investment in maintenance. Deterioration is accelerating due to rising traffic volumes resulting from population growth (Leke et al., 2014).

According to the President of Nigeria during the 2019 yearly budget presentation to the joint Houses of the National Assembly, addressing Nigeria's infrastructural challenge will require a sustained expenditure of almost US$14.2 billion a year for no less than 10 years or about 12% of the GDP to close up the infrastructure gap.

1.1 Aim and Objectives

This paper aims to determine the level of China's intervention in addressing the problem of transport infrastructural deficit in Nigeria and also achieve the following objectives:

1. To describe the nature of transport infrastructure in Nigeria
2. To identify the causes of transport infrastructural deficit in Nigeria
3. To identify China-backed investments and projects in Nigeria's transport sector and their impact.

2. Literature Review

Nigeria has historically under-invested in infrastructure. Hence, Infrastructure has long been an issue in the country. According to World Bank/International Finance Corporation (2014), electricity was the second-greatest obstacle to business and transport (rail, roads, airports, and ports) was the fifth-greatest obstacle to business in the World Bank's 2014 Enterprise Survey of more than 2500 local companies. The World Economic Forum's 2019 Global Competitiveness Index (Schwab, 2019) ranked Nigeria 130th out of 141 countries in terms of infrastructure, with the poor state of infrastructure often being cited as one of the largest constraints to doing business in the country. A report estimates that the core infrastructural stock of Nigeria (including roads, rail, ports, airports, power, water, and communication networks) is worth only 35-40% of its GDP, compared with an average of 70% of GDP in other developing economies examined (Leke, et al, 2014).

The poor state of infrastructure in almost all developing countries, has brought about ongoing concern about whether public spending on infrastructure has yielded significant results over time. In Nigeria, for example, the deplorable state of most infrastructure facilities and the lack of a maintenance culture, particularly in electricity, roads, railways and water facilities, have a negative impact on the populace's living standard, lowering productivity and ultimately, the country's economic growth. Because infrastructure provides social relief to citizens, a lack of infrastructure reduces workers' living conditions, diminishing their productivity (Olalekan and Ishola, 2019).

Infrastructural development is one of the foundations of strong democratic government and one of the bases for judging the achievements of competent democratic leaders. In democratic governments, there is a greater desire for infrastructure development than in military dictatorships or when compared to developed countries. This is due to the fact that infrastructural resources are always in short supply. Ethnic agitation and lobbying are frequent in democratic administration in developing countries. Nigeria's infrastructure report, like that of any third-world country, is nothing to write home about. The housing market is in a bad state, both quantitatively and qualitatively (Ajanlekoko, 2001; Oyedele, 2006). Nigeria's significant renewable water resources are also generally poorly utilized and managed. In 2015, 69% of Nigeria's total population had access to safe drinking water, equating to around 85% of urban and 52% of the rural population (UNICEF/WHO, 2019). Over the past decades, access to improved sanitation in Nigeria has deteriorated, this is mostly due to the rapid population growth, poor awareness and planning, and systemic underinvestment.

The majority of infrastructures are now dilapidated and in need of repair, rehabilitation, or reconstruction. Government is the structure that plans, organises, governs and oversees the people who live in a certain area so that everyone has a safe place to live and a sense of belonging. Governments have the authority to enact any actions they feel necessary to create an environment that is conducive to living for all. Because of the ease of access of people to government, infrastructure development in democratic governance is more difficult, which includes identifying the correct project, conducting practicability and viability studies and carrying out physical development of the project. Finance, technology for development, design and maintenance are among the challenges. The hurdles also include project quality criteria that must meet global standard, as well as project sustainability (Oyedele, 2012).

Tradesmen and other technical human resources required for infrastructure development are frequently in short supply due to a lack of training and motivation. According to Robbins, Judge, Odendaal, and Roodt (2009), many professional individuals, craftsmen, and senior managers are now moving abroad to other developed countries because of quick money, better standard of living and most adolescents who are supposed to acquire a trade are becoming "commercial bicycle riders." The different difficulties have not been addressed as they should have been. Nigerians require basic infrastructure to make possible trade (both regionally and globally) sustainable development and to ensure competitiveness. In particular, huge number of local governments, particularly rural ones, inhabitants' goods have no access to markets and are not preserved, owing to inadequate transportation and energy infrastructure (Oyedele, 2012).

Nigeria, like many other African countries, have struggled to expand its economy due to a lack of effective infrastructure. This poor state of infrastructure has now piqued the interest of many African governments, particularly those interested in attracting foreign investment, as the development of infrastructural facilities is one

of the determinants of FDI inflows into any country. Nigeria, with the goal of becoming one of the top 20 largest economies by the future, must prioritise infrastructure development. According to Remi Babalola (a former Minister of State for Finance), the country will require more than US$100 billion in GDP over the next five years to develop a new platform for infrastructure development.

The majority of Nigeria's present infrastructure were constructed under the Second National Development Plan, which ran from 1990 to 1995. (1970-1974). The Second National Construction Plan focuses on societal reform in order to establish the groundwork for the development of public infrastructure for productive and consuming reasons as a result of the country's oil-boom revenue. Similarly, succeeding administrations' involvement in infrastructure provision is motivated by social, economic and budgetary considerations. However, as a result of the high instability of the oil market and inadequate implementation of the national plan, the government subsequently went on a series of economic reforms, the aftermath of which resulted in the neglect of much of the country's infrastructure and underinvestment.

This neglect and underinvestment have a wide-ranging impact on the economy, such as increasing the cost of various raw commodities, lowering productivity and competitiveness of the country's enterprises. This negligence may also be evident in the country's bad road networks, poor electricity supply, weak aviation networks, inadequate train services and abandoned building projects in education, health, housing, and transportation infrastructure, among other things. Similarly, underinvestment in infrastructure has had an impact on the influx of FDI into the country, as most investors would always flock to countries with sufficient infrastructural facilities, and many enterprises have even relocated out of the country for this reason.

According to Manny (2021), the sector has been plagued by so many issues ranging from weak institutions, a lack of adequate fiscal revenue, a lack of accountability and limited policy consistency across administrations to a poor regulatory framework, compounded by graft and limited maintenance of existing infrastructure, and exacerbated by a rapidly growing population, all of which add strain to the already inadequate infrastructural stock. Instability in the political scene, as well as high vulnerability of the nation to social violence and terrorism, have also served to deter investors, resulting in a gross infrastructure deficit in the country's economy, with a financing shortfall for infrastructure estimated at a staggering US$3 trillion over the next 30 years. However, the issues extend beyond funding, as billions of dollars have been sunk into infrastructural projects that have failed to see the light of day or have been abandoned after construction, with 11,866 projects identified and recorded by the Federal Government's Projects Assessment Committee in 2011 to have been abandoned for a variety of reasons, leaving the country's geographic terrain littered with abandoned infrastructural projects (Manny, 2021). According to the International Futures (IFs) traditional infrastructure index, Nigeria had one of the lowest levels of access to upgraded basic infrastructure anyplace in the world in 2016, ranking 162 out of 186 countries (Dale, et al, 2014). In another African survey, Nigeria ranks 32 out of 54 countries, with only Sudan and Papua New Guinea performing worse among its global lower middle-income counterparts. On current development trends, Nigeria is likely to be ranked second-last in this category by 2040.

Nigeria's infrastructure deficit is visible in all categories, with the country performing worse than its average African income peer and much worse than its average worldwide income peer (Bello-Schünemann & Porter, 2017). In lower middle-income countries, half of the roads are paved, compared to only approximately 16% in Nigeria. Paved roads cover over three-quarters of Pakistan's road network and 55% of India's road network. In terms of access to power, Nigeria's deficit with its worldwide peers is lower but still large. More than 80% of the population in the world's lower middle-income countries has access to electricity, compared to only 60% in Nigeria (Bello-Schünemann & Porter, 2017). Nigeria also lags below both African and global income rivals in terms of access to clean water and good sanitation. In 2016, nearly 90% of the world's lower middle-income economies had access to clean water, compared to fewer than 70% of Nigeria's population (Price, 2019). With the exception of a few outliers, most of Nigeria's global income counterparts are well on their way to meeting the SDG target of universal access to clean water.

The gap between Nigeria and its worldwide economic peers is even wider in terms of access to improved sanitation. Only over 30% of Nigerians have access to better sanitary services, compared to more than 50% of the country's worldwide economic counterparts. In general, Nigeria's population growth has not been matched by an increase in the provision of water supply, sewerage, and sanitation facilities. The projected difference between Nigeria's performance and that of its African and global income peers is expected to stay unchanged by 2040. Continued rapid population growth in the future is going to strain service provision even more and therefore presents a major challenge to government capacity in Nigeria going forward (Bello-Schünemann & Porter, 2017).

There are 197,000 km of federal roads in Nigeria, yet just 18% of these are paved with most in helpless condition. Rising traffic volumes fuel the circumstance by making congestion and delays that have typically unfavorable economic consequences. Lagos, Nigeria's busiest city, is home to about 20 million individuals. As indicated by Business Day (2019), the Lagos State Government assessed in 2015 that living with regular traffic gridlock in Lagos has an expected expense of US$1.7 billion for every annum. Most industrial facilities are in the south west away from Lagos and different ports, requiring significant distances to be covered in order to reach

other parts of Nigeria. An effective rail line framework is an expected answer for accomplishing quicker intra-country trade. Understanding this, the public authority of Nigeria in 2006 endorsed a US$40 billion 25-year strategic plan for the modernization of rail transportation in Nigeria (Oyefuga & Egbetokun, 2007).

Private sector participation is presently seen as an essential for the advancement of new transportation linkages. There is some proof of this in projects, for example, the Abuja Light Rail Route Framework and the new terminal at Abuja's international airport. Additionally, in 2017 the Nigerian government declared plans to attract private sector investment by granting reconstruction contracts for 69 highways and arterial roads. And in March 2019 the Nigerian Minister of Power, Works and Housing, Babatunde Fashola, proposed floating a US$27 billion bond to be utilized on road, rail, aviation and maritime development.

Tax incentive schemes also offer investors other opportunities to contribute to the economy. For instance, in 2017 a plan called the 'Road Trust Fund' was established prior to being renamed the 'Road Infrastructure Development and Refurbishment Investment Tax Credit Scheme' (PWC 2019). This plan was made with the target of boosting private sector members to collectively fund road projects through the opportunity to enjoy specific tax credits as well as recoup 100% of costs incurred. There is additionally the opportunity of tax holidays been pre-arranged as part of clauses inserted into eligible infrastructural project contracts.

Congestion in the two ports situated in Lagos is compounded by organization and ageing infrastructure, all of which contributed to a total loss of US$9.7 billion for Nigeria's sea centers in 2018 (Oxford Business Gathering 2019). The indications of these issues include increases in delivery costs; as an illustration, the expense of clearing a 40-foot container in Lagos went up by 400% in Q4 of 2018.

Further traffic delays and gridlock at port access routes influence merchants and exporters alike, expanding haulage costs and complicating quality concerns where transient merchandise is included. The Oxford Business Gathering (2019) estimates that the average yearly loss of agrarian items and perishables due to port handling rose to US$10 billion in 2018. New port development – like the Bakassi Deep Seaport Project – is presently being planned with the assistance of Chinese investors and public-private partnerships. It is normal that this initiative will lessen the difficulty experienced by shippers and exporters within the maritime industry.

3 Methodology

This study employed both qualitative and quantitative research methods. This involves collecting and analyzing both quantitative (closed-ended) and qualitative (open-ended) data. Journal articles and books from Sino-Nigeria Scholars were reviewed and put together to help describe the subject under study. In addition, quantitative (structured questionnaire) and qualitative (interviews and observation) methods of data collection were used to triangulate data in order to obtain distinctly different data to critically examine China's intervention Nigeria's transport infrastructure. The study was conducted in Abuja, Kaduna, Lagos, and Ibadan Nigeria because these are areas dominated by China's BRI projects. A total of three hundred and eighty (380) respondents were selected for this study using purposive sampling method.

Quantitative was collected using questionnaires, the collected data was sorted expressing the data in numerical terms, it was coded to correspond to a specific category or label. Data was entered using a spreadsheet. Descriptive statistics such as frequencies, percentages and graphs and inferential statistics have been used for the analysis of the research questions while SPSS (Statistical Package for Social Sciences) software version 24 was used for the analysis.

4 Research Findings

4.1 Table 1: Demographic Characteristics of the Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	242	63.7
	Female	138	36.3
Age category	18 – 30	178	46.8
	31 - 43	131	34.5
	44 – 56	57	15.0
	56 above	14	3.7
Level of Education	Primary education	3	0.8
	Secondary education	47	12.4
	First degree	207	54.5
	Post graduate degree	123	32.4
Total sample		380	100

Source: Field Data 2021

Age was another important variable in this study. The data indicates that 46.8% of the respondents fell between the age-group of 18 – 30 years. This is followed by those that fell between 31 - 43years with 34.5%. About 15% of the respondents were between 44 – 56 years while 3.7% of them were between 56 years and above at the time of the survey. Level of education was also seen as socio-economic impact influencing the perception of respondents on the issue of infrastructural deficit in Nigeria. According to the study findings, majority of the respondents (54.5%) had first degree, followed by post-graduate degree with 32.4%, about 12.4% of the respondents had Secondary education while 0.8% had primary education. It is important to note that most of the respondent are educated and thus may have knowledge of China's BRI projects in different locations and infrastructural deficit in Nigeria.

4.2 Table 2: Nature of Infrastructure in Nigeria

	Which of these infrastructural deficits is predominant in your community?					
Variable	Poor road network	Poor rail connectivity	Poor port facilities	Unavailable/ Inadequate electricity	Poor water supply	**Total**
Male	194	9	6	22	11	**242**
	80.2%	3.7%	2.5%	9.1%	4.5%	**100.0%**
Female	95	10	7	19	7	**138**
	68.8%	7.2%	5.1%	13.8%	5.1%	**100.0%**
Total	289	19	13	41	18	**380**
	76.1%	5.0%	3.4%	10.8%	4.7%	**100.0%**

Source: Field Data 2021

Majority (194) of the male respondents identified poor road network, followed by unavailable/inadequate electricity as major infrastructural deficits in their community. Majority (95) of the female respondents were of the opinion that poor road network and unavailable/inadequate electricity are major infrastructural deficits in their community. The total share of poor road network is 76.1% followed by unavailable/inadequate electricity with 10.8%. The least infrastructure deficit identified by the respondents is poor port facilities (3.4%). This may be as a result of poor familiarity with the port facilities by the respondents.

Nigeria has historically under-invested in infrastructure. Hence, infrastructure has been a longstanding issue for the country. Electricity was cited as the second-greatest obstacle to business and transport (rail, roads, airports, and ports) as the fifth-greatest obstacle to business in the World Bank's 2014 Enterprise Survey (World Bank/IFC, 2019) of more than 2500 local companies. The World Economic Forum's 2019 Global Competitiveness Index ranked Nigeria 130th out of 141 countries in terms of infrastructure, with the poor supply of infrastructure often being cited as one of the largest constraints to doing business in the country. A report estimates that the core infrastructural stock of Nigeria (including roads, rail, ports, airports, power, water, and communication networks) is worth only 35-40% of GDP, compared with an average of 70% of GDP in other developing economies examined (Leke, Fiorini, Dobbs, Thompson, Suleiman, Wright, 2014 20).

In Nigeria for instance, the deplorable state of most infrastructural facilities and the state of disrepair and lack of maintenance culture especially in roads, railways, and water facilities as experienced by Nigerians affect the living standard of the populace, which lowers their productivity and ultimately economic growth in the country. Given that infrastructure provides social comfort to the citizens, infrastructural deficit thereby worsens workers condition and lowers their productivity.

In 2016, Nigeria had one of the lowest levels of access to improved basic infrastructure anywhere in the world, ranking 162 out of 186 countries, according to the IFs traditional infrastructure index (CSL Research, 2019). In Africa, Nigeria ranks 32 out of 54 countries, and among its global lower-middle-income peers only Sudan and Papua New Guinea performed worse. On the current development trajectory, by 2040 Nigeria is expected to still rank only second-last in this group. Nigeria's infrastructural deficit is evident across all categories as the country performs worse than its average African income peer and significantly worse than its average global income peer (Bello-Schünemann & Porter, 2017).

On average, half of the roads in the world's lower-middle-income countries are paved compared to about only 16% in Nigeria. Close to three-quarters of Pakistan's roads and 55% of India's roads are paved. In the category of access to electricity, the gap between Nigeria and its global peers is smaller yet still significant. More than 80% of the population living in the world's lower-middle-income countries has access to electricity versus only 60% in Nigeria (Bello-Schünemann & Porter, 2017). Nigeria also lags behind both African and global income peers in access to clean water and improved sanitation facilities. In 2016, almost 90% of the population of the world's lower-middle-income economies had access to clean water compared to less than 70% of Nigeria's population. In other words, except for a few out layers, most of Nigeria's global income peers are quite close to the SDGs target

of universal access to clean water.

4.3 Table 3: Causes of Infrastructural Deficit in Nigeria

Causes	Mean	Rank	Decision
Lack of maintenance culture and repairs of damaged facilities	3.5974	1	Strongly Agree
Corruption	3.4184	2	Agree
Bureaucratic bottlenecks and delay	3.1447	3	Agree
Reduction in government spending on infrastructure	3.0368	4	Agree
Vandalization of existing infrastructures	3.0237	5	Agree
Ethnic-interest agitation	2.8763	6	Agree

Source: Field Data 2021

Causes of infrastructural deficit in Nigeria are numerous ranging from reduction in government spending on infrastructure, vandalization of existing ones, corruption, bureaucratic bottlenecks and delay, lack of maintenance culture and repairs of damaged facilities among others. Respondents were required to identified the major causes of infrastructural deficit in Nigeria. From Table 3, analysis of the causes of infrastructural deficit in Nigeria was presented using the mean item score. It was revealed that "Lack of maintenance culture and repairs of damaged facilities" top the list of causes of infrastructural deficit. The second cause of infrastructural deficit was "Corruption" while the least cause of infrastructural deficit was Ethnic-interest agitation. It becomes evident that lack of maintenance culture and repairs of damaged facilities and Corruption are the major causes of infrastructural deficit in Nigeria. Corruption is a long-term major political and economic challenge to Nigeria in the provision of infrastructures.

The first research question was to identify the causes of infrastructural deficit in Nigeria. The study identified the causes of infrastructural deficits as follows: Lack of maintenance culture and repairs of damaged facilities, Corruption, Bureaucratic bottlenecks and delay, Reduction in government spending on infrastructure, Vandalization of existing infrastructures and Ethnic-interest agitation.

The study findings revealed that "Lack of maintenance culture and repairs of damaged facilities" topped the list of causes of infrastructural deficit followed closely by "Corruption". Infrastructure includes facilities such as power, transport and communications; others see it as embracing social overhead which includes facilities for water supplies, education, health, information, town and country planning and social welfare.

Corruption was also identified as one of the major causes of infrastructural deficit in Nigeria. Transparency International classified corruption based on the amount of money lost in the sector it occurred (Transparency International, 2019). Types of corruption are political corruption, economic corruption, bureaucratic corruption, judicial corruption and Moral corruption (Umo, 2003). In this study, corruption is seen as a situation where people fraudulently enrich themselves at the expense of others. Therefore, infrastructural deficits around the country can to a greater extent be traced to corruption by public/private office holders in Nigeria. Corruption as a phenomenon is a global problem and exists in varying degrees in different countries (Agbu, 2003). Irrespective of the type of government, be it democratic or dictatorial, capitalist or socialist, corruption exists. Corruption is a long-term major political and economic challenge to Nigeria in the provision of infrastructures (Ayobolu, 2006).

4.4 Table 4: China's Contribution to Transport Infrastructure and Connectivity

Category	Frequency	Percent (%)
Very high	34	8.9
High	177	46.6
Average	144	37.9
Low	25	6.6
Total	380	100.0

Source: Field Data 2021

The respondents were given options to select the BRI project located within their community or close to their community. According to the study findings, majority 118 (31.1%) of the respondents report that Nigeria Railway Modernization Project (Lagos-Ibadan Section) is in/ close their community. This is followed by Abuja Airport terminal project with 25% respondents, Nigeria Railway modernization project (Abuja to Kaduna section) with 22.6% and Abuja Rail Mass Transit Project with 21.3% of the respondents. The reason why majority of the respondent go for Nigeria Railway Modernization Project (Lagos-Ibadan Section) is that the rail line runs through key states including Lagos State, Ogun State and Oyo State. It continues to support and facilitate the movement of goods and humans within the key states listed above and improve the industrialization and urbanization along the line.

It has been confirmed that Chinese government through the BRI has assisted Nigeria in the execution of a

number of large-scale aid projects based on the need of Nigeria. The focus is on key areas like people's livelihood development, facilities modernization and other infrastructure. Some of the major BRI infrastructural projects in Nigeria identified in this study are: Abuja rail mass transit project, Nigeria railway modernization project (Abuja to Kaduna section), Nigeria railway modernization project (Lagos-Ibadan section) and Abuja airport terminal project. All these projects have contributed in one way or the other to the development of transport infrastructure in Nigeria.

4.5 Table 5: Major Chinese-backed projects in Respondents' Community or Close to their Community

Category	Frequency	Percent (%)
Abuja Rail Mass Transit Project	81	21.3
Nigeria Railway modernization project (Abuja to Kaduna section)	86	22.6
Nigeria Railway Modernization Project (Lagos-Ibadan Section)	118	31.1
Abuja Airport terminal project	95	25.0
Total	380	100.0

Source: Field Data 2021

The respondents were given options to select the Chinese – backed project located within their community or close to their community. According to the study findings, majority 118 (31.1%) of the respondents' report that Nigeria Railway Modernization Project (Lagos-Ibadan Section) is in/ close their community. This is followed by Abuja Airport terminal project with 25% respondents, Nigeria Railway modernization project (Abuja to Kaduna section) with 22.6% and Abuja Rail Mass Transit Project with 21.3% of the respondents. The reason why majority of the respondent go for Nigeria Railway Modernization Project (Lagos-Ibadan Section) is that the rail line runs through key states including Lagos State, Ogun State and Oyo State. It continues to support and facilitate the movement of goods and humans within the key states listed above and improve the industrialization and urbanization along the line

4.5.1 Abuja Rail Mass Transit Project

Abuja Rail Mass Transit Project is located in the Federal Capital Territory of Nigeria, contracted by China Civil Engineering Construction Company (CCECC). The total contract amount is US$850 million, out of which US$500 million is from China Preferential Credit. Abuja Rail Mass Transit Project began commercial operations on July 13th 2018. It is known as the first light rail in West Africa (Bukola, 2019). The total length of Phase I is 45.245 KM, 12 stations were set along the route. It connects two other major projects in Abuja: Abuja-Kaduna Railway and New Abuja Airport Terminal. It enables passengers to transfer from Airport station to new terminal and from Idu light rail station to Idu national railway station, building up a multi-dimensional and interconnected transport system of "trunk railway + urban light rail + air traffic + city bus", integrating land and air transport. The concept feathers inter-connectivity and efficiency, making Abuja a hub and gateway linking to other parts of Nigeria, West Africa and even the world. The operation of the city rail system is expected to lead to the commercial development of the land along the railway corridor, speed up the flow of people, promote the economic development of the capital area and play an important role in alleviating the tense traffic situation in the capital area.

During construction of the rail, an estimate of 20,000 local staff were employed. Since the commencement of operations, this project has directly provided about 1000 jobs. During construction and operation, the project indirectly established an estimate of 200,000 jobs mostly in areas of material production, subcontracting works, equipment manufacturing and related services (Bukola, 2019).

4.5.2 Nigeria railway modernization project (Abuja to Kaduna section)

The Abuja-Kaduna Railway section is the first section of the Nigerian Railway Modernization Project, using China railway technical standards and connecting the capital city of Abuja, the state of Niger and the state of Kaduna, with a total length of 186.5 km and a maximum speed of 150km/h (Bukola, 2019). By July 26th 2016, Abuja-Kaduna Railway Project officially started commercial operation, becoming the first modern railway in operation using China standard in Africa. Nigerian Railway Corporation is in Charge of Operations while the CCECC offers technical support, training service and assistance to the commercial operation (Bukola, 2019).

The total contract value of A.K railway project was US$850 million, US$500 million of which was provided by a preferential loan from China EXIM Bank. Since the opening of the A.K. railway, it has improved Nigeria traffic and increased the population flows between the two places. It carries 400,000 passengers per year. It takes only 2 hours to complete the journey, 4 hours quicker than the former narrow–gauge railway, providing faster, safer and more comfortable trip than the formal narrow-gauge railway and highway.

4.5.3 Nigeria Railway Modernization Project (Lagos-Ibadan Section)

Nigeria Railway Modernization Project Lagos-Ibadan Section starts from Lagos, the largest Port City in Nigeria and runs northeastward through Abeokuta to Ibadan. The rail line runs through important states including Lagos State, Ogun State and Oyo State. The mainline is 156.8 kilometres long with a 6.51km extension to Apapa Port. The total contract sum is US$1.581 billion with China providing US$1.267.32 billion. The Lagos-Ibadan segment

has already been completed while the other segments are being planned. Due to the vastness of the country, the railway will cover a lot of stations between Lagos and Kano state, linking the regions together. The stations designed for ease of transportation are Lagos, Agege, Agbado, Kajola, Ewekoro, Abeokuta, Oyo, Ido, Ibadan, Abuja, Kubwa, Jere, Rigassa, Kaduna (Sheriff and Farouk, 2020).

The Export-Import Bank of China provided US$1.267 billion of concessional loans, accounting for 80.14% of the contract sum. The project will improve the service of Nigerian transport infrastructure and enhance the layout of the national railway network and will greatly promote the development of resources and boost the industrialization and urbanization along the line, stimulate the coordinated development of regional economy, and accelerate the growth of ports in the country.

4.5.4 The Four Airport Terminals Project

In September 2012, CCECC signed a contract with the Ministry of Aviation for the construction of Four Airport Terminals in Abuja, Lagos, PHC and Kano at the sum of US$600 million. In July 2013, during the Nigeria President's visit to China, the Federal Ministry of Finance and China EXIM Bank signed US$500 million loan agreement at the witness of the leaders of both countries. The Project officially launched afterwards. In 2018, the terminals in Abuja and Kano have been commissioned. In May 2018, the agreement for Phase II and ancillary works of the Project was officially approved and signed by both parties at a sum of US$460 million.

4.6 The Impacts of these Projects

The impact and relevance of China's projects on infrastructural investment in Nigeria cannot be over emphasized. To examine the impact, respondents were asked different questions on the influence of China's projects on infrastructural investment in Nigeria. Some of the questions includes: if China is an important economic partner of Nigeria, if China plays an important role by providing infrastructural funding and increase access to transportation infrastructure and if there are changes or development in infrastructure as a result of China's Investment?

The responses revealed that China is an important economic partner of Nigeria. This is in accordance with the findings of Jackson (2019), although he reported that while Nigeria's economic partnership with China has expanded significantly in the 21st century, it has not been fair, equitable, or as expected. Given China's need for energy supplies to drive its economic expansion, petroleum shipments from Nigeria to China are expected to account for the majority of trade between the two countries. Nigeria, on the other hand, supplies virtually little oil to China. He also stated that bilateral trade between Nigeria and China is strongly skewed in China's favour and that such trade began to account for a significant amount of Nigeria's overall international trade in 2013, with China being Nigeria's top source of imports. Chinese foreign trade, on the other hand, is massive, and Nigeria plays a minor role in Chinese exports and none at all in its imports. China has been a big investor in Nigeria; however, transportation rather than oil is the main focus of such investments. Following Hu Jintao's 2006 visit to Nigeria and subsequent visits, a number of investment deals involving power generation, oil and gas, railways, telecommunications, manufacturing, agriculture, and finance were signed (Rotberg, 2009). Many of the projects negotiated by Hu Jintao were scaled back by President Umaru Musa Yar'Adua, after he succeeded President Obasanjo, President Jonathan and his successor, President Buhari, negotiated others. This relationship has led to a number of high-profile BRI projects constructed by China and more still under construction, many of which are sponsored by China's EXIM Bank. According to Lawal (2018), trade volume between Nigeria and China increased by 10.8% (to US$15.3 billion) more than it was in 2017. He also reported same trend for Africa, trade volume between China and Africa has increased from US$10.6 billion in 2000 to US$204.2 billion in 2018. Similarly, China's Export-Import Bank has so far sponsored about 600 billion Yuan (US$87 billion) projects in more than 40 African nations including Nigeria, the majority of which are with Belt and Road Initiative partners.

Our Chi-Square result also suggests that China's Investment increased access to transportation infrastructure. Egbunike (2021) also made similar assertion, wherein he mentioned a number of BRI transportation projects (like we already mentioned in the present study) that have benefited Nigeria. The Abuja/Kaduna Standard Gauge Rail Line connects Abuja, Nigeria's capital, to Kaduna, a trade centre and transportation hub in northwestern Nigeria; the Lagos/Ibadan Standard Gauge Rail Line connects Lagos, Nigeria's economic capital, to Ibadan, the former administrative capital of southwestern Nigeria; and the Lagos-Kano railway, an ambitious project connecting the two most populous cities in southern and northern Nigeria. New international airport terminals in Abuja, Port Harcourt in Nigeria's crude oil-rich Niger Delta region, and Kano's ancient city are among the others.

Our Chi-Square analysis also shows that the Chinese backed projects have brought about positive changes or development in infrastructure. Based on the findings, it can be concluded that China's BRI projects have significant impact on infrastructural investment in Nigeria. Nigeria has seen its fair share of infrastructure projects throughout the years, owing to the government's quick engagement with the Chinese BRI. The popular Abuja–Kaduna standard gauge rail line, Abuja rail mass transit, new terminal at the Nnamdi Azikiwe International Airport, Abuja, Lagos–Ibadan standard gauge rail line, Port Harcourt International Airport, Port Harcourt, Malam Aminu Kano International Airport, Kano, Lekki deep sea port project, and Abuja township road project among the completed

and ongoing projects in Nigeria are obvious testimonial of BRI intervention.

The present study's finding is in line with the study of Deych (2019), who concluded that the BRI plays a significant part in China's foreign policy, as well as its impact on African countries located on the crossroads between land and maritime Silk Roads. Huge infrastructural projects are like the construction of railways and highways, upgrades of aviation communications, new energy projects, industrial parks, in addition to the construction of seaports in coastal countries are essential key Chinese strategy. It was concluded that speedy economic growth of African countries is Beijing's target with its attendant influence and dominance in the global political competition and rivalry among the super powers. Oniku and Gbadamosi (2009) also revealed that both China and Nigeria have benefited from their bilateral relations. China repatriated more than US$84 billion from Nigeria between 1997 and 2007, while Nigeria's non state actors repatriated less than US$10 billion profits from China in the same period.

The findings of this study are also in line with Mohammed, Nazia and Yuan (2018) they argued that China maintains her relationship with African continent and the BRI has deepened this relationship to the extent that leadership of both sides need to explore more. They revealed that the BRI will result into tight friendly relation between China and Africa. It was concluded that China has universal objectives, while African countries are in serious need of investments for infrastructural development, and OBOR offers the best strategy to pursue their ambition. Fidelis, Jude and Ighata (2014) agreed with this study that the role of infrastructural development on economy is a vital issue for strategic and development policy for a country with weak quality of infrastructure base. Efficient infrastructure attracts centers of production and consumption, gives greater access to markets and education centers and timely access to health care.

4.6.1 Abuja Rail Mass Transit Project

For Nigerians, the Abuja Mass Transit Project is a novel concept because what the Nigerian is used to, is the typical railway system but despite this novelty and newness, it is still a relevant and necessary transport system. It will not just convey mass people and goods; it will help to decongest traffic and pressure on the roads. The question then is, wherein lies the impact?

The bulk of masses that live within the areas the project is located, come within the middle and lowest ladder of income earners within the Nigeria population. Living conditions are not as hospitable, access to these areas is anything but smooth and readily available- because of these, it hinders timely access to health facilities located within the city centre in cases of emergencies. the impact is seen from the fact that it makes it slightly easy for the masses to access health care facilities and city centre for their social-economic activities. It also makes it easier for government agencies and officials that hitherto could not access these areas, to do so now. In a nutshell, it has opened some of the local areas to the world.

The other impact is also seen from the fact that it has made access to and fro the Abuja International Airport and Abuja – Kaduna Train Station interconnected, easy and affordable. And for tourism purposes, visitors can admire the beauty and lushness of the Nigerian topography, somehow showcasing the tourism potential of Nigeria, which could lead to heightened economic activities. Lastly, the presence of this project also introduces this technology to the common man.

4.6.2 The Four Airport Terminals Project

The four Abuja Airport Terminals are located in Abuja, Lagos, Kano and Port Harcourt. These cities represent the major hubs for air transportation in Nigeria, strategically located in Abuja, the capital city of Nigeria, Lagos the economic hub and western region in Nigeria, Kano the economic hub of the northern region and Port Harcourt the oil city in southeastern Nigeria. The importance of these projects to the aviation sector cannot be overemphasized because they constitute the live wire of air travels in Nigeria.

Before now, these airports were operational but not maximally. What we had was high passenger turnout but poor services because of the lack of necessary structure and facilities that would aid a smooth travel experience. The Chinese intervention was to bring these airports to international aviation benchmark and make them globally competitive. So far, three out of the four airport terminals are now functionally active with the last one, expected to be commissioned for use in 2021. The impact can be seen in the following areas.

a. Availability of world-class infrastructural facility which has eased previous travelers' inconveniencies
b. Availability of service that was previously only obtained abroad
c. The improved ambience and opening up at the various airports.
d. Not to forget the improved security and confidence of the travelers

Due to these provisions, travelers experience smoother and easier departure, arrivals and even stopovers, which has invariably enhanced the status of Nigeria among both local and foreign travelers.

4.6.3 Nigeria railway modernization project (Abuja to Kaduna and Lagos to Ibadan sections)

These two projects are historically nostalgic because the old Nigeria Railway system ran through these routes and it was one sure way of lifting people and goods across these segments. But following neglect, lack of maintenance and technological advancement, the old rail system packed up. More so, it was not the standard gauge and modern train could not operate on the track.

The Abuja – Kaduna section connects the capital city to the political capital of the north, which is Kaduna while the Lagos – Ibadan connects the oldest city in Nigeria (Ibadan) to the economic live wire of Nigeria, Lagos. A lot of goods and services flow through both sections.

The impact of these projects on the lives and communities through these new train tracks and stops can be better imagined with the kind of access these projects open up. In terms of the availability of government presence and also increased economic activities along these routes and other value chain ripples effects, will in no small measure stirs up some positive development.

Most importantly, it facilitates bulk transportation of goods and services from one point to the other, which was previously difficult before now. The difficulties were due to non-availability of transport vehicles, bad roads, accidents and delay by unforeseen circumstances.

The construction of these new train has brought a lot of value and enhancement to the railway system in Nigeria, a development every part of Nigeria has craved and hopes for as it has improved quality trains and aesthetics while effectively moving persons from one location of interest to another.

5. Conclusion

In sum, this paper has attempted to examine the nature of transport infrastructure, causes of transport infrastructural deficit. It also looked into the presence of Chinese intervention in ameliorating the gap in infrastructure through the identification of various Chinese backed projects. The paper also critically reviewed the impact of these projects on the social-economic sector in Nigeria and the realities of its impact on the people. The immediate impression one gets is that there is now a deliberate effort and will to begin to address the infrastructural deficit in the transportation sector of the Nigerian economy.

There is also a heightened tempo in service and delivery, particularly within the rail transportation sector and this has drastically reduced the pressure, in some way, on road infrastructure. Today, trains with fine aesthetics and technologically compliant (standard gauge) are now operational in Nigeria, faring people and goods at fast pace and comfort.

In the absence of trains, the bulk of Nigeria's transportation shifted to road and air. However, with increased port inefficiency, congested traffic gridlocks on damaged roads, the return to rail transportation was almost inevitable. The advantage China's intervention is that it's well advanced in its policy and operational functionality, with a global reach and impact. It has established itself as a prominent hub in the heart of the global institutional architecture on development and inclusive growth.

China's intervention in Nigeria's transport sector has contributed to infrastructural development in Nigeria through projects like Abuja Rail Mass Transit Project, Nigeria Railway modernization project (Abuja to Kaduna section), Nigeria Railway Modernization Project (Lagos-Ibadan Section), and Abuja Airport terminal project among others. Chinese projects are mainly focused on railways. This study also revealed that Railway Modernization Project (Lagos-Ibadan Section) is a major project in the country. The rail line runs through Lagos State, Ogun State and Oyo State and this has aided industrial development. Rail transportation has and continues to play a catalytic role in bringing about socioeconomic development. It contributes substantially to the movement of passengers and freight. Indeed, rail transportation has the capacity to link producers and consumers together, making it easy to move raw materials, commodities and other finished products. An efficient and effective rail transportation system in Nigeria is essential in supporting economic growth and in fact serves as a corner stone to economic development.

Nigeria needs infrastructure and also needs to industrialize. The reality is that the country has no means to do these alone without external financing and technical assistance. Nigeria needs partnership and cooperation with other countries, especially China. The reality is that China has demonstrated its commitment to invest in some sectors of the developing world where the West has refused to invest, especially with regards to the provision of hard and productive infrastructures. Nigeria government needs to refocus and re-strategize on policies that will enhance the benefit that would accrue to them from engaging China.

In conclusion, the Chinese intervention, irrespective of the school of thought that is reviewing, has been hugely impactful and beneficial to Nigeria and Nigerians.

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