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Infrastructural Development, Poverty Reduction and National Development in Nigeria: An Empirical Exploration

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ABSTRACT
This study examined infrastructural development in Nigeria and its nexus with poverty reduction and national development using a qualitative analysis approach and data gathered from secondary sources. The findings showed that infrastructural development is crucial for poverty reduction and national development. Evidenced by inadequate electricity supply, no provision of portable water to the majority of the citizens, deteriorated paved road network, poorly provided and maintained airports, deplorable health infrastructure, among others, this study established infrastructural deficit in Nigeria with serious adverse consequences on the quality of life and welfare of the people, performance of business firms and the national economy. Many households and business firms were forced into self-provision of infrastructure like electricity supply through the use of small generators and portable water supply by digging wells and drilling of pole holes at a very high cost. Consequently, the cost of production of goods and services increased, which was passed to consumers in the form of high prices, and the profit margins of business firms have drastically reduced, forcing many manufacturing firms to reduce production, while others shut down operations in Nigeria. This resulted in loss of jobs, reduction of income of many people and huge losses to the national economy, which undermines poverty reduction and national development. It was recommended that the government should ensure adequate provision of hard- and soft-core infrastructure, especially electricity supply, portable water and good road networks through various forms of financing, including the PPA model and maintenance culture should be invigorated. The Constitution of the Federal Republic of Nigeria should be reviewed to remove the provision of some infrastructure, especially electricity supply, from the exclusive list of the Federal government to encourage and allow all capable state governments to generate, transmit and distribute electricity in their states.

Keywords: *Infrastructural development, poverty reduction, national development, Nigeria.*

1. INTRODUCTION
Poverty reduction and national development are central goals of the macroeconomic policy of developing countries, including Nigeria. National development, being a comprehensive and sustainable improvement in a nation's well-being, involves economic, social, political, and cultural advancements of a country. The economic dimension of national development entails sustainable growth and development. It is a necessity for general improvement in the economic well-being and quality of life in the country, including reduction in poverty, unemployment, income inequality and dependency. Hence, national development encapsulates sustainable growth, poverty reduction, human development, environmental protection, institutional transformation, gender equity, and human rights protection. Many factors promote or hinder a country's development. These factors include capital investment and its quality, quality of labour force, openness of the economy to international trade, competitiveness of the exchange rate, flow of foreign direct investment, quality of governance, political fragility, policy summersault or

reversal, the frequency of strike activity and infrastructural development (adequacy or inadequacy) (Nkong-Nkan, 2017; Akpan & Uford, 2024).

Infrastructure, a vital asset of the economy, has a profound impact on poverty reduction and economic development within a country. Development economists had accentuated the provision of adequate infrastructure as a key stimulus to the economic development of a nation. The emphasis emanates principally from growing realisation that social and economic infrastructures are critical ingredients for economic growth, employment generation, wealth creation, poverty reduction and income redistribution. Batten (1996) described infrastructure as 'engine of economic growth' while Oshikoya et al. (2002) viewed it as the 'wheels' of economic activity, which provides a conducive environment for productive activities to take place, thereby facilitating economic growth. Ukwu (2002) portrayed infrastructure as the foundation and enabling sustaining environment for economic development. Ekpo (2016) identified infrastructure as "enablers" in the economy, which are crucial for industrialisation, a veritable tool for rapid economic development.

The provision of infrastructure facilities and services enhances the provision of basic human needs such as food, housing, health and education services, jobs, clean water and sanitation and electricity. Infrastructural development has a strong and positive link with poverty reduction and national development through reduction in unemployment, raised income, improved healthcare and educational services, efficient communication and transportation facilities. The World Bank (2024) posited that investment in infrastructure, particularly in areas like roads, electricity, water supply and telecommunication, is essential for reducing poverty, promoting economic growth and improving living standards. The growing importance of digital infrastructure, such as internet access and broadband connectivity, in driving economic growth and productivity in a country is also recognised. Infrastructural development also plays a crucial role in reducing income inequality by improving access to essential services and creating economic opportunities for the poor.

The provision of infrastructure attracts investment to less developed areas, allows wide movement of goods and people, facilitates information flows, large-scale production, reduction in cost of production and cost of doing business, as well as helps to commercialise and diversify the economy (Uford, 2017). Studies have shown that infrastructure can have a significant impact on labour productivity, consumption, output, employment, income, international trade, and quality of life. Aigbokhan (1999) asserted that public infrastructure plays a crucial role in the development process by providing services that are part of the consumption bundle of residents. In most cases, infrastructure serves as an input into private sector production, thus augmenting output and productivity. Also, large-scale expenditure on public works increases aggregate demand and provides short-run stimulus to the economy.

The crucial role of infrastructural development in economic development notwithstanding, there is a significant infrastructure deficit in developing countries, including Nigeria. There are also challenges of providing reliable and affordable infrastructure services in these countries. The World Bank (2019) report shows that in many developing countries, infrastructure remains woefully inadequate. About one billion people lack access to roads, 2.2 billion people do not have access to safe drinking water, 675 million do not have access to electricity at home, and nearly 4 billion people live without access to the internet. Disruptions caused by unreliable infrastructure services impose costs of hundreds of billions of Dollars annually. In Nigeria, infrastructural development has been abysmal. The World Bank (2021) Global Competitiveness report on infrastructure for the period (2011-2019) revealed that Nigeria ranked 133 out of 140

with the value of 2.4 in 2015, 132 out of 138 with the value of 2.1 in 2016, 131 out of 137 with the value of 2.3 in 2017, 124 out of 140 in 2018 and 130 out of 141 in 2019. The level of access to basic infrastructure such as electricity supply, roads, clean water and improved sanitation facilities has not kept pace with the demand and rapid population growth in Nigeria. The infrastructural development gap in Nigeria is wide. PricewaterhouseCoopers (PwC) reported that Nigeria's infrastructural financing needs is likely to grow from $23 billion in 2013 to an estimated amount of $77 billion by 2025 (Aremu, 2016).

Taking infrastructure by components, electricity supply in Nigeria, for example, has been grossly inadequate and unable to meet the growing demand for electricity in the country. According to Remteng et al. (2021), Nigeria is one of the most underpowered countries in the world, with about 80% of actual demand for electricity not met. In September 2022, Nigeria, with an estimated population of 232.2 million people, had total electricity generation of 5,043MW, whereas South Africa, with a population of about 60 million people, has a total domestic electricity generation capacity of over 58,000MW (Fisayo-Bambi, 2024). Available information shows that only 40%, 56.8% and 61% of Nigeria's population had access to electricity supply in 2009, 2018 and 2022, respectively (Derek, 2013; World Bank, 2018; Remteng et al., 2022). Similarly, the road network infrastructure in Nigeria has been in a bad state and the kilometres of paved road in Nigeria have been deteriorating. Out of about 200,000km total length of road network in Nigeria, the paved road was about 65,000km in 2013 and 60,000km in 2019, implying that about 30% of the road network was paved in 2019 (Ubi & Udah, 2019; Styles, 2020). This, compared with China, which had an average of 80% of paved roads, is indeed poor considering the fact that a total of 95% of passengers and goods are transported by road in Nigeria (Ubi & Udah, 2019).

As earlier stated, infrastructural development has a strong positive relationship with poverty reduction and national development. Abysmal infrastructural development adversely affects the quality of life in a country. Poverty manifests in poor quality of life and is characterised by low income, hunger, ill health, poor housing, illiteracy, malnutrition and unemployment (Okoro, Akpaeti & Ekpo, 2015). Poverty, though identified as a global problem, is prevalent in Nigeria. Paradoxically, Nigeria is ranked as the biggest economy in Africa (World Bank, 2025), with enormous wealth in human and natural resources, but also faces pervasive poverty, high unemployment and regional disparities. NBS (2025) report shows that in 2019, the incidence of poverty in Nigeria was 40.1%, with about 82.9 million people living below the poverty line. In 2023, the World Bank reported that poverty incidence was 38.9%, with an estimated 87million Nigerians living in poverty. Also, the National Multidimensional Poverty Index of 2022 (MPI, 2022) shows that 63% of Nigerians are multi-dimensionally poor. The implication is that 133 million Nigerians experience deprivations in multiple areas like education, healthcare, electricity supply, sanitation and housing, etc. Poverty is a very serious problem that begs for urgent attention and solution in Nigeria. There is a need for poverty alleviation in order to improve the quality of life of the people (Asuquo et al, 2024). The way out is through effective production and distribution of consumer goods and services and the generation of employment. As observed earlier, the 'wheels' and 'enablers' of economic activity which culminate in effective productive, distributive and exchange activities, jobs and wealth creation, is adequate and efficient provision of infrastructure.

The objective of this study is to examine infrastructural development in Nigeria and its relationship with poverty reduction and national development. The motivation for the study was derived from the poor state of infrastructure and the increasing widespread of poverty in the country. This study contributes to knowledge by employing a qualitative analysis approach and

data from secondary sources to show the relevance of infrastructural development to poverty reduction and national development. This study has 5 sections. Section 2 provides a literature review, and Section 3 presents the infrastructural development, poverty reduction and economic development nexus. Section 4 presents Nigeria's infrastructural development experience. In section 5, there is a conclusion and recommendations.

2. REVIEW OF LITERATURE

Conceptual Issues

Infrastructure: Infrastructure is a broad concept linked to every facet of the economy. The term infrastructure was popularly used during the Second World War by military strategies to indicate a wide range of elements of war logistics (Youngson, 1967). It was thereafter adopted by economists into the literature of development economics to represent social overhead capital (hereafter SOC). According to Hirschnman (1958), SOC are those capital stock and services which aid the functioning of primary, secondary and tertiary production activity in the country. It encompasses all basic inputs into and requirements for the proper functioning of the economy. Hornsby (1995) described infrastructure as the basic structures and facilities necessary for a country to function efficiently. CBN (1999) viewed infrastructure to include funding and facilities for electricity supply, roads, education, water supply and treatment systems, postal and telecommunication systems, judiciary and hospitals, among others. Loto & Nkaogu (2011) describe infrastructure as a wide range of economic and social facilities crucial to creating an enabling environment for economic growth and enhanced quality of life. They include housing, electricity, pipe-borne water, drainage, waste disposal, roads, sewage, health, education, telecommunications and institutional structures like police stations, fire-fighting stations, banks and post offices. Tom et al. (2021) refer to infrastructure as including all public services from law and order through education and public health to transportation, communication, power and water supply, as well as agricultural overhead capital such as irrigation and drainage systems.

Infrastructure encapsulates all facilities and services, physical and otherwise, which help to boost economic and social activities in a country and are also necessary for raising the productivity of other factors of production (labour and other capital) and the standard of living of the people. It refers to all physical, social and institutional forms of capital as well as services which help to enhance and facilitate economic and social activities in the country and the overall well-being of the people. It includes transportation systems (roads, railways, airline systems and seaports), communication systems (telecommunication and postal services, radio, television and recreational facilities, and internet services), irrigation and water resources facilities such as dams, canals, pipe borne water and soil conservation facilities, basic public services and facilities (electricity supply, schools, hospitals, sewer and water system), institutional structures (police station, post offices and firefighting stations) and governance systems (security and judicially systems) (Ekpo, 2017). Basic infrastructure shares some features like economies of scale in production, public goods, merit goods, natural monopoly and generation of externalities, which have been used to justify government involvement in their provision, control and financing (Ekpo, 2011; Akpan et al, 2024).

Based on its multidimensional nature, infrastructure has many attributes such as economic infrastructure, social infrastructure, institutional infrastructure, physical infrastructure, soft core infrastructure, hardcore infrastructure and land infrastructure (Kurmar, 2005; Ekpo, 2016; Tom et al., 2021). Economic infrastructures are facilities and services which directly enter the process of production and distribution in the economy. It consists of physical capital accumulation embodied in road networks, railways, waterways, airways and other forms of transportation, communication, water supply and electricity supply, and other public services (Todaro, 1980).

Adeyemo (1979) viewed physical infrastructure as the totality of basic physical facilities upon which all other economic activities in the system significantly depend.

Social infrastructures, on the other hand, are facilities and services meant to enhance human capital development and well-being, promote the social welfare and quality of life of the people. They are those facilities and services which facilitate the achievement of certain social goals as well as help in enhancing various economic activities. It consists of facilities for healthcare and educational services, good governance, accountability, security, rule of law and property rights. The facilities for healthcare and educational services, for example, facilitate the supply of healthy, skilled personnel to manage and operate other resources in the economy. They also enhance economic, political and social empowerment of the populace with attendant positive effects on poverty alleviation and efficient use of national resources (Jerome, 1999). Institutional infrastructure comprises police stations, post offices, fire-fighting stations and banks. According to Kumar (2005), soft core infrastructures are social infrastructure comprising the supply of healthcare and education services, governance structure, accountability and property right structures, whereas hardcore infrastructure includes physical structures and comprises telecommunication, power supply, transportation, water supply and sewage.

National Development: National development simply entails the process of progressive growth in a diverse and specified direction of a nation. Ariyo (2016) described national development as sustainable growth and development of a nation. It is a multi-dimensional and multi-disciplinary concept which has continued to receive diverse interpretations and explanations among scholars and researchers. In our attempt at defining national development, we would look at it from the perspective of economic development and adopt a few explanations offered by notable authorities. The International Labour Organisation (ILO) stressed that a more comprehensive explanation of economic development should be in the context of the 'basic needs' approach adopted in the World Employment Conference of 1976. According to the 'basic needs' approach, economic development entails improvement in the quality of life of the people through the provision of the basic human needs such as housing, clothing, food, education, health, water, employment and other social services to the people by the government. These are the outstanding features of the overall development of a country.

Umo (2011), in support of the 'basic needs' approach to development, stressed that the provision of the basic human needs with fewer monetary resources affects poverty faster than the GNP/GNP per capita strategy, which aimed at increasing productivity and incomes of the people in the long run. Jhingan (2012) buttressed further by stressing that the provision of the basic human needs will lead to higher productivity and income through human development in the form of educated and healthy people. In the same vein, the World Bank (1991) pointed out that the challenge of development is to improve the quality of life, especially in the world's poor countries. A better quality of life generally calls for higher incomes and much more; it encompasses, as ends in themselves, better education, a higher standard of health and nutrition, less poverty, reliable electricity supply, a cleaner environment, equality of opportunity, greater individual freedom and richer cultural life.

The United Nations Organisation (UNDP, 1998), on the other hand, provided the human-centred development approach to national development. Based on this approach, development is seen as a process of expanding human choices to enable people to live long, healthy and creative lives. Accordingly, the measure of development is the Human Development Index (HDI). HDI captures how well a country has performed in terms of real GDP growth and also the social indicators of people's ability to lead a long and healthy life, acquire knowledge and skills and

have access to resources needed to afford a decent standard of living (Ogbeide & Igbinedion, 2015). HDI takes three outcomes of development into account: states of health, which determine life expectancy, access to education, which determines the level of knowledge and skills and the level of real income, which determines the standard of living of the population. The World Bank opines that development should be people-centred. Accordingly, it has been stressed that development should be pro-people; and should ensure that majority of people have control over material assets, obtain physical necessities of life (food, clothing and shelter), have adequate education and employment, participate in government, reduced poverty and inequality, improved access to health facilities and portable water, sanitation and security (World Bank, 2007).

As stated above, national development is measured in terms of sustainable growth and development. Economic growth is conceived in terms of the pace of increase in production of final goods and services (that is, increase in GDP). Economic growth may not lead to economic development, but there cannot be economic development without economic growth (Aji et al, 2023). For example, between the period 2005 and 2014, the average growth rate of the Nigerian economy was about 6.0 per cent (World Bank, 2015), but there was a high rate of unemployment, income inequality and poverty in the country. The GNI per capita increased from $3.60b in 2005 to $5,165b in 2014, about 43% (World Bank, 2015) but the Gini coefficient rose from 0.429% in 2005 to 0.504% in 2013, unemployment rate increased from about 11.9% in 2005 to 24% in 2014 (NBS, 2015) while poverty rose from 28.7% in 2004 to 43.3% in 2005 (UNDP, 2015). Hence, emphasis on national development should not be on economic growth but on economic development. It should address the following questions: What is happening to unemployment, education and health? What is happening to the provision of other basic needs such as shelter, food, clothing, portable water and electricity supply to the majority of persons? What is happening to the reduction in poverty and inequality? If the answers to these questions are negative, then there is no national development, irrespective of the rate of growth of GDP. The hallmark of national development should therefore be in the provision of human basic needs, critical infrastructure, reduction in unemployment, inequality and poverty which enhance the quality of life of the residents.

Poverty and Poverty Reduction: Poverty is a multi-dimensional and dynamic phenomenon. To many people, poverty is a lack of income. Agba & Njiforti (2015) defined poverty as a condition in which people earn below a specific minimum income level and are unable to provide the necessities of life needed for an acceptable standard of living. In addition to a lack of income (or money), poor people in society are confronted with many other challenges, such as an inability to have the essentials of life like adequate, good nutritional food, safe drinking water, basic education, good medical services and shelter, electricity supply, among others. Lack of access to these essentials of life amounts to capability deficit. Capturing all these into the concept of poverty, the meaning of poverty has been extended beyond the narrow concept of lack of income to capability deprivation. Sen (1999) described poverty as a lack of capability to function. Hence, poverty encompasses income deprivation and capability deprivation. This is in line with Aigbokhan's (2016) definition of poverty as a state of long-term deprivation of well-being, a situation considered inadequate for decent living.

Based on manifestations, poverty has been variously classified. Among these typologies are absolute poverty, relative poverty, consumption poverty, capability poverty, asset poverty and subjective poverty. There are also knowledge poverty, chronic poverty and transitory poverty (Umo, 2012). Absolute poverty, sometimes referred to as abject poverty, is an extreme poverty condition in which a person or community is deprived of, and/or lacks the essentials for a minimum standard of well-being and living (NBS, 2007). People or communities under this

condition live below the poverty line. Poverty line is the level of income required for basic subsistence below which a given family or individual is classified as poor. Relative poverty compares the extent to which a person's income falls lower than what the custom of the country accepts as needful for a reasonable decent living. It describes people as being poor if their income falls at the bottom of the distribution of income (Todaro & Smith, 2011). Consumption poverty is the measure of the well-being of the people in terms of the annual family consumption expenditure. It is a more robust measure of poverty as it reflects a permanent state of poverty situation of the people, rather than income poverty, which shows a temporary poverty situation.

Capability poverty presents poverty as a lack of minimal adequate means for "functioning" in terms of what one wants to do. For example, lack of empowerment, lack of nutritional food and lack of capabilities to participate in community affairs. Consequently, it projects poverty beyond the income and expenditure circle to include other factors like health, a healthy environment and education, which affect poor people. Asset poverty measures poverty in terms of the assets and wealth of the people. It shows how far one's assets or wealth can go in sustaining oneself in living below/above the poverty level. Subjective poverty is a poverty measure based on the subjective assessment of individuals on their perception of their poverty level. Knowledge poverty (or poverty of knowledge) is the mother of all poverty and a variant of asset poverty. Chronic poverty captures people who are poor on the ground that they are physically handicapped or they have nobody to turn to for help (Akpan, 2016). It consists of the destitute and the orphans. Transitory poverty, as the name implies, is transient. These are people who initially were in the non-poor category but are thrown into poverty by natural disasters like earthquake, tsunamis, draught and floods or any other unexpected and sudden occurrences like theft and fire.

Empirical Literature

There are many studies conducted in many economies and across countries on the roles of infrastructure development on poverty reduction, economic growth and development. The relationship between infrastructure development, poverty reduction and economic development is well established in the literature. Familoni (2002) examined the role of infrastructure in economic development and avers that infrastructure plays a significant positive role in economic development as it expands the productive capacity of the economy. He stressed that in countries like Korea and Japan, where the growth of infrastructure has followed a rational, coordinated and harmonised path, growth and development have been greatly enhanced, whereas in most less developed countries where growth of infrastructure has not followed a rational and coordinated path, growth and development have been stunted. Hence, adequate provision of infrastructure provides the basic foundation on which the superstructure of growth and development can be erected. Oshikoya & Hassain (2002) studied the state of infrastructure and its significance in the development of the continent of Africa and asserted that infrastructural development is central to poverty reduction and the lack of access to infrastructure by households is a real welfare issue, particularly in rural areas where poverty is predominant. They stressed that the provision of adequate infrastructure such as electricity supply, water supply, health and educational facilities and services and road transportation is *sine qua non* for successful rural transformation and agricultural development and, inadequate or non-availability of infrastructure has adverse impact on health, education, living standard of the people and the capacity of local producers to produce as well as their ability to compete in international markets.

Ibrahim (2019) examined the influence of infrastructure (telephone density, energy consumption and capital expenditure in transport and communication) on industrialisation (measured by industrial output) in Nigeria from 1981 to 2015 using the dynamic ordinary least squares (DOLS)

estimation technique. The findings revealed that all proxies of infrastructure impacted positively on industrial output when a structural break was not accounted for, except for telephone density. Energy consumption and telephone density impacted industrial output in the presence of structural breaks. Jerome (1999) asserted that there is a strong relationship between the availability of infrastructure like electricity supply, telecommunications, surfaced roads and safe water and GDP per capita. He maintained that electricity supply, telecommunication and water are used in the production process of virtually every sector of the economy, while transportation is necessary for the mobility of people and distribution of commodities. Transportation adds value and spurs growth through efficient movement of goods and services to where they are used most effectively. The provision of adequate electricity enhances the functioning of manufacturing firms, makes possible the use of modern technologies and processes which are crucial for economies of scale and their attendant benefits (Thomas & Christopher, 2025).

Ubi & Udah (2019) studied the relationship between industrial output and infrastructure (governance and road network) in Nigeria for the period (1980 - 2015) using the vector autoregressive (VAR) model for the analysis. The results showed that governance and road network had an important but restricted role to play in driving industrial growth. Innovations to corruption and institutional quality (all governance infrastructures) and innovations to road infrastructure explained 0 per cent variance to industrial growth in the first quarter and increased to 0.63 per cent in the tenth quarter. These findings imply that infrastructure has a long-run, significant positive effect on industrial output in Nigeria. Similarly, Hakfoort (1996) found that infrastructure has a significant positive effect on output, costs, and profits of manufacturing firms. The output levels, production cost, operating cost and profitability of firms are directly affected by the availability of infrastructure. The output levels together with production cost determine the competitiveness of domestic products in both domestic and foreign markets, and the profit of the firms.

Aschauer (1989) studied the impact of public investment in infrastructure on economic growth by estimating an aggregate production function using US data. He found a striking relationship between the US productivity and the rate of growth of the public capital stock. He asserted that the stock of public infrastructure capital affects aggregate total factor productivity growth and investment in public infrastructure improves the quality of life, increases economic growth and returns on private investments. Investigating the factors which contributed to the rapid economic growth of eight East Asian economies, often referred to as the “East Asian Miracles”, Stightz (1996) found that infrastructure (human capital, physical capital and institutions) helped to increase the rate of return on private investments and promote economic growth. Ilori (2002) also asserted that infrastructures are basic structures and facilities necessary for a country to function efficiently and that all economic activities in a country depend on the totality of basic physical infrastructure available. He stressed that regular and adequate electricity supply, good transportation and port facilities, as well as efficient telecommunication services, are necessary to complement private sector initiative in the production and delivery of services. He also maintained that credit theory asserts that public borrowing from the banking sector would, rather than suppress private investment, complement it if the credit is expended on the provision of basic infrastructure within the economy. Hence, public sector borrowing to finance infrastructural development has a positive impact on private sector investment in the economy through increased productivity of labour, greater efficiency of investment and higher levels of aggregate output.

In a study on the state of infrastructure and the challenges of rehabilitation in war-affected economies of Africa, Hoeffler (1999) established a link between infrastructure services, poverty

reduction and economic development. He maintained that improved infrastructure services promote economic growth by reducing production costs, facilitating the diversification of production and the expansion of trade, as well as impacts on households and the poor, with many consumption benefits which enhance their productive capacity and welfare. Access to clean water, good drainage, sewage and waste disposal systems reduces illness and mortality. Irrigation helps in year-round cultivation, increases agricultural yield and crop diversification, while the provision of transportation, especially in rural areas where the major occupation is agriculture, will encourage farmers to produce marketable surplus and sell them in the markets and create cash income.

Theoretical Framework

All schools of economic thought acknowledge infrastructural development as quintessential for poverty reduction and national development. The theoretical framework for analysing infrastructural development as a precursor to poverty reduction and national development in this paper is anchored on the Classical, Neoclassical and Keynesian economic theories as well as the unbalanced growth theory. The classical and neoclassical, though strong advocates of laissez-faire policy, automatic operation of the market system driven by competition and non-interference of government in a market economy, postulate that government should confine itself to the provision of services and facilities that create a conducive environment for private people to undertake investment that keeps the economy functioning (Ekpo, 2021). They emphasise the need for the government to build up infrastructure as a key stimulus to poverty reduction and economic development. Similarly, the market-friendly approach component of the neoclassical counter-revolution economic theory acknowledges many imperfections in developing countries' product and factor markets and stresses the need for government in the functioning of the economy. According to them, the government have a key role to play in facilitating the operation of markets through market-friendly interventions such as investing in physical and social infrastructure, healthcare facilities, and educational institutions and by providing a suitable atmosphere for private enterprises (Obioma & Ozughalu, 2004).

Also, the Keynesian acknowledges government expenditure in the provision of physical infrastructure as crucial for economic growth. In Keynesian economic policies, the urban infrastructure upgrading/renewal programme (hereafter, UIURP) is one of the core components. UIURP is meant to improve the functioning of cities as well as inject money that keeps the local economy moving, creates jobs, increases income and improves the well-being of the people. The World Bank and governments of many countries usually embark on UIURP to create jobs during economic recession, thereby improving the income of the people and reducing the poverty level. The unbalanced growth theory postulated by Albert O. Hirschman stresses the crucial role of infrastructural development in national development. It advocates that since less developed countries (LDC) are not endowed with sufficient resources to invest simultaneously in all sectors of the economy to enable them to achieve balanced growth, investment should be made in strategically selected industries or sectors of the economy for rapid development and utilise resources generated from them for the development of other sectors (Jhingan, 2012). By doing so, such a country will gradually move from the path of unbalanced growth to that of balanced growth. He pointed out that there are convergent and divergent investments; while convergent investments are those projects that appropriate more external economies than they create, divergent investments create more external economies than they appropriate. Jhingan (2012) asserted that development policy should strive to promote a divergent series of investments and the prevention of a convergent series of investments. Thus, for rapid development to take place, an unbalanced growth strategy should be adopted. This involves investing either in social overhead capital (infrastructure) services or in directly productive activities (DPA). Social

overhead capital (SOC) creates more external economies while directly productive activities appropriate more external economies; hence investment in SOC (electricity supply, irrigation, education, health, transportation, communication, etc.) is most often advocated since it will encourage private investment in DPA latter, whereas unbalancing the economy with DPA is likely to lead to shortage of social overhead capital, thus raising production cost substantially.

Impacts of Infrastructural Development on Poverty Reduction and National Development. Infrastructural development exerts both direct and indirect impacts on poverty reduction and national development. It affects production and consumption directly and also involves large flows of expenditure, which creates additional employment and income, reduces poverty and creates national wealth. It can propel sustainable growth and development in the following ways:

Improvement in the Quality of Life and Well-being of the Citizens: Infrastructural development helps in the reduction of abject poverty directly and indirectly. Each component of infrastructure, like electricity supply, road network, telecommunication, portable water supply, etc, contributes uniquely to poverty reduction and national development through its impacts on the quality of life of the citizens and the production process of the economy. Water supply, for example, is central to the quality of life in any nation. It serves as both an intermediate and final product in the economy. Similarly, electricity supply serves as both an intermediate and final product in the economy. The provision of adequate portable water supply, good sewage and waste disposal system, affordable and accessible healthcare and educational services improves the quality of life of the people by helping them to stay healthy, reduce infant and population mortality rate, increase life expectancy, as well as reduce knowledge poverty. In addition, electricity supply allows more time for study and the use of a computer and the internet.

Employment generation, improved income and consumption: Infrastructural projects generate direct employment, which engages the poor's human capital, provides income for them and enhances their consumption. The employment provided helps in handling income poverty, consumption poverty and other components of poverty, such as exclusion and capability deprivation.

Income distribution and reduction of income inequality: Infrastructural development also helps in wealth creation and sustainability. As it attracts more investment into the community and country and creates more opportunities for employment and earning of income for the poor, infrastructural development promotes wealth distribution and reduction in income inequality.

Output growth: Each component of infrastructure contributes significantly to the production process of the economy and, consequently, output growth. Water supply, for example, is central to the economic life of any nation. As stated earlier, it serves as both an intermediate and final product in the economy. As an intermediate product, it is an essential input in almost all production processes in the country. Even in iron and steel production, for example, water plays a crucial role as it is used to cool down the machines and iron and steel rods. Similarly, electricity supply is used in the production process of nearly every sector of the economy. It is an essential input in all production processes and contributes to the pace of production of goods and services by supporting industrial, semi-industrial, commercial and agricultural activities in the country (Ekpo, 2016). As a keystone for rapid industrialisation in developing economies, electricity supply is an engine that drives the real sector of the economy. It is capable of enhancing the productivity and growth of all sectors of the economy, especially, manufacturing sector.
Electricity supply has a positive relationship with manufacturing output. A stable electricity supply would encourage steady and uninterrupted production in manufacturing firms, resulting

in increased output, reduced overhead cost and unit cost of production of goods, final price of manufactured product, competitiveness of domestic products in the global economy, employment and income generation, among others. In rural areas, it can help to expand non-farm employment opportunities as well as increase households' productivity because time and energy that would have been expended in the collection of firewood and animal dung as a source of energy are redirected into some other productive activities. Consequently, a reliable electricity supply is capable of enhancing investment, productivity and improving income and the living conditions of the people. Thus, adequate public investment in the provision of electricity supply is a worthwhile and strategic public investment in the economy which exhibits positive externalities with other industries and contributes to social well-being in the country. It is a veritable vehicle for promoting economic growth, poverty reduction and economic development.

Ease of movement and distribution: Transportation infrastructure (road network, railways, seaports and airports) is vital in national development and poverty reduction by enhancing ease of movement and distribution of goods and services. All economic and social activities rely on roads and other transport systems for the movement of people, goods and services. The transport system provides physical access to resources and markets. It facilitates inter-regional mobility of labour, movement of goods and services, as well as enhances geographical and occupational specialisation and interdependence of countries based on the principle of comparative advantage (Anyanwu et al, 1997). Uma et al. (2014) asserted that sufficient investment in road transport infrastructure in Nigeria is imperative for the creation of adequate capacity utilisation as well as effective inputs and outputs circulation to various points of need. Efficient transportation infrastructure reduces the time and cost of moving goods from one part of the country to another and consequently, reduces the cost of living and cost of production in the country.

Enhances ease of doing business and exchange: Improved telecommunication infrastructure produces a direct and spillover effect on the economy. It allows rapid and wide flow of information, easy transaction of business at reduced cost, and expands business and market frontiers. Consequently, infrastructure facilitates overall economic efficiency, high productivity, creation of employment opportunities to the unemployed, reduction in poverty and improved standard of living.

Environmental sustainability: Electricity supply, as an alternative energy source to firewood and animal dung, improves indoor pollution as well as ensures environmental sustainability. Proper drainage and waste disposal facilities are also critical in environmental sustainability.

3. METHODOLOGY

This study adopted a descriptive research design, a secondary method of data collection and a qualitative technique to assemble data, logically assess, verify and synthesise evidence to establish facts on the infrastructural development, poverty reduction and national development nexus in Nigeria. The secondary source of the data included published books, journal articles, gazettes, internet sources, memo-graphs and publications of national and international organisations such as the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), National Electricity Commission, Federal Ministry of Works (FMW), and the World Bank.

4. ANALYSIS OF NIGERIA'S INFRASTRUCTURAL DEVELOPMENT EXPERIENCE

In Nigeria, infrastructural facilities and services are provided by either the public or private, central, state or local government agencies and can be grouped as urban, rural or inter-urban infrastructure. There is no gainsaying that most of the infrastructure stocks in Nigeria are in a bad state. The huge gap in the supply of most critical infrastructure, such as electricity supply,

road networks, transportation, education, health, housing and water supply is easily noticed. A cursory look at different components of infrastructure reveals their true state.

Electricity Supply: Electricity supply in a country encompasses electricity generation, transmission and distribution. In the Nigerian Constitution, electricity supply is the sole responsibility of the Federal government (Onwioduokit, 2019). However, in recent times, in order to curb power supply shortage in the state, some state governments, including Akwa Ibom State Government, have ventured into electricity generation; but their aspiration has been dampened due to the intricacies and complexities involved in electricity power transmission and distribution in Nigeria, since they are on the exclusive list of the federal government.
Electricity supply started in Nigeria as far back as 1896, when two generating sets were installed to provide electricity to Lagos colony. Though electricity-generating stations in Nigeria have increased to 17stations (3 hydro, 2 thermal and 12 gas stations), electricity supply is characterised by low installed capacity and low generating capacity. Also, there is a huge loss of generated electricity before it gets to the consumers because of obsolescence, wear and tear of transmission and distribution facilities. Nigeria, a country with about 237.5 million people, has a total installed capacity of 10,396 MW in 2016 (World Bank, 2025). By contrast, South Africa, with a population of about 60 million people, has a total domestic electricity generation capacity of over 58,000MW (Fisayo-Bambi, 2024). In 2016, the total installed capacity was 10,396MW, while the available generating capacity was 4,959MW. The Energy Commission of Nigeria estimated national demand for electricity for 2010, 2015, and 2020 were 15,730MW, 28,000MW and 51,000MW, but public electricity supply in the country has been below 5000mw. It had been grossly inadequate and unable to meet the growing demand for electricity in the country. In effect, there had been a wide gap between the demand for electricity and the electricity supply. Nigeria is among the most underpowered countries in the world, with about 80% of actual demand for electricity not met. Self-generation of electricity using small generators at a very high cost is extremely prevalent in Nigeria. About 14GW capacity exists in small-scale diesel and petrol generators, and nearly half of all electricity consumed is self-generated (Remteng et al., 2021).

Roads: Road infrastructure in Nigeria, which encompasses road networks, highways, lane pavement, etc., is heavily motorised, as goods that ought to be transported through railways and waterways are forced on the road network. Hence, the deplorable state of the road network and the deteriorating paved roads in the country. The total length of the road network in Nigeria is approximately 200,000km, comprising 33,000km, 50,000km, and 117,000km for federal, state and local governments, respectively (Ubi & Udah, 2019). Out of the 200,000km road network in the country, the paved road, which was only about 65,000km in 2013, has deteriorated to 60,000km in 2019 (Styles, 2020). The bane of road infrastructure development in Nigeria has been inadequate funding, poor maintenance and corruption (FMW, 2013).
Considering the critical role of road infrastructure in facilitating economic activity, the poor state of road networks has constrained the movement of people, raw materials and finished products across the country. The World Bank (2009) reported that poor road infrastructure is the third most important constraint to industrial activities in Nigeria. The bad state of the road network has contributed to high transport costs, high cost of raw materials and finished products, high cost of living in Nigeria as well as road traffic accidents and excessive vehicular wear and tear. Consequently, the quality of life and welfare of the populace, productivity and output of goods and services in the country had been seriously hampered, and economic development has been greatly impeded.

Rail services: Railway infrastructure is important in any country as it provides an alternative method of ground transportation, which relieves pressure on road transportation. The railway infrastructure development in Nigeria started when the British Colonial government commenced and completed the construction of a 193km railway line from Lagos to Ibadan in 1901. The rails consist of narrow gauge, single line tracks which commence from Lagos in the southwest and Port Harcourt in the south-south, through the southeast to the northwest and the northeast of Nigeria. The railway system blossomed under colonial government and after Nigeria's independence in 1960, but later deteriorated incredibly such that as at 1990s, the railway system was completely dead in Nigeria. Though the civilian administration under President Obasanjo, Goodluck Johnathan and Buhari had made efforts to revamp the sub-sector and even got the Chinese to invest in modernisation of the railways, the current railway infrastructure and services is far below what it was in the 1970s.

Airports: In Nigeria, there are four international airports located at Abuja, Kano, Lagos and Port Harcourt and over twenty domestic airports. However, the needed facilities to support the fragile and sensitive nature of air transportation are poorly provided and maintained in these airports. It has been observed that among the common features of the nation's airports are as follows:

(i) Navigational aids, instrument landing system and communications system are either in poor condition or not in place.
(ii) The radar communication does not cover the entire national airspace.
(iii) Arrival and departure terminals are poorly equipped and maintained.
(iv) Passenger's check-in and other information systems are either obsolete or non-existent.

Seaports: Most of the deficit side of other modes of transport, especially airports, is duplicated in the seaports. Other observations made of the seaports are:

(i) The country has a strategic shipping location to serve as a hub for regional shipping.
(ii) Management of the Nigerian Ports Authority has been remarkably poor over the years.
(iii) Clearing procedures and multiplicity of tariffs has continued to affect operations in the Nigerian seaports. The consequence of high charges for port users, multiple security agencies at the port and manual handling of cargoes all add to the disincentives that make most people avoid using the seaports.

Telecommunications: Telecommunications subsector was fully deregulated and privatised in 1999. Before 1999, telecommunication facilities were in a sorry state, and the performance of the subsector was very poor. In those years, Nigeria had a low tele-density of about one telephone line to 1,000 persons. There had been a significant improvement in the last few years with the introduction of the Global System of Mobile Communication (GSM) and subsequent full privatisation of telephone sector in terms of the growth rate of tele-density, number of total active lines and the contribution of the subsector to real GDP.

Water supply: Indisputably, only a few Nigerians have access to a portable water supply. The inability of the government to cope with the demand for water supply is clearly manifested all over the country. Most houses sink wells to have water for their domestic activities and buy sachet water for drinking. The rich homes, instead of sinking wells, drill boreholes to have water for domestic uses. Although the United Nations, some other donor agencies and private individuals have made efforts to drill more boreholes in different parts of the country, people's needs for a portable water supply have not been met because the demand is high. Obviously, a vast majority of Nigerians lack access to a portable water supply, and this is evidenced in the rampant outbreak of water-borne diseases, especially typhoid. **Health Services:** Health

infrastructure is represented by the establishment of tertiary, secondary and primary hospitals, availability of sufficient capable manpower, provision of adequate medical facilities and efficient services. Though the number of health institutions in the country has increased, there is serious deterioration in the sector. The experiences of the citizens during the COVID-19 period and frequent medical tourism abroad by Nigerians revealed the 'emptiness' of Nigeria's health infrastructure. The hospitals are not adequately equipped with medical facilities and manpower to cater for the health needs of the citizens. The health sector is characterised by inadequate funding, inadequate drugs, medical personnel and equipment. The health sector has suffered serious brain drain as many medical specialists have left the country for greener pastures abroad because of government insensitivity and neglect.

5. CONCLUSION AND RECOMMENDATIONS

This study employed a theoretical method of analysis to examine infrastructural development in Nigeria and its relationship with poverty reduction and national development. It is established in this paper that infrastructural development is crucial for poverty reduction and economic development. It is found that infrastructural development in Nigeria has been far below requirements. Electricity supply in Nigeria, in particular, has been in a poor state and far below average in terms of its demand and population growth rate of the country for many decades now. There had been a lack of access to portable water supply by the majority of the citizens, a poor and deteriorated road network, deplorable health infrastructure, poorly provided and maintained airports and seaports, among others. Indisputably, there is an infrastructural deficit in Nigeria which has serious adverse consequences on the quality of life and welfare of the people, growth of business firms and the performance of the national economy.

Poverty reduction and national development are undermined by the state of infrastructure in Nigeria, especially inadequate and unreliable electricity supply, a deplorable road network and a lack of portable water supply. It has been a serious obstacle to Nigeria's poverty reduction and economic development. Inadequate public provision of infrastructure has forced many households, business firms and even government establishments into self-provision of some infrastructure, like electricity supply through the use of small generators and portable water supply by drilling of pole holes at a very high cost. It has increased the cost of production of goods and services in the country, which is passed to consumers in the form of high prices. The profit margins of business firms are drastically reduced. For this reason, many manufacturing firms have been forced to reduce their production capacity, while others shut down their operations in Nigeria. It has caused loss of jobs and reduction of income to many people and huge losses to the business firms and the national economy. The widespread use of small electric generators for private electricity generation worsened poverty by reducing environmental quality and sustainability through noise and air pollution, which have adverse health consequences on the people. In effect, inadequate infrastructural development has hiked the poverty rate in Nigeria and undermined national development.

It is recommended that adequate hard and soft cores infrastructure, especially electricity supply, portable water supply and good road networks, should be provided by the government through various funding, including the Public Private Partnership model. Electricity generating, transmission and distribution capacity should be expanded through the construction of new generating stations, sub-stations and transmission lines. Maintenance culture should be invigorated; road infrastructure should be properly maintained, and Turn-Around-Maintenance should be carried out on existing facilities in the electric power sector regularly. The Constitution of the Federal Republic of Nigeria should be reviewed to bring out the provision of some infrastructure, especially electricity supply from the exclusive list of the Federal government, to

encourage and allow all capable state governments to generate, transmit and distribute electricity in their states. Good governance at all tiers of government is also recommended.

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