

The Importance of Critical Infrastructure and Productivity in Nigeria

YETUNDE SEKINAT OKOTIE (Mrs.)¹

Yetude_okotie@yahoo.com

Abstract

Nigeria is a country that develops along abnormal situations. Everyone seems to know the problem of the country, but no one seems to provide the right answers. The country has refused to go under because of its enormous wealth which has been plundered over the years. In all development and production indices, one aspect that cannot be overemphasised is the presence or absence of infrastructure in international best practices. This paper takes a look at the importance of critical infrastructure and productivity in Nigeria. The paper attempts to expose and interrogate the importance of critical infrastructure in some critical sectors such as manufacturing, oil, transport, agricultural, social, energy banking and services. The paper concludes that there is absence of these infrastructure in all the sectors and Nigeria has not muster the political and technological will to address the issues frontally.

Introduction

A country's level of development is a reflection of its productive capacity or productivity. The Gross Domestic Product (GDP) of any country is measured by its production output in relations to its inputs of natural resources depending on where the country has comparative advantage. Scholars have argued that the GDP of a country is tantamount to its growth. On the other hand, evidence has shown and are abound that growth is not a reflection or synonymous to development. In Nigeria, poor infrastructure has become part of everyday existence and acceptability. Nigerians put up with lack of clean water, poor access to healthcare, rotten schools, crumbling and dilapidated infrastructure. Nigerians have become independent or apathy to government. They provide their electricity, security, water inform of borehole, access roads, transportation, health care facilities and educational facilities. Countries create their part to productivity through the availability of resources (human and materials) by harnessing them to attain certain level of development. However, this process of harnessing is predicated on the availability of infrastructure, better still on the development of these infrastructures.

Conceptual explanation

In this work, there will an attempt to devolve from theoretical postulations but explain as simplistic as possible concepts that relates to the point of discussion. Productivity is a process of converting or changing a form from one state to another to achieve desire results and improvement. Raw materials can be processed into finished products, services can be provided with the ultimate aim of adding value. National Trade Union of Mauritius opined "productivity is a measure of how well resources are brought together in organizations and utilized for accomplishing a set of results. It is seen as reaching the highest level of performance with the least expenditure. It is a process of continuous improvement in the production/supply of quality output/services through efficient and effective use of resources with emphasis on team work for the betterment of all"(NPC,2007). In this definition emphasis is placed on resources and its utilization in an organization. The point must be made here that there are countries with enormous and abundant resources yet remain poor and underdeveloped. This is often refers to as "Resource curse" a term used to describe the failure of resource-rich countries to benefit from their natural wealth. The term explained that countries with large endowments of natural resources, such as oil and gas, often perform worse in terms of economic development and good governance than countries with fewer resources. (Auty, 1993). Therefore, there must be a missing links between resources and productivity which can be interrogated by the role of infrastructure.

¹ Mrs. Yetunde Sekinet Okotie is a staff of National Productivity Centre, Abuja.

What is infrastructure?

There are several definitions and concepts of infrastructure, but the general consensus is that, it is, a utility that helped in the achievement of other ventures. In other words, infrastructure is a means to an end and not an end in itself. *Economy, Economics, Economic growth* (2008) posits “Infrastructure represents those types of capital goods that serves the activities of many industries included paved roads, railroads, seaports, airports, communications networks, financial systems and energy supplies that all supports production and marketing for industries within the country. Besides that, the quality of infrastructure directly affects a country’s economic growth potential and the ability to engage effectively”. *Understanding infrastructure guide* (2014) opines “Infrastructure can be classified into three major sectors such as Utilities (electricity, gas, communication and water); transport (airport, roads, seaports and rail); social (education facilities, hospital and other community facilities).

The importance of infrastructure cannot be overemphasized in productivity. The elements of critical infrastructure in a country often times determined the level of its development. This can be visibly seen in developing country such as Nigeria. “Infrastructure is important for the services it provides. It provides services that support economic growth by increasing the productivity of labour, and capital thereby reducing the cost of production and raising profitability, production, income and employment. Infrastructure investment and consumption of infrastructure services have significant implications for achievement of sustainable development objectives as infrastructure services encourage new investment across the country” (Op.cit, 2008).

Critical Infrastructure on Productive Sectors in Nigeria.

In this section, this paper will address the effects of critical infrastructure in the various sectors of productivity in Nigeria with a view to pointing out the inadequacies that has led to the level of quagmire in the development of Nigeria.

Manufacturing Sector: This is one of the most negatively affected sectors in Nigeria. No country can develop without the capacity to manufacture its own primary products. Primary products here refer to essential or daily products without which the nation can exist. According to Onisarotu (2016) “Manufacturing industries include the food and beverages and tobacco, chemical and pharmaceuticals, rubber and foam, basic metals, and iron, steel and fabricated metal products, pulp and paper products, electrical and electronics, textile manufacturing, wood and wood products/furniture and motor vehicles and miscellaneous assembly among others”. The manufacturing industries in Nigeria have suffered a lot of set back over the years. Most of the industries that used to boom and thrive in Nigeria in the years past have all relocated to neighbouring countries such as Republic of Benin, Togo and Ghana due to the excessive break down of necessary critical infrastructure. There can be no meaningful industrial development without power supply; manufacturing industries need stable and efficient power and water supply to produce to optimum in order to break even. For instance, the textile industry in Nigeria has a chequered history, it is the oldest manufacturing sub-sector and started in 1957 with the establishment of the Kaduna Textile s Limited and in 1981 operated at near full capacity, it employed 250, 000 workers. The textile industry in Nigeria was third in Africa in terms of production capacity, below Egypt and South Africa. Some of the textile industry at the time includes Kaduna Textile Limited, Arewa Mills, Supertex, Asaba Textiles, Kano Textile, Zamfara Texilte Limited, Aswani Textile, Afprint, Gaskiya Textile, Nichetex and others. Several of these textile companies are sadly no longer in existence for obvious reasons; the breakdown of the infrastructure and the attitudes of successive governments to develop them.

Oil sector: Nigeria after the discovery of oil in commercial quantity abandoned all other productive ventures for petro-dollar. Nigeria is Africa largest producer of oil with 93% of net earning derived from the exportation of crude oil. The country becomes a rental state with full dependence on proceeds from crude oil. One point is clear, Nigeria depended more on exporting crude oil rather than refining oil. It however, built four refineries which later in the years becomes a conduit pipe for siphoning the nation’s wealth. The Turn Around Maintenance (TAM) becomes very elitist and with very little production capacity that could not serve the need of the country. Therefore, importation of refined fuel or Petroleum Motor Spirit (PMS) become a tradition that the country has continue to battle with since independence with the attendance subsidies that successive governments have used to marginalized and pauperize the nation. Over the years fuel prices particularly the PMS has remain unstable and

political, there has been consistent increase with the attendance hardship and scarcity that the citizens had to contend with. Unfortunately, the constant increase in fuel prices also has a corresponding increase in the cost of production, thereby causing spiral inflation and poor productivity. Most sadly in the oil sector is the neglect of the oil producing communities particularly the Ogoni Land with is devastated. This also brought about the rise of militancy in the Niger Delta; the Niger Delta comprising of Nine States of the federation are the oil producing states and are in the minority in terms of ethnic nationalities. The three major ethnic nationalities of Hausa-Fulani, Yoruba and Igbo are non-oil producing. The militancy activities further destroy and weaken the already fragile and weak oil infrastructure. The inability of the government to tackle the agitations of the Niger Delta militancy from the days of Isaac Adaka Boro, ken Saro-Wiwa to Asari Dokubo, has resulted in several militant groups springing up to challenge the exploration of oil without a corresponding benefits to the communities. The end point is that the oil facilities are further degraded causing a drop in the supply of the energy required to oil the production processes.

Transport Sector: This sector is often regarded as the driving sector of every economy or growth. It is the wheel in which all other sectors are mobilized and energized. It is a very important catalyst for growth and development. Rapid urbanization in emerging markets presents transport challenges and opportunities. By 2050, an additional 2.5 billion people are expected to live to urban areas. UN Department of Economic and Social affairs (2014). According to the International Transport Forum (2017), a global demand for urban mobility will be 95 percent higher in 2050 than 2015, with a 185 percent increase in non-OECD countries. Global road freight activity is also expected to more than double between 2016 and 2050. Emerging markets market countries, particularly China and India, account for 90 percent of that increase. Making urban transportation and logistics sustainable will require new thinking around urban design, infrastructure investment, energy-efficiency technology, and urban business models....most developing country cities will require efficient cars and new technology. As well as new investment in public transport infrastructure. Bus Rapid Transport (BRT) is a popular way to rapidly decarbonise intra-city public transport. BRT has the largest ridership in Latin America, with more than 20 million passengers a day, followed by Asia at about 9 million passengers a day. Europe's BRT systems carry about 2 million passengers, a day, with Oceania and Africa each carrying about 420, 000 people a daily, Brazilians use BRT the most, with nearly 12 million passengers per day across 33 cities using 124 BRT corridors along more than 5,600 kilometers of road.

Furthermore, Light rail transit has growing private sector interest. Light rail transit includes light rail, tram, monorail, metrorail, subway, airport rail links and other forms of passenger trains. It can be the backbone of a city's public transport system, facilitate radial access to a city downtown center, and complement other modes of public and private transport to manager high-capacity routes. Globally, light rail systems are being planned and built in the Middle East, North Africa and Asia and are being considered in Latin America as a complement to the BRT system. Nearly 400 cities around the world have a light system operating 2,300 lines along 15, 600 kilometers. In 2015, 850 kilometers of new tracks were under construction, with a further 2, 350 kilometers in planning. (UITP, 2015).

The figure above gives a rosy picture of global transport outlook, but a closer look indicates that Africa is left behind in this modern transport calculus. In the case of Nigeria, it is of note that our transport infrastructure is in a state of despair. For instance, our railway system is completely break broken down until very recently when the government of President Goodluck Jonathan started the rehabilitation. The BRT system operates only in Lagos State out of the 36 states of the federation. Worse still are the dilapidated roads all over the country. There is serious infrastructure deficit; about 200,000 kilometers of roads are in bad shape (Channels News @ 10pm, 2017). Again, the major rural challenge as far as productivity is concerned, is the very appalling feeder roads; farm produce cannot be transported from rural areas to the urban cities. There is a lot of waste which has a multiplier effect in high cost of food and farm produce. The provision of an efficient and effective transportation system in the rural areas is germane to socio-economic growth and has implication for national food security....rural accessibility and mobility involves holistic development of rural roads and waterways (Okotie, 2014).

Agricultural Sector: the agriculture sector drives many economies, but must evolve to meet growing food demand while adapting to a changing climate. The global population is expected to reach 9 billion by 2050 and food demand is estimated to increase by 20 percent globally over the next 15 years,

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with the greatest increases projected in Sub-Saharan Africa, South Asia and East Asia (World Bank Group, 2017). A thriving agricultural sector has been the basis for successful economic growth in many countries. Investment in agriculture creates food surpluses, keeps food prices low, and creates jobs for rural communities. Europe, North America, and China have successfully followed this development path. More recently, Vietnam, Latin America, and Sub-Saharan African countries have focused on agriculture to grow their economies (Alexandratos, N and J. Bruinsma, 2012). In many countries, poor infrastructure limits investment in climate-smart agriculture. Governments can address this obstacle by concentrating investment on infrastructure in a “breadbasket” region (a major cereal-producing region), or in a particular infrastructure corridor (World Economic Forum 2016). Mali, for example, is considering a pilot breadbasket programme for its Sikasso region. Another approach is an agricultural development corridor, in which commercial farms and facilities for storage and processing are concentrated around a major infrastructure project (Sanghvi, S. et al 2011).

On the other hand, global food loss is enormous. The food and Agriculture Organisation estimates that about a third of all food that is grown is lost due to infestation, spoilage, waste, ineffective processing and transport, inefficient logistics, and consumer preferences/waste (FAO, 2017).

World Bank (op.cit) enumerated the following policies and practices to reduce post-harvest food loss:

- Evaluate opportunities to reduce food waste along the value chain, taking into account infrastructure needs and bottlenecks and the need to invest in new storage facilities.
- Set a standard for reduction in food waste; establish targets and plans of action to achieve them.
- Provide appropriate technologies (such as storage containers and sealed bags).
- Introduce training programmes for value chain actors for packaging, processing, post-harvest handling, and distribution.
- Raise consumer awareness via food labeling (sell by/use by dates) and introduce social awareness campaigns to promote consumer reduction in food waste.
- Provide incentives for investments in systems to redistribute food and reuse discarded food.
- Improve data collection and knowledge sharing on food waste among value chain actors.

Table 1: Steps to create markets for climate-smart agriculture

1	2	3	4
MAINSTRAMING CSA INTO NATIONAL POLICIES AND SECTOR DEVELOPMENT PLANS	ADDRESS INEFFICIENT PRICE AND SUUBSIDY REGIMES	DEVELOP AN AGRICULTURE DEVELOPMENT PLAN THAT INCLUDES INFRASTRUCTURE	PROMOTE FARMER OUTREACH AND TRAINING
<ul style="list-style-type: none"> • Use the NDCs as a platform for integrating climate change in agricultural sector planning. • Secure land/property rights, export-ready food standards and extension services are key enablers 	<ul style="list-style-type: none"> • Price support and energy subsidies should be directed to practices that recognize and reward climate-smart agriculture. • Fertilizer subsidies can be climate-smart if they increase yield. • Water pricing. Technology support and awareness raising can address water waste 	<ul style="list-style-type: none"> • Infrastructure build-out should be strategic-via targeted investment in a specific crop’s value chain, in a “breadbasket” region, or in an infrastructure corridor. • Consider climate resilience up front to mitigate potential weather-related damage to infrastructure 	<ul style="list-style-type: none"> • Establish agribusiness centers to provide farmers with appropriate technologies, peer exchange and extension services. • Actively engage the private sector through creation of partnerships and dedicated outreach efforts • Work with international and local agribusiness and banks on access to finance.

Source: An IFC Climate Investment Opportunities Report, 2017

Many countries of the world especially in Africa, including Nigeria continue to formulate and implement policies and programmes that further widen the gap instead of closing the gap between rich and the poor nations on the one hand and rich and poor citizens of individual countries on the other (CDD, 2014). Agricultural infrastructure has been neglected in Nigeria Over the years until very recently when the Jonathan administration had tried to revolutionise agriculture by increasing the budget and encouraging local farmers particularly in the rice farming.

Social sector: One of the major sectors that suffer severe infrastructural decay is the social sector. The social inequality between the rural and urban sectors in Nigeria has continued to expand largely because of deplorable condition of rural socio-economic infrastructures. The housing, education and the health sectors are nothing to write home about. There is serious housing deficit either in terms of affordability and acceptability. Direct technical assistance can help build expertise in policy development, legal and governance frameworks, and implementation and evaluation projects. Accreditation systems of building professionals, accredited training institutions for the construction of labour force, licencing and verifying the credentials of building professionals, quality control processes for building materials, professional codes of practices and other meaningful regulatory packages can help ensure compliance with building codes. Government can also use public sector construction to develop experience in green building through direct technical assistance and workforce training.

Looking at the budgetary allocation for the housing sector in Nigeria from 2013-2016 shows that what is budgeted is not what is allocated:

Table 2: Trend of allocation and the funding gap (NIIMP)

Year	Overall federal allocation	Total allocation to Housing	% of vote to Housing to overall vote	NIIMP projection	Variance between allocation and projection: the funding gap
013	4,987,382,196,690	32,179,108,276	0.65	223,860,000,000.00	191,680,891,724.00
014	4,695,190,000,000	21,381,376,410	0.46	256,900,000,000.00	235,518,623,590.00
015	4,493,363,957,158	7,312,088,618	0.16	278,740,000,000.00	271,427,911,382.00
016	6,060,677,358,277	68,540,521,680	1.13	441,000,000,000.00	372,459,478,320.00

Source: Budget Office of the Federation and NIIMP

On the health infrastructure, modern healthcare facilities are inadequate at the grassroots level; they are too few to cater for the health needs of the people. Healthcare services are provided by government and private entrepreneurs. Government owned health facilities, including primary healthcare centres, are more accessible to grassroots people because they are relatively more affordable than private owned ones. However, most public health facilities are not adequately equipped and managed. Basic hospital equipment and facilities such as bed, incubators and sterilizing units are usually lacking (Nelson, 2008). This lack of basic facilities and infrastructure in health services has a multiplier effect on the health of the populace which in turns affects the level of productivity of the people.

Education very unfortunately, is the worst hit of all the social infrastructures in Nigeria. No nation can be productive without a sound education ideology and infrastructure. The physical facilities of all the institutions, primary, secondary and tertiary are dilapidated, deteriorated and inadequate. There is also the issue of decline budgetary allocations to education over the years. The poor conditions of service forced good teachers and scholars to immigrate to other countries opt for employment in the private sector... the students' enrolment especially in the higher institutions of learning exploded while the authorities sought to meet demand by establishing all sorts of extra-moral and revenue generating degrees and diploma programmes. Unqualified teachers who were recruited to teach, many of them resorted unethical

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practices such as sexual harassment; sex for grade or money in exchange for grades or both. Cultism is rife and innumerable deaths were recorded as a result of clashes among cult groups on campuses. There are perennial strikes by academics and other staff unions due to poor working conditions and funding (Erinosho, 2010).

Another critical social decay in Nigeria is urban water supply. The need for water- efficient infrastructure is growing and offers a significant opportunity for private investment with quick payback rates. Up to 40 percent of potable water is estimated to be lost in existing water system. Water efficiency covers improving the productivity of water treatment plants and distribution systems, as well water-intensive industrial users (BNPParibas, 2013).

Table 3: Creating markets for climate- smart urban water infrastructure

1	2	3	4
ALIGN GOALS WITH INSTITUTIONAL FRAMEWORK AND PUBLIC RESOURCES	ENSURE FINANCIAL SUSTAINABILITY AND COST RECOVERY	MAKE PUBLIC- PRIVATE COOPERATION WORK	CAPACITY DEVELOPMENT & AWARENESS
<ul style="list-style-type: none"> • Establish goals for water access, cost recovery and service quality • Create an enabling institutional environment among various actors • Establish the role of the private sector • Foster public awareness about water waste and efficiency 	<ul style="list-style-type: none"> • Implement water pricing with a goal to achieve cost recovery • Remove subsidies and cross-subsidies and incentivize water efficiency • Enhance city creditworthiness. • Invest in capacity building of local authorities 	<ul style="list-style-type: none"> • Use guarantees, benchmarking and project preparation funds to reduce risk and improve attractiveness to lenders • PPPs encourage private delivery of municipal water services. • Performance-based contracting can improve water efficiency 	<ul style="list-style-type: none"> • Empower institutions via training and knowledge transfer. • Develop intra-regional cooperation • Conduct public awareness campaigns • Provide home and equipment certification • Audit and benchmark systems

Source: An IFC Climate Investment Opportunities Report, 2017

All of these inadequacies do not encourage productivity but rather brings down the level of productivity whether at the individuals, local, state and national levels.

Energy sector: the major bane of productivity in Nigeria remains the lack of energy. The energy sector has been politicized, commercialized and privatized while the nation bears the brunt for the worst. Two major areas come to mind when one is looking at energy in Nigeria is the power or electricity and the petroleum sector. Both have suffered tremendous decline of the years. While developed countries are moving toward solar energy, Nigeria is still grappling with trying to achieve 5,000 megawatts. A lot of money has been spent on providing electricity for the country, all to no avail, but rather besieged by corruption. As a result most manufacturing industries that need heavy electricity to operate their equipment have relocated to neighbouring country where production cost is low while Nigeria has becoming a dumping ground for their goods.

Although, there have been several government policies on privatisation and commercialization which has resulted in unbundling the Power Holding Corporation of Nigeria (PHCN) into generating and distribution companies. The government of Nigeria has for the past one decade been trying to privatize the electricity sector in what it term “electricity power sector reforms”. Under the Electric Power Sector

Reform Act 2005, the National Electricity Company, Power Holding Company of Nigeria (PHCN) was unbundled into 18 separate companies, in preparation for privatization as follows: One(1)Transmission Company of Nigeria, seven (7) Generation Companies: Egbin, Delta, Afam, Sapele, Kainji, Jebba, Shiroro, eleven (11) Electricity Distribution Companies (EDCs): Kaduna, Kano, Yola, Ibadan, Eko, Jos, Enugu, Benin, Port-Harcourt, Ikeja, Abuja.

These policies had complicated the situation the more with small scale business not able to survive the business environment, leading to poor productivity. On the other hand petroleum which is produced in Nigeria which makes the country to bear the title largest oil producer in Africa has been a nightmare to the citizens. The inability of the government to provide refined products for household use and small businesses have further marginalized and impoverish the people.

The world is gradually moving toward solar and renewable energy. Renewable power is transforming the global electricity system, with new capacity and investment value consistently outstripping performance in the fossil-fuel sector. In 2016, more than 160GW of solar, wind, hydropower, geothermal, and biomass capacity was built around the world...this means that 62 percent of capacity added to the system that year was renewable, representing an investment of almost \$297 billion, more than double the investment in fossil and nuclear generation (Bloomberg New Energy Finance, 2017). There is increasing demand for renewable energy in the emerging markets and Nigeria should key in. There is the need for political will power to deliberately invest in all facets of energy by the government in order to revitalize the production capacity of the Nation. In the process Nigeria came up with National Renewable Energy and Energy Efficiency Policy for the electricity sector (NREEEP) and allied policies. The policy stated that the development of renewable energy sources to add megawatts to the available energy mix is a step towards improving available electricity in Nigeria. Through energy efficiency, new energy is created due to the fact that available consumers consumes less thereby freeing up energy for other economic actors. The Nigeria Integrated Infrastructure Master Plan (NIIMP) which is the funding bench mark for the sector states that over the first 5 years, Nigeria need to spend US \$23 billion in power, of which \$14-16 billion will be required to increase generation capacity from current levels to 20 GW by 2018; \$3-5 billion to increase transmission capacity; \$3-5 billion to increase distribution capacity (CSJ, 2016).

A quick look at the table below shows Nigeria's allocation to the power sector from 2013-2016.

Table 4: shows the trend of allocations to the Federal Ministry of Power 2013-2016

Year	Overall federal budget (N Million)	Total allocation to Power (N Millions)	Vote to Power sector as a % of overall vote	\$4.60bn NIIMP requirement	Variance between NIIMP and allocation to Power
2013	4,987,220,425, 601	77,565,547,652	1.56	735,540,000,000.00	657,974,452,348.00
2014	4,695,190,000,000	63,212,100,633	1.35	844,100,000,000.00	780,887,899.267.00
2015	4,493,363,957,158	9,606,813,831	0.21	915,860,000,000.00	906,253,186,169.00
2016	6,060,677,358,227	105,095,466,577	1.73	1,449,000,000,000,00	1,343,904,533,423.00

Source: Approved budget, Budget Office of the Federation (2013-2016) and the NIIMP

Banking and services sector: The Nigerian banking sector is not investment oriented. The interest rates are beyond the reach of the ordinary businessman. The banking sector does not have the doctrine of investing on long-term investments and the conditions for granting of loans are almost impossible for an average business man to fulfill. There have been several reforms and establishment of Bank of Industry, Bank of Agriculture with a view to increase the productivity of industrialists and agricultural sector, yet there has not been significant improvement. In July 2004, the former Central Bank Governor Soludo cited in Adewumi and Adenuga (2010) enumerated six (6) major problems of the banking sector as follows:

- Weak corporate governance, evidenced by high turnover in the Board and management staff, inaccurate reporting and non-compliance with regulatory requirements, falling ethics and de-marketing of other banks in the industry;
- Late or non-publication of annual accounts that obviates the impact of market discipline in ensuring banking soundness;
- Gross insider abuses, resulting in huge non-performing insider-related credits;
- Insolvency, as evidenced in by negative capital adequacy ratios and shareholder's funds that have been completely eroded by operating losses;
- Weak capital base, even for those banks that have met the minimum capital requirement, which currently stands at 1bn, or US\$7.53m for existing banks and N2.0bn or US\$15.06 for new banks, and compared with the RM2.0bn or US\$526.4 in Malaysia;
- Overdependence on public sector deposits, and neglect of small and medium class savers.
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Conclusion: This work has tried to exposed and bring to the fore the importance of critical infrastructure in the productivity processes of any nation. Unfortunately Nigeria continues to wallow in the neglect of these critical infrastructure either adventently or inadvertently due to corruption, lack of political will, lack of the knowledge and the drive to pursue development based on international best practices.

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