

**ALTERNATIVE MODES OF INFRASTRUCTURE FINANCING - A  
Review of Issues & Challenges**

**By**

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**on**

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## **INTRODUCTION**

The nation seeks to unleash its economic potential through targeted investments in the infrastructure space, including urban infrastructure, housing, roads, rail, aviation facilities, power, healthcare sectors, municipal infrastructure and so on.

Infrastructure is perhaps the most important factor for the sustainable economic development of an emerging nation like Nigeria. As such, many developing countries keep seeking the most effective methods to financing infrastructure. Furthermore, public funding challenges are compelling both public and private clients to rethink the orthodox methods of funding infrastructure development. Consequently, it is critical to seek and tap into alternative methods of funding crucially needed infrastructure in our country.

In recent years, the needs for the development of infrastructure and the public facilities, as a very significant factor of economic growth, have equally increased in the developing and the developed countries. The public governments' budgetary allowances are mostly insufficient to allow keeping pace with these needs. The National Integrated Infrastructure Master Plan (NIIMP) stipulates that Nigeria will need an average of about US\$25billion per annum i.e. (5% of GDP) investment for 5 years from implementation. With this reality, it therefore becomes increasingly necessary to find alternatives modes to raise finance to close the ever-widening gap of budgetary provisions with actual performance.

This paper will explore various alternative sources of financing infrastructure that are available to the Government to tap in to.

However, there is need to refresh our memory on what infrastructure is and its importance in the socio-economic development of any Nation, particularly our country Nigeria.

## **WHAT IS INFRASTRUCTURE?**

In general, there is no standard or agreed-upon definition of infrastructure according to the current usage of the term. Two approaches to define infrastructure exist in literature<sup>1</sup>. One approach is a narrow definition and refers to infrastructure as economic physical assets to support private business development. Under this definition, infrastructure consists of economic infrastructure, which comprises roads, bridges, tunnels, airports, transit, ports, railways, energy production facilities and distribution networks, telecommunication systems, water and sewer systems, and solid waste management (see Table 1).

Another approach is a broader definition that regards infrastructure as a wide array of physical assets required to support both private economic activity and social services. According to this definition, infrastructure not only contains economic infrastructure but also encompasses social infrastructure that is essential for a society to function. Social infrastructure includes schools, universities, hospitals, courts, prisons, parks and recreational facilities, libraries, community housing, public safety building and facilities, city halls and facilities, and the like (see Table 1).

Table 1 Types and components of Infrastructure

Economic Infrastructure	Social Infrastructure
<p><b>Transportation Sector</b></p> <ul style="list-style-type: none"> <li>• Surface (e.g., roads, bridges, railroads, parking)</li> <li>• Public transit (e.g., urban rail, bus rapid transit)</li> <li>• Aviation (airports, navigation aid systems)</li> <li>• Water transportation (e.g., inland and sea ports)</li> </ul> <p><b>Environmental Sector</b></p> <ul style="list-style-type: none"> <li>• Water supply and treatment (drinking)</li> <li>• Wastewater treatment (sewerage)</li> <li>• Solid waste management</li> <li>• Pollution control facilities</li> </ul> <p><b>Utility Sector</b></p> <ul style="list-style-type: none"> <li>• Electric power systems</li> <li>• Gas supply</li> </ul> <p><b>Telecommunication Sector</b></p> <ul style="list-style-type: none"> <li>• Telephone lines and networks</li> <li>• High-speed Internet</li> </ul>	<p><b>Education Sector</b></p> <ul style="list-style-type: none"> <li>• Elementary schools and facilities</li> <li>• University buildings and facilities</li> </ul> <p><b>Public Health</b></p> <ul style="list-style-type: none"> <li>• Healthcare facilities</li> <li>• Hospitals</li> </ul> <p><b>Judicial and Correctional Facilities</b></p> <ul style="list-style-type: none"> <li>• Prisons and jails</li> <li>• Court houses</li> </ul> <p><b>Housing and Community Development</b></p> <p><b>Government Buildings and Facilities</b></p> <ul style="list-style-type: none"> <li>• Government administration buildings</li> <li>• Public safety and welfare facilities</li> </ul> <p><b>Civic and Cultural Buildings</b></p> <ul style="list-style-type: none"> <li>• Libraries, convention centers, others</li> <li>• Parks and recreation</li> </ul>

According to Mabogunje (1993), the investment needed to provide infrastructure services is characterized by "lumpiness" (technical indivisibilities) as well as by a high capital-output ratio (provided the output is at all measurable). Lumpiness in the provision of infrastructural investment is thus at the heart of the challenge of urban development. For example, the provision of potable water supply has many components that must be done at the same time for the investments to be realized. This includes the sourcing/collection and storage of the raw water, treatment and distribution. (Power: Generation, Transmission and Distribution).

For the purpose of this paper, I would consider and refer to infrastructure as essential municipal utilities and services namely roads and drainages; water supply and sanitation, waste water treatment, residential infrastructure, parks and recreation and urban transportation including mass transportation.

A study conducted by African Development Bank (AfDB), concluded that, increasing the stock of infrastructure investments in core sectors by one percent could increase GDP growth by up to one percentage point.

Unfortunately, the provision of basic infrastructure services in virtually all Nigerian cities is today characterised by acute shortages, frequent break-downs and unsustained quality underscores the unregenerated nature of Nigerian cities and the urgent necessity for reform (Mabogunje 1993). Deficiencies and shortage of infrastructure on the other hand bring about additional costs of production and inefficient functioning of the urban system. They also bring additional financial burden to manufacturers and small-scale enterprises that employ labour. The contribution of infrastructure to productivity improvement and lowering the cost of doing business has been shown to be economically significant. An extensive and efficient infrastructure system is critical for ensuring the effective functioning of cities.

## **IMPACT OF INFRASTRUCTURE ON THE ECONOMY**

Infrastructure is central to sustainable development and economic competitiveness of any Nation. It has been established by various studies that infrastructure capital has a significant, positive effect on economic output and growth. Adequate and well-functioning infrastructure promotes productivity and economic development. It connects people to jobs, goods and services, provides access to international markets,

facilitates the rapid flow of information and ideas, and provides essential services to households and businesses. In aggregate sense, the character and availability of infrastructure influence the marginal productivity of private capital; public investment thus compliments private investment.

The FINANCING of infrastructure has important implications for macroeconomic stability. As a countercyclical tool, infrastructure investment can generate employment and consumer demand in the short term as well as in the longer term (when the investment is well chosen). A practical example is my experience as Secretary to the Government of Kano state. We initiated and implemented a number of infrastructure projects under Governor now Senator Rabi'u Musa Kwankwaso. These ranges from roads, hospitals, housing program, education services, bridges, flyovers and underpasses. Over one million direct and indirect jobs were created within a span of 4 years. In education increased enrollment due to feeding, free school uniform and free education at all levels necessitated construction of additional facilities and services. New classrooms, offices, toilets, teacher's lodges, foodstuff, condiments, clothing materials, Taylor's etc. were all engaged. Likewise, in the housing, roads, bridges etc. In many countries including Nigeria, the persistent deficits of railways, airlines, and power utilities have contributed measurably to fiscal and financial instability. I believe in Nigeria this is self-explanatory.

### **INFRASTRUCTURE FUNDING IN NIGERIA.**

The backbone of any national economy is its stock of infrastructure. Per international benchmarks, more developed countries typically have a "core infrastructure" stock (roads, rail, ports, airports, power, water, ICT) equal in value to about 70% of GDP, with power and transportation infrastructure usually accounting for at least half of the total volume. (see tables below).

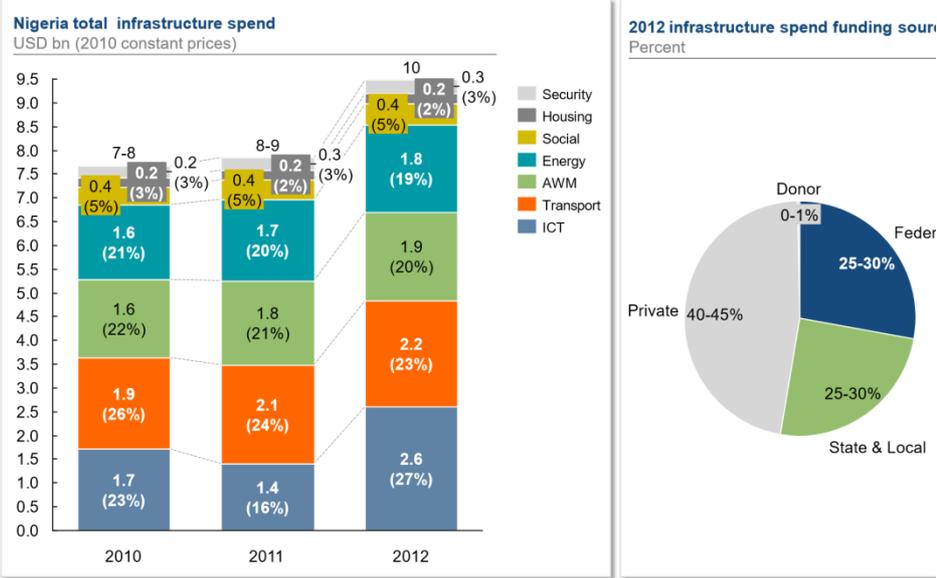
In contrast to international benchmarks of 70%, Nigeria's core infrastructure stock is estimated at only 35-40% of GDP – the equivalent of less than USD 100 billion in 2012. Benchmarks indicate an ideal stock level set at ~70% of GDP

EXHIBIT 4

PRELIMINARY

Total % of

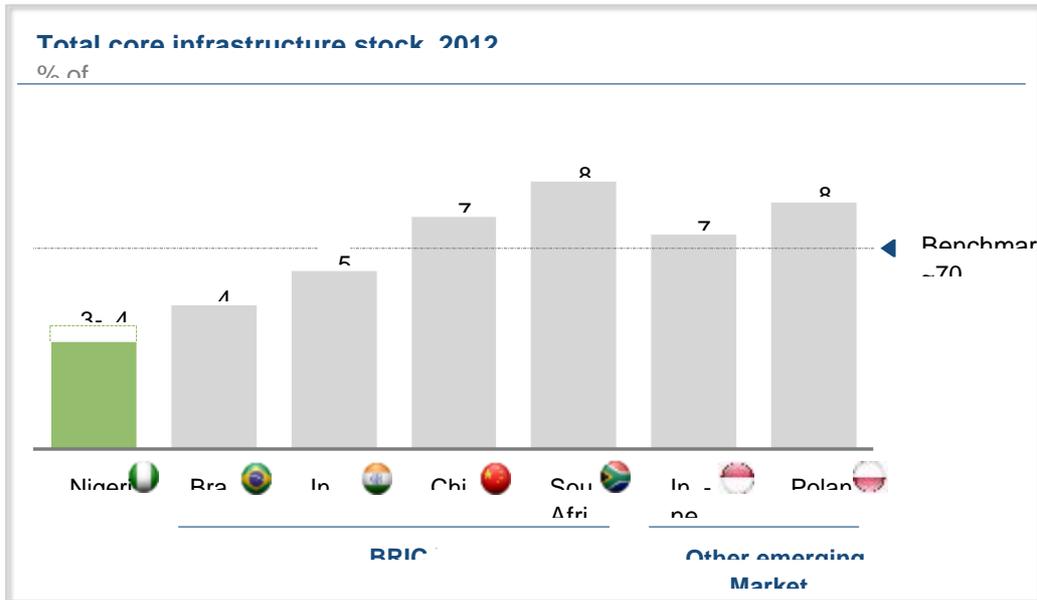
Nigeria currently spends USD 9-10bn per annum on infrastructure



SOURCE: NIP, AfDB, Team analysis

Nigeria's

core infrastructure stock level is below the benchmark level



Nigeria currently spends USD 10 billion per annum on infrastructure, of which ~50% is funded by the private sector. The bulk of the spending is concentrated in ICT (28%), transport (23%), and energy (19%). Though low, infrastructure spend has increased over the past 3 years.

Present State of Infrastructure in Nigeria

The importance of infrastructures to a nation cannot be overemphasized as efficient infrastructure facilities act as catalysts for development, there is therefore cause for concern while considering the infrastructure base in Nigeria today which is comparatively unfavorably with several African nations both in terms of quality and service coverage. In particular, the rural areas where the bulk of our population resides are largely deprived of the basic transport infrastructure.

The effects of the inadequate maintenance and renewal of equipment and facilities is visible in all sub- sectors: inadequate condition of the roads and the need for their subsequent reconstruction; inadequate replacement and maintenance of vehicles, contributing to high social costs of atmospheric pollution, resulting in high operating costs. In turn, such excessive operating costs, by decreasing net operating revenues, make timely replacement of vehicles difficult. In the case of railways, lack of necessary resources to keep track, rolling stock and maintenance facility in reasonable conditions produced a very serious deterioration of the railway system. Similar problems affect inland waterways affecting their ability to perform useful functions. According to Olomola (2003), inadequate provision of transport infrastructure and services provide a basis for explaining the incidence of poverty across various Nigerian communities in both urban and rural areas. Nigeria's infrastructure has long been a bottleneck for economic growth, and its infrastructure is underdeveloped compared to that of other fast-growing emerging economies. Road density in Nigeria, for example, is only about a fifth that of India. The effect of weak infrastructure is most striking in the energy sector – Nigeria's per capita energy consumption of 136 kWh per annum is less than 3% of South Africa's 4,803 kWh.

To close its current infrastructure gap and reach the desired total investment levels, Nigeria must aggressively increase infrastructure spending. The investments over the next 30 years are in total USD ~2.9 trillion. Spending would need to ramp up fairly quickly, from the current 3-5% of GDP to an average of 9% over the 30-year period. Given Nigeria's high GDP growth projected for the period, such a ramp-up is particularly challenging.

Moreover, maintenance costs will grow significantly, as infrastructure stock increases. According to global benchmarks, maintenance spend should amount to ~2% of GDP, which translates into a total of about USD 700 billion from 2014 to 2043, or USD 23

billion per year. This is more than double the current yearly total spent on infrastructure in Nigeria.

## **SOCIAL INFRASTRUCTURE**

Social infrastructure development cuts across almost all sectors of the economy, as it must do with the well being of all communities. Facilities and services for promoting community well-being are related to health, education, sport, labor productivity, environment, culture and tourism, and developmental facilities for youth and women. Nigeria's social infrastructure does not currently match national aspirations. To improve social infrastructure in line with national aspirations, Nigeria needs to increase its infrastructure spend in this sector. Using estimates combined with infrastructure requirements associated with identified development targets, USD 150 billion is required over the next 30 years to achieve the specific sub-sector targets. The biggest spend will be in Education and Healthcare:

- In education, USD 30 billion will be spent on building 800 000 new classrooms, 300 000 to close the current gap and 500 000 to account for population growth to 2043. USD 20 billion will be spent on building 110 new Universities, and USD 20 billion will be spent on building 130 new Polytechnics
- The main cost elements in healthcare will be the construction of 108 new general hospitals at USD 40 million per hospital for a total of USD 4 billion, and 15 000 new PHCs at USD 2 million per PHC for a total of USD 3 billion.

## **SECURITY INFRASTRUCTURE**

Vital registration and security

Security means protection from the threat of diseases, hunger, unemployment, crime, social conflict, political repression and environmental degradation, while accurate vital records of life events provide a reliable and comprehensive identification system that enhances the security of any nation, which is an essential component of contemporary security management.

Early top-down estimates of the infrastructure need in the sector suggest total spending of USD 50 billion over the next three decades

- For police, the main infrastructure spend will be the construction of 3,000 new police stations at USD 1.5 million per station

- For fire services, the main investments will be the construction of 2,000 new fire stations at USD 2 million each and 30 fire service training schools.
- For prisons, the biggest investment will be the building of 100 new prisons and 170 new barracks. This poses a challenge for my discussions today. Availability of adequate infrastructure reduces incidents of criminality hence reduce correction facilities.
- For FRSC, the main investments will be building 600 new testing stations, 400 new roadside clinics, and 500 new unit commands.

## **Housing**

Most urban dwellers in Nigeria today live in shanty-towns, dilapidated houses and unsanitary conditions without basic services such as potable water, sanitation, public, access roads, power supply, health or education. It is currently estimated that Nigeria faces a deficit of up to 17 million housing units. The key challenge in the sector is that the dearth of affordable housing is exacerbated by the rapid rate of population growth and urbanization in Nigeria. Therefore, the housing deficit is expected to rise to 30 million units by 2043.

Eliminating the deficit will require providing an additional 1 million housing units annually until 2043. This implies a substantial need for investment in the sector. Estimate of construction costs alone already implies investments of USD 300 billion Over the next 30 years.

- Roads: Reaching the aspirations will require an investment of about USD 265 billion over the next 30 years, for rehabilitation, expansion and upgrading of the Nigerian road network (but excluding maintenance). Of the overall amount, USD 20 billion will have to be invested in the first 5 years
- Rail: Required infrastructure translates into required investments of about USD 30 billion (excluding maintenance). Most of this figure (about USD 19 billion) is accounted for by new construction of more than 6,000 km of standard gauge rail. USD 5 billion will be spent in the first 5 years
- Aviation: Required investments amount to USD 25 billion (excluding maintenance). This comprises substantial remodeling and rehabilitation of international airports in Lagos, Abuja, Kano, Enugu, Port Harcourt and Calabar. New construction will include the new Bayelsa airport as well as the second runway in Abuja. A relatively large portion of the total investment

- (About USD 5 billion) needs to be spent in the near-term (by 2018)
- Maritime: Required investments amount to about USD 30 billion, mostly for seaport infrastructure (about USD 25 billion)
- Urban transport infrastructure in Nigeria needs total investment of USD 300 billion over the 30 year period. Over the first 5 years USD 6 bn will be spent on urban transportation
- Future maintenance cost is not included in the above estimates. Expected cost of maintaining current and future transport infrastructure amount to USD 150 billion predominantly focused in the road and rail sub-sectors.

## **Energy**

The energy sector comprises the oil and gas as well as the power sub sectors. It is one of the most important sectors to Nigeria because of its multiplier effect across all sectors of the economy, its contribution to tax revenues, and its potential to spur significant economic growth.

In order to achieve the goals and objectives of the Energy sector, Nigeria needs to increase its investment in energy infrastructure. Estimates using international benchmarks suggest USD 900 billion will be required over the next 30 years to achieve the specific sector targets – USD 550 billion for power and USD 350 billion for oil and gas, which includes maintenance cost.

- For energy, the bulk of the investment will be for increasing generation capacity from current levels of ~7 GW to 350 GW, and building the transmission network to transfer the generated electricity across the country. Generation expansion will largely be funded by the private sector. USD 550 billion is projected. (Our IPP project at Tiga and Challawa gorge Dams generate 35 MW at 85.5 million USD while transmission cost 12 million USD) serve practical example.
- For oil and gas the biggest cost drivers will be increasing refining capacity, building additional pipelines, and developing the infrastructure to increase production capacity in both oil and gas. USD 350 billion is projected.

## **ICT**

In the World Economic Forum 2012 Global ICT Report, Nigeria ranks at the bottom in the Overall Networked Readiness Index. Nigeria needs to spend USD 5 billion per annum on ICT infrastructure over the next 10 years, mostly on base stations and fiber. For the period 2024-33 Nigeria needs to invest USD 10 billion per annum, driven again

by the increase in base stations and fiber, and USD 15 billion per annum from 2033-2043, with an increasing share of maintenance spend and technology upgrades. The bulk of these investments will be carried by the private sector.

### **Agriculture, water and mining**

Agriculture contributes 40% of Nigeria's GDP and employs over 70% of the active population. Nigeria has 79 million hectares of fertile land. However, only 32 million hectares (46%) of these are cultivated, and less than 10% of irrigable land is currently under irrigation. 90% of agricultural output is accounted for by smallholder farmers with less than 2 hectares under cropping and low per hectare yield of crops. For Nigeria to first achieve domestic food security, and then subsequently transform into a continental powerhouse in terms of food exports, the agriculture sub-sector aspires to substantially increase total domestic production. To achieve this aspiration, the percentage of arable land cultivated is set to double from the current 46% to 90% by 2043. A total of 20 million additional jobs in agriculture are envisaged over the next 30 years.

Nigeria's water resources are not yet effectively utilized. (Example we have 27 large and medium sized dams in Kano out of which only 6 have been developed for irrigation and two in addition developed to Generate Hydropower.) Bottom up investment estimates for the sector suggest a total requirement of about USD 350 billion over the next three decades:

- Required investments for the water sub-sector amount to about USD 180 billion. About USD 105 billion is accounted for by investments into water supply, water treatment and sanitation infrastructure. The remaining required investment volume is split between infrastructure deployments for irrigation, dams with hydropower components, rainwater harvesting systems, and drainage systems
- The agriculture sub-sector accounts for about USD 70 billion of the total required investment amount. This translates into an average annual spend of about USD 2.4 billion, up from today's USD 500 million.

The mining sub-sector requires investments of about USD 100 billion over the next three decades. This is equivalent to an average annual spend of more than USD 3 billion, up from today's modest amount of about USD 30 million. The clear majority of these capital expenditures will be privately borne.

## SUMMARY OF INVESTMENTS OUTLAY IN INFRASTRUCTURE

S/NO	SECTOR	PROJECTED INVESTMENT IN USD (BILLION)
1	ROADS	265
2	RAIL	30
3	AVIATAION	25
4	MARITIME	30
5	URBAN TRANS	300
6	MAINTENANCE	150
7	ENERGY	900
8	ICT	300
9	WATER	180
	SECURITY	50
	HOUSING	300
10	AGRICULTURE	70
11	MINING	100
12	TOTAL	2,700

Thus, a total of USD2.70 Trillion is projected for investments over twenty-year period to attain reasonable core infrastructure stock levels to be at par with other emerging economies. Given the huge amount required therefore, it is near impossible to expect government to foot the entire bill, neither will traditional project finance models essentially leveraging medium to longer term funds from Banks and Development

Finance institutions do much, given huge funds required for infrastructure projects and the myriads of needs that DFI's contend with on the African Continent.

**SOME PRACTICES IN FINANCING URBAN INFRASTRUCTURE AND SERVICES IN NIGERIA.**

Most of the investment in urban infrastructure has traditionally been funded by the public sector through annual budgets. However, utilities like the supply of potable water have been funded with loans from multilateral financial institutions such as the World Bank and African Development Bank. However, as a result of financial constraints and since the introduction of the Structural Adjustment Programme of the late eighties, new methods and sources of funding for urban infrastructure were introduced in Nigeria. The sources of funding are summarized in Table 2.

Table 2 Sources of infrastructure funding in Nigeria

No.	Sources	Comments
1.	Budget	National and sub-national institutions – the most predominant source in the past. This considers infrastructure as a social serve to be provided by government
2.	Loans from Multilateral Financial Institutions	The World Bank has been very active in financing water projects in Nigeria through various multistate projects. Equally they have been active in the urban sector financing urban upgrading and the provision and rehabilitation of city wide urban infrastructure.
3.	Capital Market	Municipal loans and state Bonds. So far only two Local Governments in Nigeria could successfully issue municipal bond. They are Lagos Island Local Government in (1992) and Nasarawa Local Government (1993).  For the state government bonds a total of 40 bonds were issued between 1978 and 2014 to finance various

		infrastructure and other projects.
4.	Special (Tax) Interventions	<p><b>Petroleum Trust Fund (PTF)</b> was established in 1994 to use the excess revenue from petroleum price to develop projects across the country. The fund did very well by executing projects in many sectors of the economy. These areas include roads, water supply, health, education etc.</p> <p><b>Tertiary Education Trust Fund (TETFund)</b> was established under the TETFund ACT - Tertiary Education Trust Fund (Establishment, etc.) Act, 2011 with the responsibility for managing, disbursing and monitoring the Education Tax to public tertiary institutions in Nigeria.</p>
5.	Municipal Fund	<p>The primary objectives of the Infrastructure Development Fund Project, World Bank assisted, were to initiate the establishment of an urban infrastructure financing mechanism in Nigeria, utilizing merchant banks to appraise, supervise and co-finance State urban infrastructure subprojects; and to assist States to improve infrastructure investment planning and programming. The project financed city wide infrastructure in many states including Adamawa, Taraba, Yobe, Ondo, Edo among others. However, at the project completion, the mechanism for financing municipal infrastructure could not be fully established.</p>

6.	Public Private Partnerships (PPP)	Federal and state governments now consider PPP as viable source of financing urban infrastructure. The Infrastructure Concession and Regulatory Commission was established to regulate PPP in the country. Many projects were financed across the breath of the country. The most significant being the financing of the Epe-Lagos Expressway by the Lekki Concession Company.
7.	Local Financial Institutions	Institutions like The Infrastructure Bank, formerly Urban Development Bank, which was established in 1992 to finance the provision of urban infrastructure and services.

### **ALTERNATIVE MODES OF INFRASTRUCTURE FINANCING.**

#### Traditional Infrastructure Delivery Process

The Government anchors traditional infrastructure Financing method through the direct funding of capital infrastructure projects. This method of infrastructure financing is not only costly and time consuming (given the layers of bureaucracy and corruption involved), it also restricts innovation in the delivery of infrastructure. The traditional delivery process, sometimes referred to, as the “Design-Bid-Build” is dominated by the client or project owner (the Government) who drives the process through a series of sequential steps bearing virtually all risks associated with the project. The client determines the project requirements by sourcing information from experts and other available sources, and then sets aside funds to finance the construction.

Given the harsher economic conditions currently prevailing in the country that have decimated government finances, exclusive reliance on government funding to bridge infrastructural deficits in the country is no longer an option. As such, the highly limited funding available to finance capital infrastructures has left the government with no choice but to pursue alternative infrastructure delivery methods anchored on private capital.

Chen (2016) defines innovative or alternative infrastructure financing as an umbrella concept that supplements traditional infrastructure funding sources and financing

methods, and embraces any strategy involving new funding sources, new financing mechanisms, and new financial arrangements in the provision of infrastructure. Note the difference between infrastructure funding and financing: Funding refers to a revenue stream or money that pays for an infrastructure project. It may consist of a revenue source from local tax receipts or grants, or it may refer to proceeds of debt financing. A large infrastructure project typically involves multiple sources of funding, including federal, state, and local sources. Financing refers to borrowing money to pay for an infrastructure project, typically through a bond, but also through loans or other debt mechanisms such as a line of credit. Similar to a home mortgage, debt must be paid back over time with interest. A source of revenue must be secured to repay the debt, whether it is future federal and state grants, local taxes, or other sources. Table 3 gives the typology of sources for both funding and financing of infrastructure.

In order to recommend alternative sources of funding infrastructure investments in Nigeria, I would like to highlight the following: -

The current sources of funding and financing urban infrastructure in Nigeria are quite robust. However, most have not been diligently explored and exploited. This gives room for improving the performance of many sources such as issuance of municipal bonds, public private partnership projects etc.

Local resource mobilization, using available revenue sources as enshrined in the constitution, such as tenement rates and cost recovery mechanisms through user fees are essential for funding the provision of urban infrastructure.

There is the urgent need to establish sustainable mechanisms for financing the provision and maintenance of urban infrastructure and services. This calls for setting up financial instruments that will ensure investors can recover their investments, including full recovery of cost of funds, inflation and administrative costs, in a competitive and transparent manner. The issue of non-transparent and unsustainable subsidies must be done away with.

Consider current moves by the Federal Government to mobilise more resources for financing priority infrastructure projects. These include the proposed twenty billion Naira Green Bond and the twenty-five billion dollars Infrastructure Development Fund.

Table 3 Typology of sources for Funding and Financing urban infrastructure.

New Funding Sources	New Taxes	Local Option Sales Taxes
		Local Option Fuel Taxes
		Local Option Income and Payroll Taxes
		Local Option Vehicle Tax
	Value Capture	Impact Fees
		Special Assessment Districts
		Tax Increment Financing
		Joint Development
New Financing Mechanisms	New Credit Assistance Tools (Loan, Loan Guarantee, Lines of Credit)	Transportation Infrastructure Finance and Innovation Act (TIFIA) Loans
		Environmental State Revolving Funds: Clean Water State Revolving Funds Drinking Water State Revolving Funds
	Alternative Bonds and Debt Financing Tools	Transportation State Revolving Funds: State Infrastructure Banks
		Grant Anticipation Revenue Vehicle Bonds (GARVEEs)
New Financial Arrangements	Public-Private Partnerships	State Bond Banks
		Green Bonds
		Social Impact Bonds
		Design-Build
	Privatization	Design-Build-Operate-Maintain
		Design-Build-Finance-Operate-Maintain
	Infrastructure Investment Funds	Concession
		Lease
Pension Funds		
Private and Nonprofit Philanthropic Partners	Sovereign Wealth Funds	
	Private Companies (Insurance and Investment Banks)	
	Donations	
Crowdfunding	Grants	
	Program Investment	
		Donation-Based (Public Goods)

With a ballooning population (from 56million in 1970 to over 170 million today), the traditional model of infrastructure delivery is clearly inadequate, in the face of plateauing government revenues and the social scourge of corruption that has eroded government's capacity to deliver infrastructure development. As a result, infrastructure development in Nigeria is now held hostage to abandoned projects, occasioned by Government's inability to fund such projects till completion, and a culture of suboptimal operation and maintenance of the nation's infrastructure stock. Hence, the time has come to unreservedly embrace Alternative methods of infrastructure Financing.

Alternative methods for infrastructure Financing is hinged on the ability of the nation to attract private sector capital to fund infrastructure projects.

Whilst it should be noted that the Government has a basic objective to provide infrastructure to its citizens across the nooks and crannies of the country, it is also crucial to note that private sector parties engage more constructively with the public sector not only for Public Private Partnership (PPP) projects institutionalization and development, but also for capacity building, institutional strengthening, knowledge sharing, and joint project development.

Wholesale private sector intervention in infrastructure development through mindfully structured people-centric and context sensitive PPP project finance methodologies simultaneously solves two highly contentious problems – the funding for infrastructure becomes independent of budgetary allocations, and private sector discipline/efficiency is introduced into the operation and maintenance phase, upon completion of construction.

### **PUBLIC-PRIVATE-PARTNERSHIP (PPP) MODEL**

For alternative (PPP) methods of infrastructure financing to become widespread in the country as a viable alternative to traditional delivery methods, stakeholders in Nigeria would have to surmount challenges that include the unfavourable risk perception of PPP projects arising from associated political uncertainty, resulting in widespread investor apathy for PPP projects; dearth of bankable projects arising from lack of mindfully structured PPP projects that addresses specific targeted needs in the country; lack of capacity by public and private sector players in the country to successfully see through PPP project development cycles; and inadequate national planning, resulting in the failure of PPP projects to achieve the economic and social goals of the government.

Furthermore, successfully deploying private capital into PPP Projects is dependent on the attainment of project bankability, assessed by three key tenets namely: 1) comprehensiveness of the legal, institutional, and regulatory framework; 2) assurance of financial viability; and 3) sustainability of the transaction structure especially the operation and maintenance phase. These three key pillars of PPP project finance-ability are further dissected below:

Comprehensiveness of legal, institutional, and regulatory framework: It is critical to ensure the PPP projects are situated within the context of robust institutional policy frameworks, underpinned by laws and regulations, to mitigate against factors such as: arbitrary policy changes; change in public office holders; non-enforceability of contracts;

termination of administrations through democratic and undemocratic means; bureaucratic hurdles, etc. Any of these factors can easily truncate a project and erode private capital at risk.

**Assurance of financial viability:** Financial viability is ascertained by considering a project's ability to generate sustainable revenues over the entire project lifecycle, which could range from years to decades. Accordingly, a sustainable infrastructure project must demonstrate that it will generate sufficient cash inflows to cover cost regime for operations and maintenance of the asset, offset loan repayments to lenders, and provide financial returns to equity investors, commensurate with their expected return on investment and risk borne by the investors. Financial viability is ascertained by conducting comprehensive feasibility studies to assess the veracity of the project's financial indices, prior to making an investment decision.

**Robustness of the transaction structure:** The third key consideration for ensuring the success of PPP project is the robustness and sustainability of the transaction structure, which clearly defines: a) the key parties to the transaction, such as contracting authorities, project developers, equity investors, lenders, guarantors, regulators, etc.; b) the relationships and obligations between the key parties - contracts, agreements, guarantees, etc.; c) the various component areas of the transaction - Foreign vs local debt, Technology selected, key milestones to be achieved, commercial and financial close requirements, etc.; and d) Key operating and maintenance performance standards – which guides the operation and maintenance regime and evaluation of concessionaire performance through objectively verifiable indicators. A compact and well-defined transaction structure is a necessary condition for attracting private capital to finance infrastructure development.

**Funding Sources:**

**Tenement Rates/Property Rates –** property taxes are the foundation for sustainable to any municipal government. The constitution has given all local governments in Nigeria the power to charge these rates. Apart from Lagos Island and a few local governments, this source of revenue is not exploited despite dwindling revenue from statutory transfers. This source of revenue can provide the opportunity to Local governments to take loans or issue out municipal bonds to finance priority projects with long term economic benefits but with little or no returns for immediate repayment. It is therefore strongly

recommended to local governments to improve their urban governance structure to mobilise their citizens to accept and pay the rates.

## Financing Sources

### Issuance of Bonds

Green Bonds are bonds issued to finance specific “green” projects that have significant environmental benefits such as renewable energy, energy efficiency, sustainable waste management, sustainable forestry and land use, and other projects that mitigate climate change. Areas of eligibility for green bond projects include the following:

Renewable energy

Energy efficiency

Pollution prevention and control

Sustainable management of living natural resources

Terrestrial and aquatic biodiversity conservation

Clean transportation

Sustainable water management

Climate change adaption

Eco-efficient products, production technologies, and processes.

Green Bond concept is new in Africa. African Development Bank, since 2010, been active in the green bond market with a record; triple A investment grade green bond issuance of US\$ 500 million issuance in October 2013. Other players in the continent are mainly in South Africa and include the IDC (US\$700 million) and Nedbank (US\$490 million) (AfDB 2016).

The green bond, through a new concept in the country, can be used to increase energy access, improve public transportation in the cities and remedy environmental challenges like in the case of waste water treatment. With very good publicity, many investors interested in environmental projects would subscribe to the issue.

Municipal Bonds – In most developed countries, local government (municipalities) raise investment funds for infrastructure development through the issue of bonds in the capital market. Municipal bonds are loan contracts issued by a municipality specifying an obligation to pay interest at a stipulated percentage of the face value of the loan when

due (usually semi- annually) and to redeem the face value of the bond at maturity in legal tender (Mabogunje 1993). Although Lagos Island and Nasarawa Local Governments were able to successfully issue bonds in 1992 and 1993 respectively, this source is not being explored and exploited by most local governments. The reasons may not be far from lack of adequate autonomy, the relative short tenure of the office of Executive Chairman of Local Governments and lack of political will to implement and collect tenement rates which will boost their revenue and creditworthiness.

## **2. PPP MODELS**

Through effective partnership between the public and private sector, the risks involved in infrastructure delivery can be identified, allocated, and sufficiently mitigated to attain finance-ability. Most literature on PPP identifies the following models (structures) for implementing PPP projects, Viz:

Service Contracts

Operation and Management Contracts

Leases

Concessions

Build-Operate-Transfer (BOT) contracts and variants

### **SERVICE CONTRACTS**

Service contracts are legally binding arrangements between a properly empowered government authority and a private partner to perform specific, usually non-core tasks within infrastructure systems. The term is far famed as outsourcing. Outsourcing is the contracting out of the facilities management services required by an organization to external service providers. These contracts are typically competitively bid and are for short periods of few months to two years, after which they are re-bid. The responsibility for provision of the overall service, as well as any capital investment, remains with the public authority. Service contracting can be an attractive form of PPP where there is strong political or community opposition to wider involvement of the private sector, opposition to price increases, or where the government is seeking to shed responsibility for non-core functions.

Operation and management contracts

Operation and management contracts transfer responsibility for the operation and maintenance of government-owned entities to the private sector. Under such contracts, ownership of the entity and responsibility for service provision remain with government. Likewise, the bulk of the commercial risk and all the capital and investment risks remain with the public authority. Management control and authority, however, is transferred to a private partner, which applies its expertise to improve management systems and practices. Management contracts are generally three to five years in duration. Compensation may be in form of a fixed fee, as in the case of a fixed fee management contract, or it may be linked to performance indicators, as in the case of a performance-based management contract. However, under both models, the public authority still bears the financial risk associated with its responsibility for capital investment. Operation and management contracts are most beneficial where the main objective is to rapidly enhance a public enterprise's efficiency, or to prepare for a deeper level of PPP, but they are not recommended if a government has as one of its main objectives accessing private finance for new investments because they do not necessarily transfer financial risk to the management contractor.

### **Leases**

Under a lease, a private firm (Lessee) leases the assets of an enterprise from a properly empowered government authority (Lessor) and assumes full responsibility for operations and partial responsibility for investments for a period usually between ten and fifteen years. Typically under a lease, the user fee, or tariff in the case of utility services, is used to pay the "lessee fee", which remunerates the Lessee for his costs, plus a reasonable return. The remainder of the tariff goes to the government and is used to fund capital investments. Under a lease, the government retains title to the assets and bears the responsibility for financing and planning capital investments and rehabilitation of assets. Leases are most appropriate where there is scope for large gains in operating efficiency but only limited need or scope for new investments. Leases have also sometimes been advocated as stepping stone toward a deeper level of PPP in the form of concessions. Their administrative complexity and the demands they place on governments are nearly as great as those of concessions, so a lease is a much bigger first step than a management contract.

### **Concessions**

Under a concession, the private partner (Concessionaire) bears overall responsibility for the services, including operation, maintenance, and management, as well as capital

investments for rehabilitation and renewal of assets, and the expansion of services. Concession can be contracted for an existing facility or for new one. The fixed assets either remain the property of the public authority or revert to public ownership at the end of the concession period. Concession contracts usually last for between twenty to thirty years, depending on the level of investments and the period required for the Concessionaire to recover its investments plus a reasonable rate of return. The Concessionaire is paid for its services directly by the consumer, based on the contractually set fee or tariff, which is adjustable over the life of the contract. The main advantage of a concession is that it passes full responsibility for operations, maintenance, rehabilitation, renewal and service expansion to the private partner and so creates incentives for efficiency in all the utility's activities. Therefore, concessions are an attractive option where large investments are required. Concessions are administratively complex undertakings for governments, because they confer a long-term monopoly on the Concessionaire and thus require rigorous monitoring and enforcement.

Build-Operate-Transfer (BOT) contracts and its variants

BOT (Build Operate Transfer) designates the way of contracting the building of large infrastructure facilities with the involvement of the private sector. The organisers of the building, normally called sponsors, take over the financing, the organisation and the responsibility of the construction of such a facility and then, after it has been built, the responsibility for its use, maintenance and management for a certain period, mostly between 15 and 30 years. After the expiry of such a period, the sponsors return the facility to the government for future usage. BOT is a short term for the most frequent form of such contracting. However, in practice, there are many variants to the model. Besides BOT, there are other short terms such as BOOT, DBOOT, DBFO or PFI, BOOST, BRT, BLT, BTO, BOO, BBO, BT, ROO, DCMF [5]. These variants all have certain differences, and we shall herewith describe the differences between DBFO and BOT models. DBFO (Design Build Finance Operate) or PFI (Private Finance Initiative) model has been developed in Great Britain in the 1990s and has later spread to many European countries. Many public facilities (schools, hospitals, government buildings, etc.) have been built using this financing model. The basic difference between the DBFO and the BOT models lies in the fact that for the first ones, the Government (or more often the local self-government) pays off the contractually defined "unique monthly payment" to the sponsors on a regular basis, during the whole duration of contract (after the start of the exploitation period), while the BOT contracts are most often funded by

the user of the facility. BOT contracts and variants are the most complex form of the public-private partnership.

### **In Closing**

The large population base of the country coupled with rapid urban growth brings about huge demand in infrastructure and services. In the first instance, there is a huge infrastructure gap which has negatively affected the quality of life of Nigerians. The quest of the government to revamp the economy and attract foreign investment makes it imperative and urgent for our urban centres to be provided with basic urban infrastructure and services. Livability surveys by companies like Mercer, have shown that the cities ranked high on livability index have invested substantially in the provision of infrastructure. These cities become more competitive and are preferred destinations for foreign direct investment.

As governments are experiencing challenges of reduced revenue and increasing demand for services, alternative methods of both funding and financing infrastructure are required. It is recommended that ways should be found to improve internal revenue mobilisation, collecting taxes efficiently and utilizing all available revenue sources to enable governments to raise their revenue profile and improve their creditworthiness. Other new sources of financing projects such as raising of municipal and green bond, public private partnerships and use of project finance, among others should explored.

There is also the need to improve the policy and legal environment to ensure the new methods work well and investors are given confidence in recouping their investments. It is only when funds are raised on a continuous basis, to finance infrastructure, that the process can be regarded as sustainable.

I thank you for sharing your scarce time with me and hope this would be one of many opportunities to share ideas with you.

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