

The Stakeholders And Challenges Of Managing Physical Infrastructure In Urbanized Villages In Nigeria

Francis P. Udoudoh and Beulah I. Ofem

University of Uyo, Akwa Ibom State

ABSTRACT: *The provision and management of urban physical infrastructure has remained the responsibility of the three tiers of government in Nigeria, namely federal, state and local governments. Despite this, there are other stakeholders in the sector including international and local organizations that fund the development of infrastructure, host communities, traditional institutions and the using public. The research investigated the role of these stakeholders in the task of managing urban physical infrastructure. Many urban centres in Nigeria are conglomeration of villages statutorily merged into urban centres which are at a disadvantaged position in terms of provision of physical infrastructure. The research identified infrastructure finance, privatization, public-private partnership and community participation as the strategies adopted to developed urban infrastructure in Nigeria. Out of a total of 400 copies of questionnaire distributed to users of public infrastructure, 366 questionnaire representing 91.5 % were properly filled and returned. The result revealed that a total of 124 respondents representing 34% which is more than one-third of the total respondents opted for Public-Private Partnership by concession (PPPc) as the best management strategy It is concluded by noting that notwithstanding the process of urban growth, no pragmatic development can take place without the availability of well-managed and functional infrastructural facilities.*

KEYWORDS: *Stakeholders, management, physical infrastructure, urbanized villages, public-private partnership.*

Introduction

Most scholars and institutions grouped infrastructure into physical (economic) infrastructure and social infrastructure (Hirschman, 1958; World Bank, 1994; Humplick, 1996; Mba, 2005, Onyike, 2011 and Udoudoh, 2014). Physical or economic infrastructure usually involves networks and forms important interconnections between the different systems, not only in terms of system design (by way of distribution and network), but also in terms of impacts (level of performance). Physical infrastructure sub-sector covers the hardcore construction activities which relate to the provision of transportation, electricity, water and telecommunication services. Social infrastructure is an umbrella term for many activities referred to as social overhead capital by development

economists. It is central to the activities of the family, community, economic growth and industrial production and covers services such as education, health, religion and other welfare services generally provided to society. Urban physical infrastructure thus refers to structures, facilities and services that are developed by the public or private institutions to enhance efficient functioning of urban life and economy.

Lack of effective management of physical infrastructure in the face of rapid urban growth has compounded the pressure on existing infrastructure, leading to rapid deterioration in the quality of life index in Nigeria. Consequently, in many countries of the world, the role of the state in providing infrastructure has remained a subject of detailed debate. In Nigeria, urban physical

infrastructure are solely owned and managed by government, where the three tiers of government (federal, state and local) are involved. The World Bank (1997) also posits that Local Government should be responsible for intercity roads, highways and public transport, water supply, among other utilities. In South Africa, Local Governments are responsible for education and water supply, roads and street lightings and other services. The question that freely comes to mind is: *who should be responsible for the provision and management of urban physical infrastructure, government or private investors?*

Aim and Objectives of the Study

The aim of this research is to investigate the strategies adopted by providing institutions in the development and management of urban physical infrastructure in Nigeria. The objectives include:

- (i) to examine the role of the stakeholders in the provision of urban physical infrastructure;
- (ii) to examine the concept of urbanized villages vis-a-vis provision of physical infrastructure; and
- (iii) to examine the implications of the existing management strategies in the attainment of effective urban infrastructure provision in Nigeria.

The Stakeholders

In Nigeria, the stakeholders are involved in the provision and management of urban physical infrastructure include governments, funding institutions, Community Based Organizations (CBOs) and Non-governmental Organizations (NGOs), traditional rulers, communities and the using public.

Government: Going by the various statutes that guide infrastructure provision in Nigeria, the different tiers of government are saddled with the responsibilities of providing and managing infrastructure in the urban centres. For instance, the Forth Schedule, Section 7(f) of the 1999 Constitution of the Federal Republic of Nigeria stipulates that the construction and maintenance of

roads, streets, streets lightings, drains and other public highways, parks are the functions of Local Government Councils. The government also established various agencies to perform many functions, such as the Power Holdings Company of Nigeria (PHCN) which generates, transmits and distributes electricity to peoples' homes; while the various states water boards provide water to the urban residents.

Funding Institutions: There are many international organizations and local agencies that provide financial assistance for infrastructure development in Nigeria. Such organizations include the World Bank, International Bank for Reconstruction and Development, World Health Organization, United Nations, Financial Institutions, Donor agencies and other philanthropic organizations.

Host Communities: These are the various communities where physical infrastructures are sited or pass through. Members of communities can arrange for the maintenance of earth roads within their localities but cannot repair any tarred road that belong to the federal, state or local government not minding the state of disrepair. The same goes for electricity installations. Where a transformer gets bad in any community, the affected electricity consumers can source for money to purchase a new one but cannot install it. Many state governments have developed power plants with intention to improve the quality of electricity consumption, but are restricted by PHCN extant law from transmitting the power to peoples' homes.

Traditional Institutions: These are the many traditional institutions and rulers who are the heads of the different communities, villages and autonomous communities in Nigeria that the infrastructure are sited or pass through. The traditional institutions are duty bound to be involved in infrastructure development from conception and acquisition of sites to provision of security/protection of such infrastructure within

their domain. They are expected to mobilize their subjects especially the youths towards the realization of such infrastructure provision.

Public Users: These are the various categories of the public that use the infrastructure. They include the government institutions namely ministries, parastatals and agencies, hospitals, schools and colleges, industries, hotels, petrol filling stations, shops and eateries, private offices, individuals and households. These users are expected to pay for the use of the infrastructure even though these bills are also expected as corporate and private citizens to assist government and her agencies to provide vital infrastructure especially the corporate bodies as corporate social responsibility.

THE CONCEPT OF URBANIZED VILLAGES

According to the National Population Census Report (1991) of Nigeria, urbanization is the process by which urban areas increase in size and population. An urban area is defined in many ways depending on the peculiarity of the country. Some countries adopt a simple numerical value while others just define an urban area as a community with adequate infrastructural facilities. The United Nations Population Reference Bureau (2005) uses the population of people resident in a settlement to define an urban area and adopted any community with a population of 2,000 residents or more as an urban centre.

Table 1: Urban Population for Selected Countries

Country	Population
Liberia	2,000
USA	2,500
India	5,000
Greece	10,000
New Zealand	10,000
Nigeria	20,000

Source: Udoudoh (2014)

A glance at the population figures adopted by some countries as baselines for inclusion of communities as urban centres reveal that, Nigeria has statutorily excluded many communities from enjoying urban status. However, by 1991 National Population census, Nigeria had a total of 359 urban centres. The population revealed a classic example of rapid growth and explosion with attendant negative impact on the existing infrastructure and services.

Ekop (2007) argues that the rapid rate of urban growth in Nigeria is better described as an “urbanization of poverty”. The fundamental challenge of urbanization is not to contain urban growth, but how to mobilize resources to meet the needs of such growth. The National Planning strategy of Nigeria, has almost totally neglected the rural areas in the provision of the much needed infrastructural facilities, thus stifling their economic, demographic and social strength. This explains why there is a significant variation in the availability of physical infrastructure between urban and rural areas. Equally, the neighbouring communities that have been submerged into the urban are worst affected. These communities are described as urbanized villages (Ikurekong, 2007) or villages in the metropolitan (Changping, Kreibich and Baumgart , 2007).

Urbanized villages are rural settlements that have been taken over and integrated into urban areas as a result of urban expansion into the peripheral rural regions. In many areas, the structural and communal patterns of life have been preserved as part of the urban settings. In other cases, through the various urban renewal schemes, such patterns have been destroyed to pave way for new spatial planning concepts and styles. However, these urbanized villages differ in structures and functions, and present different scenario for diverse purposes in urban setting. The strategic location of these villages inside the cities provides them with access to public services and economic opportunities. The proliferation of urbanized

villages has become one of the pressing issues in many large Nigerian cities today. Uyo Urban is a conglomeration of twenty-one (21) urbanized villages spread across the entire area designated Uyo Capital City in Akwa Ibom State, Nigeria. Many communities and local government headquarters which have been statutorily designated as urban centres in Nigeria are by all ramifications urbanized villages.

Notwithstanding the process of urban growth, no pragmatic development can take place without the availability of functional infrastructural facilities. It therefore stands to reason that any urban centre that has witnessed development or is willing to develop should not handle the provision and management of her infrastructural facilities with levity. This is because lack of proper planning and effective management in Nigeria in the face of rapid urban growth has led to deterioration in the quality of life index of urban residents. The spate of uncontrolled and unplanned urbanization in Nigeria has resulted in complex infrastructural lapses such as shortages of water and electricity supply as well as urban management problems particularly in the urbanized villages. The pace of urbanization in Nigeria cannot be matched by the rated at which urban infrastructure are conventionally provided. Urbanization therefore constitutes one of the living issues of present day human desires. This calls for individuals, communities and governments spending huge amount of money to provide, expand and maintain urban infrastructure including electricity, water, good roads, health, educational and communication facilities to make life comfortable in the urban centres.

MANAGEMENT OF URBAN INFRASTRUCTURE

Brech (1975) defines management as a social process which entails responsibility for the effective planning and regulation of the operations of an enterprise in fulfillment of given purposes or tasks. Such responsibilities include judgement and

decision in determining plans and in using data to control performance and progress against plans; and the guidance, integration, motivation and supervision of the personnel composing the enterprise and carrying out of its operations. Management embraces both the direction and the overall control of policy, and supervision to achieve greater economic efficiency in the operations of any enterprise. This requires adoption of appropriate strategy in the management process.

Infrastructure management involves repairs and replacement of defective, damaged or obsolete components, renovations and such other works to keep the buildings and services in a useable condition to serve the needs of the users. Urban infrastructure management pertains to the efficient and prudent use and maintenance of essential services and structures in the urban centres for the enhancement and sustenance of living standards. It involves the tasks and processes carried out to preserve, restore or improve the components or elements of the infrastructure to sustain its utility and value. The primary aim of management is to control the impact of decay and obsolescence (Nwuba, 1997). Therefore, in planning, design and installation of infrastructure facilities and services, the management aspect should be regarded as part of the overall urban development process; a continuous series of actions carried out in a definite manner to achieve the goal. This will take into consideration the supply, its relationship with urban population, and renewal or development of the existing system. Management has a very important bearing on both the physical components and performance of urban infrastructure.

INFRASTRUCTURE DEVELOPMENT STRATEGY

Infrastructure development strategy becomes necessary as the growing concentration of people in Nigerian urban centres is posing a real

challenge for infrastructural management. The strategies adopted by government to develop and manage urban infrastructure are discuss below:

(a)Infrastructure Finance: Access to finance constitutes a significant challenge to the development of infrastructure. As a result of dearth of funds for long-term financing, funding of urban infrastructure has remained the responsibility of government in Nigeria, like other developing countries of the world. The government provides and manages all forms of infrastructure. The government plans, designs, builds, runs, maintains, and if necessary, replaces facilities of the infrastructure (Public Procurement Best Practice Guide, 2008). The government embarks on these projects using public funds.

The Federal Government of Nigeria in collaboration with the World Bank established the Infrastructure Development Fund (IDF) project in 1985 to tackle the problem of infrastructure deficiencies in urban centres across the country. To achieve the set goal, IDF had to establish a finance mechanism that would assist states to manage, maintain and consolidate existing urban infrastructure and services, improve their financial management capacity and resources mobilization (Olusayo, 2009). On realization that the state of urban infrastructure in Nigeria was still in a deplorable situation, the Federal Government established the Urban Development Bank of Nigeria (UDBN) in 1992. The cardinal aim of the bank is to provide financial credit for construction, rehabilitation and maintenance of essential urban infrastructure and services. On that premise, the bank is to foster the rapid development of urban infrastructure throughout the federation through the provision of concessionary loans and banking services to the state and Local Governments (National Housing Policy Council Annual Report, 1993).

When the decay of most physical infrastructures in urban centres became so pronounced, the Federal Government decided to invest the extra

revenue generated from excess crude oil to a special fund – the Petroleum Trust Fund (PTF). According to Umezuruike (1997), the PTF gave some succour in addressing the infrastructure situation, particularly in areas of urban roads and water supply schemes. This became necessary as efficient provision of urban infrastructure is compounded by poor public funding. The Nigerian government has been guilty of underfunding infrastructure development due to either poor budgeting, estimation of acquisition, maintenance cost or sheer mismanagement of funds allocated for such projects (Udoudoh, 2014). This resulted in investment in infrastructure development declining drastically in the last three decades leading to cumulative backlog of unmet needs. Makoju (2006) had earlier observed that government neglected funding of electricity infrastructure from 1980 - 2000 leading to the collapse of virtually all major component parts of the sector.

Funding of infrastructure project has typically been through a combination of equity and limited recourse to debt which is tied to the project itself and not the sponsor. As a way of closing the financial gap in the sector, Shonekon (2000) as the Chairman, Infrastructure Concession Regulatory Commission (ICRC) challenged the Nigerian banking and financial sector to strive to be more innovative in developing long term capacities in order to promote and support investment in infrastructure financing, while the commission moderates the activities of players working towards the development of new infrastructure. The banks were expected to provide the critical funding to execute new projects and rehabilitate decaying infrastructure in the country. A few banks actually committed their resources by partnering with various state governments and agencies to fund, build and install infrastructure for urban development. In this regard, Zenith Bank PLC, Accessed Bank PLC, Oceanic Bank PLC and First Bank PLC

have been quite outstanding in financing Nigeria's infrastructure or partnering with other institutions to execute infrastructural projects.

(b)Privatization: The concept of privatization embraces deregulation of the economy so as to encourage private initiative, boost productivity and promote efficiency (Udoudoh, 2015). The key elements are the disengagement of government from the ownership and management of hither-to state owned enterprise and transferring same to the private sector. Delaney (2008) and Ibru (2007) agree that while privatization is a strategy to increase efficiency, it enhances the raising of funds and transferring of public assets to entities that are better placed to manage such assets. The private sector is identified with entrepreneurial skills, efficiency in management, ability to perceive, assess and capitalize on opportunities created by decentralization of infrastructure. In the developed world, technological advancement in the infrastructure sector has improved efficiency of providing services for larger jurisdictions and market areas making it easier for local entities including private operators, Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs) to participate in the delivery of infrastructure services than was possible a few decades ago (UNCHS/Habitat, 2000). For the privatization exercise to be successful, Ibru (2007) advises that the first step in the process is to prioritize infrastructure sector according to both the government's ability to influence their development and the potential economic benefits from improving access to supplies and markets. Having identified the sectors where it can have the greatest impact, it then decides to organize its restructuring programme in easily manageable phases.

The marketability of telecommunication services has witnessed a remarkable role by the private sector recently in Nigeria. The sector presents one of the best examples of private initiatives in

infrastructural development in Nigeria. From observations, the federal government liberalization policy in telecommunications sector, which allowed private sector participation in the provision of alternative communication services through the use of GSM is yielding good dividend. The success can be seen in the enormous growth in the number of mobile phone users in Nigeria from 266,461 in 2001 to 46 million in 2007 (Detail, 2009).The current challenge in the sector remains how to meet the raising and large demand for telecommunication services in Nigeria. However, it should be noted that the situation is not the same with other types of physical infrastructure. For instance, it is difficult in electricity generation where existing investment and structures of transmission and distribution do not lend itself easily to privatization or private ownership. This is why despite the huge sum of money many state government have sunk into the provision of Independent Power Plants, they have not been able to transmit and distribute power to consumers. In the water sector, the inefficiency and low capacity of public water companies have created enormous opportunity for private sector initiatives. This has manifested in the operation of commercial boreholes, water tankers, water vendors and sales of table water. The qualities of these sources of water often do not meet the recommended standards for human consumption.

(c)Public-Private Partnership (PPP): Public-Private Partnership is an arrangement between the government and an appropriate qualified private sector entity/group of entities (consortium) for the purpose of financing, designing, constructing, and maintaining infrastructure that could otherwise have been done through the traditional public procurement channels (Detail, 2009). The rationale for the partnership is the need to harness the combined strengths of both the public and private sectors to establish complementary relationship, on the premise that both the public

and private sectors have unique advantages in specific aspects of service delivery (Sanni, 2007). In PPP, the private sector does not buy the infrastructure as in the case of outright privatization but shares in the responsibilities of investment, decision making, risks, profits and management. According to the World Bank's Report (1994), partnership encourages better risk sharing, accountability, monitoring and management of infrastructure provision.

The success of joint partnership between the public and private sectors depends on rigorous management, a degree of technical skill, level of stakeholders' transparency and fairness (Akujuru, 2004). The stakeholders in the provision and management of urban infrastructure include governments, private individuals, communities, Community Based Organizations (CBOs) and Non-governmental Organizations (NGOs) as pointed out at the beginning of this work. Ogbuefi and Udoudoh (2012) had observed that though government has remained the major stakeholder in infrastructure development in Nigeria, the idea of PPP came on realization that the provision and management of infrastructure cannot be left solely to the government. In the 2012 Budget Broadcast, President Goodluck Jonathan acknowledged that government alone cannot solve the infrastructure problem, thus inviting the private sector and international investors to partner with government through the Public-Private Partnership (PPP) arrangements.

Public-Private Partnership (PPP) through Private Finance Initiative (PFI) appears to be the strategy of the new millennium as governments try to shed their economically inefficient and unproductive overloads to generate more revenue through effective management of public owned enterprises. PFI allows capital investment to be made by the private investor on the strength of a contract with or concession by the government to provide agreed services or exploit certain rights (Sanni, 2007). This development calls for the

implementation of PPP by concession where the government or any public agency can go into provisional partnership agreement with a private agency to provide services to the people. Examples of PPP by concession projects in Nigeria include the Murtala Mohammed Airport Terminal, Lagos-Ibadan Expressway, Sea Ports Concession, and the upgrading of Lekki-Epe Corridor and Itigidi Bridge Concession. The Murtala Mohammed Airport Domestic Terminal is the first major infrastructure concession project to be successfully implemented by a Nigerian company (Trade Invest Nigeria, 2010). Another example is the Lagos State Government who has taken the option of 'Build-Operate and Transfer (BOT)' involving the private sector in the development, operation and management of its intra-city roads. The cosmopolitan state has also adopted PPP methodology in the management of waste disposal, highway maintenance and street cleaning within its territory.

One problem that may however hinder the effective operation and relationship between the public and private sectors remains poor implementation and adherence to relevant laws, regulations and guidelines in the procurement framework for PPP practice in Nigeria. Redefining the role of government through the promotion of PPP is a key strategy for changing the way government should operate. Where there is no strong technical strength, financial base and favourable investor environment, PPP may not be successful. However, investors must be warned that without a balance partnership, the effort will attract insufficient investment. Therefore, the parties must thrive to balance social goal with profit motive.

(d)Community Participation Programme:

Available evidence shows that one of the observed failures of urban infrastructure projects in Nigeria is attributable to lack of users' participation in the development and management of such projects. Community Participation

concept originated in the pre-colonial period in various parts of Africa and Asia as a means of bringing development closer to the people through self-help efforts. World Bank experience with community participation has given rise to the following definition: “an active process whereby beneficiaries influence the direction and execution of development projects rather than merely receive a share of project benefits (Paul, 1986). Community Participation (CP) in infrastructural services management is thus the process whereby the members of the community team up to influence the flow and quality of infrastructure services available to them (Famihinmi, 2003). This research sees the concept to mean that the community plays an active role in the tasks of development, operation and management of public facilities within its territory.

With regards to the question: *who should be involved in community participation?* Ekong (1988) advises that all recognized community leaders should be involved while other community members should be kept informed of any plans and programmes that are evolved. But considering the current spate of youth restiveness

in various parts of Nigeria, it is imperative to involve youth leaders and activists in decision making, infrastructural development and management. However, participation should depend mainly upon the nature of the task at hand. This requires that the goals and means of achievement should be clearly defined and understood by those to be involved. In order words, the participants should be people with relevant skills, knowledge, resources to make meaningful contributions to the resolution of the problem.

DATA PRESENTATION AND DISCUSSION

Data were collected from both primary and secondary sources from respondents and government agencies responsible to specific types of physical infrastructure. To gather data directly from respondents, 400 copies of the questionnaire were distributed in Uyo, an emerging city in Akwa Ibom State, Nigeria. Out of this number, 366 questionnaire were properly filled and returned to the researchers.

Road Infrastructure

Table 1- Administration of Urban Roads in Nigeria

Authority	Area in km (2000)	Percentage (2000)	Area in Km (2006)	Percentage (2006)
Local government	130,000	67.5	134,000	67
State government	30,500	15.8	32,000	16
Federal government	32,000	16.6	34,000	17
Total	192,500	100	200,000	100

Source: *Buhari (2000), Okoko (2006).*

A breakdown of the roads categories in Nigeria indicated that the Federal Government has the responsibility for 34,000 km (17%) of the nation’s roads, the state governments 32,000 km (16%), while local governments have the highest share of 134,000 km (67%). This is shown on Table 1. In the last ten (10) years, no new roads have been constructed in Nigeria, rather failed efforts have been made to repair collapsed roads.

Water infrastructure

Table 2-Cost Sharing for Capital Investment in Water Provision

Level of Government	Urban (%)	Semi-urban (%)	Rural (%)
Federal	30	50	50
State	60	30	25
Local Communities	10	15	20
Communities	-	5	5
Total	100	100	100

Source: National Water Policy (2000).

The National Policy on Water supply (2000) came out with a financing strategy that entails a cost sharing approach involving the federal, state, local governments and individual communities concerned. Table 2 indicated that the Federal government has 30% responsibility to fund water supply in urban centres, 50% in semi-urban centres and another 50% in rural areas of Nigeria. The federal government has failed in discharging this assignment. The Table also reveals that it is the responsibility of the state government to provide 60% of the financial cost for water provision in urban centres, 30% in semi-urban areas and 25% in rural areas of Nigeria. Though, the state governments set up Water Companies to handle this responsibility, experienced has shown that these agencies are unable to live up to this task. The high cost of construction and operation associated with the establishment of large water corporations led to the adoption of low cost technology in providing potable water. Poor funding and adequate facilities of water projects resulted in low productivity, low coverage and inefficient service delivery. This calls for the need to develop other systems that are self-reliant; thus the emergence of boreholes and hand pump (rural water supply technology) as strategies to meet urban water need in Nigeria. On the whole, the extent of water supply coverage in urban areas depends greatly on the level which all the stakeholders adhered to the cost sharing formula in water supply management.

Table 3: Adequacy of Urban Infrastructure

Type of infrastructure	V. good		Good		Fair		Poor		Non-existence	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Road network	12	03	173	47	111	30	70	20	-	-
Electricity	-	-	76	21	151	41	132	36	07	02
Potable water	-	-	84	23	142	39	101	27	39	11

Table 3 shows that a total of 173 respondents representing 47% response rate acknowledged that road network coverage in Uyo urban is good. A total of 151 respondents representing 41% response rate and 142 respondents representing 39% response rate respectively, noted that the adequacy of public electricity and potable water supply is only fair; while 132 respondents representing 36% response rate and 101 respondents representing 27% respectively noted that the adequacy of public electricity and potable water supply is relatively poor. This reveals that more than 65% of the consumers whose opinions were sought are of the view that the adequacy of public electricity and potable water supplies is generally poor in Uyo urban.

The same table reveals that 181 respondents represented by 50% response rate noted that intra-urban road network is not too good as shown by 111 respondents (30%) that indicated fair and 70 respondents (20%) that indicated poor. A total of 39 respondents representing 11% had no potable water linked to their homes at all. This result confirms earlier results from researches carried out by Babawale (2004) and Adebayo (2006) that the state of urban infrastructure in most urban centres in Nigeria is deplorable.

Table 4: Regularity of Urban Infrastructure Supply

Responses	Electricity		Water	
	No of respondents	%	No of respondents	%
Very regular	-	-	-	-
Regular	83	23	63	17
Fairly regular	129	35	140	38
Very irregular	154	42	124	34
Not connected	-	-	39	11
Total	366	100%	366	100%

On the regularity of urban infrastructure, 83 respondents or 23% and 63 respondents or 17% stated that public electricity and water supplies respectively are regular. A total of 283 respondents or 77% and 264-respondents or 72% frowned at the irregularity of public electricity and water supplies to Uyo urban residents. This implies that over 70% of the residents are not satisfied with the performance of urban infrastructure

Table 5: Stakeholders in Infrastructure Development

Stakeholder	Functions	Remarks
Government	Provision and Management of physical infrastructure	
Federal	Federal Roads and Electricity,	Collapsed Federal Highways, Epileptic Electricity Supply,
State	State Roads, Urban Roads and Street Lighting, Urban Water supply	Collapsed Inter and intra-city Roads. No Street Lighting, No Functioning pipe-borne water
Local Government	Provision of Motor Parks, Borehole, Culverts and Drainage	Unkempt motor parks, Poor Drainage system
Funding Institutions	Funding of urban infrastructure	Unreliable funding
World Bank		
World Health Organization		
Financial Institutions		
Donor Agencies		
Host Communities	Maintenance of existing infrastructure	Damaging of existing infrastructure by the youths from the host communities
Traditional Rulers	Security of Existing infrastructure	Poor Security of provided infrastructure
Public Users	Proper usage of existing infrastructure and payment of bills	Unsatisfied with performance of existing infrastructure

From Table 5, it is clearly shown that the various tiers of government have the responsibility to provide infrastructure in Nigeria,; while the financial institutions, where the need arises fund such development. The other stakeholders should use the infrastructure while ensuring their maintenance.

Table 6: The Best Management Strategy for Urban Physical Infrastructrue Development in Nigeria

S/N	Management Options	No. of Respondents	Percentage (%)	Ranking
1	Public Development and Management	66	18	3 rd
2	Private Development and Management	36	10	5 th
3	Foreign Development and Management	40	11	4 th
4	Communal Development and Management	18	05	6 th
5	Public-Private Partnership by Concession	124	34	1 st
6	Privatization of Existing Utility Agencies	82	22	2 nd
Total		366	100	

The result from Table 6 reveals that a total of 124 respondents representing 34% i.e. more than one-third of the total respondents opted for Public-Private Partnership by Concession (PPPc) as the best management strategy. This was followed by privatization where 82 respondents representing 22% of the total respondents accepted. From this table, the utility consumers want government to involve the private sector in the task of providing and managing urban physical infrastructure where so much resources have been invested for optimal operation.

CONCLUSION AND RECOMMENDATIONS

Urban infrastructure management pertains to the efficient and prudent use and maintenance of essential services and structures in the urban centres for the enhanced index of life. Management of urban infrastructure is complex, particularly as it requires huge capital investment and maintenance for sustainability. It has been observed that the various government agencies responsible for urban infrastructure management are unable to response to the functions which they are supposed to render due to human, technical and financial constraints, in addition to poor inter-departmental coordination among related ministries and agencies (Ogbuefi and Udoudoh, 2012), thus the need for other stakeholders to be involved in the sector. From experience, the users of urban infrastructure are generally willing to participate in the building and management of infrastructure, but the policy makers and utility providers neither facilitate the process nor provide support for their activities and regulate their actions. Collaborative, broad

based approaches need to be sought out to accommodate multiple perspectives. Notwithstanding the process of urban growth, no pragmatic development can take place without the availability of functional infrastructural facilities. It therefore stands to reason that any urban centre that has witnessed development or is willing to develop should not handle the provision and management of her infrastructural facilities with levity. This is because lack of proper planning and effective management in Nigeria in the face of rapid urban growth has led to deterioration in the quality of life index of urban residents.

Given the governments' budgeting constraints relative to the quantum of resources required to rebuild, maintain, upgrade or expand urban infrastructure, public-private partnership by Concession (PPPC) approach would leverage effectively on private capital. This should necessarily involve the requisite upgrading of governments' regulatory and monitoring role, with government focusing on planning and structuring, while the private sector engages in investment, construction, financing and management.

DEVELOPMENT OF PHYSICAL INFRASTRUCTURE IN URBAN NIGERIA

In Nigeria, urban infrastructure are largely owned and managed by government at the various tiers through established public agencies. In many countries of the world, the role of the state in providing infrastructure has been the subject of detailed debate. The question that freely comes to mind is: *who should be responsible for the provision and management of urban physical infrastructure, government or private investors?*

(a) Road Transportation Infrastructure: The transport system in all economics of the world is usually given a very high priority in recognition of the important role it plays in stimulating both socio-economic and industrial development. Available records revealed that in Nigeria, transportation facilities do not increase at the same rate as urban population growth rate. This disequilibrium between the supply and demand of urban transportation has posed a great challenge to planners, policy makers and the economy. Several studies have been carried out on the trend in road transport sector in Nigeria in the last two decades (Buhari, 2000 and Okoko, 2006). The survey revealed that most of the roads constructed over 30 years ago had not been rehabilitated even once, resulting in major cracks (longitudinal and transverse), depressions, broken down bridges, and numerous potholes that make road transport slow and unsafe. Consequently, our intra and inter-city road network which expanded rapidly during the oil boom has become death traps because of years of neglect. A breakdown of the roads categories indicates that the Federal Government has the responsibility for 34,000 km (17%) of the nation's road, the state governments 32,000 km (16%), while local governments have the highest share of 134,000 km (67%). This is shown on Table 1.

Table 1: Administration of Urban Roads in Nigeria

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Total	192,500	100	200,000	100

Source: Buhari (2000), Okoko (2006).

This Table is a reflection of the Forth Schedule, Section 7(f) of the 1999 Constitution of the Federal Republic of Nigeria which stipulates that the construction and maintenance of roads, streets, streets lightings, drains and other public highways, parks are the functions of Local Government Councils. The percentage of urban roads that is motorable has continually been decreasing because of poor maintenance. This led to the establishment of the Federal Road Maintenance Agency (FERMA) by the Federal Government of Nigeria in 2003 to handle the maintenance of federal roads across the country. The poor state of roads became so terrifying that it was brought to the floor of the National Assembly. The Assembly agreed that FERMA has failed the nation but linked their poor performance to the fact that the Agency is being charged with a responsibility more than its ability amidst poor funding.

(b) Electricity Infrastructure: Electricity was generated at central stations in Nigeria in 1896. In 1950, the Electricity Company of Nigeria was established which was eventually merged with Niger Dams Authority to form the National Electricity Power Authority (NEPA) in 1972. NEPA was a vertically integrated monopolistic institution that controlled every aspect of the power process from generation to transmission and distribution. This resulted in lack of competitive forces to drive the power process, while the operations and performance became unsatisfactory. From analyses, the energy generation available to Nigeria declined from installed capacity of 5906 mw to 1600 mw in 1999 with only 19 functioning generating units out of 79. Nigeria operates at one-third of its installed capacity due to aging equipment. Why? There has not been any Turn Around Maintenance on electricity generation, transmission and distribution installations for several years running into decades in Nigeria. Consequently, the existing rader transmission lines were completely run down while many transformers and circuit breakers became unuseable for years. The remaining facilities are not only overloaded but had become vulnerable and susceptible to regular breakdown.

It was on this ground that the federal government approved a National Electric Power Policy in 2001, setting out principles and steps to create an enabling regulatory framework, restructure the industry and facilitate more investment into the sector. The Power Sector Reform Act No. 6 of 2005 was also put up. The Act created the National Electricity Regulatory Commission with powers to license and regulate private investors in the generation, transmission and distribution of electricity nationwide. As part of the reform programme, the federal government created a blueprint for raising power generation capacity to 6000 mw by the end of December 2009 and to 10,000 mw by 2011. This led to government policy of unbundling NEPA into 18 companies, comprising six (6) generating companies, one (1) transmission company and eleven (11) distribution companies (See Table 3 attached as Appendix 1).

Unbundling PHCN into various companies without the necessary preparatory work to put them into proper shapes compounded the already bad situation in the supply/distribution end of the power sector. To worsen the situation, the legal standing of PHCN as an entity became a subject of debate. Going by the Electricity Reform Act of 2005, PHCN should have been wound-up and its assets transferred to the successor eighteen (18) companies. The stranded assets were to be assigned to the Nigerian Electricity Liabilities Management Company (NELMCO). The implication of this is that the IPPs do not have any legally recognized entity to sign power purchase agreement. This makes the investment decisions weigh heavily on the effectiveness of the legal framework and not only on the economies of the investment.

(c) Water Infrastructure: Traditionally, the provision of water supply and services in Nigeria has remained a social responsibility of the various tiers of government. Unlike the constitutions of other African countries such as those of Ethiopia, Uganda, Gambia and South Africa, Nigeria's 1999 constitution does not establish any express entitlement or right to water. Section 20 of the constitution grants powers to states of

the federation to protect and improve the environment and safeguard the water. Prior to this, domestic water management had no position in the political decision-making process. Water management practices before 1999 were more disjointed in approach (responding to emergencies) with a number of vague and unrealistic assumptions (Akpabio, 2007).

The National Water supply and Sanitation Policy (NWSSP) which was introduced in 2000, currently provides the institutional arrangements for the operation and funding of potable water supply for both urban and rural areas. One of such institutions is the establishment of State Water Boards to facilitate the operation and maintenance of water facilities. Unfortunately, the State Water Boards could not perform due to obsolete facilities in the face of increased demand. Besides, government subventions have been too meager to keep the operation of water facilities smooth. The available water works in many urban centres were confronted with problems associated with their designs, operation and maintenance, and lack of integrated management. This resulted in the water companies supplying less water than they were designed for. To cushion this situation, the National Policy on Water supply (2000) came out with a financing strategy that entails a cost sharing approach involving the federal, state, local government and individual communities concerned.

Table 2: Cost Sharing for Capital Investment in Water Provision

Level of Government	Urban (%)	Semi-urban (%)	Rural (%)
Federal	30	50	50
State	60	30	25
Local	10	15	20
Communities	-	5	5
Total	100	100	100

Source: National Water Policy (2000).

Table 2 indicated that it is the responsibility of the state government to provide 60% of the financial cost for water provision in urban centres in Nigeria. Though, the state governments set up the Water Companies to handle this responsibility, experienced has shown that these agencies are unable to live up to this task. The extend of water supply coverage in urban areas depends greatly on the level which all the stakeholders adhered to the cost sharing formula in water supply management.

The high cost of construction and operation associated with the establishment of large water corporations led to the adoption of low cost technology in providing potable water. The United Nation’s Population Information Network (1994) emphasizes the important of technology for achieving urban water needs. Technologies that were suitable to developed countries are

unable to work in Nigeria and other developing African countries. This calls for need to develop other systems that are self-reliant; thus the emergence of boreholes and hand pumps as strategies to meet urban water need in Nigeria. Lack of adequate facilities by such schemes resulted in low productivity, low coverage and inefficient service delivery (Chima, 2002).

ADOPTED MANAGEMENT STRATEGY

Management of urban infrastructure pertains to the efficient use and maintenance of essential services and structures in the city for the enhancement and sustenance of living standards. It involves the tasks and processes carried out to preserve, restore or improve a system or an asset with its elements to sustain its utility and value. The primary aim of management is to control the

impact of decay and obsolescence (Nwuba, 1997). Therefore, in planning, design and installation of infrastructure facilities and services, the management aspect should be regarded as part of the overall urban development process; a continuous series of actions carried on in a definite manner to reach the target goal. The strategy adopted during the development forms the bedrock for sustainable management. The strategy determines the shape, business processes and operational systems of the organization. The question then is: *what are the management techniques that should be adopted by utility agencies to reduce cost and promote efficiency in the provision of physical infrastructure in Nigeria?* Management of urban infrastructure commences with how the facilities and services were developed.

(a) Budgetary Control: The most popular management control mechanism employed by firms is budgeting and budgetary control system. It entails a distinct pattern of decisions making in an organization which is capable of determining its objectives, purposes or goals, and how these goals are achieved by establishing principal policies and plans (Asuquo, 2011). As a management tool used for ensuring accountability in public parastatals, its primary function is to serve as a guide to financial planning operators, while establishing limit for departmental excesses. By this action, administrative officials are required to make careful analysis of all existing operations, thereby justifying, expanding, eliminating or restricting present practice (Garrison and Noreen, 2000). Budgetary control ensures that measures are put to check whether or not plans are realized particularly where deviation or shortfall is occurring. In Nigeria as poor financial management has crippled the performance of most physical infrastructures.

In managing performance, budgets represent fixed term performance contracts and such a performance management system does not help to

ensure teamwork and agility (Etim and Agara, 2011), that is, responsiveness to changes in the market which is required for organization success. The foregoing propels that infrastructure providing agencies should set formal mechanisms to study the systems in order to determining the areas for expansion or detect early signs of future problems or failures for incorporation in the budget proposals.

(b) Market Research and Analysis: Market research and analysis is increasingly becoming an essential pre-requisite for any successful development (Ogbuefi, 2002). It involves identifying customers need and preferences, and studying problems relating to the products or services, the customers and environment. It also enhances the determination of the market segments that are saturated, underserved or outrightly unexplored. By its use in objective setting, uncertainty in decision-making is reduced, while monitoring and controlling of activities is made easier and more effective.

In sitting of infrastructure project in Nigeria, the potential market is often not taken into consideration, resulting in some parts of the countries having underutilized infrastructure while the others have overused facilities. Market research is not regarded as a major aspect of infrastructural development or an on-going process of delivering services, even when such research permeates the whole management process. Market research should be considered as an effective management strategy in the development, planning, delivery and readjustment if need be in the infrastructural provision process.

(c) Knowledge Management (KM): The concept of knowledge management is that the success of any management initiative depends on having suitable motivated people taking an active role in the process. To use KM to achieve set goal, an organization must have a strategy and individuals must be persuaded to contribute to its

formulation and implementation. Effective service begins with the identification of the needs of the consumers, then channeling the resources towards the services to satisfy those needs (Adebiji, 2001). This requires that utility agencies should find out the level and quality of services needed or desired by consumers. Unfortunately, utility providers in Nigeria do not properly understand the trend in consumers' behaviour.

A business can only be regarded as being successful only when its products or services satisfy the need of the consumers. This requires that utility agencies should develop more intimate relationship with consumers in order to modify demand on 'stressed' parts of the network. This is because the pressure on infrastructure due to the existing demand is directly linked with the consumption pattern of the people (Singh & Jena, 2005). Better knowledge and information result in a better understanding of a system as it create possibility for better management.

(d) Management-By-Objective (MBO): This is a management technique where every department or unit has specific responsibilities to carry out its functions which are targeted at the success of the overall organization, and the result measured against the set goal of the organization. It explains the situation whereby management and its staff jointly set specific and measurable objectives which are expected to contribute to the achievement of the overall objectives of the organization. Many organizations in Nigeria have attempted to use MBO in their organization. While some have succeeded, others have failed. The problem with the application of MBO is that goal getting is usually done at the top level where management staff sets the primary goal and determines the corporate strategies. This often results in poor performance of the service provided as it emphasizes short-range goals at the expense of long term objectives. To a large extent, this brings inconsistency in the objectives being pursued at the various levels of management.

Despite the identified problems, MBO encourages the adoption of good principles of management such as delegation of authority and unity of command. It also encourages the growth of effective control system in an organization. By its nature, it requires that veritable objectives are set, standards for measuring put in place, and process of modifying the objectives where deviations are observed also created. It encourages management to make the best of its abilities and stimulate decision-making and decisive action. Doing these shall lead to increased productivity and improved overall effectiveness.

(e) Capacity Building: Capacity Building (CB) is about training human resources for the purpose of developing and managing certain activities of the organizations for the attainment of the set goals. It is a management strategy that has to do with the development of knowledge, skills, and attitudes in individuals and groups of people relevant in the design, development and maintenance of operational infrastructure and processes. It involves the production of capable intellectuals to man the various aspects of physical infrastructure for the growth of the economy. Such training is acquired in institutions such as skill acquisition centres, technical schools and colleges of technology, universities and research institutes.

CB in infrastructure management is not only a question of establishing an efficient technological manpower level or sufficient economic resources, but understanding of the interdisciplinary and cross-sectoral nature of infrastructure administration system. It should ensure the building of sound institution and good governance. To date, CB has not received the deserved attention in most public utility agencies as training is limited to conferences and refresher courses where only a few privileged staff is hand-picked to benefit. Also, there is a corridor problem to building human capacity. This has to do with training of personnel who later migrate to

serve their skills outside the place that trained him because of poor working environment, insecurity, human right violation, among other vices.

Implications Of The Adopted Management Strategies On The Performance Of Urban Infrastructure

The 4th Schedule, Section 7(f) of the 1999 Constitution of the Federal Republic of Nigeria stipulates that the construction and maintenance of roads, streets, streets lightings, drains and other public highways, parks are the functions of Local Government Councils. This policy does not seem realistic as the local governments are least able to response to these functions because they are grossly underfunded, lack fund generating drive, technical expertise and other resources to provide for efficient infrastructure and service delivery.

The institution of urban governance which vests the provision, management and administration of urban transport heavily on the Local Government has been the bane in the conscious effort to develop good and sustainable urban transportation facilities in Nigeria. Consequently, the capacity, coverage and design of most urban road networks are inadequate for the volume of traffic using them. It is pertinent to note that the business of road development and maintenance is extremely capital intensive, and the funding process in Nigeria has been subjected to a lot of political debate. It has persistently been difficult to secure an adequate and stable flow of funds for road development and maintenance through general government budget financial procedures. The traditional long process of getting a reimbursement from the federal government on the rehabilitation of federal roads in the state had dampened the enthusiasm and cooperation of state and local governments to rehabilitate such federal roads (Oni, 2009 and Udoudoh, 2014). Above all, the federal government policy that state governments should steer clear of fixing federal roads without due approvals is a major setback,

particularly when considering the bureaucratic processes and politics of getting the expected due approvals from appropriate authorities.

The policy of electricity supply in Nigeria has adversely affected electricity performance in Nigeria. This is the policy of PHCN being the only agency statutorily empowered to generate, transmit and distribute electricity throughout the country. This policy has not properly articulated national needs. In 2001, the National Electricity Power Policy was approved by the Federal Government of Nigeria. The policy sets out the principles and steps to create an enabling regulatory framework, restructure the industry and facilitate more investment into the sector. Government also put up the Power Sector Reform Act (2005) with the goal to enable the National Electricity Regulatory Commission to license and regulate generation, transmission and distribution of electricity nationwide. The National Electricity Power Policy, National Energy Policy and National Electricity Power Reform Bill set the framework for developing the power sector. They spelt out the role of the regulators from that of service providers, while creating opportunities for private sector participation. Unfortunately, government has not been serious in the implementation of the reforms which would have assisted to jumpstart the economy by improving the electricity supply in urban Nigeria.

Government is bent on increasing the available magawatts of electricity generation in Nigeria. From analysis, the problem resulting in poor generation of power in Nigeria is not low megawatts of electricity generated. PHCN already has a combined local installed generating capacity of about 5906 mw and a customer base of about 36% of Nigeria's total population. This means that only 51 million Nigerians are currently connected to the national grid consuming a national electricity peak demand of about 2470 mw leaving dormant almost 3436 mw (i.e. 5606 less 2470). Consequently, Nigeria does not

require generation of over 6000 mw of electricity to meet present demand. With a right management and maintenance policy put on ground and implemented, hardly would there be any problem in generating, transmitting and distributing reliable electricity to Nigerians. What is required presently is rehabilitation of existing moraboid generating stations and effective operation at maximum capacity utilization.

Although there is no overall national water policy dealing with management of water infrastructure in Nigeria, the National Water Supply and Sanitation Policy (NWSSP) introduced in January 2000, presently provides the institutional framework for the operation and funding of potable water supply for both urban and rural areas. The establishment, operation and performance of the State Water Companies so far do not meet the policy objectives of providing adequate quantity and good quality water to the people. The upheaval performance has forced many urban residents to resort to alternative sources of water, particularly borehole water. In such circumstances, therefore, water infrastructure management should be developed within a comprehensive set of policies that enhance human consumption, distribution and environmental protection. The issue of water scarcity in several urban areas of Nigeria has dominated public discussions, which government has to put in place coping and adaptation techniques in order to solve the problem across the country.

THE WAY FORWARD

Notwithstanding the process of urban growth, no pragmatic development can take place without the availability of functional infrastructural facilities. It therefore stands to reason that any urban centre that has witnessed development or is willing to develop should not handle the provision and management of her infrastructural facilities with levity. This is because lack of proper planning and effective management in Nigeria in the face of rapid urban growth has led to deterioration in the

quality of life index of urban residents. The spate of uncontrolled and unplanned urbanization in Nigeria has resulted in complex infrastructural lapses such as shortages of water and electricity supply as well as urban management problems. The pace of urbanization in Nigeria cannot be matched by the rate at which urban infrastructure are conventionally provided. Urbanization constitutes one of the living issues of present day human desires. This calls for individuals, communities and governments spending huge amount of money to provide, expand and maintain urban physical infrastructure to make life worthwhile in the urban centers.

CONCLUSION

The government of Nigeria has over the years refused to acknowledge that there is need to put in place a well articulated national maintenance policy for our urban physical infrastructure. Ahmed (1997) as noted by Iseh (2006) observes that the major constraint to sustainable infrastructural development is institutional as infrastructure maintenance is not recognized in the national policies, neither is it reflected in budgetary or resource allocation process. This is in spite of the immense contributions of the physical assets to the achievement of the nation's economic objectives. Moreso, the Nigerian government has been dragging her feet to liberalize policies towards urban infrastructure services. They show no reasonable interests in allowing competent private investors to participate in the management of urban physical infrastructure. It may be argued that investors in Nigeria are not yet sophisticated, but this notwithstanding, we live in an increasingly globalized investment world with a clientele that is increasingly global (Ajayi, 2010). For Nigeria to catch up with other parts of the world, the policy framework for urban infrastructure management needs to be liberalized to attract private participation. This will certainly brings

about revitalization and improved performance of the infrastructure sub-sector.

Table 3: PHCN Successor Companies

S/N	Successor Companies
1	Kainji Hydro Electric Plc
2	Shiroro Hydro Electric Plc
3	Jebba Hydro Electric Plc
4	Egbin Power Plc
5	Delta Power Plc
6	Afam Power Plc
7	Sapele Power Plc
8	Transmission Company of Nigeria
9	Abuja Electricity Distribution Plc
10	Yola Electricity Distribution Plc
11	Ikeja Electricity Distribution Plc
12	Port Harcourt Electricity Distribution Plc
13	Kaduna Electricity Distribution Plc
14	Enugu Electricity Distribution Plc
15	Benin Electricity Distribution Plc
16	Ibadan Electricity Distribution Plc
17	Eko Electricity Distribution Coy Plc
18	Kano Electricity Distribution Coy Plc

Source: PHCN Office, Ekpenyong Street, Uyo (2011)

The government has over the years consciously refused to acknowledge that there is need to look more critically into the issue of alternative transport mechanism as a means of achieving sustainable urban development. The rail transport and water transport are the two main areas where the hope for sustainable urban growth lies. Because they are not being properly harnessed, every transporter relies on only road transport for

movement of people and conveyance of goods which result on quick collapse of road infrastructure. The Nigerian government should reactivate the rail and water transport systems to reduce congestion on road transport infrastructure, as this shall prolong the life-span of our roads. Without proper urban transport planning and funding, urban transportation infrastructure in Nigeria will continue to be in a state of comatose.

Government policy for the sector during the 1980s and 1990s, and until recently did not properly articulate national needs. For example, the last major electric generation installation in Nigeria was in 1990 when the Shiroro Power Station was commissioned. Since then, no new units have come on stream and none of the existing ones have had a major overhaul for 15 years. A study carried out by Oluba (2008) on provision of public infrastructure in Nigeria revealed that the Kainji Hydroelectric plant which had been in operation since 1968 was designed to generate 960 mw of power from its 12 turbines, but only 10 of the turbines have been installed which resulted in generating only 760 mw of power.

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