

Nigeria in the Eye of the World: A Critical Analysis of Nigeria's International Economic Relations (1999-2013) 1-9

A. Sat Obiyan, Ph.D, Dele Seteolu, Ph.D and James Okuneye

Inculcating Values, Organizational Ethics and Corporate Social Responsibility into the Small and Medium Sized Enterprises 10-18

Isiaka, S. B., Ph.D , Abdullah, A.S., and Abogunrin, A.P.

Rural Development Policy in Nigeria's Fourth Republic: Problems and Prospects for Sustainable Development at Grassroot Level 19-26

Garuba, Rasheed Obasekore

Democracy, Insurgency and National Security in Nigeria: A Study of Boko Haram Insurgency (May, 2010 - May, 2015) 27-36

Osezua Ehiyamen, Ph.D, and Usamotu Basheer Olalere

Issues and Challenges of Power Sector in Nigeria: Addressing Policy Gap to Achieve Efficiency 37-44

Abdulkareem Abdulrazaq, Ishola Abdurasaq and Abdullahi Muhammed

A Content Analysis of Democracy and the Challenges of Rural Development in Northern States of Nigeria 45-52

Abdulrazak Yuguda Madu and Shehu Jafaru Salisu

The Civil Service and Contemporary Challenges in Nigeria 53-61

Ameen Abdullateef, Muhammad Mustapha Orire and Akindele, I. T., Ph.D

A Retrospect on Monetization of Fringe Benefits in the Nigerian Civil Service 62-69

Lawal, E. E., Ph.D, Olatunji, A. G, Ph.D and Muhammed, A.Y, Ph.D

A Study of Farmers' Adaptation to Climate Change in Esan West Local Government Area of Edo State, Nigeria 70-77

Adeleke, E. A., Ph.D and Tilakasiri, S. L., Ph.D

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ISSUES AND CHALLENGES OF POWER SECTOR IN NIGERIA:
ADDRESSING POLICY GAP TO ACHIEVE EFFICIENCY

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Abstract

A nation's economic growth and development relies heavily on a robust energy production, distribution and consumption. Electricity is a key infrastructure which plays crucial role in the advancement of the critical sectors of the economy. However, the peak electricity generation for Nigeria has been 4500 megawatts for a population of 160 million people. The demand for electricity in Nigeria is high and costly; hence, only about 60% have access to it. This lack of access has degenerated into low investments which consequently has reduced the pace of socio-economic development of the country; and on the individual level, it has abysmally increased the rate of poverty and unemployment among the citizens. Several government actions such as legal and institutional reforms, huge resources and policies such as privatization and commercialization have been directed towards reforming the power sector in the past without tangible results. This paper therefore accounts for the challenges faced by the government in the bid to achieve optimum energy production and distribution, address the current policy and institutional gap using a conceptual approach with the use of secondary data. This study found some challenges that have inhibited the success of the government actions which are not limited to the fault of the government in terms of corruption, political challenge, and lack of modern facilities but some unpatriotic citizens who always sabotage the efforts of the government. This study therefore recommends a holistic approach to tackle the problem by carrying out a comprehensive policy for the sector. The government should also tackle corruption in the sector as well as educate the consumers on ways they can conserve electricity.

Keywords: Energy, power, electricity, efficiency, policy reform

INTRODUCTION

A nation's economic growth and development relies heavily on a robust energy production, distribution and consumption. Electricity is a key infrastructure which plays crucial role in the advancement of the critical sectors of the economy (Yusuf, 2014). Nigeria been the most populous country in Africa but coincidentally belongs to one of the countries with the lowest energy production and consumption in the world. With over N16 trillion spent on power between 1999- 2014, the all-time peak energy generation in the country has never crossed the boundary of 4,500 MW and all-time low of about 50 MW for a population of over 160 million (Daily Independent, 2015). Electricity demand in Nigeria is

high and costly; hence, only about 60% have access to it. This lack of access has degenerated into low investments which consequently have reduced the pace of socio-economic development of the country; it has abysmally increased the rate of poverty and unemployment among Nigerians. Citizens and businesses have always expressed gross dissatisfaction, and almost taking it as a normal way of life as the government continues to battle with how to provide a steady power supply. Self power generation is a norm in the country as about 130 million out of estimated 160 million representing 81% generate their own electricity through alternative source of energy (Vanguard, January 28, 2014). In addition, industrial consumers also use self powered generating plants (generators) to carry out daily businesses accompanied by high cost of fueling and maintenance which amount to N1.6 trillion

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annually (ThisDay Live, November 5, 2013). As such, more often than not, both private and public service providers cast blame on poor power supply as the basis for poor and inefficient service delivery. In a bid to make the situation better, several government actions such as legal and institutional reforms, and policies such as privatization and commercialization have been directed towards reforming the power sector in the past with huge expenditure incurred in the implementation process. Unfortunately, what is obtainable from all the efforts above has not been satisfactory with the demands of Nigerians thereby leaving a huge deficit in the expected returns when compared with the policy and institutional reforms. The inability of the government to supply power efficiently has not only discouraged foreign and local investors but it has also curtailed the extent of our industrial capacity, limited the capacity of small scale enterprises and most in importantly derailed the nation from the path of development. It is against this backdrop that this paper seeks to account for the challenges faced by the government in the bid to achieving optimum energy production and distribution, address the current policy and institutional gap; and to suggest best ways to achieve efficiency in the sector to curb the current socio-economic challenges facing the country.

Literature Review

Energy is a force multiplier that enhances man's ability to convert materials into useful products, providing varieties of useful services (Sorenson, 1983). Energy serves as the engine that drives industrialization which aims at expanding industrialization, aiding and improving communication, advancing innovations in science and technology, provision of quality healthcare delivery and education as well as improving the general wellbeing of the citizens (Emovon, Kareem and Adeyeri, 2010). Akin (2008) added that substantial investment in the infrastructure such as electricity is fundamental to rapid and sustained economic growth and poverty reduction. Energy can be derived from two main sources-renewable and non renewable. Most developing countries like Nigeria depend largely on the non-renewable sources for energy which have been found to be dangerous to both human and the environment due to its harmful emissions and as well highly capital intensity (Ajayi & Ajanaku, 2009).

Electricity Generation and Distribution in Nigeria: Policy and Institutional Reforms

The first electricity generating plant in Nigeria was installed in Lagos in 1896 with a capacity of 60KW. Subsequent plants were installed at isolated units owned and operated by either of Native Authorities in Ibadan and Kano, or by the public works departments as in Warri and Port-Harcourt. The isolated units were merged together when Nigerian Colonial Government passed the ordinance No.15 of 1950 which sets up the Electricity Corporation of Nigeria (Uwaifo, 1994). In 1956, the Ijora 'B' power plant was commissioned being the first of its kind. In a similar vein, a grid power transmission system that evolved connecting large power stations in Kainji, Jebba, Shiroro, Afam, Delta (Ughelli), Sapele (Ogorode) and Egbin (Lagos) came into being in the first half of the 1960s. The first major reform in the power sector in Nigeria was the establishment of the National Electric Power Authority (NEPA) in 1972 to develop, maintain, coordinate and improve on the situation of power generation. It was also established to develop an economic system of electricity supply through a systematic commercialization across the country (Lawal et al., 2011). NEPA had a total installed capacity of about 4500 MW and a daily generating capacity of only 2700 MW, having about 1800 MW short of expected production. This shortage can be attributed to ageing power plants, poor maintenance culture and shortage of skilled manpower. Only the urban centers were connected with electricity (though not in regular supply) leaving the rural areas with no electricity. After several years of establishing NEPA, no much improvements were made in the electricity generation and distribution and another major reform was needed. The failure of NEPA to perform satisfactorily was principally blamed on the monopoly that resides in the agency as the sole provider and distributor of public electricity for the country (Okoro & Chikuni, 2007).

Soon after the return to civilian rule in 1999, the President constituted an Electric Power Sector Reform Implementation Committee under the National Council on Privatization to recommend reforms, promote policies goals of liberalization, competition and a private sector led growth (Banwo & Ighodalo, 2006). The following objectives informed the reform agenda.

- a) To reduce the business operation cost in order to attract new investment through

provision of quality and dependable power supply to the economy for industrial, commercial, and socio domestic activities in Nigeria.

b) To meet the growing demand for stable and reliable power required in small and medium business sectors.

c) To meet the desires and needs to be up to global standard in power generation and power consumption (Yusuf, 2014).

In March 2005, as part of the reform measures, NEPA was incorporated a holding company known as Power Holding Company of Nigeria (PHCN) with the aim of promoting efficiency in the generation and distribution of electricity by restructuring the generation and distribution system, engaging the private sector in the process and encouraging competition. This reform further unbundled PHCN into 18 companies: 1 Transmission Company, 6 generating companies, and 11 distributing companies (Table 1) (Emeka, 2010). This effort was to see private entities coming into the scene to purchase the assets and liabilities of the PHCN and the eventual takeover of the power sector in Nigeria.

Table 1: List of Transmission, Generation and Distribution Companies

S/N	Transmission Company	Generating Companies	Distribution Companies
1.	Transco	Kainji Power Plc	Ikeja Electricity Distribution Co. Plc
2.		Shiroro Power Plc	Ibadan Electricity Distribution Co. Plc
3.		Afam Power Plc	Benin Electricity Distribution Co. Plc
4.		Ugheli Power Plc	Abuja Electricity Distribution Co. Plc
5.		Sapele Power Plc	Port Harcourt Electricity Distribution Co. Plc
6.		Geregu Power Plc	Enugu Electricity Distribution Co. Plc
7.			Kaduna Electricity Distribution Co. Plc
8.			Kano Electricity Distribution Co. Plc
9.			Jos Electricity Distribution Co. Plc
10.			Yola Electricity Distribution Co. Plc
11.			Eko Electricity Distribution Co. Plc

Comparison of Electricity Generation in Nigeria and Selected Countries

It is pertinent to look into the comparison of electricity generation of countries around the world and that of Nigeria with their population to know how much electricity is produced per head. Countries like South Africa with a population of around 50 million has an electricity production capacity of about

52,000MW which is almost eleven times that of Nigeria with over 160 million population. The United States has a power generation capacity of over 813,000 MW for a population of about 250 million. Nigeria is ranked 178th with 0.03 KWh per head which is way behind countries like Gabon (900 KWh); Ghana (283.65 KWh) and Kenya (124.68KWh).

Table 2: Power generation and consumption in selected countries

Country	Population	Megawatt	Per capita Consumption
USA	250 million	813,000	3.2 kilowatt
Cuba	0.54 million	4,000	0.38 kilowatt
United Kingdom	7.5 million	76,000	1.33 kilowatt
Iraq	3.6 million	10,000	0.42 kilowatt
Iran	79 million	42,000	1.03 kilowatt
South Korea	7 million	52,000	1.09 kilowatt
Malaysia	5.5 million	130,000	2.8 kilowatt
Egypt	7.9 million	18,000	0.3 kilowatt
South Africa	4.3 million	45,000	1.02 kilowatt
Nigeria	170 million	4,000	0.03 kilowatt

Source: Cheri & Ibrahim (2013)
Fig. 1: Power generation and consumption in selected countries

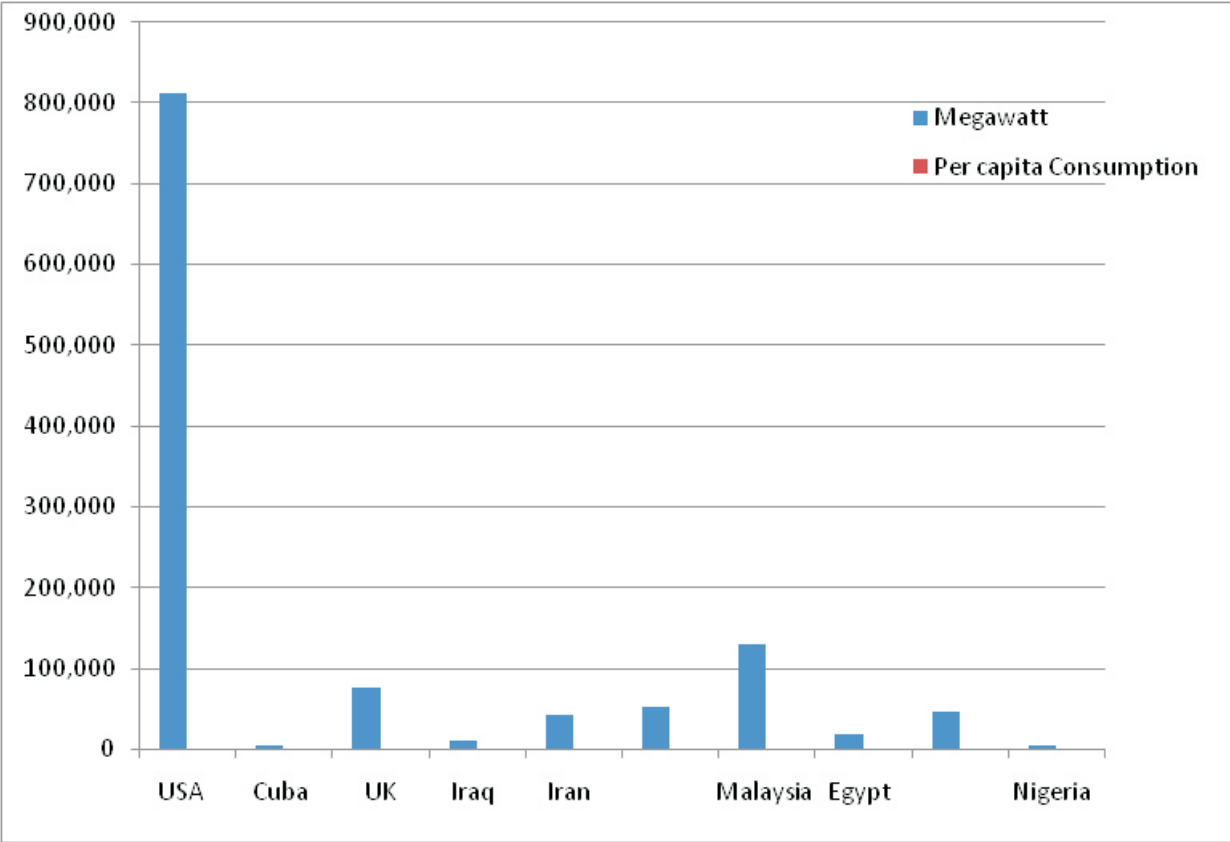


Table 2 shows that by Cuban standard, the entire megawatts generated in Nigeria can only serve Lagos or Kano state while by South African standard, every one million population is supposed to enjoy 1000 megawatts of electricity, but in Nigeria every one million is having an inadequate 25 megawatts of electricity. “As a result, Nigeria today is one of the most expensive places in the world to live, work and do business. In fact, the situation has driven some talented and innovative entrepreneurs, business people, and scholars away” (Ndege, 2012). This is coming when Nigeria is boasting of possessing abundant energy sources that it exports to the outside world. Idriss et al. (2013) assert that “the resource endowment of crude oil and natural gas currently estimated at 35 billion barrels and 185 trillion cubic feet respectively, the substantial coal reserve of 2.75 billion metric tons, the large amount of renewal and non-renewable energy sources such as wind, solar, and hydro are more than adequate to fuel much of Sub-Saharan Africa energy demand” (Cheri & Ibrahim, 2013). The electricity consumption in Nigeria is unacceptable for the growth of world economy. The table below shows the relationship between the generated electricity and *per capita* energy consumption of Nigeria with reference to that of United States of America.

Table 3: Comparison between Nigerian Power and that of USA

Country	Population (Million)	No. of States	Generation (MW)	Per Capita consumption (KW)	Status
USA	250	51	813,000	3.2	Developed
Nigeria	Over 160	37 (+ FCT)	Below 4,000	0.03	Underdeveloped

Extracted from Table 2

Challenges Facing the Power Sector in Nigeria

a) Political Challenge

Political insecurity has been a great threat to the realization of efficient electricity in Nigeria. Different regimes have offered different policy reform efforts to salvage the industry without a clear consideration for continuity by the succeeding administrations. The way politics is being handled in Nigeria where in-coming administration discards programmes and policies put in place by the outgoing administration without considering the relevance, benefits and rationale behind the programme/policy is worrisome. Private investors in the industry find the environment not politically stable and conducive enough to invest in due to the frequent changes in policies.

b) Inadequate and Inconsistent Gas Supply

Power supply in Nigeria is mainly powered by gas. This in itself has curtailed the abundant availability of gas for household utility and for private enterprise. Nevertheless, the gas generated while refining crude oil are usually flared instead of channeling such for further processing and subsequent conversion for home use. The availability and distribution of gas has also been a major challenge over the years due to ageing infrastructure for production, processing and transportation. Again, the problem of gas pipeline vandalism in the South-South region of the country pose a major setback to the realization of efficient power supply in the country.

c) Consumers- Electricity Providers' Staff Collaboration and Conflict

Huge suspicion exists between some consumers and electricity providers' staff. They carry out illegal and illegitimate activities such as illegal connections to the national grid or the existing residential/industrial outfits, abating connection fees and electricity charges, theft of equipment and facilities, etc. In some instances, the electricity providing company embarks on disconnection of residential houses from the national grid by going to such places with the police. Conflicts occur in areas of overbilling due to lack of effective metering system (Subair & Oke, 2008). This situation does not guarantee a sustainable source of revenue for the company.

d) Inadequate Sophisticated Infrastructure

Nigeria's power sector is still using its old machines to generate and distribute electricity. As such, the frequency of occurrence of breakdown and faults is more and always on the increase. Additionally, energy loss in transmission occurs frequently which affect machine's efficiency. These situations

therefore lead to low generation of electricity.

e) Policy on Engineering Infrastructure

Due to lack of local factory, it has become seriously difficult for the nation to support the industry without locally manufactured spare parts. The establishment of National Agency for Science and Engineering Infrastructure (NASENI) and operation of Ajaokuta Steel Rolling Mill would have been able to assist in manufacturing some of these electrical equipment. But this is not possible especially because there is no policy that supports the manufacturing of the machines and their peripheries. Also, the government has not entered into any agreement with the manufacturers of these pieces of equipment (Odiah, 2011).

f) Low Morale Among The Workers and Embargo on Employment

The Nigerian engineers are among the best in the world, but due to politics of appointing a political figure as the head of the parastatal, they generally lose interest in the system. This is because the competent engineers have seen it as a way of relegating them and their contributions to the industry to the background. This has dampened their enthusiasm at developing ingenious maintenance approach for effective and efficient running of the power industry. Most of these non-professionals do not appreciate the essence of engaging in routine maintenance and scheduled maintenance. To further aggravate the situation, there has been embargo on employment of fresh graduates into the industry. This portends a very dangerous signal in the sense that there is imminent crisis of generation gap being created by this kind of policy. That means when the older generation of engineers is retiring, there won't be enough tested hands to take over from them (Ebewe, 2011).

g) Corruption and Mismanagement

The high rate of corruption in the sector is what led to the reform of the sector. Yet, the situation persists. About \$16billion were spent during Obasanjo's administration (1999-2007) without substantial power generation. The current House of Representatives Committee that is probing power projects even recommended that Obasanjo should be called to answer for his recklessness in the sector. The committee further revealed offences including willful disregard of the principles enshrined in the Electric Power Sector Reform Act 2005, gross abuse of financial rules in the award of contracts and payment, awarding contracts to unregistered companies, incompetence and inefficiency among

others. The committee also charged and recommended sixteen companies for investigation and prosecution by EFCC and ICPC with the hope of recovering huge amounts of money paid to them under the cover of fraudulent contracts in the power sector (Cheri & Ibrahim, 2013).

Discussion

Amidst the energy crisis Nigeria is facing today, the blame is not that of the government alone. Rather, there is a moral challenge with the consumption of energy by Nigerians as well. The act of saving the available meagre energy is partly due to low level of awareness of how many unsustainable appliances can be on the one hand and lack of legislative control to manage energy efficiency on the other hand. This sums that it is more of a behavioural and policy challenge. The importance of saving energy cannot be overemphasized as it is a driver for sustainable development in many parts of the world. It does not only save the cost of energy on household and at the government level, it also helps the environment in the area of climate change.

One of the common ways of losing energy in Nigeria is the dominant use of the incandescent bulbs popularly known as yellow bulbs. Only about 5% of the total energy used by an incandescent bulb is converted light energy, the remaining 95% is converted to heat energy (Lebort, 2009). The incandescent bulbs come in different watts ranging from 40W to 200W. Due to its price which ranges between N60 to N200, Nigerians prefer it to the energy saving bulbs with price in the range of N300 to N1000 (Uyigwe et al., 2009).

Prospects of an Improved Power Sectors

i) Reduction in Crime

Unemployment leads to idleness while idleness breeds crime. Creation of employment opportunities to absorb teeming Nigerians who are able and willing job-seekers, will significantly reduce crime in the country. Youths are engaged in inter-ethnic, religious and political violence simply because they are mostly unemployment or underemployed. According to Oladele (2013), the socio-economic problem facing Nigeria is "compounded by the fact that several thousands of jobless youths have been forced into crime because of idleness... while there are no justifiable reasons for anyone to take to crime because of unemployment, the negative effects of unemployment in the country in the country today call for urgent efforts to remedy the situation". A reformed power sector will create many jobs that will

engage the minds and efforts of our youths and disengage them from ethnic and sectarian battle fields (Cheri & Ibrahim, 2013).

ii) Reduced Interest Rate

One of the reasons for low GDP and high unemployment in Nigeria is the high level of interest charged by banks. Most banks are charging up to 21% on loans which makes it nearly impossible to borrow-invest-repay-and-profit from a business endeavour. A stable electricity supply as envisaged by the power sector reform will give banks good reason to reduce interest rate because banks' running cost will be significantly reduced if they stop running on diesel-fuelled generators. A reduction to single digit interest rate as advocated by the current CBN governor will encourage Nigerians to borrow and invest in the economy (Ndidi, 2013).

iii) Reduction in the Over Dependence on Government

Full privatization of the power sector as envisaged by the reform will shift the burden from government and allow it to utilize the fund for the provision of basic infrastructure (Cheri & Ibrahim, 2013).

iv) Severe Punishment on Corrupt Practices

Whenever punishment is severe, law breakers and corrupt persons get discouraged as the risk involved in their actions is too dangerous. This way, policies will be implemented easily and consistently. The exemplified mismanagement during the regime of Obasanjo is a clear example. Had it been those personalities were properly dealt with, other public officers would have learnt from them.

CONCLUSION

From the foregoing, it is obvious that Nigerian Power Sector is among the sectors with persistent dreadful problems for a very long time. This has been considered by many scholars as one of the reasons for the foot-dragging of Nigeria's economy. Insufficient power supply impedes many developmental projects in this country. Government has invested a lot but to no avail. It can thus be concluded that full scale privatization of the sector will be a better option for Nigerian government, if not the best. However, all reforms, implementations and supervisions must be done with serious care to avoid further pitfalls. Transparency, accountability and due process must be imbibed as against corruption and gross mismanagement.

RECOMMENDATIONS

The study recommended the following:

- The existing equipment should be replaced with modern ones so as to meet up with the demands of the sector, customers and the general public.
- The management of the entire sector should be highly disciplined so as to implement the policies as they are documented and embark on frequent monitoring and evaluation of the processes.
- The government and the personnel of the sector should give zero tolerance to corruption.
- To ensure proper and efficient implementation of the reform agenda, there should be a time frame for all major activities and the government must ensure that they are achieved within the time specified for such activity.
- Enough funds should be pumped into the sector since the stability of power will surely boost the economy and will encourage private investors. This way, the sector will be effective within a short period of time.
- Transparency, accountability and due process must be imbibed and enshrined in all major activities of the reform process and all post reform business undertakings of the companies to avoid regression back to the old culture of impunity.

Public enlightenment about the current reform agenda and its content as well as encouragement on the maintenance of the sector's facilities and plants across the country is quite imperative.

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