

Assessment of Socio-Economic Effects of Epileptic Electricity Supply in Igabi Local Government of Kaduna State, Nigeria

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Abstract

Nigeria enjoyed a relatively regular electricity supply in the 1970s and 1980s which keeps the textiles and other businesses and households in Kaduna state alive but now it is in a state of comatose with epileptic nature as its characteristics despite the privatization of the sub-sector. Therefore, the study investigates the socioeconomic effects of the power supply in Igabi Local Government Area between 2015 and 2020. The study used Structural Functionalism as its theoretical framework hence, 14 stakeholders were purposively selected comprising 4 Kaduna Electricity Distribution Company Staff, 4 households, 4 small and medium scale business owners and 2 farmers were interviewed, 440 questionnaires were distributed among the respondents but 400 were at the end analysed. The study found that power was erratic in the area during the period but people still patronize the electricity distributor, businesses folded up leading to the increase in the level of unemployment and insecurity such as banditry, kidnappings, armed robbery and political thuggery, hence the study recommended that more private distributors should be allowed to invest in the sub-sector, all customers should be metered, there is a need to invest in the infrastructure as most of them are in a dilapidated state, end insecurity among other recommendations.

Keywords: *Socio-Economic Activities, Agriculture, Unemployment, Banditry, Poverty, National Development.*

Introduction

Electricity is one of the sectors that is capable of contributing to the economic upliftment of Nigeria. For several decades, Nigeria has been experiencing epileptic electricity supply and successive governments have tried to stabilise the sector in order to drive the socio-economic growth and development of the country. However, the country is still underdeveloped due to the unreliable and erratic power supply. It has affected the performance of the industrial sector which is the engine of growth and socio-economic development in Nigeria. This social issue affects all aspects of human endeavours in commerce, industry and households. Therefore, steady power supply in the state should be prioritised and encourage state's march towards economic self-reliance and development. When there is no electricity supply, everything crumbles as everything revolves around it.

Electricity generation in Nigeria began in 1896 with the installation of a 2 Mega Watts (2 MW) plant to provide electricity for Lagos. The first electric utility company known as the Nigeria Electricity Supply Company was established in 1929. By the year 2000, a Federal Government owned monopoly, the National Electric Power Authority (NEPA), was saddled with responsibility of the generation, transmission and distribution of electricity. Attempt to reform the sector brought the Power Sector Reform Act of 2005, which paved the way for the National Electric Power Policy aimed at establishing an efficient electricity market (Ibiroga, 2018).

With the return to civilian rule in 1999, the policy emphasis shifted to the transfer of ownership and management of power infrastructure and assets to the private sector. This led to the creation of structures required to create and underpin an electricity market in Nigeria. The Power Holding Company of Nigeria (PHCN) was established in 2005. PHCN comprised 18 successor companies, including six generation companies, eleven distribution companies and one transmission company. In November 2013, the privatisation of all the generation plants and ten distribution companies of which the Yola Disco is currently managed by the government due to the insurgency in the area. However, the Federal Government presently retains the ownership of the transmission company (Ibiroga, 2018).

According to an analysis by the United States Aid for International Development (USAID), Nigeria's electricity output currently stands at an average of 5000 MW generated from thermal plants, gas plants and hydro-electric turbines which is far below the installed capacity of 12,522 MW. These figures are grossly inadequate relative to the population size of more than 200 million and the need of the economy. Many consumers and businesses generate additional power through generating sets. In 2017, the country spent about \$5billion on fuelling generating sets. Yet, insufficient electricity generation is not the only problem. Most domestic and industrial consumers of electricity find it impossible to predict when power from the national grid will be available for their consumption (Ibiroga, 2018).

Kaduna Electricity Distribution Company which distributes power in Kaduna State is one of the 18 successor companies created following the unbundling and subsequent privatisation of the defunct Power Holding Company of Nigeria PLC. It is also one of the 11 downstream operators in the Nigerian Electricity market. It is responsible for retail distribution and marketing of electricity in Kaduna, Kebbi, Sokoto and Zamfara States respectively (kadunaelectric.com, 2019).

The company currently has 8 Area Offices and 147 Customer Service Centres across the four states and a population of about 490,000. Kaduna is the 7th largest Disco in distribution capacity and 6th largest in number of households among the best three Distribution Companies if the abundant potentialities at the disposal of the company are harnessed and effectively utilised in line with the Nigerian Electricity Reform Act, 2005. However, Premium Times reported that on average, Kaduna Electricity distribution Company receives between 100 and 250 megawatts daily as opposed to 600 to 700 megawatts it requires (Muhammad, 2015:2).

From the foregoing, the research is to examine the effects of the erratic electricity supply on socio-economic activities in Igabi Local Government Area of Kaduna State between 2015 and 2020 and proffer possible measures to minimise electricity failure in the area.

Statement of the Research Problem

Erratic power supply in Northern Nigeria has resulted to increase in unemployment as a result of the collapse of industries and small-scale businesses close shops due to the fact that they cannot continue to fuel their generators. The level of power supply further deteriorated since 2015 and it was the period the privatisation of the electricity sub-sector was set to fully take-off as the Power Holding Company of Nigeria (PHCN) has metamorphosed to Discos and Kaduna Electricity Distribution Company as part of it.

Many Nigerians are worried about the epileptic power supply from the national grid, the generator dealers are smiling to the bank because they have taken undue advantage of the situation to hike the prices of their products. The power disruptions and low voltage have caused a lot of damages to electrical appliances, accessories and even burnt houses due to sparks when power was restored. The effect of erratic supply of electricity is not economically desirable because of its grave consequences. As a matter of fact, the situation causes low productivity in industrial sector, unemployment, untold hardship to households, and loss of stored consumable items; disrupt practical work in industrial arts shops, hospital theatre and so on (Adeleke,1996).

Development experience from the industrialised economies revealed that effective electricity development and utilisation hinge crucial on a country's electricity potentials and technologies. The statistical evidences from geological and geographical surveys show that Nigeria can be termed a vast primary energy store-house with high potentials in coal and liquid, oil, and natural gas, wind, hydro and solar resource. With all these natural endowments, Nigerians would have had one of the most-steady electricity supplies if properly harnessed and utilised well. As at now, Nigeria suffers from electricity supply inadequacies in the midst of energy abundance (Adeleke, 1996 and Ibirogbu, 2018).

Igabi Local Government Area is not exempted from the erratic power supplies with the vast land for agriculture which is capable of taken majority of unemployed youths in the State off the street and other small-scale industries to augment the efforts of government in job creation and better living standard of the residents.

This study investigates the adverse effects of the erratic power supply on Igabi Local Government Area of Kaduna State, Nigeria, and suggests solutions to minimise the trend in Igabi Local Government Area between 2015 and 2020.

Objective of the study

The study investigates the nature of electricity supply in the area and its effects on socio-economic activities in Igabi Local Government Area of Kaduna State.

Methodology

The journal adopts mixed method which is both primary and secondary sources of data collection comprising the questionnaire, interview, books, journals, newspapers, online materials among others respectively, and descriptive statistics was used to analyse the returned questionnaires from the randomly selected streets from five wards out of the 12 wards of the local government, the wards comprises; Turunku, Zango Aya, Gwaraji, Birnin Yero, Igabi, Rigachikun, Afaka, Sabon

Birnin Daji, Kerawa, Kwarau and Rigasa. Each of these wards has its own polling units with Turunku ward having 46 polling units. It was clustered and five wards were selected, 4 streets in each of the ward selected for the distribution of the questionnaires and transcribed interview of the critical stakeholders of the selected areas of the socio-economic activities such as welders, barbers, event centres, viewing centres, farmers, schools, hospitals among others to be able to come up with the findings.

Literature Review and Theoretical framework

According to Brookings Institute Report (2016) United States is able to maintain constant electricity supply with the agreement and construction of pipeline from the Saudi Arabia's main oil fields in Dhahran towards the Mediterranean, allowing the flow of Saudi oil to United States and Europe. It concluded that power play an important role in American industries and defence. Bezerra, Callegari, Ribas, Lucena, Peereira, Kaberle, Szklo and Schaeffer (2017) revealed that rural electricity problem in Brazil was tackled with the introduction of electricity for all programme which increased the grid connection from 3 million to 10 million from 2003 to 2008 and with the help of the locals identifying the areas without light and Ministry of Mines and Energy and adequate funds from government. Africa is plagued with power cut or load shedding which means reducing the number of hours of power supply has affected their economies particularly South Africa hence the introduction of Azuri's pay-as-you go Solar Technology System, helping Africa to move away from fossil fuel resources. The technology has already been initiated in Tanzania, Kenya, and South Africa among others. Therefore, the renewable energy is fundamental in shaping the future energy landscape of Africa, enhancing residents' quality of life; enhance political stability by offering opportunities for employment and preventing damage to the economy due to power cuts (Adegoke, 2019; Yehia, 2018; Nyatumba, 2019 and Olajide, 2008).

Ibiene, Clinton and Chinago (2018) pointed out that every nation's socio-economic and political development is a function of its power supply efficiency. The manufacturing industries, processing firms, hospitals, political institutions, schools, hospital, research centres, all depends on adequate power supply which encouraged mass production and low cost of production, which will translate to availability of product in the market at affordable price. When there are functional firms, employment is created which will impact on the citizenry. Collective improvement on individual condition will translate to an improved economy. On the other hand, when individual generate their power, especially with high cost of fuel in Nigeria; those expenses will be forced down the throat of the common people that are already tight pressed. Thus, breeding ground for social miscreants, therefore; Nigeria should be proactive in handling power supply issues. It should build more thermal stations across the country and without delay, water pipeline should be connected from reach fresh water south to the north where we have favourable terrain for hydro-electric power and that the stage of development is not an issue when it was said that volume of water is a problem.

Gasana (2015) in a dissertation on privatisation and commercialisation sought to know whether privatisation of power sector bring sustainable electricity supply among other objectives. The result shows that 75 per cent of the respondents were dissatisfied as they earlier supported privatisation. The reason for the acceptance of privatisation by the respondents according to the author was on the assumptions that it will bring positive impact on the national economic growth and development. In other words, privatisation and commercialisation shall eradicate the bureaucratic monopoly that is embedded in it which strongly is opposition to fasting success but has failed, it concluded.

Mbamali, Stanley and Zubeiru (2012) submitted that there 89.9 per cent of households in Kaduna Metropolis used fossil fuel generators from their field work. They further argued that users

are aware and agreed that the associated environmental hazards include; noise and air pollution, heat generation, defects to buildings among others; there is also health hazards such as impaired hearing, sleeplessness, deafness among others and social hazards, mainly disturbance to neighbours of which the users' confirmed receipts of complaints. They however concluded that these hazards are concerns to both the generator users and their neighbours. Therefore, government should redouble efforts at providing adequate and uninterrupted electricity across the country and in the interim, put in place appropriate policies and implementation framework for regulating use of fossil fuel generators, as well as promote use of less hazardous alternatives such as the solar home systems.

News Agency of Nigeria (2019) revealed that electricity in most states in Kaduna and other states in Northwest has remained unstable, affecting businesses and economic activities, and leading to protests by consumers. There is a fundamental problem with power supply, distribution and payment of electricity bills in the state from the views of the respondents. The issue of liquidity remains the biggest problem to power supply particularly in the distribution level because of lack of the implementation of the cost reflective tariff that were agreed by the federal government in the 2015 tariff review. The tariff review was supposed to be a minor six months' review and then a major one-year review thereafter. Unfortunately, according to Abdulaziz Abdullahi, Head of Corporate Communication, Kaduna Electricity Distribution Company (KEDCO), since the agreement of 2015 came into effect in January 2016, no single review has been done. Electricity consumers are not complying in terms of payment because of overbilling under the estimated billing system as a cross section of consumers who spoke to NAN in Kaduna that poor and erratic power supply has caused them losses in their businesses.

Mr. Yakubu Usman, a businessman and resident of Tudun Wada, Kaduna, for instance, said that he was not satisfied with KEDCO's service, stressing that his business of grinding and chaffing cereals had declined so much in profit for six months. That he had earlier in 2019 complained to KEDCO on the overbilling of his shop but nothing was done amidst unstable power supply. He advised the federal government to review its policies to include state governments as stakeholders and investments in the Distribution Companies (DISCO's) to ensure uninterrupted service delivery. It should also develop maintenance culture, it would better the situation of power irregularities and strengthen the life span of equipment and sophisticated materials providing their services. To Bashir Idris, who complained of same issue, stressed that government must review its set tariff regime for the DISCO's to be able to come out of the liquidity problems and address the shortage in supply, consumers should be sensitised to embrace the metering system to address energy theft and government to encourage more investors as the sector is further liberalised, more private funds would come into the distribution business and that would bring about competition and power outage would be addressed.

Suleiman (2017) assessed the problems hampering small and medium scale enterprises in Kakuri, Kaduna South and concluded that it is the epileptic power supply and other problems which affect the socio-economic activities of the area. The study recommended that government should provide adequate infrastructural facilities such as reliable electricity supply and affordable tariff in order to boost industrial activities and create jobs among others.

Omorogiuwa and Sayeed (2018) studied the photovoltaic (PV) power plant, a 50 Megawatts in Igabi Local Government Area, which shows the probability of exceeding the minimum production, with a confidence of 99% with the generation of stimulation using Solar Geographical Information System and Typical Meteorological year (TMY) and personal computer software package for the study. They concluded that this assessment would help clear any technical doubt and reliable suppliers along with proper due diligent will bring added value to the bankability of the PV project. This has become necessary today due to the high rate of tariff and epileptic nature of power supply, hence embracing solar power would help particularly in lightening the homes in Igabi local government.

Theoretical Framework

The study was anchored on the Structural Functional Theory or Functionalism which emerged on the ideals of the French Sociologist, Emile Durkheim, who sees structure in terms of solidarity or as a set of relatively stable and patterned relationships of social units, while function is the consequences of social activities which make for adaptation or adjustment of a given structure or its component parts. In essence, the basic assumptions of the theory argued that every structure has functions and the functions determine the structure (Durkheim, 1917; Person, 1951; Merton, 1968; Anosike, 2010).

Relating this theory to the study which justify the relevance is that Kaduna Electricity Distribution Company as a structure was established to provide power supply to the people in the study area but unable to do so which led to the hardship, insecurity and increased unemployment in Igabi local government area. Today, banditry activities are now the order of the day in the area thereby forcing the inhabitants to flee their homes, farming activities abandoned thus, preventing the socio-economic activities such as markets, schools, hospitals and transportation to thrive.

Data Presentation and Analysis

Table 1: Sex of the respondents

Variables	Frequency	Percentage (%)
Male	295	73.75
Female	105	26.25
Total	400	100

Source: Adigwe, Ja'e, Buba, Nasir & Bala, Field Survey, 2022

Table 1 above indicate that 295 (73.75) of the respondents were males while 105 (26.25) were females. It shows that male respondents participated in the study than their female's counterparts.

Table 2: Age of the respondents

Variables	Frequency	Percentage
18 – 30	140	35
31 – 40	160	40
41- Above	100	25
Total	400	100

Source: Adigwe, Ja'e, Buba, Nasir & Bala, Field Survey, 2022

Table 2 above, shows that 140 (35%) was recorded for participants within the ages of 18 and 30 years, 160 (40%) respondents fall between the ages of 31 and 40 while 100 (25%) was recorded for participants who are 41 years and above. This indicates that respondents from the ages of 31 – 40 years dominated the study.

Table 3: Marital Status of the Respondents

Variables	Frequency	Percentage (%)
Single	150	37.5
Married	208	52
Divorced	26	6.5
Widowed	16	4
Total	400	100

Source: Adigwe, Ja'e, Buba, Nasir & Bala, Field Survey, 2022

Table 3 above indicate that 150 (37.5%) were single respondents, 208 (52%) were married, 26 (6.5%) divorced while 16 (4%) were widowed. This portrayed that married respondents participated more in the study.

Table 4 : Occupational Status of the Respondents

Variables	Frequency	Percentages
Employed	182	45.5
Unemployed	104	20
Students	76	19
Self-Employed	38	9.5
Total	400	100

Source: Adigwe, Ja'e, Buba, Nasir & Bala, Field Survey, 2022

Table 4 above indicates that 182 (45.5) of the respondents were employed, 104 (26) were unemployed, 76 (19) respondents are students, 38 (9.5%) were self -employed. This implies that the employed participated more in the study.

Table 5 : Educational Background of the Respondents

Variables	Frequency	Percentages
Informal	26	6.25
Primary	46	11.5
Secondary	102	35.5
Tertiary	187	46.75
Total	400	100

Sources: Adigwe, Ja'e, Buba, Nasir & Bala. Field Survey, 2022

Table 5 above indicates that the informal respondents were 26 (6.25%), those with primary education were 46 (11.5%) ,102 (35.5) respondents represent the secondary certificate and 187 (46.75) of the respondents are with tertiary education. This indicates that respondents with tertiary education participated more in the survey.

Table 6: Respondents' response on how long they have been residing in Igabi Local Government

Responses	Frequency	Percentage (%)
Less than one year	40	10
One to ten years	85	21.25
Eleven years and above	275	68.75
Total	400	100

Sources: Adigwe, Ja'e, Buba, Nasir & Bala, Field Survey, 2022

Table 6 revealed that those residing in the study area in less a year represent 40 respondents (10%), one to ten years amount to 85 respondents (21.25) and eleven years and above were 275 (68.75). This implies that those residing in the area more than eleven years participated more in the survey.

Table 7: Respondents' opinion on the causes of erratic power supply in Igabi Local Government

Responses	Frequency	Percentage (%)
Lack of innovation and total dependence on foreign equipment	25	6.25
Corruption	55	13.75
Poor implementation of power sector reforms	50	12.5

Lack of capacity to distribute the megawatts generated and poor maintenance	65	16.25
All of the above	205	51.25
Total	400	100

Sources: Adigwe, Ja'e, Buba, Nasir & Bala, Field Survey, 2022

Table 7 above revealed that the response on lack of innovation and total dependence on foreign equipment as causes of erratic power supply was 25 (6.25%), that of corruption was 55 respondents (13.75), poor implementation of power sector reforms were 50 respondents (12.5%), lack of capacity to distribute the megawatts generated and poor maintenance revealed 65 respondents (16.25) and those representing all of the above amounted to 205 respondents (51.25). It shows that those who viewed the all of the above options participated more in the survey.

Table 8: respondents' opinions on erratic electricity supply contributed to the unemployment and security challenges in Igabi Local Government

Rating Scale	Frequency	Percentage (%)
Strongly agree	302	75.5
Agree	48	12
Strongly disagree	27	6.75
Disagree	15	3.75
Undecided	08	2
Total	400	100

Source: Adigwe, Ja'e, Buba, Nasir & Bala, Field Survey, 2022

Table 8 above shows that respondents who strongly agreed that erratic electricity supply contributed to the increasing unemployment and security challenges in Igabi Local Government represent 302 (75.5%), those who agree represent 48 respondents (12%), on strongly disagree the survey revealed 27 respondents (6.75%), respondents on disagree were 15 (3.75%) and the remain undecided represent 8 (2%). This show that those who viewed strongly that erratic electricity supply contributed to the increasing unemployment and security challenges in Igabi Local Government Area participated more in the survey.

Discission of Findings

The journal investigates the level of electricity supply and its effect on socio-economic activities in Igabi Local Government and discovered that it was erratic as conformed to the findings of Suliman, 2017; Sule, 2018; Abanyam & Nnorom, 2019; Nasir et al, 2022. The erratic nature of power supply in the area has led to the increasing level of insecurity such as banditry, kidnappings and increasing unemployment.

The level of insecurity in the area has gone beyond human comprehension. In fact, it was the axis where students of forestry Afaka in Mando were abducted, the 278 Government Secondary School Students, Kuriga were kidnapped along with the principal Junior Secondary but unfortunately, did not come back with the released students as they claimed that he died as a result of complications. More also, prior to the kidnap of these students, the principal of the Senior Secondary of the same school was killed because he refused to follow them when they went to kidnap him. It was this same principal that rally round the community to raise #13m (Thirteen Million) naira for the bandits so that they can continue the farming activities without disturbance from the bandits and yet, they went after him after a while. Additionally, one of the newly recruited teachers sent to Udawa Secondary School, a local community, after Turunku who does not want his name mentioned

was kidnapped and later paid #3m (Three million) naira as ransom and a bike before he was released. These and other instances of kidnappings and killings are the order of the day in Igabi Local Government Area.

Findings also revealed that the erratic power supply has prevented irrigation in the study area forcing the farmers to still engage in the local farming using hoe and cutlass. If by accident they kidnap a member from the community, he or she will pay between #250 thousand (Two hundred thousand) and #400 thousand (Four hundred thousand naira) before being released. The effects of the erratic nature of the power supply in the area is responsible for the increasing level of unemployment indicated in table 8 above, where 302 out of 400 (75.5%) respondents viewed that the erratic electricity supply is responsible for the increasing unemployment and insecurity in Igabi Local Government Area, this has corroborated the findings of Saidu, 2017; Suleiman, 2017; Nasir et al, 2022. It has resulted in the high rate of prostitution, armed robbery, kidnappings and banditry across the local government. The blackspots in Turunku axis, Rigachikun and Udawa have led to the migration of people thereby abandoning their homes, farming activities and schools deserted, no markets, health centre is practically non-existence and the major road leading to Lagos that would have attracted federal government to the area has been abandoned due to banditry activities, thus, making life unbearable for the people. Those interviewed by the scholars were really willing to go back home but afraid because, according to them "these bandits should not be trusted with any agreement" once you are kidnapped, you must pay ransom before being released.

Conclusion

This journal has established that the increasing rate of unemployment and security challenges is largely a result of epileptic power supply hence, electricity supply is a serious business that should not be left in the hands of unserious business people in the name of privatization because it is an essential service which improve the lives of the populace. The developed societies are driven by technology because of constant electricity supply hence every effort should be made including technology transfer through foreign investment to be able to advance to the stage of development.

Recommendations

The following recommendations are made in the study:

1. There is a need to deregulate the power sub-sector in order to allow both foreign and local investors to come up with a new company to provide electricity supply.
2. The obsolete equipment should be replaced to guarantee regular electricity supply.
3. Every electricity consumer should be given a pre-paid metre free to be able to monitor and regulate distribution of power supply.
4. Customers should pay their electricity bills as at when due for the time being to be able to enjoy regular power supply hence, would reduce the level of unemployment and security challenges.
5. Efforts should be made by government to end insecurity in the study area and the country at large.
6. States should be encouraged to generate and distribute electricity in the country in order to reduce pressure on the national grid.

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