Journal of African Studies and Development Vol. 2(6), pp. 132-143, September 2010
Available online http://www.academicjournlas.org/jasd
ISSN – 2141 -2189 ©2010 Academic Journals

Full Length Research Paper

Power supply and environmental sustainability in the University of Uyo: An agenda for full-blown research in Nigeria

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Accepted 9 July, 2010

Power supply remains an important factor for socio-economic and technological development of every nation. Despite this reality, most countries especially from the developing world have not been able to solve the problem of power supply for the citizens. The seriousness of this problem vary from country to country. In Nigeria, power supply has become the most critical factor that has engaged policy debates, yet the depth of such problem has not been clearly established. An observation was made on the general daily duration (in hours) of public power supply in the University of Uyo, Nigeria, using average daily supply of electricity to the University community over three consecutive seasons (dry, wet and hamattan seasons) in 2005. It was observed that average monthly public power supply to the University community varied significantly from an average of 2 h in the dry season, 3.6 h in the wet season and 4.8 h in the hamattan season ($P < 0.05$). Each period of public power black-out witnessed massive switch on of generating sets in offices and business centres. Considering the fact that the University of Uyo is one of the public sector institutions that merits regular public power supply from the power authorities, this paper argues that there is need for a full scale study on Nigerian cities, especially looking at the fact that small scale businesses dominate industrial landscape of the country.

Key words: Public power supply. environment. sustainability, University of Uyo, Nigeria.

INTRODUCTION

Power supply remains an important variable for the socio-economic and technological development of every nation. There is hardly any business enterprise that does not require regular power in one form or the other. One of the key indices of measuring the development status of any country is the state of power supply. This is because the power sector is the real engine of economic growth and development.

Over the years, the importance of attaining a regular power supply has been at the core of developmental debate in Nigeria. Sambo (2008) has traced the history of electricity in Nigeria to 1986 when electricity was first produced in Lagos, 15 years after its introduction in England. The author observed that despite the fact that the emergence of electricity in Nigeria is over a century, its development has been at a slow rate. Sambo further observed that for over 20 years prior to 1999, the power sector did not witness substantial investment in infra-structural development. There were no new investments, and existing ones were at a deplorable state. In 2001, generation went down from the installed capacity of about 5, 600 MW to an average of about 1, 750 MW, as compared to a load demand of 6,000 MW. According to the author, only nineteen out of the seventy-nine installed generating units were in operation.

Nigeria is richly endowed with various energy resources, crude oil, natural gas, coal, hydropower, solar energy, fissionable materials for nuclear energy. Despite

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these, Okafor (2008) observed that the country consistently suffers from energy shortage, a major impediment to industrial and technological growth. The National Electric Power Authority (NEPA) now Power Holding Company of Nigeria (PHCN), a government parastatal, has the sole responsibility for managing the generating plants as well as distribution of power nationally. In any case, what is often projected for generation is not always commensurate with demands. Consequently, individuals, organizations and industries resort to internal generating plants. Across the various states of Nigeria, several studies have noted that power supply has not been very regular. In Benue, only Makurdi, the state capital receives electricity supply for about five hours a day. In Delta state, some communities never had power supply for upwards of six months. In Lagos, many residential parts of the state receives about four hours of electricity per day with cuts of short intervals, while a total black out could be recorded in some areas for upto three days or more (Akpan, 2005; Odiaka, 2006; Ogumodede, 2006). Odiaka (2006) further observed that power distribution to the industrial sector in Nigeria also remains abysmally irregular. For instance, the study observed that the average power outage in industrial sector increased from 13.3 h in January 2006 to 14.5 h in March, 2006. In a worse situation, the outage could increase to 16.48 h per day in June.

Okafor (2008) has reported that the current per capita consumption of electricity in Nigeria is about 106 KWh/person compared to Ghana's 430, India's 470 or Brazil's 1800. Expected increase in consumption is 379 MW annually at 2.5% population annual growth rate and 5% annual growth of the economy. Nigeria's government had set up 10,000 MW target to be achieved by the end of 2007 as it had invested in new power projects that would be privatized after completion (Owan, 2005). Despite these efforts, the power supply situation in Nigeria has not improved.

The importance of power supply to the economy and the environment cannot be overemphasized. This is because inadequate power in an economy is detrimental to the overall productivity of small, medium and large scale industries. Environment wise, people often resort to environmentally unsafe means of power generation to sustain their businesses. As important as the relationship between regular power supply to the environment and the economy is, literature hardly factor these relationship into the environment sustainability debates in developing countries. This paper attempts to give insight into this dimension of impacts of irregular power supply on the overall environment from the developing countries perspectives.

THE NIGERIAN POWER SECTOR

The Nigerian power sector is driven by hydroelectricity. The major generating sectors include: Kainji, Jebba, Shiroro, Egbin, Ajaokuta, Sapele, Afam, Delta, Okpai, Aes, Ijora, Calabar and others with average daily generation (MWH/H) summarised in Table 1. Table 2, on the other hand, gives average weekly peak and off peak load allocation for major cities in Nigeria (2nd - 8th October, 2005). In Table 2, Uyo records average peak of 26.5 and average off peak of 24.0, which indicate insufficient supply, despite the spate of small and medium scale economic activities in the city. Between 1995 and 2001, there had been a fluctuating and irregular investments in the transmission system of the National Electric Power Authority as shown in Table 3. From Table 3 and Figure 1, national investments in the power sector fluctuates between 1995 and 1997 and subsequently improved from 1998 onward. Very significant improvement was observed in 2000 and 2001. This could be attributed to the priorities of the then democratic dispensation (1999 to 2007) to improve on the power sector of the economy and achieve a very stable supply record. Rather than a commensurate improvement, the power sector has witnessed declining performance despite immense budgetary allocation and determination at political level. Based on Young (2005) statistics (Table 4), Nigeria still has a very dismal performance in the power sector as the energy use per person is very low (with 85 kWh/cap/year) compared to other countries in Africa such as Cameroon (184 Kwh/cap/year) and Egypt (with 900 kWh/cap/year) among other countries (Table 4 and Figure 2)

Currently, Nigeria develops 23% of her feasible hydropower. This is very low compared to other African countries such as Lesotho (50%); Bukina Faso (46%); Kenya (34%) and others (Young, 2005) (also see Table 5 and Figure 3). Social infrastructure provision finds expression in the theoretical position and arguments for the existence of public goods, natural monopolies, merit goods and externalities. These are terminologies principally aimed at addressing the needs of every layers in the society (Ilori, 2004). For instance, no private concern would be willing to invest in large scale ventures that may be difficult to re-coop such investments (example. public power supply).

Considering varying demands and capacities, state involvement becomes necessary especially when the poor has to be accounted for through cross-subsidization or general state subsidy. State action becomes important for economic development as well as the provision of enabling atmosphere for private sector economic investments. Over the years, the provision and growth of public utilities have become essential in Nigeria as government got involved in almost all sectors of the economy providing services, which include power supply. Table 4 and Figure 2 show that Nigeria's energy use per person per year (KWh) fall far deep below world's average. Within other African countries, Nigeria occupies the least position in energy generation and consumption (Table 6).

Table 1. Average daily generation (MWH/H) (2nd - 8th October, 2005).

Station	2nd oct	3rd oct	4th oct	5th oct	6th oct	7th oct	8th oct	Average
Kainji	423.42	416.63	398.30	365.92	322.13	324.84	323.96	367.89
Jebba	486.83	475.38	465.00	460.59	470.34	479.25	440.50	468.27
Shiroro	107.92	108.04	53.59	49.00	62.71	87.46	126.04	84.97
Egbin	958.13	954.71	988.46	1063.80	1133.96	1155.71	1109.92	915.22
Ajaoguta	45.08	47.71	43.92	40.46	42.71	44.17	41.67	43.67
AES	221.67	216.25	197.09	217.92	235.00	244.59	219.17	221.67
Sapele	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
Okpai	146.87	147.76	148.22	113.70	147.40	147.15	147.49	142.66
Afam	243.13	273.00	280.88	228.73	224.53	189.38	278.63	245.47
Delta	299.71	307.71	307.13	318.38	319.09	327.42	325.25	314.96
Calabar	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00
Total	2932.76	2947.19	2882.59	2858.50	2957.87	2999.97	3012.63	2941.64

Source: National Electric Power Authority (NEPA) weekly summary

Table 2. Average weekly peak and off peak load allocation.

S/N	Location (state capitals)	Average peak	Average off peak
1	Abuja	152.9	138.4
2	Keffi/ Lafia	17.4	15.7
3	Oken/Lokoja	28.4	25.7
4	Minna	26.9	24.3
5	Akure/Ado-Ekiti	59.7	54.0
6	Onitsha/Asaba	98.6	89.2
7	Benin (ii and ii)	81.6	73.9
8	Abakiliki	22.6	20.4
9	Awka	41.0	37.1
10	Enugu	56.1	50.7
11	Owerri	43.6	39.5
12	Aba/Umuahia	98.4	89.1
13	Abeokuta	47.6	43.1
14	Ibadan (i and ii)	142.10	128.6
15	Ilorin	48.9	44.2
16	Osogbo	38.6	35.0
17	Bauchi	26.1	23.7
18	Gombe	20.5	18.6
19	Jos	47.7	43.2
20	Apir/Markurdi	14.8	13.4
21	Birnin Kebbi	18.3	16.6
22	Gusau	27.3	24.7
23	Kaduna (i and ii)	151.4	137.0
24	Sokoto	48.6	44.0
25	Kano (i and ii)	263.4	238.5
26	Hadeja/Dutse	8.9	8.0
27	Katsina/Gazo	31.6	28.6
28	Lagos (i and viii)	973.9	881.5
29	Calabar	43.0	38.9
30	PortHarccourt	108.3	98.1
31	Uyo	26.5	24.0
32	Yenogoa	0.0	0.0
33	Yola/Jalingo	21.8	19.8

Table 2. Contd

34	Maiduguri	34.5	31.3
35	Potiskum/Damaturu	19.3	17.5
36	Other Towns	484.26	438.34
37	Niamey+Gazaou	60	60
38	Operating Margin	100	100
	Total	3534.6	3214.6

Source: National Electric Power Authority (NEPA).

Table 3. Government capital investments in the National Electric Power Authority (NEPA) (1995 - 2001)

Year	Capital investments (N' Million)
1995	1.426.3
1996	1.179.2
1997	1.000.0
1998	2.700.0
1999	2.481.0
2000	22.962.8
2001	51.945.3

Source: CBN Annual Reports (2001).

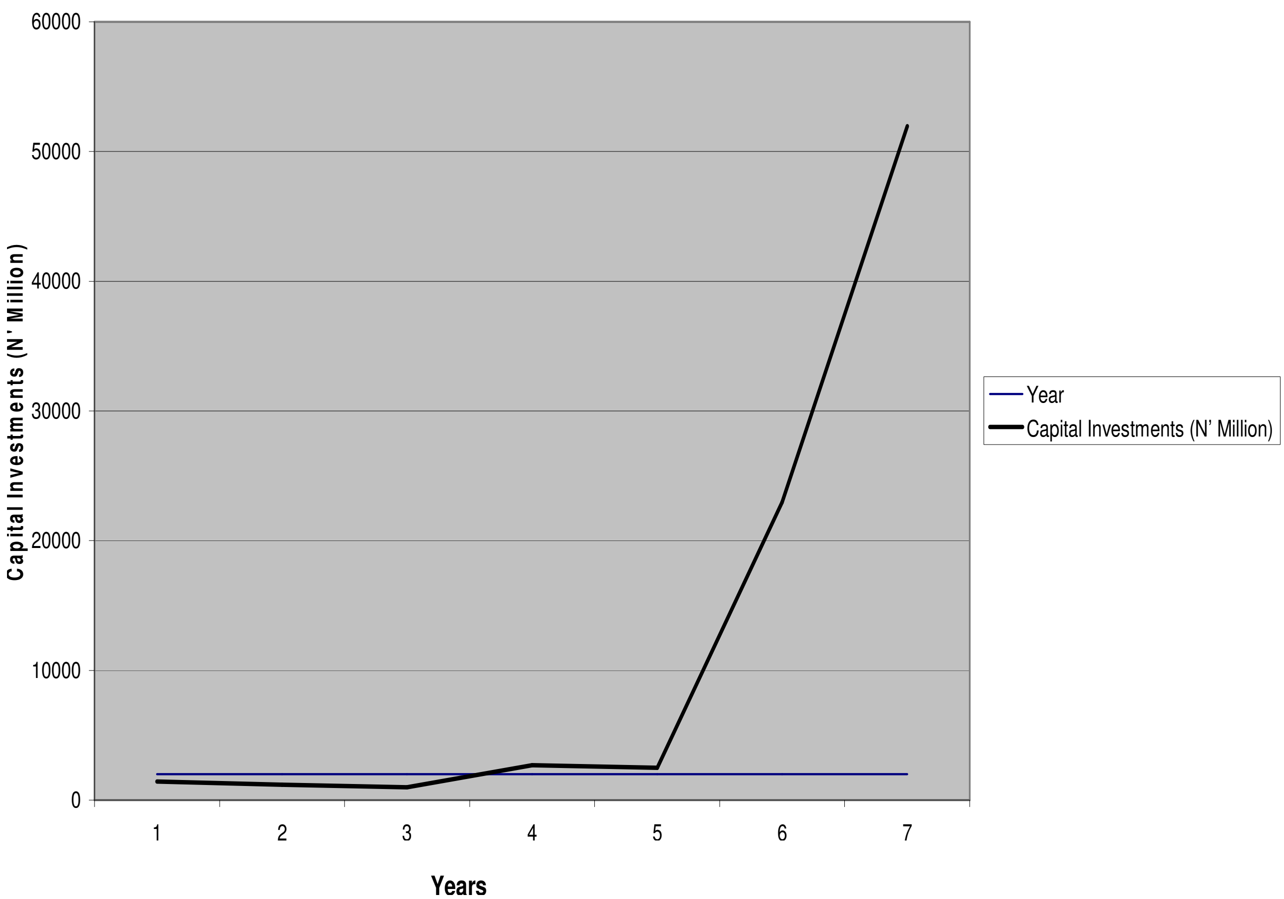

Figure 1. Goverment capital investment in the national electric power authority (NEPA) (1995 – 2001).

Table 4. A comparative analysis of energy use per person in Africa.

Countries	Energy use per person (kWh/cap/year
Cameroon	184
Nigeria	85
Ethiopia	21
Kenya	126
Tanzania	55
Uganda	38
Burkina Faso	29
Ghana	204
Senegal	114
Algeria	581
Egypt	900
Morocco	430
World Average	2108

Source: Young (2005).

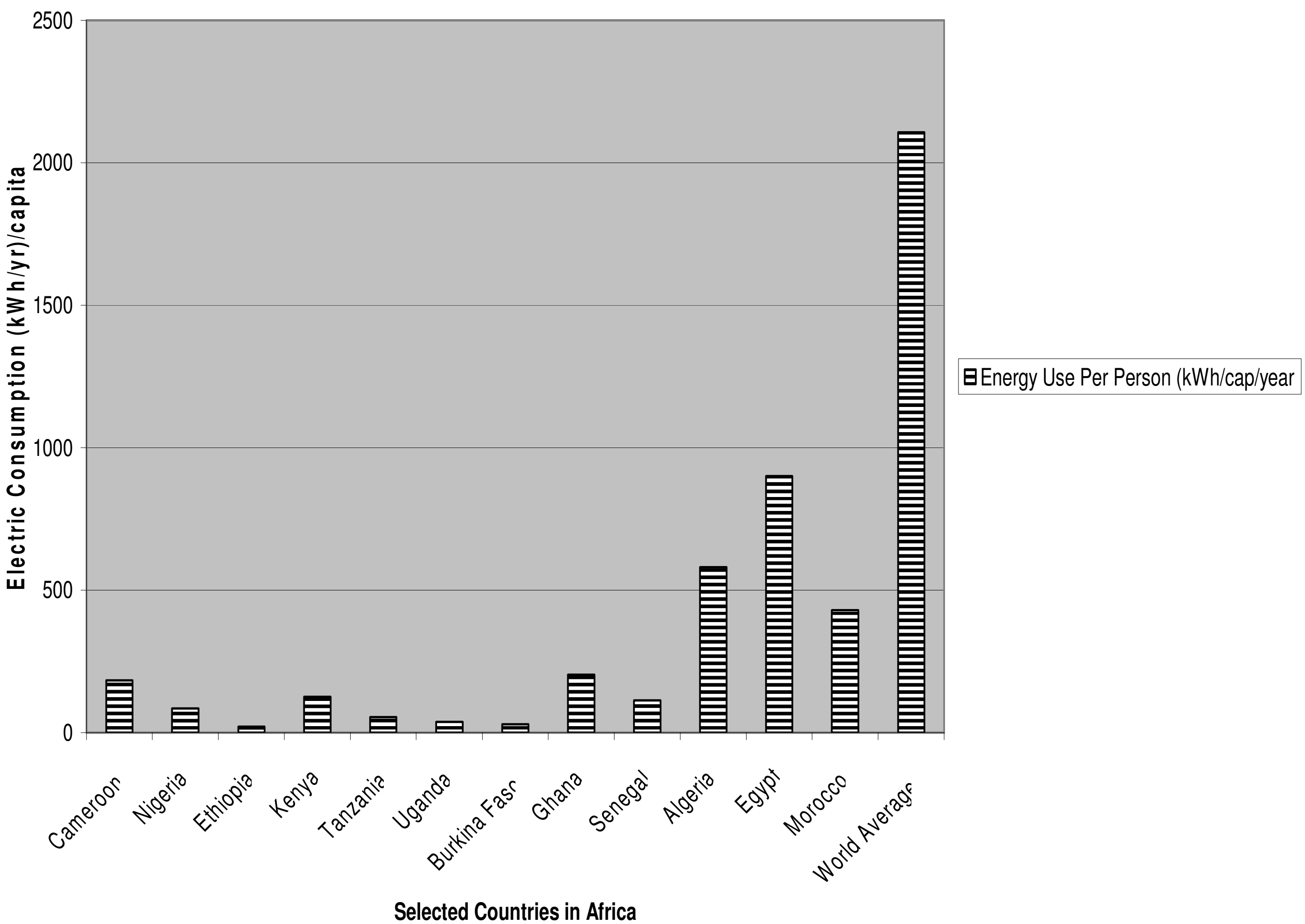

Figure 2. A comparative analysis of energy use per person in Africa.

The National Electric Power Authority (NEPA) is statutorily charged with the generation and distribution of power for residential, industrial and other commercial uses. NEPA is a parastatal of the Federal Ministry of

Table 5. Analysis of percentage feasible hydropower developed in countries ofAfrica.

Countries	Percentage of Feasible Hydropower developed (%)
Ethiopia	1
Senegal	2
Cameroon	3
Namibia	10
Uganda	13
Zimbabwe	17
Nigeria	23
Egypt	27
South Africa	32
Kenya	34
Burkina Faso	46
Lesotho	50

Source: Young (2005).

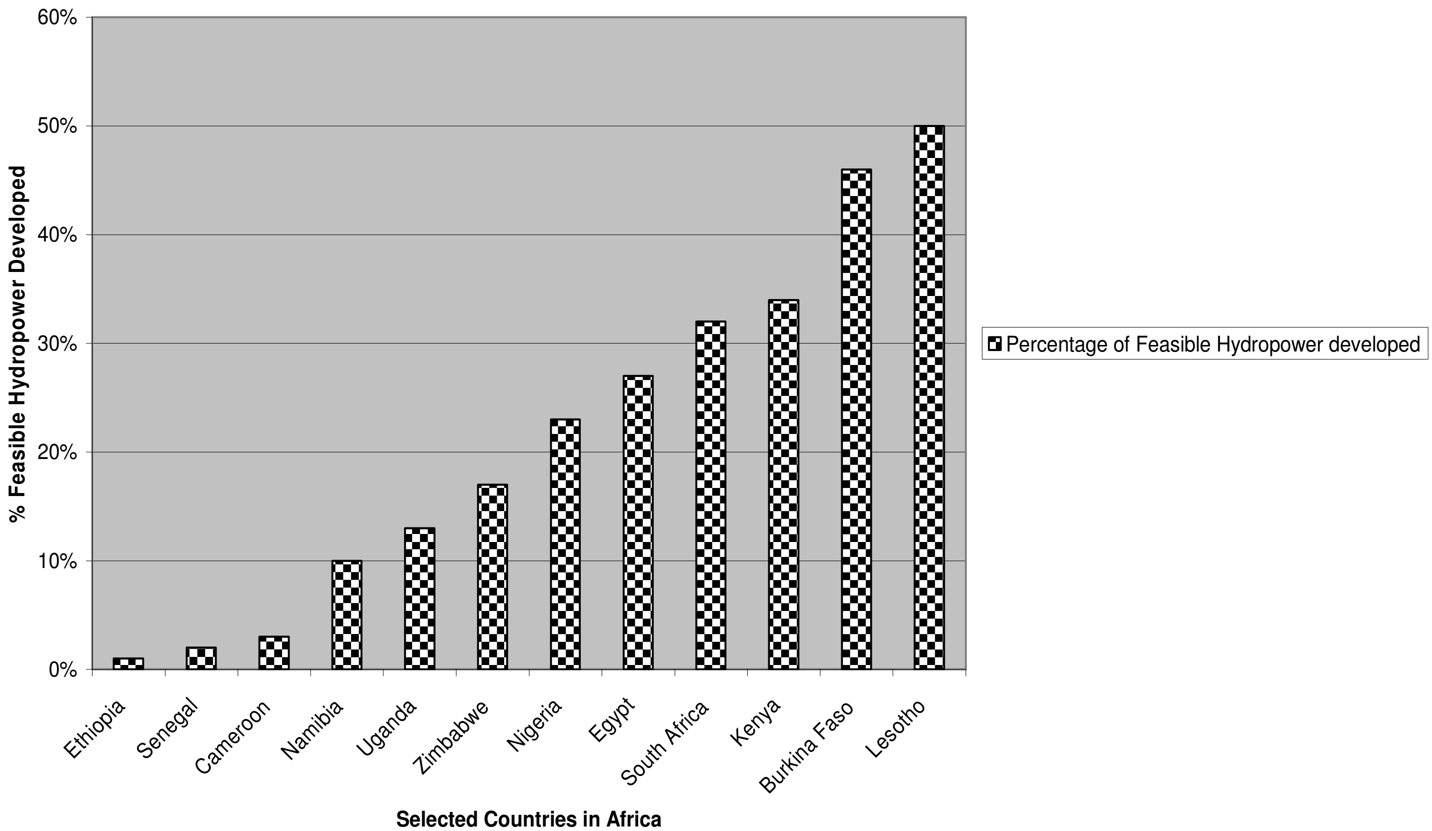

Figure 3. Analysis of percentage feasible hydropower developed in countries of Africa.

Power and Steel. So far there has been consistent public outcry bordering on the poor and depreciating quality of services rendered by the Authority. For instance, Ilori (2004) reported that the energy generation availability in Nigeria declined to 1600 MW in 1999 from 5,876 MW installed capacity with only 19 functioning out of the 79 generating units. Ilori (2004) further observed that existing Radar Transmission lines were completely run down. Many transformers and circuit breakers had not been maintained for years, inspite of clear cases of over-loading which frequently render the facilities vulnerable and susceptible to regular breakdown. Fluctuating decline

Table 6. Electricity generation by NEPA (1970 - 2004).

Year	Electricity generation		
	Installed capacity (Mega watt)	Total generation (mega watt per hour)	Capacity utilised (%)
1970	804.7	176.6	21.9
1971	804.7	215.4	26.8
1972	786.7	255.4	32.5
1973	670.6	299.7	44.7
1974	721.0	261.1	36.2
1975	926.2	395.4	42.7
1976	1.125.2	468.7	41.7
1977	1.114.2	538.0	48.3
1978	1.793.7	522.7	29.1
1979	2.230.6	710.7	31.9
1980	2.230.5	815.1	36.5
1981	2.430.0	887.7	36.5
1982	2.902.1	973.9	33.6
1983	2.856.8	994.6	34.8
1984	3.178.0	1.025.5	32.3
1985	3.695.5	1.166.8	31.6
1986	4.016.0	1.228.9	30.6
1987	4.548.0	1.286.0	28.3
1988	4.548.0	1.330.4	29.3
1989	4.548.0	1.462.7	32.2
1990	4,548.0	1.536.9	33.8
1991	4,548.0	1.617.2	35.6
1992	44.580.0	1.693.4	37.0
1993	4.548.6	1.655.8	36.4
1994	4.548.6	1.772.9	39.0
1995	4.548.6	1.810.1	39.8
1996	4.548.6	1.854.2	40.8
1997	4.548.6	1.839.8	40.4
1998	4.548.6	1.724.9	37.9
1999	5.580.0	1.859.8	33.3
2000	5.580.0	1.738.3	31.2
2001	6.180.0	1.689.9	27.5
2002	6.180.0	2.237.3	36.2
2003	6.130.0	6.180.0	38.8
2004	6.130.0	2.763.6	45.1

Source: CBN (2004).

in investments, inefficiencies, corruption and sabotage have always been held responsible for these. Between 1980 and 2000, NEPA had about 1,790 distribution transformers and 680 injec-tion sub-stations in its entire services. According to Ilori (2004), although the installed capacity of existing power stations is 5906 MW, the maximum load of consumption ever recorded was 2,470 MW. In addition, the Federal and State governments have the policy of connecting Local government head-quarters, towns and villages to the National grid, thus raising up the generating capacity. Currently, the estimated demand for power in 2005 and 2010 are respectively put at 9,780 and 20,000 MW. At the moment, the possibilities of meeting this targets remain bleak.

Study area

The University of Uyo was established on October 1, 1991 as a public sector institution. At establishment the University took over the students, staff, academic programmes and facilities of the defunct University of Cross River State. The University is located in Uyo, the capital city of Akwa Ibom State (Figure 4). The University

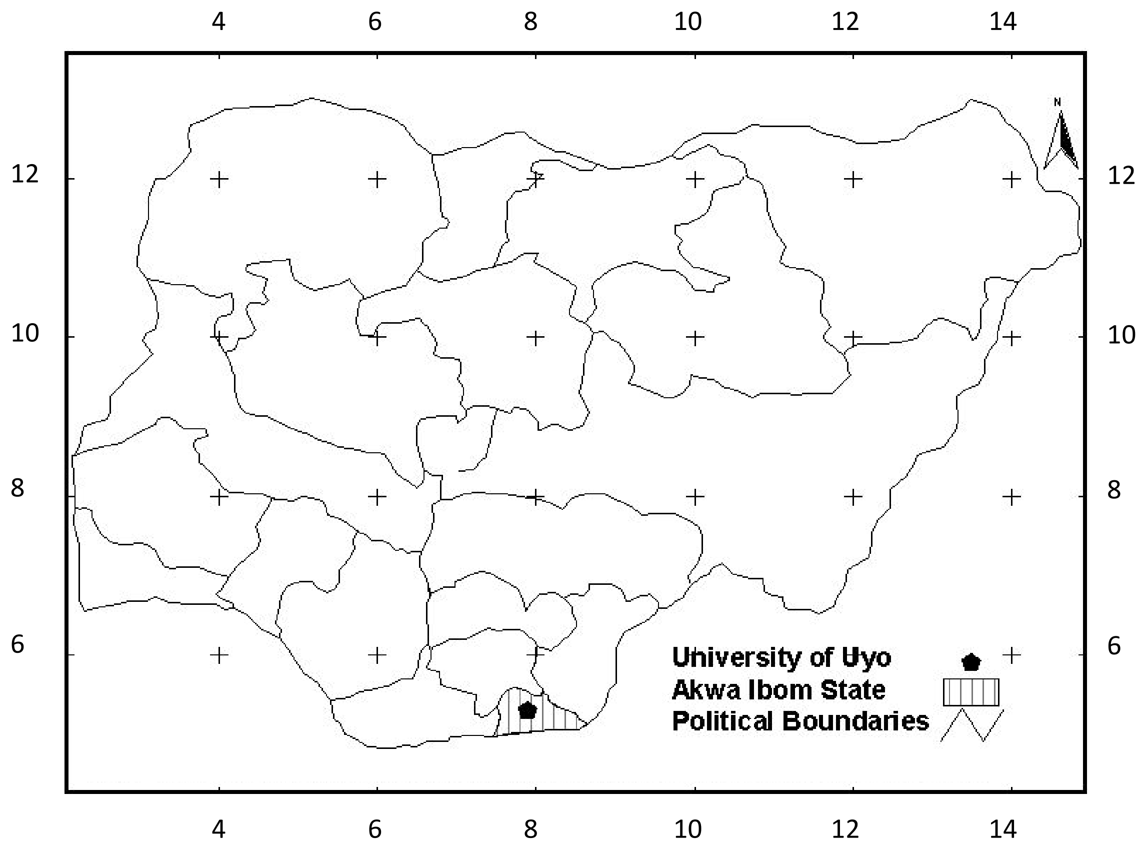

Figure 4. Nigeria showing the University nof Uyo in Akwa Ibom state.

presently occupies the former campus of the defunct University of Cross River State along Ikot Ekpene road and Ikpa road as its town campus and campus of the defunct school of Arts and Science along Ikpa road as its annex (University of Uyo, 1998). There is however, a provision for a permanent site some few kilometres off Uyo, along Uyo-Nwaniba road.

Currently, the University of Uyo has no environmental management policy and plans in place. It is also in doubt if the University has any measure in place to work within the framework of the national environmental protection and management agenda. The circumstances of the birth of the University of Uyo is very relevant to the understanding of this dilemma and lack of environmental plans and concerns. The University metamorphosed and evolved from a High School to College of Education and to University of Cross River and finally metamorphosed into its present status, the University of Uyo. The present physical structures of the campus do not follow any laid down planning framework. The University has its major source of power supply from the National Electric Power Authority (NEPA), now Power Holding Company of Nigeria (PHCN) PLC. In the absence of electricity, there are a number of generating sets at strategic and important administrative offices to supply electricity for administrative works. There are a number of private businesses operating within and outside the university premises. These private businesses is dominated by photocopiers, computer processing and typing as well as some sales outlets. There are about 12 academic faculties (each housing many different academic departments), about 6 consultancy units and many other separate administrative offices. Each of these faculties, departments and administrative offices has its generating sets, which are always switched on once there is power failure. Generally, administration officers perform their official duties 8 h (from 8 am to 4 pm) daily, while academic activities continue from 7.00 am to 6.00 pm each working day (based on the official academic time table of the University of Uyo). This translates to 11 h of academic activities. In most cases lectures could be extended to 8.00 pm based on a rescheduled agreements between individual course lecturer and the students concerned.

STUDY APPROACH

This study utilised an observation approach. Frequencies of daily power supply in the University of Uyo was monitored over 3 consecutive seasons (dry, wet and the harmattan) in 2005. The dry season theoretically commences on November of every year and ends around March or early April; the wet season takes off from

April and ends in September or October; while the harmattan commences from November and ends around January. These seasonal changes are not always rigidly recorded, there is always some deviations and variations due to changes in the global and local weather/climate. Frequencies of electricity supply to the University was taken for 3 months representing the 3 seasons named above. This was based on minutes counts of electricity supply between 8 am and 4 pm from Mondays to Fridays for one month each. In the dry season, this was done in March (the peak of dry season); in the wet season, this was recorded in July (the peak of wet season) while November was adopted for harmattan. Available information was later averaged for each month and the result generalised for the respective season. It is important to note that one month data on electricity supply in the University of Uyo does not adequately represent the supply for the respective season. Moreso, the trend of power supply in Nigeria is highly unpredictable, which could result in changes either negatively or positively at any point in time. There were also lots of approximations in the data set. For instance, all fractions in minutes were converted or approximated to the nearest hour. Electricity generation data for the University of Uyo could not be obtained inspite of efforts in that direction and no physical or instrumental measurements of emissions or generations were made. All relevant data were recorded in the researcher's office and confirmed at neighbourhood offices to ensure that disconnections of any form did not occur at a particular point in time. These limitations, not withstanding, this study lays a potent foundation for future researches on this theme.

Apart from the above primary source, data were obtained from secondary sources as well. These include the Statistical Bulletin of CBN, the website of Power Holding Company of Nigeria (formerly NEPA) and relevant literature. All data were tabulated and finally subjected to Analysis of Variance (ANOVA-one way) across the seasons at $P < 0.05$). It is important to point out that average diurnal temperature in the University of Uyo hovers around 29°C and could be as high as 33°C in the dry season and as low as 25°C in the wet and harmattan season.

RESULTS AND DISCUSSIONS

It has been observed that public power supply in the University of Uyo is very irregular and highly insufficient for its status as an academic institution. Average monthly public power supply to the university community varied significantly from an average of 2 h in the dry season, 3.6 h in the wet season and 4.8 h in the hamattan season ($P < 0.05$) (Table 7). These significant differences between the three seasons probably have to do with different pressures and demands by the public on the National Electric Power Authority (NEPA). For instance, the performance of NEPA at the peak of dry season was dismally very poor. During this period, electrical appliances such as ceiling and table fans, air conditioners, water pumping machines are constantly switched on apparently to counter the indoor heat and high ambient temperature. The reverse seems to be the case in the wet season and the harmattan (which seems to record low temperature). Considering the very low generating capacity of NEPA (Tables 5 and 6), it is unlikely that huge public power needs during the dry season would be met by the power authority. The situation is particularly worse for Uyo (where the Univrsity is located) which experiences very low peak (26.5) and off peak (24.0) compared to other cities such as Abuja and Ibadan (Table 2). The University of Uyo, as a public institution, often encounters difficulties during working hours as necessary teaching and research are not optimized. Most units, departments and faculties resort to some internal arrangements of power generation to achieve some critical needs. Such arrangements end up directly or indirectly exploiting the students especially if critical laboratory analyses are to be performed either for teaching or research purpose. The students are involved by either directly or indirectly paying for generating plants and regular fuelling. The university authority maintains some generating plants at various scales. However, such plants are mostly used for administrative purposes to service the vice chancellor's and other principal administrative officer's offices. Apart from the 500 KVA plant for the main campus, small generating sets litter offices of principal staff and are always switched on when the main sources of power supply is off. Running the main generating plants remain financially costly prompting the authorities to always resort to small generating sets, of 2.5 KVA or less, at strategic locations on campus. Greater attention is given to the needs and interest of the general administration than academic and research needs for power. Consequently, academic staff hardly settle in their offices for research purposes, preferring their private residences (where they run private generating plants), and are available on campus during their scheduled lecture hours.

Every private business on campus runs a private generating set (less than 1 to 2.5 KVA). Over 95% of such businesses are not linked to the regular power sources of the university. During working hours every private generating sets is switched on irrespective of supply of power from the regular sources. The noise level in most cases create an unconducive learning environment for the students and staff. A worst scenario happens when there is total blackout from the regular supply sources. In this case, every units, departments, faculties, academic and all private business centres switch on their power sources creating a highly intolerable learning condition. The noise level from the generating plants is mostly deafenning while the emission level remain a great source of smokes on campus. These have serious environmental implications which are rarely considered. This situation is mostly linked to the general condition of poor power generation and supply at macro level in Nigeria (Table 8).

In Table 8, it is observed that between 1970 and 1977, the percentage of electricity consumption by industries was very much higher between 58.1 and 65.5 and declined on a downward trend, which finally tapers in 21.8 in 2004. For residential use, the reverse seems to be the case with much and stable appreciation between 1982 and 2004 as against a poor and fluctuating performance between 1970 and 1982 (Table 8). Inspite of

Table 7. Public power supply in the University of Uyo for different seasons (2005) 8.00 am - 4.00 pm

S/N	Average daily public power supply for dry season (h), based on 8 daily working hour (March, 2005)	Average daily public power supply for wet season (h), based on 8 daily working hour (July, 2005),	Average daily public power supply for hamattan in season (h), based on 8 daily working hour (Novenber, 2005)
1	2	6	7
2	0	5	8
3	0	5	3
4	1	0	6
5	5	5	4
6	0	8	4
7	2	1	4
8	8	3	3
9	0	1	8
10	3	0	8
11	2	8	8
12	1	8	8
13	0	5	5
14	4	5	8
15	0	2	4
16	7	3	4
17	0	0	3
18	1	7	1
19	0	4	8
20	7	2	0
21	0	2	1
22	1	-	0
23	0	-	-
Total (h)	44	80	105
Average hours of power supply	2**	3.6**	4.8**

Source: Observation. All individual figures were rounded up to whole number;** Variation Significant at $P < 0.05$

these projections, the general trend is that the Nigerian public power sector has not sufficiently addressed the power needs of industries, commercial, residential and institutional activities (Figures 2 and 3). The implication is that organisations, institutions and private individuals pay more attention to private sources (mostly from generating sets), without consideration to the impacts the releases from such generating sets pose on the environment.

Recognizing the power need of the country, various governments in Nigeria have made some investment plans, and this was intensified in 1999 during the administration of Olusegun Obasanjo. Consequently, by the end of 2001, the generating capacity of electricity had increased from 1824 MW (from 19 generating units) to about 4000 MW (from 40 generating units) (Okafor, 2008). This slight improvement was attributed to the rehabilitation of existing generating units, installation of new generating plants and the procurement of power from independent operators (Makoju, 2002; Agbo, 2007). In the area of transmission, efforts were made to extend and reinforce the transmission grid through the construction of 14 transmission lines and the reinforcement of 26 sub-stations. In the area of distribution, Makoju (2002) observed there was significant improvements made by the relevant power authority. It was expected these generation, transmission and distribution measures will help improve the power supply situation in Nigeria.

However, this expectation has not yielded the best results in the power sector for the country, as the current generation capacity has not gone above 4000 MW. Various factors have been attributed to this persistently poor generation capacity. This includes the prevalence of endemic corruption, lack of maintenance culture; sabotage of relevant power materials, among several others. The implication of all these is that the country's manufacturing sector and the citizens continue to suffer and mostly resort to self help efforts through patronage of all sort of generating plants.

Table 8. Electricity Consumption (1970 - 2004).

Year	Consumption (Megawatt per hour)							Proportion of total generation consumed
	Industrial	% total	Commercial and street lighting	% total	Residential	% total	Total	
1970	91.4	62.9	-	-	53.9	37.1	145.3	82.3
1971	114.9	63.5	-	-	66.2	36.5	181.1	84.0
1972	138.2	65.5	-	-	72.9	34.5	211.1	82.6
1973	146.1	62.8	-	-	86.6	37.2	232.7	77.6
1974	163.2	61.3	-	-	103.0	38.7	266.2	100.0
1975	200.4	62.9	-	-	118.3	37.1	318.7	80.6
1976	214.6	58.0	-	-	155.2	42.0	369.8	78.9
1977	253.0	58.1	-	-	182.7	41.9	435.7	31.0
1978	157.7	31.3	93.5	18.5	253.2	77.9	504.4	90.5
1979	160.3	34.8	77.9	16.9	221.9	48.2	460.1	64.7
1980	199.7	37.2	94.12	17.5	243.1	45.3	536.9	65.9
1981	121.0	30.2	21.3	21.3	193.6	48.4	335.9	45.1
1982	262.0	38.4	79.1	11.6	344.5	50.6	685.6	70.0
1983	254.4	36.5	84.3	12.1	358.0	51.4	696.7	70.0
1984	217.2	34.7	81.7	13.1	326.6	52.2	625.5	61.0
1985	259.8	36.2	85.6	11.9	372.0	51.9	717.4	61.5
1986	280.5	33.3	84.7	10.1	476.6	56.6	841.8	68.5
1987	294.1	34.5	90.2	10.6	468.6	54.9	852.9	66.3
1988	291.1	34.1	118.6	13.9	443.8	52.0	853.5	64.2
1989	257.9	26.4	195.3	20.0	523.6	53.6	976.8	66.8
1990	230.1	25.6	217.6	24.2	450.8	50.2	898.5	58.5
1991	253.7	26.8	254.12	26.8	459.3	48.5	946.6	58.8
1992	245.3	25.7	266.1	26.8	481.6	48.5	993.0	58.6
1993	237.4	20.8	311.6	27.3	592.4	51.9	1141.4	68.9
1994	233.3	21.3	306.7	28.0	575.0	52.5	1115.0	51.8
1995	218.7	20.3	279.6	26.0	552.6	51.3	1050.9	59.5
1996	235.3	22.8	280.0	27.12	518.0	50.1	1033.3	55.7
1997	236.8	23.5	264.5	26.2	508.3	50.3	1009.6	54.9
1998	218.9	22.5	253.9	26.1	500.0	51.4	972.8	56.4
1999	191.8	21.7	236.8	26.8	455.1	51.5	883.7	47.5
2000	223.8	22.0	274.7	27.0	518.8	51.0	1017.3	58.5
2001	241.9	21.9	298.3	27.0	564.5	51.1	1104.7	65.4
2002	146.2	11.5	372.6	29.3	752.8	59.2	1271.6	56.8
2003	196.0	12.9	417.9	27.5	905.6	59.6	1519.5	63.4
2004	398.0	21.8	489.3	26.8	938.5	51.4	1825.8	66.1

Source: National Electric Power Authority (NEPA) (Extracted from CBN, 2004). 1. Industrial figures for 1970 - 1977 include commercial consumption figures 2. Industrial installed capacity

CONCLUDING REMARKS

Nigeria has diverse power resources including coal, natural gas, crude oil, solar power, hydro resources, wood fuel, nuclear, geothermal, tide, biogas and biomas. Only four of these sources namely coal, crude oil, natural gas and hydro resources, are currently being utilized in processed forms while wood fuel and solar energy are used in their crude forms for heating, cooking and lighting. Considering the importance of power to the socio-economic development of a country and the improvement of living standard of the citizens, the study has demonstrated that Nigeria is still very far behind in powering her economy. What is observed is a situation whereby the government has not been able to provide for the citizens in the most basic sector. When the government cannot guarantee for her citizens adequate power supply, the recourse to unhealthy and unsustainable power generation becomes a reality. This will ultimately affect the environment, the economy and the citizens.

Based on observation from the study and considering the fact that the University of Uyo, as an academic institution, should merit regular public power supply, this study observes that the observed trend could be more dangerous in our larger society and cities. There is therefore the need for a full blown research on this theme.

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