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Sustainable Energy Development as a Tool for Alleviating Poverty in Nigeria

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Abstract

The paper brings into forefront the epileptic state of energy sector of the national economy and how it has succeeded in sustaining poverty among the teeming population. The paper shows that direct relationship exists between the state of energy supply and the nation's economic development. The nation energy system has only being able to supply less than 1500MW of electricity representing just a figure above 20 percent of the country's required 6500MW domestic demand. The focus of the government over the years has being that of direct investment on poverty alleviation, little they realized that the state of energy supply in the country perpetually keeps Nigerians in penury and out of global touch. The paper therefore examines the state of power supply in the country and its consequential effects on poverty scorecards of Nigerians. The research was mostly desktop relying largely on documented data. Major finding was that long before the season of global economic recession, as far back as 19992, greater proportion of Nigerians live on a paltry sum of less than $1 per day. This has being visible in their housing condition, nutritional intake and their environmental quality, implying that their state of abject poverty has negatively affect city development and management. One major factor responsible for this has being the poor state of our infrastructure and utilities one of which is electricity. Major bane of this sector as revealed by this paper include; inadequacy of generation and distribution, inadequacy of metering and pricing system, poor state of maintenance policy, poor funding of the sector, inadequate monitoring of fund appropriated to the sector, statutory handicapped, absence of inter- organizational co-operation among others. Privatization of the sector, debundling of the sector's agency, statutory review of the constitutional provisions on energy generation and distribution, sectoral integration and immediate convocation of energy summit are some of the recommendations submitted.

Keywords: poverty, sustainable development and sustainable energy

1. 0. Introduction

In the last three decades, the nation through our leaders had shown pious intentions to alleviate poverty among the nation's teeming population. This they have demonstrated in the formulation of policy statements and establishment of varying number of programmes, which according to the policy makers are capable of minimizing poverty in the country. It is for this reason, that issue of poverty has become a political tool in the hands of both military and democratic leaders in the country.

Simultaneously, the issue of energy development has equally dominated government campaign. Politicians has indicated in their manifestos their willingness to tackle issues of energy in the country, undoubtedly the nation's energy problem had in the past propelled several military intervention. In all these none of the government through their policies and political statements has demonstrated an understanding that poverty is a mere symptom of bad governance or the inability of our policy makers to equip the nation's large population with necessary infrastructure and public goods. More so, they have done little or nothing at all to create conducive atmosphere to make these goods available, one of such public good is energy. Energy development all over the world is accepted as one of the cardinal infrastructure capable of giving any economy a quick and sustainable start.

The general state of poverty in Nigeria is a reflection of neglect of social responsibilities of the government and the

inability or failure of our leaders to provide the needed social and public goods. Public goods such as electricity have the potential of generating multiplier effects in the national economy and directly help in improving general living standards of the people. Sustainable energy development is also fundamental to all human activities, Etiosa and others (2007) opined that the Millennium Development Goals become unachievable in the country without access to energy and inevitable for poverty alleviation and the production of goods and services. The authors estimated that over 60 percent of Nigerians does not have access to electricity and over 90 percent of those that have access to it hardly enjoy it for more than 120 minutes (2 hours) on a cumulative basis per week.

Nigeria's economy is largely private driven and purely characterised by the unorganized private sector made up of artisans who survived on daily wages which largely depend on utilization of utility like electricity. These groups of Nigerian only sustain their business relying largely on generating set, this indirectly diminishes their income because simultaneously they pay for the epileptic supply of energy and still sustain their generating set.

This situation rather than eliminating poverty in the land only helps in aggravating it. Sustainable city development becomes highly impossible going by the high level of poverty that pervades the land. The paper therefore is aimed at sensitizing the government on how investment into the energy sector can help to reduce state of poverty in the country.

1.1 **Conceptual Overview**

1.1.1 The Concept of Poverty

Poverty is generally defined as a state of lack, social, economic and physiological lack. It is a state of economic inefficiency where an individual lacks sufficient income to obtain minimal levels of health services, food, housing, clothing and education which are generally accepted as being necessary to ensure adequate standard of living.

Galbraitn (1955) concludes that people are poverty stricken when their income, even if adequate for survival, falls markedly behind the average obtainable in their immediate community. Victor (2007) sees the conceptual definition of poverty as being narrow and at the same time broad simply because poverty is a physical matter and broad because it is relative. According to him physical because it is visible and relative because a poor person is one country may not be seen as being poor in another.

Poverty is depicts by the Webster's New Twentieth Century dictionary as the condition or quality of being poor, need, indigence, and lack of means of substance. Poverty can therefore be seen as a state of deficiency in desirable qualities or conditions, as well it is more than being improvised and more than lacking in financial means alone. It is thus an overall condition of inadequacy, lacking, destitution and deficiency of economic, political and social resources. Ogundipe (1998) was of the view that major obstacle to sustainable city and economic development is poverty and that people are poor because they are poor i.e. poverty begets poverty. Universally there exists two types of poverty and these include case and insular poverty (Galbraith 1958). Case poverty cuts across rural and urban settings and it entails mental deficiency, bad health, inability to adapt to the dictates of modern economic life, excessive procreation, alcohol, insufficient education and combination of all these. Insular poverty on the other hand entails environmental poorness which translates into individual inadequacy.

However, incidence of poverty for comparative reason is measured globally using monetary benchmark as a rule anybody living below $1 and of recent $2 per day is generally seen to be living below poverty line (UNDP, 2009).

1.1.2 Sustainable Energy Development

Sustainable energy is that energy which present rate of use does not affect their availability in the future (Etiosa,

2007). It is a form of energy which is adequately made available in the present and in the future. It is an inexhaustible energy; Efik (2007) described such energy as renewable energy generally obtained from sources that are essentially unlimited, rapidly replenished and naturally renewable. Major sources of this energy include wind, water, sun, and wave, refuse, tide and biofuels (Etik 2007 and Etiosa, 2007). Sustainable energy development by implication implies deliberate and conscious efforts at the municipal level to make energy available at an affordable cost for the present and future generation. An attempt capable of meeting the energy needs or requirement of individual and corporate establishment simultaneously i.e. without ceasing. Ability of energy supply to meet its need , not only for the present but also that of the future

. **1.3.3 Methodology**

The research largely relies on the pool of existing data and this makes it purely a desk top research. This method was equally supported with personal discussion among the stakeholder energy supplier and energy consumers and the low income earner who suffered high incidence of poverty. Discussion largely focus on consumer's energy demand, pricing mechanism, consumer's perception of the agencies responsible for the supply of energy, consumers expenditure on energy consumption, pattern of their consumption among others. This method of investigation is rooted in the ground theory- a recent approach of research method.

2.0 State of Poverty in Nigeria

Across the globe, poverty is relatively measured in term of one's income or what form of goods and services can individual income afford. Individual economic fair well is does measure by the person's income. One with a high income could afford basic things of necessities and luxury (all things being equal), low or inadequate income is a significant predisposing condition for an improvised life (Sen, 1999). Poverty internationally is measured by comparing varying national's income, and this is always arrived at by determining the average income of every citizen by dividing the nation's Gross National Product (GNP) by the country's total population to arrive at citizen's income known as per capita. Before the global economic recession of 2009, the nation's GNP per capita according to a UNDP report stood at $260 per annum an amount below $1 per day. Comparatively this income is far below even that of the less endowed nations like Bangladesh, with per capita income of $370 per annum and even that of the less endowed and smaller African countries like Tanzania and Mozambique with per capita income of $260 and $220 respectively and significantly far below that of South Africa and Botswana with $3,170 and $3,240 per annum respectively and significantly far below that of United Stated of America of $27,086 per annum's (USAID, 2002) and Economic Wealth Year Book, 2002). With this income, an average Nigerian can not afford good living, nutrition and other basic goods of life like education and health as such subject greater proportion of the nation's population into abject poverty. The situation becomes worsen even in the period of this economic recession. The implication of this on sustainable city development is that people will choose to live in shanties and areas of less environmental quality, highly crowded and polluted. Their lives become miserable and vulnerable to diseases and crime which are likely to pose greater challenges for various city and urban managers.

The country's development profile released by ECN and UNDP in 2005 revealed that over 70 percent of the nation's teeming population lives below $2 per day (see table 1) and over 30 percent lives below $1 per day. Jegede (2000) is of the view that over 34 percent 0f those that live below $2 per day are found in the urban centre meaning that the remaining 66 percent are found in the rural areas. Fidelis (2005) observed that in 1980, poverty was largely rural but by 1985, poverty has become pervasive in both rural and urban areas. International agencies report has at different times in 1999 placed the country among the 25 poorest nations in the world.

Table 1 Nigeria's Development Profile (2005)

Population	133 Million
GDP (2002)	45 Million
GDP (1980)	93 Million
GDP/Capita (2002)	290 Billion
GDP/Capita (1980)	890 Billion
Life Expentancy at Birth	47 Years
Under 5 Mortality Per 1000 Birth	153
Under 5 Malnutrition	36%
Adult Literacy Rate	36%
Population Living Below $1 per day	70%
Population Living Below $2 per day	91%

Source: ECN and UNDP

Poverty profile in Nigeria since 1980 has been rising. FOS, (1999), Anyanwu, Ogunike and Alanyande (2000) and Etiosa (2007) all revealed that the nation's poverty profile rose from 15percent to 28 per cent in 1980 to 46 per cent in 1985 and slightly declined to 42 percent in 1992 only to rise to 67 percent in 1996 and drastically rise to 89 per cent in 2007 see figure 1.

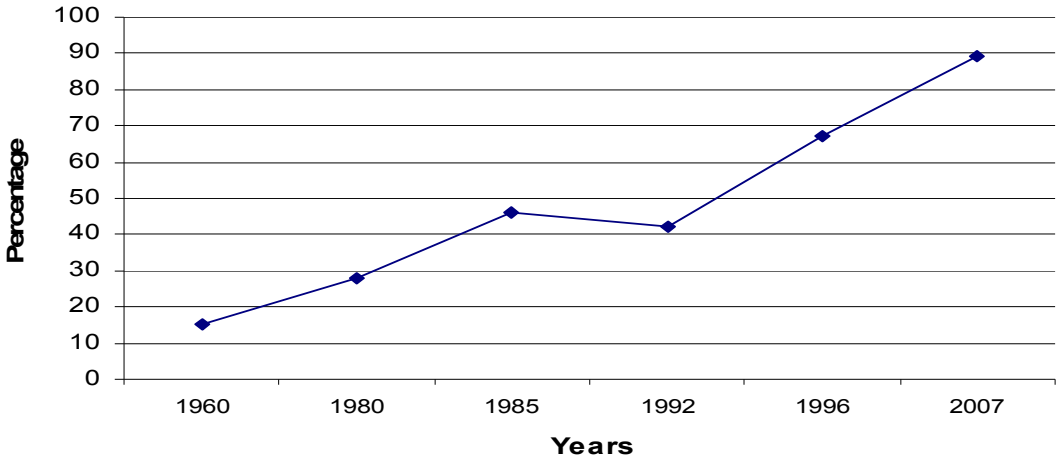

Figure 1 Poverty Profile in Nigeria 1980-2007

Past poverty alleviation efforts programme of the government

Poverty alleviation efforts of the government could be dated back far to 1960, when FOS statistics revealed that only 15 percent of Nigerian were reported to be poor. Poverty eradication efforts of the government then centered around education which was then seen as the key to economic, technological and intellectual development of the nation. Though, most authors have not being able to take cognizance of this. Fidelis (2007) was of the view that conscious

policy efforts by government towards poverty alleviation began in Nigeria (1980) during the era of structural adjustment programme (SAP). The severe economic crises in Nigeria in the early parts of 1980s subject greater proportion of the nation's population into serious economic crisis, coincidentally it is the period that electricity contributes the least GDP into the nation's income and life of average Nigerian became worsened. Some of these conscious efforts are reproduced in table 2.

T**able 2 Poverty Alleviation Programme of Nigerian Government 1960-2008**

Programmes	**Year of Operation**	**Target Group**	**Objectives**	
Education	1960 (at Independence)	The whole Nation	Eradication of Poverty through education	Education & Agricultural Extension programmes
Operation Feed The Nation	1979	Farmers in both rural and urban	To increase the nutritional level of Nigerians and invariably promote national growth and development	Encourage Agricultural Produce at both large and small scale levels
Green Revolution	1979 - 1983	Farmers	Also to increase food production	Granting of credit facility to farmers and subsidies on fertilizers
War Against Indiscipline	1984	All Nigerians	To reduce poverty through cut in corruption and promotion of discipline	Incurcate military style regime of discipline
Directorate of Food, Roads and Rural Infrastructures	1986	Rural Areas	To enhance Rural income and development	Provision of feeders roads, water supply and rural electrification
National Directorate of Employment	1986	Unemployed Nigerians	Creation of employment, granting of allowance to reduce poverty line	Training and finance, direct employment
Better Life for Rural women	1987	Rural Women	To reduce poverty among rural women folks	Promoting self help, rural development

				programmes, skill acquisition and health care
Community Bank	1989 & 1990	The poor in both urban and rural areas	To reduce poverty through credit facility for small scale industry	Establishment of community banks, granting of banking facility
Family Support Programme (FSP)	1994 and 1997	Families in rural communities	Promoting health care delivery, child welfare, youth development	Building of primary health care centre
National Poverty Eradication Programme (NAPEP)	1999	All Nigerians that are poor	Central co-ordination for all poverty programmes	

As numerous as these programmes are, non except one – DFFRI was able to realize that wealth is not created by fiat but through evolution of good economic system capable of promoting production and distribution of goods and services. Infrastructural development such as roads and utilities like electricity are some of the basic ingredients any nation needs in order to forge ahead economically. This is the reason why farmers had better deal around 1986-1988 when DFFRI was introduced. Poverty is a mere symptom of neglect of social responsibilities of the government to the governed. No mater the amount of money that is released into the economy to fight poverty, if issue of electricity is not squarely and once resolved, these monies like the previous one will not have any effect on the rising profile of poverty in Nigeria and the more unmanageable our cities become.

2.1 State of Energy Development in Nigeria

Energy development is fundamental to all human activities and generally inevitable for poverty alleviation and the production of goods and services. Greater proportion of the nation's energy is generated by hydro power stations, thermal gas stations and fossil fuels sources . The Power Holding Company of Nigeria formerly National Electric Power Authority (NEPA) governs the most popular variable of the energy sector – electricity. The authority has an initial generating capacity of about 6,000 megawatt (MW), (Adenola and Abiodun, 2001). In 2000 only 61 percent of this capacity is available for distribution to the final consumers (CBN, 2000) as at today, the authority generates less down 25 percent of its initial capacity with about 15 percent estimated to only reach the final consumers.

In 1998, the authority accounted for 99.5 percent of electricity generation and this come highly from its eight major power stations, while the remaining 0.5 comes from thermal energy purchased from private firms. This suggests that private investment into the sector is insignificant; the National Electric Power Authority Act which grants exclusive rights to the authority may be responsible for this. Apart from the major sources outlined above little or nothing is heard of from other sources likes, water, sun, wave, refuse and bio fuel from which electricity could be generated.

Electricity Supply and Demand

The basis for sustainable energy development lies squarely on the nation's ability to determine its present level of energy supply and ability to forecast its present and future needs. It is only when these are known that strategic plan

capable of addressing energy crisis could be resolved in the country. It is in realization of this that the Energy Commission of Nigeria (ECN) established by Act No 62 o 1979 (amended by Act No 32 of 1988 and No 19 of 1989) mandated for strategic planning and co-ordination of national policies in the energy sector is collaborating with International Atomic Energy Agency (IAEA) under an IAEA regional project titled sustainable Energy Development for Sub-Sahara Africa.

Available data showed that PHCN formerly NEPA had an initial electricity capacity of 6500 Megawatt (MW) (Ilajoye and Adigun, 2007) though Sambo (2007) put it as 56000 MW, as at 2001, the capacity dwindled to 1750MW (Sambo, 2007). As at today the authority supplies a total of 1350MW (Samboo, 2009), a figure that represent just about 23 percent of its installed capacity with only 18 out of the 79 installed generating units presently in operation. Several of the literature reviewed for the purpose of this paper revealed that the poor state of the supply and that of the wide disparity existing between installed energy capacity of the authority and capacity in supply is as a result of many factors some of which include:Inadequacy of generation and poor distribution, obsolete generation and distribution equipments, inadequate metering and pricing system, poor maintenance policy, poor funding and lack of control on appropriate fund.

Energy demand is generally agreed by all authors to be far above the level of supply; this opinion is accepted and shared by all. In the last 30 years precisely since 1980 inadequate quantity, quality and access to electricity service has been a regular feature in Nigeria, some of the indicators to this include the increasing high demand level of generating set/plants for both domestic and industrial uses, government agencies including PHCN itself are not spared as greater percentage of them spend chunk of their budgets to fuel and service these generating sets. Greater proportion of the poor living a paltry sum of less than $2 per day, store electricity generating plants and directly make use of petrol in their homes, Adesiji,(2007) estimated that the nation's 180 million population will require for now a minimum of 10,000MW of electricity energy. The cost of which he puts at above $20 billion excluding cost of creating employment, reviving distressed business and industries, rebuilding of lost property and the cost of addressing other risks and contingencies. This demand is far above the present state of supply. By implication the nation will require not less than 8,650MW of electricity to keep the economy moving, a requirement that is far above the installed generating capacity. In order to have sustainable electricity energy, Sambo (2007) projected that the nation's energy demand will reach a minimum of about 297,900MWby the year 2030 see table 2.2.

Table 3 Energy Demand Projection in Nigeria 2005 -2030

Scenario	2005	2010	2015	2020	2025	2030
	5746	15730	28360	50820	77450	119200
	5746	15920	30210	58180	107220	192000
	5746	16,000	31240	70760	137370	250000
	5746	33,250	64200	107,600	172900	297900

Source: Sambo, A. S. 2009

This according to the author will require an annual supply of not less than 11,686MW in order to meet the demand with a cumulative investment cost of about US$484.62 billion an investment of US$80.77 for every 5 years. Other probable sources of electricity energy in the country include coal, gas, nuclear, solar and wind.

2.3 Nexus between Energy and Poverty in Nigeria

The state of energy development in Nigeria is one of the basic factors responsible for the state of poverty in Nigeria. Survey and interaction made in the course of this paper showed that over 70 percent of Nigerian urban dwellers source their electricity need from generating set, implying that a significant proportion of their merger income is expended on the acquisition of the generating set, services and fueling leaving an insignificant proportion of their income for other basic necessities like food, health and education. This is so because they have to pay for electricity bill that is not consumed. This observation is collaborated by Adesiji (2007) he revealed that over 50 percent of Nigeria's population does not have access to electricity.

Supply is generally epileptic and fluctuating, thereby resulting into damage of electrical gadgets and appliances and directly reducing the living standard of the people. Poverty is perpetuated by the poor state of the energy sector as many use petrol directly at home and in most cases have resulted into loss of lives and properties as a result of fire accidents often associated with this hazardous practice. Smoke and CO_2 often associated with this practice has led to suffocation of lives, several of these are reported in the national and local newspaper.

Conservatively close to 20 per cent of domestic users of generating sets spends not less than N14,000 per month on fueling, while greater proportion spends over N10,000 (Adesiji, 2007).Duro (2005) alluded to the fact the bane of small scale entrepreneurs is the poor state of energy in Nigeria as an average industrialist spends an average of N400,000 on diesel every month to remain in business. This makes production quite expensive and indirectly reduces profit margin. This cost is in turn pass to the already improvised Nigerians. Business expansion becomes difficult, while several other have fold up leading to loss of jobs and high rate of unemployment. Poor income breeds poverty, excessive expenditures incur by households reduce their living standard and less attention is made on their environmental quality, thereby making the dream of sustainable city development unrealistic in the country.

3.0 **Recommendations and Conclusion**

To achieve sustainable city development in the midst of this global crisis, the issue of poverty in Nigeria needs to be squarely tackled. As long as poverty remains with Nigerians, the more of squalor and shanty settlements in our cities, the more polluted and abused our environment remains. One of the practical ways of tackling this issue of poverty in Nigeria is to address the issue of energy in the country. In view of this, the paper recommends as follows:

- Immediate privatization of the sector in order to promote private investment into the sector
- Removal or amendment of the NEPA Act which makes every production and distribution of electricity public responsibilities.
- Integration of other sources of electricity into the energy sector. Other viable sources of energy should be employed. Some of which include wind, solar, bio-fuels, thermal, coal and any others. These sources are not only environmental friendly but sustainable because they are renewable.
- The government should convoke as a matter of urgency an energy summit which must involve all stakeholders, energy consumers and producers, investors and public institutions.

It is the opinion of this paper that sustainable energy will promote employment, increased production of services and

goods. All of which are capable of alleviating poverty in the country and indirectly promote sustainable city development.

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