

# SUSTAINABLE ENERGY IMPLEMENTATION IN URBAN NIGERIA

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## Abstract

A global new deal (describing a comprehensive programme designed to respond to multiple crises in financial, economic, environmental and social sectors) recently adopted by advanced countries comprises sustainable (renewable and efficient) energy and environmentally-friendly technologies. Despite the abundance of natural renewable energy resources in Nigeria, sustainable energy remains ignored and underplayed. Aetiological method and concept of postneoliberalism were used to analyse historical data on sustainable energy production and use in Nigeria. The findings include prolonged use of neoliberalistic political framework: military dictatorship, ineptitude in terms of adoption of sustainable energy due to the culture comprising historical scramble to steal and misappropriate funds earned from export, production and use, of fossil fuels (petroleum oil and natural gas). After criminally enriching themselves by stealing public funds, Nigeria's elite (characterized by opulent living) over-use and rely on conventional energy technologies (CETs)-especially gigantic and powerful fossil fuel-run power generating sets. It is concluded that the failure of Nigeria's elite to facilitate massive and rapid implementation of sustainable energy technologies to address multiple crises hampering the achievement of sustainable development in the country beckons for the creation of new postneoliberalistic policies are required to promote massive and rapid implementation of sustainable energy technologies at decentralized sub-national urban regions based on the proven model of distributed generation and supply of SETs.

**Keywords:** postneoliberalism, sustainable energy technologies, Nigeria, conventional energy technologies.

## 1. Introduction

After careful analyses, demographers credited technological and institutional inventions with facilitating the creation of mechanisms for democratic governance, industrial production and dynamic consumer economies in advanced countries between 1750 and 1950. Developing nations which thereafter experienced high rhythms of demographic and epidemiological transitions have been (are being) expected to create and use the same means to achieve industrialization, democracy and consumerism

(Demeny 2006: vii-viii). In the foregoing statement, the dates (1750-1950, were used for convenience to highlight demographic facts (enormous population growth facilitated by improvements in medical services) in developing nations warrant the achievement of a commensurate growth in social and economic institutions, and outputs. It was also convenient for analytical purposes of their book. Improved governance, industrialization, democratization, and consumerism resulting from technological and institutional inventions have continued apace since 1950. It is worrisome that sustainable energy technologies, one of many others, have been developed and applied to very impressive levels in advanced and developing countries to varying degrees of intensity. Ruefully, rapidly expanding urban centres of most developing countries including Nigeria and Africa, have woefully failed to adopt and implement these sustainable energy technologies, despite increasing knowledge that they immensely contribute towards achieving Millennium Development Goals (MDGs) (United Nations 2007). Yet recent reports, in 2008, of the transformation of the world into an entity possessing greater population of urban residents (urbanites) compared to rural residents. Much of the rapid population growth and urbanization have occurred in the developing regions including Nigeria and Africa (UNEP 2007). Moreover, recent urbanization rate in developing countries has reportedly been higher than was the case in advanced nations during their hey-days of urbanization. These highlight numerous contemporary challenges facing the world generally, and especially developing nations especially. They include: poverty, shortage of energy, community services (water and sanitation, transportation, security, etc), violence, terrorism, environmental degradation (climate change arising from global warming), among others. Rapid urbanization leading to structural transformation of numerous national economies and the emergence of feelings of relatively secure fuel (energy) supply chains which are currently threatened with collapse and disruption due to rapid depletion of non-renewable geological fuels thereby posing enormous sustainable development (social, economic and environmental) problems has been blamed on over-reliance or overuse of inexpensive fossil-fuel (petroleum, natural gas, coal and nuclear) supplies (Droege 2008: 8).

### **1.1. Recent Civil society-led spectacular advancement in sustainable energy technologies**

Although the distinctive potentials and contributions of sustainable (renewable and efficient) energy to sustainable development were recognized by a few for centuries, its widespread implementation was delayed. Recent predictions of widespread catastrophic consequences predicted (and being experienced) to result from climate change arising from global warming provided a frightening opportunity for raising sustainable energy to its ongoing high pedestal in the 2000s. Civil society and the German Government deserve credit for enabling profuse presentation of success stories of

implementation and potentials of various sustainable energy sources around the world at the Second World Conference on Renewable Energy and The Renewables 2004 (international conferences hosted by the World Council on Renewable Energy in collaboration with partners and German Government respectively) between May and June 2004 in Bonn. These conferences produced an action and endorsement of renewable energy with official commitments from a record number of national governments, institutions, development organizations. These outcomes mostly recognized the role of government in facilitating massive and rapid sustainable energy implementation, just as conventional energies have been receiving huge government support and subsidies (Renewables 2004). In one of several conference proceedings, experts reported on factors determining advances in various applications of sustainable energy technologies: solar (Goswami 2004: 157-159), biomass (Kopetz 2004: 160-163), small hydropower (Lins 2004: 164-165). Others proposed suitable designs of creating human settlements (habitats) that are responsive to the urgent need for renewable energy (Droege 2004: 166-169) and the necessity of meteorological data for creating information required for implementing renewable energy (Wortmann 2004: 169-174). Reports of advancements in wave and geothermal energy sources have been contributed. Subsequent success stories have highlighted meritorious advantages and distinctive contributions of renewable energy to sustainable development including job creation, social institutional strengthening through local skills acquisition, environmental benignity. In recognition of these, the group of eight advanced countries (G8), at their Meeting in Glenagles (Scotland) in 2005, was both persuaded or compelled to support large-scale implementation (G8 Communiqué 2005). Recently, concrete implementation of innovative renewable energy, based on strong political will or commitment at local city-wide and other (provincial) levels in Germany, Switzerland and elsewhere were impressively reported (Droege 2008: 1-14). Most recently, advanced countries' response to climate change, financial and economic crises took the form of what was described as "green" colour because of the intensive sustainable and environmentally friendly technologies (Robbins, Glover, and Singh, 2009).

Reports show continuing increases in renewable energy implementation around the world. For example, sustainable energy advocates were recently compelled to draw the attention of the Copenhagen-based global dialogue in response to climate change to correct the ignorance of new knowledge that global wind energy potential is capable of delivering more than twice the amount of energy currently supplied world-wide (World Wind Energy Association (WWEA 2009). A newer sustainable energy source called Concentrating solar power (CSP) is being implemented in modular forms around the world's cities (Spain, USA among others). Others sustainable energy types (geothermal, solar panels or photovoltaic, small hydro, bioenergy, wave energy among others) have been developed to various degrees of

technological demonstration and actual implementation around the world (Droege 2008). There has been conspicuous rivalry among some countries to out-compete others in the installation of sustainable energy. Ruefully, these sustainable energy advancements remain concentrated in advanced countries of the north and a few developing countries with governments that are better disposed towards striving towards achieving sustainable development. In some (e.g. Nigeria) as data show here, the government has been indifferent to gross inadequacy of conventional energy technologies as it remains towards alternative sustainable energy technologies.

## **2. Urbanization and economic development: some relationships**

Economic development has been presented as cause and consequence of urbanization. However, this has held true mostly for urban centres and urbanization process in advanced countries. Urban centres and urbanization of developing nations have been described as closely associated with poverty (World Bank 2009, Kelley and Williamson 1984a,b, Montgomery 2009: 197-200). Economic growth and development have eluded urbanization of developing nations because of gross inadequacy and costliness of energy supply (Stokes and Tolbert 1982). The rapid urbanization rate in Nigeria and West African region since the era of attainment of the epidemiological transition (either within or without the region) typifies the experience of rapid urbanization devoid of economic growth in developing countries.

### **2.1. The crisis of energy hunger and poverty in urban Nigeria**

The crisis of energy poverty and hunger in Nigeria generally and in the nation's urban centres has been well documented. Over half of households in the country have been relying on unrefined solid fuels as energy for cooking and heating thereby suffer high mortality and respiratory diseases. Scholars have reported that about 40-45 percent of the total population (reported to be over 140 million in 2006) are connected to modern electricity produced and distributed by the centralized national grid, managed by a rather ineffective and inefficient state-owned company: Power Holding Company of Nigeria. Power generation and supply is grossly inadequate (about 2,500 -3,000 Megawatts, mW). The grid-connected population frequently suffer several hours and days of power outage. The energy crisis in urban Nigeria could be best illustrated with Lagos (Nigeria's former capital city and current commercial capital of West Africa and much of sub-Saharan Africa), well-known as Africa's premier mega city. With a population estimated to be about 17.55 million people i.e. nearly twice the cut-off population of 10 million usually applied for categorizing any city as attaining the mega city status (UNEP 2007, Bamgbose 2009, (www.businessdayonline.com). Like the rest of the country, Lagos mega city has to rely on the little electricity shared in rations by the national grid (Ingwe et al 2008, Ingwe 2005). Despite increasing

implementation of decentralized and distributed power systems-based sustainable energy technologies by cities of smaller sizes (in terms of population and area) in other countries, Lagos mega city is compelled to rely on an unreliable centralized grid!

### **2.2. Nigeria's energy potentials**

Nigeria's enormous fossil fuels wealth has been well documented. The nation's proven fossil fuel reserves include: 4,635 million metric tones of oil equivalent (*mtoe*) of oil and 4,497 million metric toe of natural gas in 2003 (UNDP, UNEP, World Bank and WRI 2005: 201). Others have reported other energy (sustainable energy) potentials in Nigeria's possession including: about four billion (toe?) of coal and lignite, 14,750 MW of small and large hydro, about 13,071 hectares of wood fuel, and about 30 billion barrels toe of bitumen (Adekeye 2008: 21-3). As a tropical country, Nigeria receives considerable solar energy from the sun.

### **2.3. Inadequacy of conventional energy and ignorance of sustainable energy in Nigeria**

Reliable sources: United Nations Development Programme, UNDP, United Nations Environment Programme, UNEP, World Bank, and World Resources Institute, WRI (2005: 201) report indicate the seriousness of energy poverty in Nigeria. The nation's electricity consumption per capita in 2001 was 86kWh i.e. very low compared to as high as 13,053 and 16,787kWh in USA and Canada respectively. The proportion of Nigerians with access to modern electricity from an over-centralised national grid in 2000 was only 40 percent (inferred to be mostly urban areas). Unsafe energy forms Nigeria's major energy source. This derives from the resort of Nigeria's majority (67% of the total population in 2000) to the use of solid fuels (unprocessed and unsafe fuels including biomass and fossil fuels burned directly by a household due to inadequacy and lack of alternative safe and modern energy). Solid fuels are unsafe, not modern because it is known that their use is associated with damage to human health and high mortality, huge socio-economic losses including expenditure of long hours hunting for and procuring these solid fuels, the exposure of 67 percent of Nigeria's huge urban population to these disadvantageous solid fuels poses sustainable development problems. The resort of Nigeria's majority to solid fuels is because of inadequacy of conventional energy fuels (fossils, nuclear, hydro-electricity, solid biomass and other renewables). The consumption of these conventional fuels in the country in 2001 were as follows: fossils (21.9), nuclear (77.5), hydro-electricity (0.0), solid biomass (0.6). Confronted with the gross inadequacy of the conventional fuels, the expected resort to consumption of other renewables was (0.0 in 2001).

### 3. Focus of this article

This article examines the problem of failure of urban Nigerian managements to implement sustainable energy technologies (SETs) at rates of their implementation in advanced countries of the North. The setting of this study in Nigeria was justified by several reasons. Paradoxes abound in Nigeria: from the simultaneity of nearly half a century of huge fossil-fuel (petroleum oil, natural gas, coal etc) endowment and export, energy hunger arising from gross inadequacy of supplies, about a decade of importation of the largest quantity of oil in Sub-Saharan Africa, poor institutional and technological mechanisms for oil refining within the country and attendant loss of employment, among others. We use relevant concepts (liberalism and neoliberalism) to show the failure of the energy sector in urban Nigeria. We show that this reflects the energy sector as a subsystem of the defective neoliberalistic paradigm that ignores specific circumstances of developing countries in development planning and management but relies heavily on prescriptions of the Washington Consensus.

#### 3.2. Research questions

In appreciation of the foregoing background, it is apposite to question some facts that have been uncovered above:

1. Why has there been persistent failure to resort other renewable energy sources (instead of damaging solid fuels) in urban Nigeria as a result of gross inadequacy of conventional energy?
2. Why have both conventional and sustainable energy sources remained inadequate for Nigeria's majority despite the reported abundance of both potentials?

#### 3.3. Objectives

The general objective is to contribute towards increased implementation of sustainable energy in urban Nigeria. The specific objectives are to:

1. To show why there has been persistent failure of urban Nigeria's managements and the market or private sector to resort other renewable energy sources (instead of damaging solid fuels) as a result of gross inadequacy of conventional energy?
2. To explain why have both conventional and sustainable energy sources remained inadequate for Nigeria's majority despite the reported abundance of both potentials?

3. To show the benefits that urban centres in Nigeria and urban developing countries could derive from implementing SETs based on postneoliberalistic strategies customised to resolve enormous urban problems.
4. To show how the paradigm of Post-Fordism promises to benefit urban development in Nigeria and developing nations through decentralized energy generation and supply based on SETs.

### **3.4. Organization of the article**

In the rest of the paper, we show the rate of urbanization in the country to provide a background to the increasing need for energy or energy hunger; present relevant concepts (neoliberalism and postneoliberalism) that are suitable for increasing understanding of the political economic settings that have allowed for gross inadequacy of energy generally and failure to rapidly implement alternative sustainable energy technologies. We also show how the peculiar brand of neoliberalism that has prevailed in Nigeria stifled/stifles sustainable energy implementation and propose appropriate postneoliberalistic steps capable of driving Nigeria towards rapid implementation of sustainable energy technologies.

### **4. Rapid urbanization in Nigeria**

The rapid rate of urbanization in rest of urban Nigeria has been indicated by data published by reliable international organizations. Within a short ten years, Nigeria's urban population (as a percent of the national total) rose by as much as nine percentage points from 35 percent in 1990 to 44 percent in 2000 (UNDP, UNEP, World Bank and WRI 2995: 217). This shows that Nigeria's urbanization rate was far higher the situation for sub-Saharan African region where the urban population as a percent of the regional total rose from 28 percent in 1990 to 34 percent in 2000. In Nigeria, the percent of population living in cities of more than one million population was 18 in 2002 (compared to 13% for sub-Saharan Africa) and 35% in cities of more than 100,000 people in the same year (2002) (it was 22% for sub-Saharan Africa). The urbanization of poverty in Nigeria was demonstrated by the report that 79 percent of the nation's vast urban population lived in slum conditions which was higher than 73% for sub-Saharan Africa. Slums are urban sectors which are mostly without services and facilities that make for livability: modern electricity, safe water, sanitation, good housing among others (UNDP, UNEP, World Bank and WRI 205: 217).

## 5. Theoretical and conceptual framework

### 5.1. Postneoliberalism and (neo)liberalism

These concepts are suitable for framing this discussion for several reasons, a few of which deserve mention here. Owing to the way these concepts cover and relate to terms, aspects of disciplinary fragments, and ideological strands, concerned with the striving to achieve sustainable development economic growth generally and specifically neoliberalistic prescription of minimizing government role in the economy and society e.g. providing community life improvement services, the International Society of Ecological Economics (ISEE) recognizes the analytical significance of neoliberalism in analyzing sustainable energy and ecological issues in its forthcoming conference in Berlin, from 22-25 August 2010 (ISEE 2009). This is one reason that makes them suitable for analyzing sustainable energy- the concern of this paper. Moreover, they clarify the current dilemma concerning recent and ongoing development crises in financial and economic recession dimensions. What makes postneoliberalism especially suitable is attributable to the origin of the concept in the community of experts who are committed to the search for alternative models of achieving sustainable development contrasted to existing rather moribund and by extension prone-to-frequent failure conventional paradigms of pursuing development.

These features of conventional paradigms are encapsulated in the concept of neoliberalism, to which we examine immediately, before presenting postneoliberalism as a promising approach towards resolving the rather prolonged impasse in sustainable development generally and in sustainable energy implementation in particular.

By way of introductory remarks, framing or explanation of development issues using the concept of postneoliberalism began most recently and was compelled by what is currently popularly described as the global financial meltdown and economic recession that started in the United States of America, with the collapse of the financial giant: Lehman Brothers, before rapidly spreading around most, if not all, countries' and economies of the world. The globalization of these crises (financial meltdown and economic recession) demonstrates the pervasiveness of the preceding globalization financial and economic structures, institutions and processes, and attitudes over the past 500 years. It also demonstrates the capacity of ideas and paradigm including neoliberalism and the emerging postneoliberalism. The theory of (neo)liberalism have longer and well documented histories. Recent elaboration of these concepts undertaken, albeit revised again, with considerable interest and



seriousness in response to the need to search for better alternative concepts capable of resolving the ongoing financial and economic crises and associated consequences.

### **5.2. Neo-liberalism**

Andrew Hurrell and Laura Gomez-Mera provided insight into the use of the term for describing two broad things: (i) different sets of market-liberal economic policies in both advanced and developing countries, and (ii) academic international relations.

### **5.3. Advanced nations' market-liberal perspective of Neoliberalism**

Its definition in advanced countries has been equated with Thatcherism and a rejection of Keynesianism (Hurrell and Laura Gomez-Mera, 2005: 368). Owing to the centrality of Thatcherism in the conceptualization and practice of neoliberalism in advanced countries, it is apposite to elaborate on it here before examining the conception of neoliberalism in developing countries. Jim Bulpit's elucidation associates Thatcherism with economic and social policies vigorously pursued by Margaret Thatcher, who was the British Prime Minister from 1979-1990. It is a highly disputed and debated term whose major features are the integration of authoritarian social policy with deregulation and privatisation. Other features of the term include: strong ideological and doctrinal characteristics of the Conservative government and the stamp of authority of the personage (Thatcher) in leading that government. It is also associated with Thatcher's first two governments (1979-1987) and also the emergence of a political elite cultures of the Thatcherite era including a "middle opinion" and neo-Marxism. Its defense has been anchored on claims that it was timely and required radical response to reverse abysmal decline of Britain's economic and international status since the 1970s. Its goals shifted from surmounting inflation, increasing Britain's economic competitiveness and restoring her international status to global reckoning, transforming the British (people's) "hearts and minds" concerning the need to minimize the scope of government in the economy and conquering socialism, which was peddled by the Labour Party (i.e. rival to the Conservatives). While Thatcherism has been credited with some achievements during very difficult contexts including the 1988 Education Act, privatization and industrial relations reforms, it has been strongly criticized.

### **5.4. Problems of Thatcherism**

During its best times, the exceptional developmental potentials credited to Thatcherism, its ideological coherence, and operational consistency were strongly doubted by critics. Most aspects of Thatcherism were widely rejected by middle opinion and neo-Marxists. Middle opinion (describing the Conservative's left wing, Liberal/Social Democratic Alliance and Labour Party's rightists and centrists) pointed to its

instrumentality to huge losses to the society and saw it as the exhumation of laissez-faire, the moribund principles of the 19<sup>th</sup> Century refurbished and advertised by labels such as: monetarism. These critics pointed to problems contrived by its proponents (increasing unemployment and deindustrialization, declining public expenditure and public sector) thereby reducing the welfare state to ensure that a few private sector operators and speculators reaped huge profit. They discredited and blamed it for weakening British traditional and useful intermediate associations that facilitate democracy including: the trade unions, the professions, the civil service, and local government. The style and substance of Thatcherism's foreign policy was rejected and discredited. Its style was considered limited by emphasizing "mega phonic diplomacy". Its substance was seen as being unnecessarily closely tied to the whims and caprices of the policies of US President Ronald Reagan (who was also reigning at the time) and rather hostile to its closes neighbours in the European Community.

Apart from presenting the foregoing critiques by middle opinion (in some cases before others), the neo-Marxists until 1987, concentrated on analyzing (and refrained from either criticizing or praising) Thatcherism because they were fascinated by and envious of Thatcherism's excesses! These included (Conservative) Party's: pursuit of the class interests of its supporters; knowledge of action deserving implementation in post-Fordist Britain. Major mistakes that compelled eventual resignation of Mrs. Thatcher were: resurgence of inflation after its initial reduction, poll tax introduction, welfare state reforms, and European Union policies. The major problems encountered by Mrs. Thatcher's successor (Mr. John Major) in the Prime Ministership of Britain has caused increasing doubts concerning the successes and achievements claimed by the Thatcherites from 1979-1990 (Bulpit 2005: 534-536).

##### **5.5. Developing countries' market-liberal notion of neoliberalism**

Andrew Hurrell and Laura Gomez-Mera suggests that the dismal failure of import substitution-based development strategies that prevailed in developing countries from 1945 to the early 1980s motivated the identification and definition of a counteractive variety of neoliberalism (frequently called the Washington Consensus, WC) that differs from the previous one conceptualized for the advanced nations. In resemblance to its advanced countries' cousin, neoliberalism of the Washington Consensus (WC) type refers to economic growth strategy promoted by international institutions including the World Bank, and the International Monetary Fund (IMF), which operated from the capital city of the USA: Washington, DC. They claim that the engine of growth must be created by, or associated with, privatization, deregulation, trade and financial liberalization, reduction in the size and role of government (state), promotion of foreign direct investment (FDI) and structural adjustment programme (SAP). The term has more recently been used by the anti-globalisation movement to describe and deplore the

economic ideology underlying capitalist globalization, whose vast temporal development and sophistication (technology, innovations and so forth) has enabled it to cover an equally vast spatial extent: the globe.

### **5.6. *International relations, neoliberal institutionalism or regime theory***

The use of the term (neoliberalism) under this heading refers to an academic theoretical way of studying institutions. This academic subculture emerged in the mid-1980s as a challenge to the dominant but unsatisfactory nonrealist paradigm, its concern was to show that international cooperation was achievable based on realist premises. It postulates that under the context of anarchic international relations system, states are characterized by rationality, unitary actors in the quest to maximize their utility. It emphasizes the significance of institutions in facilitating cooperation under the context of the absence of sovereign state authority or similar platform to function in preventing and resolving conflicts, cheating and defection that is likely and sometimes frequent as nations relate among their peers at international level. The usefulness of institutions is hinged on their capacity to reduce uncertainty, articulating and relating issues, monitoring behaviour and promoting the importance of reputation. Neorealist theorists refutation of the foregoing arguments is twofold. They claim that: relative gains are more important (compared to absolute ones) and that powerful nations have habitually been equivocal thereby determined or led institutions towards directions that they know would result in the greatest gains for them (Hurrell and Gomez-Mera, 2003: 368).

### **5.7. *Other varieties of neoliberalism***

Ulrich Brand and Nicola Sekler distinguished three analytical perspectives of neoliberalism. First, a theory and an intellectual movement, neoliberalism was championed by scholars such as Friedrich Hayek, Milton Friedmann, the Mont Pelerin Society, and outstanding neoclassical thinking within and without universities. Second, an economic, political, cultural economic and also military strategy, it was used by elites as a means of annihilation of vestiges of Fordist forces associated with structural changes in power relations, institutions, wide attitudinal orientations and truths involving societies and international level and capitalist interests. Third, a social practice which assumes that it is not always in all places and times that success is achieved functionally and comprehensively in implementing theoretical considerations and strategies (Ulrich Brand and Nicola Sekler 2009: 5-6).

### **5.8. *Postneoliberalism***

The coining of this term most recently seemed to have been compelled by the crises that rocked the US mortgage sub sector, financial system around August or September 2008 (or earlier, in principle)

and rapidly degenerated into full-blown economic recession in the USA and rapidly spread through the globalised institutions, structures, processes, and attitudes (capitalist ideology) across the world. One of the most significant beginnings of the debates based on this term recently involved publication of a 212-page book comprising about 15 articles resulting panels of the meeting in Berlin (January 2009) of scholars and activists concerned with governance and specifically critically assessed neoliberal policies, their failures and new perspectives (see Ulrich Brand and Nicola Sekler, 2009). The credibility of the views expressed is easily to be appreciated as high due to several points. First, their inspiration and supported by the Swedish non-government organization founded to honour, therefore named after the former UN Scribe: Dag Hammarskjöld (Foundation). Second, the Foundation's concern, over the years, with the search for strategies that are capable of serving as alternatives to the previously failed development approaches as a means of surmounting serious challenges. One of the fine points of the new concept is, as demonstrated by the 15 articles contributed to the January 2009 issue, its amenability application to a wide range of socio-economic and political issues (i.e. extendable to sustainable energy as a fragment of wider sustainable development issues. Brand and Sekler suggest that the term represents actual social, political and economic constellations, responds to about 30 years of implementation of neoliberal policies of different forms and constituents. A few examples of its application in "almost every society on the globe" include: military dictatorship in Chile (as in Nigeria), integration of structural adjustment policies prescribed by the Washington Consensus with conservative-type policies reminiscent of the UK and USA, measures applied to post-socialist economies in Eastern Europe, and the creation of specific brands of its through social-democratic policies in Germany or Scandinavian economies (Brand and Sekler 2009: 5). They suggest that the third analytical perspective of neoliberalism, as social practice and its different definitions and meanings for the developing and advanced countries makes the term to generate intense pressure arising from conflicting conceptualizations when ever crises occur (in this paper, the crisis in energy supply).

### **5.9. Emerging substance of postneoliberalism**

Kurt Bayer recently undertook a significant conceptualization of postneoliberalism by articulating recent dynamics in development policy. It has been persuasively argued that development policies of the Washington Consensus (WC) have failed, complicate poverty problems rather than resolve same, and by those vices are increasingly being rejected within and without the WC fold. The recent case study of 13 (sustainable growth) countries/economies (Botswana, Brazil, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Malta, Oman, Singapore, Taiwan, and Thailand), which achieved growth rates of over seven percent for consecutive 25 years by development experts including WC organizations concluded

that the “right mix of ingredients” serves better in achieving economic growth contrasted to the WC’s stringent, insistent and emphatic “grand schemes and designs”: minimal government, structural adjustment, privatization, liberalization etc (Spence 2008). Reference is being made to Teng Hsiao Ping (Chinese leader)’s brilliance in creatively adapting market strategies to existing communist institutions (which were strengthened not minimized), among other “home-grown” strategies after visiting since he visited newly industrializing economies (Malaysia, and Hong Kong) in 1979. The brilliance is in the fact that China is reputed to have a huge external reserve (about US\$1.8 trillion), as a result of controlling her financial system (rather than opening it as the WC prescribes) and lending huge sums to help the USA to resuscitate her economic recession in 2008 (Sum 2009: 169). Moreover, China has been offering development assistance to Africa without the stringent conditions that WC proponents usually expected (Bayer 2009). Bayer advocates for a postneoliberalistic approach emphasizing: infrastructure improvement, pro-poor programmes promoting small and medium scale enterprises; strengthening and using institutions; critically assessing financial sector liberalization doctrine of the WC (which caused recent financial crises that compelled socialistic refinancing by states) and urgent changes in economic strategies as demonstrated by host governments of the WC (Bayer 2009).

Drawing from Antonio Gramsci’s concept of hegemony (consensus-based social domination), Nicola Sekler proposes various postneoliberalism approaches rather than one monolithic one as a way of responding to the complexity and dynamics of recent financial and economic crises. She developed a concept of counter hegemony which presents postneoliberalism as a means of addressing various impacts of neoliberalism and “neoliberalised” social contexts created by various actors who form instruments for the various proposed postneoliberalisms. Sekler used this perspective to raise “public” awareness of continuities and discontinuities about existing neoliberalistic context with her study the Piquetero organizations and recovered enterprises. Although she argues that the plurality of postneoliberal approaches makes the concept useless for in orientating political emancipatory struggles, it is useful for raising awareness of Nigeria’s power sector crises (Sekler 2009, Brand and Sekler 2009).

## 6. Methods and Data

The method of aetiology was used because of its suitability for using historical and other factors for understanding and explaining the ignorance of sustainable energy in Nigeria (Igwe 2005). The data for this study was obtained from reliable sources namely: National Bureau of Statistics, Nigeria’s agencies responsible for producing, managing and supplying statistical data for development processes; international (development) organizations.

### 6.1. Findings regarding sustainable energy development in Nigeria

The findings include the existence and consolidation of a conventional energy technologies (CETs) supply and consumption culture (comprising fossil-fuels, large hydro electricity, solid biomass, etc) in Nigeria. As Table 1 shows, modern renewable energies were not used in Nigeria between 1997-2001. The reported use of all renewables of 69,270,000 metric tones of oil equivalent (mtoe) and traditional (waste and solid biomass) fuels (68,789 mtoe) was both erroneous and showed how serious the problem of ignorance of sustainable energy in the country has been. The use of solid biomass (describing unrefined or poorly refined fossil fuels and biomass) are scientifically known to constitute serious health hazards to the poor leading. Owing to the way they produce noxious and poisonous gases when directly burned, they cause high mortality and respiratory diseases in Nigeria and elsewhere (ITDG 2004).

TABLE 1 - SUSTAINABLE ENERGY DEVELOPMENT IN NIGERIA

Year	All renewable energy production (1000 metric toe)	All renewable energy consumption (1000 metric toe)	Traditional fuels (solid biomass e.g. waste) (1000 metric toe)	Hydro-electric power (HEP) (1000 metric toe)	Geothermal	Solar	Wind	Modern RE
1997	69,270	69,270	68,789	481	0	0	0	0
1999			72,390	486	0	0	0	0
Consumption 2001	77.5%	0.6%	0	0	0	0	0	0

Notes: Solid fuels describe biomass and fossil fuels that are directly burned without refinement by poor households. HEP in Nigeria is mostly large hydro (larger than 10MW) therefore not renewable because they are outside small hydro (not more than 10MW).

Sources: UNDP, UNEP, World Bank and WRI, 2005: 201; UNDP, UNEP, World Bank and WRI, 2003: 263-5; UNDP, UNEP, World Bank and WRI, 2000/1: 293.

Despite the gross inadequacy of the CETs in Nigeria, the government is yet to seriously facilitate the expected switch to modern renewable energies (solar: photovoltaic, concentrating solar power, wind turbines, small hydro, wave energy, and so forth). Contrastingly, as table (2) shows, the use of CETs was dominant over the years for which availability of data facilitated this study: 21.9 percent of the total energy sources in 2001; 117,249 mtoe in 1997; and 14,867 mtoe in 1999. Use of solid biomass was most dominant: 77.5 percent of the total energy use in 2001.

Interestingly, while the total electricity produced in Nigeria was 1,305,000 mtoe in 1997, only 850,000 mtoe (65.1 percent) was used within the country. It is not clear how substantial quantity (102,342,000

mtoe) of electricity (greater than the quantity reportedly produced and used within the country) was traded by the same country! However, this betrays significant (post)neoliberalistic characteristics concerning social relations among Nigerians. Why does electricity get exported from Nigeria whose citizens suffer chronic electricity shortage? Is not it likely that the quantity of electricity used within the country have been usurped by the elite?

Rather than supplying electricity generated in Nigeria to Nigerians for socio-economic uses for the betterment of the country, there has been a nonsensical emphasis on exporting the power to neighbouring countries based on contracts entered into by the elite. Therefore, entrepreneurial development has remained stifled as manufacturing companies continue to shut-down due to the rather exorbitant cost of relying on independent power supply based on fossil-fuel electricity generating plants. These compound the problems of high unemployment of the youth, leading to high crime rate. The seriousness of armed robbery in Nigeria was recently reported (Ingwe and Ukwai 2009 and forthcoming). Other crimes that have been documented include: militancy, restiveness, abduction and ransom taking, social vices such as prostitution, secret cultism (Mboti 2002) among others.

TABLE 2: CONVENTIONAL ENERGY TECHNOLOGIES (CETs) PRODUCTION AND USE IN NIGERIA

Year	Solid fuels (1000 mtoe)	Liquid fuels (1000 mtoe)	Gaseous fuels (1000 mtoe)	Other sources (1000 mtoe)	Total electricity (1000 mtoe)	Trade in energy: imports (1000 mtoe)	Export (1000 mtoe)	Nuclear (1000 mtoe)
1997 production	86	117,249	4,429	0	1,305	Na	Na	0
1997 consumption	86	14,867	4429		850	43	102,342	0
1999 consumption	-	14,410	-	0	Per capita (8)	-	-	0
2001 consumption	77.5%	21.9%	-	-	-	-	-	0

Sources: UNDP, UNEP, World Bank and WRI, 2005: 201; UNDP, UNEP, World Bank and WRI, 2003: 263-5; UNDP, UNEP, World Bank and WRI, 2000/1: 293.

## 7. (Post)neoliberalistic perspectives of political, economic and social aspects of sustainable energy use in Nigeria

The ignorance of sustainable energy technologies in Nigeria defies increasing awareness of dangers arising from over-reliance on fossil fuel since their discovery in large quantities in the 1950s; the use of destructive neo-liberalistic policies to worsen fossil-fuel management approaches during the hey-days (1966-1999) of dictatorship of generals Ibrahim Babangida, Sani Abacha, and Abdulsalami Abubakar, when turn around maintenance of Nigeria's refineries were abandoned in favour of large-scale

importation of oil and the ignorance of spectacular advances in SETs and their implementation in urban centres around the world.

The neoliberal characteristics (history, politics, economy, society) of Nigeria account for the country's poor sustainable energy production and use. Some of them were recently mapped and reported. Its major features include prolonged political domination by military dictatorship since independence in 1960. Babangida's dictatorship represents the hey days of neoliberalistic extremism. In the 1980s, the structural adjustment programme was treated by the dictatorship was a strategy that had no alternative. Critics were treated by dictatorial "iron hands". Professor Adebayo Adedeji had to dare the dictator from the Economic Commission for Africa, that there is alternative to everything, the dictatorship remained unperturbed. Politically, Nigeria has since independence in 1960 held hostage by a thieving crop of military dictators who have used their stolen wealth to fund electoral fraud wrongly labeled elections to put themselves and their civilian cohorts in political offices mostly at Federal and 36 states levels where it is easier for them to continue their looting of the nation's fossil-fuels-based treasury. Although poorly mapped and documented in the academic literature, the perpetration of gross corruption the dictators and civilian cohorts has received enormous attention by the popular literature. Sani Abacha, the late general who dictated from 1993 to 1997 reportedly stole between US\$5 Billion-US\$56 Billion. Part of his loot was repatriated by Switzerland during the Obasanjo administration, which was compelled by political disagreement to officially request for the loot. The summary of losses to corruption by Nigeria estimates that the menace or damage is equivalent to four Marshall Plans (Ribadu 2009, Ingwe 2009 forthcoming). After selfishly and criminally enriching themselves from public funds, Nigeria's elite use big fossil fuel electricity generators for supplying power to their own premises thereby excluding the poor. Nigeria's popular literature reported recently the Yar' Adua administration's contradiction of its power sector development by importing fossil fuel-run electricity generating sets valued at hundreds of US Dollars! Despite the existence in the country of civil society activists who have been members of global sustainable energy networks (such as the Renewable Energy Policy Network for the 21<sup>st</sup> Century, REN21, Energy Efficiency Global Forum and Exhibition (EE Global), among others, the elite have contrived social, economic and political problems that prevent them from contributing towards rapid sustainable energy implementation.

## 8. Conclusion

The scramble by Nigeria's thieving political elite to steal and misappropriate the public earnings from fossil fuels is responsible for breeding ineptitude, ignorance, and indifference to spectacular advances and benefits from sustainable energy in advanced and developing countries. These circumstances offer



opportunities for designing and implementing postneoliberalistic schemes capable of addressing the problems that are hampering rapid and massive implementation of sustainable energy, as identified here. We argue that if urban managements in more prosperous advanced countries are rapidly and seriously transiting from conventional to sustainable energy technologies because of the myriad of benefits of SETs, a similar transition in poverty-stricken urban regions of developing nations as a strategy of also promoting small and medium enterprises development for increasing employment and local economic growth deserve consideration as urgent and imperative.

### 9. Recommendations

Considering that sustainable energy is by nature decentralized and have been developed based on concepts and methods of distributed energy systems, and under the context of the flourishing post-Fordism around the world, there is need to mobilize the resources of Nigeria's sub-national governments (36 states, the Federal Capital Territory, Abuja and 774 Local Government Areas) to shift from the past and current over-centralised CETs inefficiently managed by the Federal Government of Nigeria in ways that have resulted failure (enormous energy shortage) towards decentralized and distributed SETs managed by cities and states in Nigeria. This will lead to increased job creation, innovation, creativity and improved effectiveness in energy production and supply at sub-national levels in Nigeria. Experienced Nigerian civil society deserves support to lead government to implement sustainable energy in the country.

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