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# Maximizing Nigeria's Natural Resources For National Development In The 21<sup>st</sup> Century: The Coal Resource Perspective

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## Abstract

The paper examined the role of natural resources in national development using coal as one of such resource in Nigeria. The paper discovered that Nigeria has abundant natural resources part of it buried under the earth while the other part is scattered on the surface of the earth largely unutilized. The paper looked at coal as a resource that was abandoned since 1980s in preference to crude oil. That coal is still very useful in energy production in other climes such as Australia, Germany, China, Israel, South Africa etc, and yet these countries are far developed than Nigeria. Nigeria is driving towards diversification of her economy, but yet small, medium, large scale industries cannot function without energy. Nigerian coal apart from its export in the early years of its exploitation was a major energy supply in the Oji River to drive industries in that part of Eastern Nigeria. Today coal is still useful and can assist to diversify Nigeria economy apart from sundry uses. Coal can also be used to supply energy to small and medium scale industries and by extension provide employment to the teeming youths. The paper uses secondary sources and used historical and descriptive analysis as its methodology.

## Introduction

For many years now, perhaps, Nigeria's stunt development apart from economic corruption, poor leadership, polices, summersault is the inability of utilizing the natural resources – fertile arable land for agriculture, abundant solid minerals such as gold, tin, columbite, kaolin, manganese, clay, gypsum, iron ore, limestone, granite, bauxite, diatomite etc and liquid minerals, such as crude oil and others like solar, wind and water energy. However, the resource for consideration in this discourse is coal. Today coal has avalanche of uses in the contemporary world just as its utilization was experienced between the 13<sup>th</sup> and 18<sup>th</sup> century Europe. Coal is resource that ignited and propelled the Industrial Revolution in the 18<sup>th</sup> century England through the provision of energy for her industrial take-off. It had also been part of an energy provider in Nigeria before the advent of oil and gas and the contemporary role of hydro-electric power. Coal is a form of energy and Nigeria abandoned its exploitation since the early 1980s. Apart from other uses, coal is still relevant today in the provision of energy in other climes and can still be useful in Nigeria if exploited and adequately utilized.

Recently, as a result of the dwindling fortunes from oil and gas, and the resultant poor revenue for Nigeria's development, the need for the diversification of the economy and revenue base become necessary if the country is to remain relevant among comity of nations. Coal as a resource is highly sort for in advanced and transitional economies such as Australia, Germany, China, Israel, and South Africa among others (Punch, Thursday, September 24, 2015, p. 31).

## Conceptualizing Resources

Resources refer to the non-human factors of production (land and capital) used to produce goods

and services to satisfy wants (Todaro & Smith, 2009). It is the utilization of these resources to add value to human lives that are described as 'resource management: The availability and supply of something that is valued can be used for a particular purpose, usually to satisfy particular human wants or desires (Mayhew, 2009).

Natural resources are the collective natural or God-given wealth or treasure, or natural - reserve sources of supply, or support of a country or nation. They include forest, wildlife species, and cultivated and wild plants including hardwood trees, plants and crops. Others include land with all its resources including oil and gas, bitumen, coal, tin, granite, water, wetlands and flood plains, animals. They are the means by which a nation naturally produces wealth, properties, or assets that can be converted into money directly or indirectly as well as those that cannot be converted into money as such (Adejemilua, 2007). Resources are products in our environment either buried in the earth as minerals such as crude oil, tin, columbite, coal, gold, clay, manganese, bauxite, iron etc or found on the surface of the earth such as forests, plants, crops, trees; or in water such as fish, crustaceans, sand, water itself for the utilization by man.

### **Understanding National Development**

National development means the growth of the nation in form of unity, education, economic well-being, and mass participation in food production. Inyanda and Adama (2003) also believe that national development is the ability of the nation to provide a conducive atmosphere for the realization of individual potentials, the existence of buoyant economy and availability of social infrastructural facilities for the populace. The authors succumb to the views that national development is an improvement in all ramifications of a nation's life. Development in the society needs everyone's contribution to fuel its growth.

Development in the past was seen as the growth in volume or quality of goods and services or simply an increase in the Gross Domestic Product (GDP) of a country. But this increase did not work for did not improve despite the change in GDP. Today, development is defined qualitatively to mean a general sustainable improvement in the welfare of the entire society. It means that social indicators such as levels of employment, housing, education, poverty, nutrition, infant and maternal mortality, life expectancy improve (Akpakpan, 1987; Tordoff, 1997). Development is one's ability to have good and affordable food to eat, access to safe drinking water, good shelter, access to good and affordable medical facilities, being able to communicate, have access to good education, have access to use decent and sustained infrastructural facilities (Akpan, 2011).

### **History and Development of Coal Industry in Nigeria**

Coal was discovered in Enugu in 1900s and mining commenced in 1909 in the Ogbete drift mine. Other coal mines around Enugu were Onyeama, Iva Valley and Okpara, Amansiodo, Ezimmo, Inyi. Production in the Onyeama, Ogbete, Iva Valley and Okpara mines was very promising, thus it rose from 25,511 tons in 1916 to an estimated 583,422 tons before it declined during the Nigerian Civil War of 1967 - 1970 (Punch, Thursday, September 24, 2015, p. 30). The end of the war made it very insignificant partly because of lack of interest on the part of the Federal Government, and partly the expatriate staff who left the country at the heat of the war, and largely the oil boom era of the 1970s - the shift in interest and huge money that came in from oil punctuated the production (emphasis mine).

By 1950, the operations of the coal mines merged with the establishment of the Nigerian Coal Corporation. The corporation, was based in Enugu a parastatal responsible for mining and selling



coal. Tasked with exploiting coal resources, it held monopoly on coal and coke mining, production and sales until 1999 when it liquidated. The sale of coal reaped much revenue to the government. For instance

Apart from the revenue, and employment opportunities was huge and added value to human development.

#### **Factors for the Coal Industry Decline in Nigeria:**

Before the discovery of oil, the Nigerian Railway Corporation relied solely on coal to power its trains. This made it the largest consumer of coal in the country, and as a result the biggest customer of the Nigeria Coal Corporation, NCC. With the discovery of oil, the Nigerian Railway Corporation began to replace its coal-burning trains with diesel - powered engines. At the same time, the Electricity Corporation of Nigeria began converting its power generation equipment from coal to diesel, as well as gas - a development which further reduced the importance of coal (Udo, 1978; Punch, Thursday, September 24, 2015 p. 31).

In another corollary, the Nigerian Civil War also had a negative impact on coal production. Several mines were abandoned during the war, although it is believed that Biafrans were still able to exploit coal for power generation to a considerable extent during the period. However, after the war, coal production depreciated considerably both in production and value, not matching the pre-war period. Moreover, the war led to the departure of a majority of the expatriate mining experts, mostly Britons and poles. There were several attempts to mechanise production after the war, but the efforts were unsuccessful, as both the utilization and maintenance of imported mining equipment proved difficult, a further negative impact on production. It is also contended that coal is not a popular domestic fuel in Nigeria. Besides coal industry did not find markets to dispose of the coal mined (Udo, 1978).

#### **Use of Coal in Nigeria in the Past**

Apart from the export of coal in the early twentieth century to earn revenue for Nigeria, the coal deposits in Enugu were in the 1950s and 60s used to power the Oji River Power Station. The station generated electricity for the region and beyond. This means, the electricity from the Oji River Power Station served industries in the then Eastern Region like Premier Cashew Industry in Oghé; Post and Telegraph (P & T) Corporation; Nigerian Railway Corporation; Nkalagu Cement Factory; Niger Gas and Niger Steel. Today, as a result of coal being abandoned, the Oji River Power Station lost its steam and has gone moribund. All these industries that formed the industrial base of the South-East region have become moribund, and by extension the employees of these industries thrown into the unemployment market (Udo, 1978; Punch, Thursday September 24, 2015 p. 30). For instance in 1958/59, the coal industry had a workforce of 8,300 employees and about one million tones of coal was manually produced that year. In 1963 the labour strength of the Nigerian coal industry stood at 3,200 and the daily output for the year was 2,200 tons (Udo, 1978). It is known that, there is a high correlation between employment and national development.

#### **The Need to Revive Nigeria's Coal Industry**

Coal is the largest source of energy for the generation of electricity worldwide and it is also one of the numerous solid mineral resources with which Nigeria is endowed. Coal is found in large quantity in Enugu, Plateau, Anambra, Nasarawa, Yobe, Kogi, Benue and Gombe States (Udo, 1978). In spite of the above claims on Nigeria, one of the infrastructural facilities Nigeria is in dire need is power or energy. Energy is highly needed to power our homes, small and medium as well as giant industries. But this is not to be. For a long period and nearly 15 years now, the power generation in Nigeria fluctuate between 1,500 megawatts and 5,000 megawatts. This has led to many industries closing shops, some folded-up and some have relocated to neighbouring countries in the West Africa sub-



region. Such industries that have relocated to countries like Ghana are Michelin and Dunlop. These are tyre manufacturing industries that require large quantity of energy for production (Abimboye, 2009).

Lack of energy has also driven some industrious Nigerians in Medical fields, Engineering, Businessmen to seek for better environment than Nigeria. Many are found trading their skills in the United States of America (USA), Britain, Germany, Saudi Arabia etc. Others too migrate to some African countries such as South Africa, Ghana, Egypt for business investments (Odor, Obi, Ukaegbu, 2008). Besides, small and medium scale industries are the bedrock of any nation's economy. But inadequate supply of public power have driven these industries from production and large number have folded up (Akpan & Nde, 2011).

The non functioning of small and medium scale industries have brought pressure on the employment market. Those who should have been absorbed in this sector cannot achieve it because of low utilization of the total output or non production at all. Closely following it, is that Nigeria is becoming a trading nation, in that what should have been produced locally is imported, a lost to national economy.

But it would appear that the issue of diversification of the economy cannot be achieved if the power sector is still in coma. Nigeria needs to generate enough power into the National grid to provide energy needed in our economic sector because every sector of the economy needs some amount of energy to function. It range from agriculture, banking to manufacturing. This can be achieve if we look inwards into other economies such as China, Israel or even South Africa.

#### **World's Coal Producers and Energy Contributions to their Economies:**

Although, some scholars such as Professor Ruben K. Udo (1978) sees coal as the energy of the past, oil the energy of the present and hydro-electric as the energy for the future: in spite of this assertion by the scholars, coal is still relevant in many countries even in the developed ones. In this connection, if advanced economies are still making use of coal for generation of power in the industries, why not Nigeria? For instance, according to the World Coal Association, coal provides around 30.1 per cent of global primary energy needs, generated over 40 per cent of the world's electricity and is used in the production of 70 per cent of the world's steel. By these statistics, therefore Nigeria's coal reserves, estimated to be about two billion metric tons, is just wasting away (Punch, Thursday, September, 24, 2015 p. 31).

In another perspective according to the World Coal Association, the top 10 coal producers as of 2013 are China - 3561 metric tons; the USA - 904 metric tons; India - 613 metric tons; Indonesia - 489 metric tons; Australia - 459 metric tons; Russia - 347 metric tons; South Africa - 256 metric tons; Germany - 191 metric tons; Poland - 143 metric tons; and Kazakhstan - 120 metric tons (Punch, Thursday, September 24, 2015 p. 31). Meanwhile, South Africa generates 93 per cent of its energy from coal, China 81 per cent, India 71 per cent, Australia 69 per cent, Israel 61 per cent, Germany 44 per cent, United Kingdom 39 per cent; the USA 38 per cent, while Japan is 21 per cent (Punch, Thursday, September 24, 2015, p. 31). These productions are used in these countries to produce energy needed for their industrial and individual consumptions.

#### **Nigeria's Coal Reserve and its Value in Contemporary World**

Records available indicate that Nigeria still holds large coal reserves, estimated to be at least 2 billion metric tons. Besides it is also discovered that Nigeria has a bituminous coal that is suitable for use in



coke production, for the iron and steel industries. It is believed that Nigerian coal is one of the best in the world especially that produced from Okpara and Onyeama minds in Enugu, Enugu State (Punch, September 24, 2015, p. 30). Of recent, and in the global market, the demand for coal is very high; it is seen as one of the essential economic and energy minerals and ranks with petroleum and gas in importance. It has over 400 incidental products including nearly all those derivable from petroleum. These by-products are essential raw materials for chemical process industries such as paint, cosmetics, fertilizer among others. The fact is, going by what scientists and technologists put forward that, coal shares similar by-products with petroleum also makes it a viable alternative to petroleum. In this connection, just as we have tried in this country to explore all the potentials of petroleum and petrochemical resources, thus coal and its component chemicals should also be explored to contribute to the fortunes of this country (Punch, Wednesday, October 8, 2014, p. 15). Large investment market implies reduction in the unemployment, improvement in the living standards and by extension, a security free environment.

Coal is applicable in the manufacture of coal briquettes (compressed fuel blocks) as a viable complement for kerosene, charcoal, gas and firewood. On the other hand it can go as a substitute for the fuel products mentioned above. Large scale production of smokeless coal briquettes will be advantageous especially in the rural areas of Nigeria where firewood is commonly used. It will constitute a more environmentally friendly alternative to firewood with added benefits. It will also be less wasteful, less tedious and less time consuming. In addition, the intense heat generated from coal briquettes position it as a cheap and viable industrial fuel. All these possibilities have the capacity to create a huge investment market for the production of coal briquettes (Punch, Wednesday, October 8, 2014 p. 15).

By-products from coal carbonization plants are mainly tar, coke and gas; all these have various applications in industry. For instance, coal tar is resistant to oil spillage and skidding and remains a reliable material for construction of roads and airport tarmacs. Coal plays a major role in electricity generation. Coal fired plants currently fuel 30 per cent of global electricity (Goldstein & Pevehouse, 2008). From Nigeria's proven and inferred reserves, there is enough coal resources to support medium to large power station to generate electricity. That would be an added advantage in employment, generation, production and growth in the economy.

Coal appeared to be the cheapest fuel and has provided an alternative for oil since the oil shock of 1973 and intermittent Middle-East crisis. The oil market is often affected by the political climate and this has driven developed countries who depend on Middle East oil to seek alternatives – coal has been the choice. China for instance, relies on coal to meet 85 per cent of their local energy demand, while also using it to develop agriculture among the rural population (Goldstein & Pevehouse, 2005).

### **Conclusion**

It is confirmatory that of the various natural resources required by states for development, energy resources (fuels) are central. International trade in energy plays vital role in the world economy. Nigeria's capacity to develop is hindered by so many factors – apart from economic corruption, policies summersaults, one of the most potent virus is inadequate production and supply of energy in the economy.

Energy supply has punctuated our economic growth and development in very many ways. One is the fact that small and medium scale industries rely on adequate supply of energy to grow the

economy and that is what form the bedrock of development in other climes; lack of energy supply has strangulated Nigeria economy – leading to job cuts and unemployment – a factor inimical to the development of economies. Secondly, inadequate supply of energy had driven potential investors away from Nigerian shores to other countries in the West-African sub-region; and others who would be willing to invest have turned their backs on our economy – again this has punctuated our growth and development.

Now, other countries of the world such as the USA with high potentials in hydro-electric, gas, nuclear energy, oil are still making use of coal to supplement their energy need, what is Nigeria doing? Before the discovery of oil, coal was the energy component for export; driving of trains and provision of electricity to some industries in the South-East Nigeria. By that measure coal industry alone employed thousands of Nigerians before its decline. Employment plays an important role in the growth and development of economies. It is now auspicious that Nigeria revives coal industry and defines its role in the nations energy mix. Our over dependence on oil has thus far hindered us from investing in other promising sectors of the economy. After all other far richer countries such as South Africa generates 93 per cent of its energy from coal, China 81 per cent, India 71 per cent, Australia 69 per cent, the USA 38 per cent, Japan 21 per cent, Nigeria needs to emulate them if indeed we want to break away from the circle of negative energy needs.

#### **Measures by Government to Revamp the Coal Industry**

Under President Obasanjo's administration, it was expected that coal industry would be resuscitated. When the Federal Government decided to privatize coal, the union (coal workers union) objected, on grounds that the industry be first revived before privatization. The Federal Government too objected. The Ministry of Solid Minerals Development, under the superintendence of Dr. Oby Ezekwesili, closed down the corporation in 2002. The death of the corporation was on the way, as before 2002 no budget allocation was made for the corporation. However, under President Goodluck Jonathan administration, there was promise to bring back the corporation, that promise was during his 2011 presidential campaign. The Jonathan administration had earmarked the Enugu and Gombe coal fields for the establishment of two coal-fired power plants which were to generate at least 1000 megawatts of electricity, each (Punch, Thursday, September 24, 2015, p. 31). That has not taken off.

Meanwhile, the project did not materialize in spite of the fact that in 2012 Federal Budget N923 million was allocated; in 2013 budget N1.7 billion was allocated; and in 2014 budget N1.1 billion was equally allocated. The funds allocated was meant for a 3D Seismic study that was supposed to ascertain the quantity, quality and location of the coal deposits, and perhaps provide useful information for prospective investors. To Jonathan administration that is history as nothing happened. The much budgeted was squandered. President Buhari has also promised to revamp coal production, and utilize it in electricity generation during his electioneering campaign in Enugu. Or would it be as one of those promises as Jonathan did. Nigerians need to look inwards as the time is now to grow our economy (Punch, Thursday, September 24, 2015, p. 31).

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