

## **Impact of Coal Export and Economic Development in Nigeria (A Case Study of Nigerian Coal Corporation, Enugu)**

**\*Iyida M. N.**

*Registry unit enugu state university of science and technology, enugu, nigeria.*

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**Abstract:** *Nigeria is endowed with mineral resources among which coal. This product was playing a leading role in the supply of energy for the industrial sector before the discovery of oil. It generated employment for many Nigerians and also served as solid sources of energy for both domestic and industrial users. Coal production from inception maintained an upward trend and reached its peak between 1955 and 1959 when almost one million metric tons of coal was produced annually. As time went on, the leading role of coal in the country's energy mix declined rapidly, following the discovery of oil in commercial quantity in the late 1950's. This was hastened by the outbreak of Nigerian civil war which lasted from 1967 to 1970. During this period, all coal mines in the country were abandoned. This study is therefore set out to examine the export of this product and how it helped to improve the economy through the revenue generated there from. The study was carried out through the use of case study method which involved the collection and collation of data, mainly by the use of questionnaires. The questionnaires were developed from the research questions, designed to elicit answers from the respondents. On the whole, two hundred and eighty seven copies of the questionnaires were produced and distributed to the sample of the population. The validity and reliability of the research instruments were established through the pilot test and retest methods respectively. The researcher made some findings about the subject matter which include that poor funding of the coal industry by the government is one of the major reasons for the decline in coal export; that the effect of the decline in coal export on employment is a serious one such that many educated Nigerians are unemployed, that in the past, coal was playing a leading role in supplying the energy requirements of most local industries in the country before the discovery of oil. On the basis of the above findings, some recommendations were made. There are: that the government should revitalize the coal industry immediately as this will no doubt bring about increase in revenue accruing to the industry; that the country should not over-depend on oil as the only major source of revenue because of its wider implication; and that government should encourage domestic use of coal as cooking fuel as this will increase the revenue accruing to the government through this source. The industry should be properly funded by the government; also the government should equip coal industry with modern and sophisticated infrastructure; adequate transportation systems should be provided. The researcher believes that with the implementation of the following recommendations by the Nigeria Government, the coal industry would improve drastically.*

**Keywords:** *Coal, Enugu, Unemployment and Local industries.*

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### **I. Introduction**

Export of coal to other parts of the world between the period 1916 and 1959 served as viable source of revenue generation in Nigeria [1]. The revenue that accrued from the sales was used to sustain the economy [1]. In other words before, the discovery of oil in Nigeria, coal as solid mineral resources, formed the mainstay of the economy in addition to agriculture [2 and 3]. It provided adequate revenue to the nation [2 and 3]. It generated employment for many Nigerians and it also served as a solid source of energy for both domestic and industrial users. Coal production from inception maintained an upward trend and reached its peak between 1955 and 1959 when almost one million metric tons of coal was produced annually [4]. The coal industry gave rise to the first generation of industries in Nigeria and provided all the energy requirements for these industries up to 1960s [5]. These include the mines, the Nigerian railways, the electricity corporation of Nigeria and the Nigerian cement company (Nigercem) Nkalagu.

What we know today as Nigerian coal came into being following the coming of British explorers into the Eastern hinterland. This was at the turn of the 20<sup>th</sup> century. These British explorers were led by Kitson. On arrival at Udi, the first thing was the establishment of administrative headquarters for purposes of administration in getting at the task before them. While, on survey of the area, the geologist that accompanied them walked down the valley from the Udi Hill and there, discovered coal [6]. Udi mine located at the foot of a range of Enugu hills was the scene of the first ever mining activities in 1906. Thereafter, Ogbete, Iva-vally and Asata coal mines were discovered. Mining activities commenced in these mines in 1917. As time went on, the leading role of coal in the country's energy mix declined rapidly following the discovery of oil in commercial quantity in the late 1950's. This was hastened by the outbreak of the Nigerian civil war which lasted from 1967 to 1970. During this period, all coal mines in the country were abandoned [7].

When oil was discovered, government shifted its attention from other natural resources including coal to oil exploration, production, and exportation. Oil has therefore remained the chief source of revenue to the country accounting for over 80% of her total annual revenues [6 and 7]. In the 1993 Federal budget, oil was projected to generate ₦126.5 billion representing about 80.06% of the nation's ₦150.9 billion estimated total revenue for the year [8]. Consequently, non oil sector including import and exercise duties, taxes, return on investments, dividends from shares, penalties, fees, mining rents and loan repayment were not given adequate attention hence, they accounted for only 19.4% of the nation's total revenue in 1993 [8]. There are clear evidences from the trend of our economic development that neither the government nor the governed can confidently claim that the revenue generated annually from oil is adequate to take care of our economic, social, political and educational needs. There have been instances in the past where estimated prices of oil in the international market were compelled by market forces and other factors to drop beyond the expectations of the government. A vivid example of this unfortunate situation occurred in 1992 where the Federal Government based its budget estimate on a projected oil price of \$18 and \$20 per barrel during this year. This disparity affected development plans drastically.

However, on critical evaluation of the solid mineral section, there is no doubt that coal is widely used such that up to 40% of electricity generated globally was based on the use of coal while hydro and nuclear power contributed 21 and 17 percent respectively. On the other hand, oil and gas contributed 11 and 10 percent respectively [9]. There will therefore be a ready market for Nigerian coal if the industry is properly reactivated and managed [9].

As earlier stated above, coal production was on the increase from the onset and because of this one million metric tons were achieved annually. At that time, coal was the primary source of energy supply to both homes and industry. Coal was the power house of Nigeria's economic development. Coal industries now emphasize on setting up small and medium scale carbonization and briquetting as domestic fuel. Besides being relatively cheap and safe in comparison with other forms of fuel, coal is smokeless and therefore burns efficiently with high calorific value.

It is not arguable that the potential role of coal in the nation's economic development and recovery calls for both local and foreign investment in coal mining and development as well as downstream coal utilization and this necessitated the research [10, 11 and 12].

## **II. Materials And Methods**

### **Sources Of Data**

The data used for this study were collected through two main means: primary and secondary sources of data.

#### **Primary Source of Data**

The primary source of data was obtained through the use of questionnaires. The questionnaires were designed and distributed to respondents by the researcher.

#### **Secondary Source of Data**

The secondary sources of data were obtained from the review of related literatures. In other words, the researcher consulted published and unpublished books, journals/periodicals, paper delivered in seminars/workshop; Newspaper / magazines and official documents (that is, government and non-governmental organization's official documents, with relevant ideas). The researcher made use of Enugu State University of Science and Technology Library to mention but a few.

#### **Location of the Study**

The headquarters of Nigerian coal corporation is located along Okpara Avenue, Enugu. It is situated in NIPOST, sharing the same geographical area with AFRIBANK, NEPA Headquarters and directly opposite former CCB buildings.

#### **Data Collection**

The researcher collected data for this study through the use of questionnaires. The questionnaires were distributed to the respondents. The researcher went to the location of study to distribute the pieces of questionnaires. A face- to face system of distribution was used. Face to face system of questionnaire distribution is the process where the researcher visits the institution or organization himself to distribute the questionnaire directly by himself or by on-the spot assistance in the place to the same sample group element [10]. The researcher went into agreement with the respondents on when the questionnaire would be collected. It was agreed that questionnaire would be collected after two weeks. The researcher went there after two weeks and collected the copies of questionnaires.

**Population of the Study**

One thousand and ten staff of the coal corporation was used for this research. They included the junior, intermediate and senior staff of the corporation.

**Table 1: Distribution Of Study Of Population**

S/No	Category	Number	Percentage
1	Senior staff	208	20.6
2	Intermediate staff	281	27.8
3	Junior staff	521	51.6
	Total	1010	100

**Sample Size**

The sample size for this study was determined using the population obtained from the corporation from which the sample survey was obtained. According to (Ejiofor, 1991), a sample survey is “the technique of collecting information about the human population or things in which direct contact is made only with the units of the study. It involves the collection of information from fraction of the population”. Out of the population of one thousand and ten, two hundred and eighty seven (287) were sampled, using the Yamani formula for sample size determination

According to (Yamani 1964),

$$n = \frac{N}{1 + N^{(e)^2}}$$

Where n = the sample size

l= constant

N = the population of study

e = margin of error (5%)

For the purpose of the study, “N” will then be equal to 1010 “e” equal to 5%, then the sample size will be equal to 5%, then the sample size will be equal to (n) which is:

$$\begin{aligned}
 n &= \frac{N}{1 + N^{(e)^2}} = \frac{1010}{1 + N^{(e)^2}} \\
 &= \frac{1010}{1 + (1010 \times 0.0025)} \\
 &= \frac{1010}{3.525} = 287
 \end{aligned}$$

Therefore, the sample size for this study is two hundred and eighty seven.

**Table 2: Sample Size Distribution**

S/No	Category	Number	Percentage
1	Senior staff	59	20.6
2	Intermediate staff	80	27.8
3	Junior staff	148	51.6
	Total	287	100

**Source: Research Data, 2001.**

**Sampling Techniques**

The technique of simple random sampling was used in this study to ensure correct sample representation of the groups. In applying simple random sampling, the researcher categorized the entire population into three groups: senior, intermediate and junior staff. The names of all the staff were written on pieces of paper of equal sizes and rolled up to categorized groups and labeled bag A, bag B and C for senior staff, intermediate and junior staff respectively. From bag A 59 names were picked for senior staff, 80 from bag B for intermediate staff and 148 from bag C for the junior staff. On the whole 287 questionnaires were distributed out of these 250 were returned.

**Instrumentation**

The instrument used in gathering the data for the study was questionnaire. According to Sommer (1984) questionnaire or instrumentation is series of written questions respondents’ written opinion are sought that measure the variable necessary to the research hypothesis or answer to research question. The researcher developed five research questions and out of each research questions at least three items of questions were developed to be (19) nineteen. The researcher developed an instrument to measure Coal Export and Economic Development in Nigeria Descriptive Questionnaire (CEEDDQ). The researcher developed the instrument.

**Validity of the Instrument**

According to Odo (1992), “validity is the process of finding out the degree to which a research or test indeed measures what it purports to measure”. The purpose of the exercise was to identify whether the developed instrument or items really agreed with the would be contents of the research or where the concept are not well understood, the researcher has to modify such areas before carrying out the main study. In order to determine the validity of the questionnaire, a pilot test was employed by the researcher.

Before the actual study took place, the questionnaires were distributed to find out whether the questionnaire would actually portray what the researcher had in mind while constructing the questionnaire and then to make amendments where necessary. The researcher administered the questionnaires to fifteen selected people from different areas but with similar characteristics.

After the scoring, the researcher evaluated the individual sample group scoring with their scored questionnaire to note similarity. This was done by the researcher taking an ideal one she scored herself in the way she expected everyone of the pilot sample group to score the questionnaire side by side with each respondent’s own scored questionnaire. The researcher discovered that the correct scored questionnaire was 85%. This made the researcher to claim that the instrument was valid.

**Instrument Return Rate:**

The researcher shared out 287 copies of questionnaires. 250 copies were returned, 37 copies were not returned, 20 copies were condemned as they were wrongly filled while, 230 copies representing 80.1% were made use of. The researcher visited the places where the unreturned copies of questionnaires were distributed to collect them but yielding no fruit.

**Table 3: Issues And Receipts Of Questionnaires**

Categories of staff	No. of questionnaires distributed	No of questionnaires returned	No questionnaires not returned	No of questionnaires condemned	No of questionnaires used
Senior staff	59	45	7	4	47
Intermediate staff	80	69	10	5	64
Junior staff	148	136	20	11	119
<b>Total</b>	<b>287</b>	<b>250</b>	<b>37</b>	<b>20</b>	<b>230</b>

**III. Results And Discussion**

Data collected through primary and secondary sources were presented, analyzed and interpreted. To arrive at the data collected, the analysis were done using frequencies and percentages.

**Table 4: Extent the Decline in Coal Export Affected the Economy**

Response	Frequency	Percentage
<b>Seriously</b>	100	43.5
<b>Minimally</b>	85	37
<b>No idea</b>	45	19.5
<b>Total</b>	<b>230</b>	<b>100</b>

Source: Research Data, 2001.

The table above shows that out of 230 respondents representing 100%, 100 respondents representing 43.5% said that the decline in coal export has seriously affected the Nigerian economy, 85 respondents representing 37% said that the decline in coal export minimally affected the Nigerian economy while 45 respondents representing 19.5% said that they do not have an idea about the extent to which the decline in coal export had affected the Nigerian economy.

**Table 5: The effects of the decline in coal export on employment in Nigeria**

Response	Frequency	Percentage
<b>Full employment</b>	40	17.4
<b>Few employment</b>	75	32.6
<b>No idea</b>	19	8.3
<b>Total</b>	<b>230</b>	<b>100</b>

Source: Researcher Data, 2001

The table above shows that out of 230 respondents representing 100, 40 respondents representing 17.4% said that because of decline in the export of coal, there is full employment; 75 respondents representing 32.6% said that because of decline in coal export, there are few employment while 96 respondents representing 41.7% believed that the decline has brought no employment; while 19 respondents or 8.3% said that they do not have any idea of the effect of the decline of coal export on employment.

**Table 6: Funding of coal industry by the government as a reason for the decline in the export of coal**

Response	Frequency	Percentage
Yes	130	56.5
No	65	28.3
No idea	35	15.2
<b>Total</b>	<b>230</b>	<b>100</b>

Source: Research Data, 2001.

In the above table, it is shown that out of 230 respondents representing 100% of respondents, 56.5% said that poor funding of coal industry by the government is one of the major reasons for the decline in the export of coal, 65 respondents representing 28.3% said that poor funding of the coal industry by the government is not one of the major reason for the decline in export of coal, while 35 respondents representing 15.2% said that they do not have idea about the reason for the decline in coal export.

**Table 7: Inconsistency in government policy on energy resources**

Response	Frequency	Percentage
Yes	129	56.1
No	45	19.6
No idea	56	24.3
<b>Total</b>	<b>230</b>	<b>100</b>

Source: Research Data, 2001.

In the above table, it is shown that out of 230 respondents representing 100%. 129 respondents representing 56.1% said that inconsistency in government policy on energy resources is one of the causes of decline in coal export; 45 respondents representing 19.6% said that inconsistency in government policy on energy resources is not one of the causes of decline in coal export; while 56 respondents representing 24.3% said that they do not have idea whether inconsistency in government policy on energy resources is one of the causes of decline in coal export.

**Table 8: Private sector participation in coal exploration and management and its effect on coal export**

Response	Frequency	Percentage
Not adversely	40	17.4
Adversely	187	81.3
No idea	3	1.3
<b>Total</b>	<b>230</b>	<b>100</b>

Source: Researcher data, 2001.

In the above table, it is shown that out of 230 respondents, representing 100%, 40 respondents representing 17.4% said that lack of private sector participation in coal exploration and management was hindering coal export; while 187 respondents representing 81.3% said that it has adverse effect on coal export; 3 respondents or 1.3% said they do not have idea of the issue in question.

The term coal export used to be an admirable one when coal formed one of the major sources of revenue generation to the Federal Government of Nigeria on one hand and indirectly to the state and local government councils on the other hand. By that time, the discovery of oil as a source of revenue had not taken place.

Coal export between 1906 and 1959 was a business venture, which the then Federal Government of Nigeria under the colonial masters depended heavily for its revenue generation. It provided all the energy requirements for these industries up to 1960's when Nigeria gained independence from Britain [3 and 4]. These include the mines, the Nigerian Railways, the Electricity Corporation of Nigeria (now National Electric Power Authority) and the Nigerian Cement Company (Nigercem) Nkalagu [5, 6 and 7].

Economic development on the other hand means a state of advancement in the welfare of the people of a given society usually made possible by an advancement in the economic resources of that society [8, 10 and 12]. Before the discovery of oil, coal contributed very significantly to the economic growth of the country in many aspects, including revenue generation, provision of energy etc, unfortunately, following the discovery of oil, coal was neglected such that almost all the coal industries in the country are in a state of disrepair. In view of this development, the contribution of coal to economic development of the country is no longer noticeable.

#### IV. Conclusion

The important of coal as an economic resource cannot be over emphasized. God endowed Nigeria with much mineral resources for which coal is one the most valuable. Others include gas, limestone and copper, etc. There is no doubt that the government cannot adequately meet its obligations to the citizens of this country

without harnessing all the mineral resources available so as to be able to generate enough revenue. Enough revenue will help the government to service her foreign and internal debts and at the same time improve the living conditions of her citizens. Unfortunately, coal has for a very long time now been put at the bottom line of the country's scale of preference with respect to her choice of the mineral resources sectors that should receive adequate attention. Since then the going has been uneasy, in fact very difficult for the government and citizens. It is clear that the only major source of revenue to the country, which is oil do not provide all the money needed for both domestic and external services.

## **V. Recommendations**

From this study, the following recommendations were made:

- The government should henceforth revitalize the coal industry. This will increase revenue generation to the government.
- The government should de-emphasize over-dependence on oil because of its wider implications on the economy and general living conditions of the citizens.
- Government policy on energy resources should be properly spelt out to ensure that the bottlenecks are removed. This will go a step further to encourage private sector participation in coal mining, administration and exportation.
- Government should encourage domestic use of coal as cooking fuel. This will no doubt increase the demand for the product and by so doing increase revenue to the government.
- Government should provide employment to the citizens to reduce poverty and crime in the society by ensuring that the coal industry is not only adequately funded but also properly managed.
- Appointment of management cadre staff should not be based on favouritism but on merit. This will discourage the appointment of cychophants into the industry.
- The government should ensure that the financial transactions of the industry are audited annually to ascertain whether or not the finances of the industry are properly managed.
- The government should improve the conditions of the workers of the corporation through regular payment of salaries, regular promotions, adequate funding, regular payment of allowances to the staff etc.
- Finally, the training programmes of the industry should be properly co-ordinated to make way for adequate training and re-training of staff for effective job performance.

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