NATIONAL INCOME AND ENVIROMENTAL GROWTH IN ARITIMATIC RATIO

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ABSTRACT

The study examines the national income of a country as an estimate of the yearly production of goods and services. The loss of possible uses of the non-human made physical surroundings, named environmental functions, on which humanity is dependent in all its doings remains outside the estimate. Also the present and future production is dependent on these environmental functions. The finding from the article shows that there is increase in the national income against the environment which may be detrimental to the future

INTRODUCTION

Do increase in income and wealth sow seed for the amelioration of environmental and ecological problems? The answer to this question is critical for the design of appropriate development strategies for lesser (underdeveloped and developing) countries. Exhaustible and renewable natural resources serve as inputs into the production of many goods and services. The global environmental concern has received an increasing attention is the subject that related to the linkages or the interrelationship between economic growth and the demand for environmental quality. Economic growth implies an increase in the level of national income over time, while the issue of environmental quality concerns the state or condition of the environment.

Environmental quality is a normal good though heterogeneous. Issues like global climate change, quality drinking water and air quality all fall under the purview of environmental quality. With an increase in the income of a nation, the demand for a clean, well ventilated and better environment is expected to increase. Therefore, the demand for environmental quality can be said to be income elastic.

From this illustration, it could be inferred that the poorer a nation is, the less concerned its people are, in regard to environmental protection. Since the last part of 20th century, a good number of economic-environment researchers and various international agencies have been exploring and investigating the interaction between economic growth and the state of the

environment. There have been different theoretical contributions that relate to economic growth and the environment.

Grounded in the heart of these theories, are economic explanations of the interrelationship between human economic activities and the ultimate response of the environment.
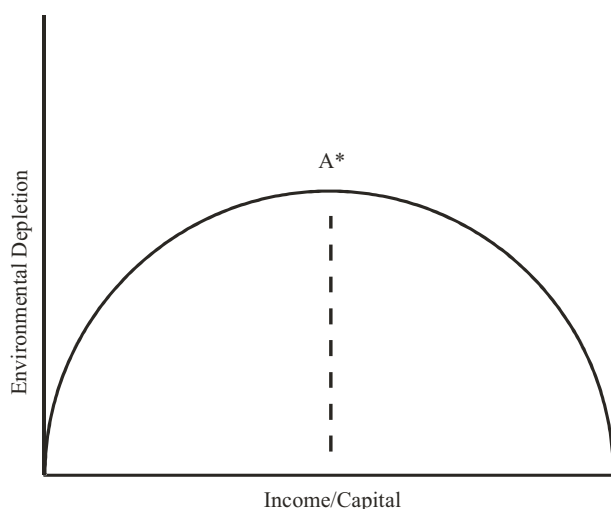

Fig. 1: *Environmental Kuznets Curve*

Despite rigorous theoretical and empirical explorations, there is yet to be a univocal result as regards this relationship. Actually, most of these empirical studies have been concentrating on the 'Environmental Kuznets Curve' (EKC) hypothesis.

The EKC postulates a relationship between economic growth and environment degradation such that in the early stage of economic growth, the rate of environmental depletion would be on the rise and as income rises above some threshold level the

magnitude of environmental impacts due to economic activity would begin to fall. Following this trend; therefore, eventually an inverted 'U-shaped' curve is exhibited. Figure 1 illustrated the environmental Kuznets curve showing different level of economic growth and environment depletion. Different points on the curve reveal different level of environmental damage associated with a given income level. For instance, any position on the curve before point 'A' indicates that as income increase the pressure on the environment also increase leading to environmental depletion. Thus, point 'A' represents the threshold income level. Then after this threshold income level, the pressure on the environment has increased. Therefore, attention is now focused on environment protection.

Following the pioneering research of Grossman and Krueger (1995), various empirical studies on environmental economic have focused more on the environment Kuznets curve (EKC) hypothesis. There have been divergent opinions as relates to the most appropriate methodological specification that accurately capture the environment economic relationship, the type of variable that truly represents environmental degradation analysis, should be based on either cross-country or single-country time series. To this end, a remarkable number of new contributions have investigated this

relationship empirically, correcting for some of the drawbacks of early studies. Despite the use of more sophisticated econometric techniques, there is still no unambiguous evidence to support the existence of the EKC hypothesis. Thus, findings from the empirical studies on EKC hypothesis still remain inconclusive.

Statement of the Problem

The relationship between environmental growth and national income varies from situation to another. It is pertinent to state that Environmental Growth in relation to National Income is narrowed to Taraba state. Evidence abound that the rate at which environmental degradation is moving, has increased over the years. Several strategies to harness environmental dividend have not yielded enough result in the real sense of transforming Taraba State and the nation's economy into a viable one capable of generating revenue and propelling a self-reliant national income system as a measure of alleviating the untold hard bedeviling the society. it is on this background the researchers scout out the following problems ranging from environmental growth and national income indices in relation to Taraba state as environmental growth effectiveness is clouded with heavy inefficiency, laying waste of natural resources deposits in the state as without effective policy drive to utilize it and misplaced priority of government.

Objectives of the Study

The study has a broad and specific objective. The broad objective of the study is to investigate and evaluate environmental growth and national income and its role in revenue generation towards increased in national income in Taraba State and Nigeria at large. The specific objectives are;

✓ To evaluate the extent at which environmental growth contribute to the coffers of state and the nation and to also determine the challenges accompanying environmental in ensuring that these revenues are rightly channeled.

✓ To assess valuable contributions of environmental resources to the revenue generation of Taraba state.

✓ To examine the relationship between environmental growth and national income.

✓ To compare the increase in revenue generation from natural deposits and its resultant growth impact in national income

LITERATURE REVIEW

This unit examines relevant literatures on growth and environmental implications. Economic growth and environmental issues in Nigeria and its substantial damage to the Nigerian environment has been traceable to the growth of the oil industry, population explosion and a lack of environmental regulations. Climate change is perhaps the greatest challenge facing our planet today,

some of these challenges manifest themselves in the form of drought, flooding and inundation of coastal lands, low agricultural productivity alteration of surface and ground water and devastation of the ecosystems among others (Adebayo and Oruonye, 2013). Hence, this challenges can be accommodated and rectify through conscious and vibrant environmental protection policies put in place in order to harness natural resources towards immense generation of revenue for growth and increase in national income.

It has been observed that Africa is one of the most vulnerable regions to the effect of global climate changes due to her low human adaptive capacity to anticipated increase in extreme events resulting from widespread poverty, heavy reliance on rain fed agriculture lack of economic and technological progress (Bako 2013). Nevertheless, other sources like automobiles and diesel-fired electricity generators also contribute to air pollution. Though, our area of concern is in the natural deposits, the activities mentioned above also have some influence on the natural deposit.

National income is expected to influence environmental quality in such a way that an inverted U-shaped curve is established as propounded by Crossman and Krueger (1995) the environmental Kuznets curve (EKC), the EKC postulates a relationship between economic growth and environmental degradation such that in early stage of economic growth the rate of environmental depleting would be on the rise and as income rises above some threshold level the magnitude of environmental impacts due to economic activity would begin to fall.

Environmental quality has many dimensions. Our lives are affected by the air we breathe, the water we drink, the beauty we observe in nature and the diversity of species with which we come into contact. The productivity of our resources in producing goods and services is influenced by climate rainfall and nutrient in the soil. We experience discomfort from excessive noise and crowding, deforestation and excavation. Each of these dimensions of environmental quality and others may respond to economic growth in different dimensions. Economic activities responsible for pollution of the water and land include industrial process and domestic fuel combustion.

Our focuses in this research work examines and evaluate environmental resources that serve as major indicators in growth and development of revenue generation to income per capita (national income) in Taraba state. These indicators include natural resources such as the Madrid (Madobia) and water quality.

Firstly, the Madrid is a tree largely fund in Bali Gashaka and Takum areas of Taraba State. The Tree is belief to have so

many use, some of which are the production of toilet seats, Gun handles, tiles to mention but a few, a lot of private investors have gone into fallen down these trees, the state government through the forestry department in the ministry of environment is mandated to conserved these resources through ensuring effective and efficient replacement of these trees been felled and at the same time charge every trailer load of these Madrid.

Secondly, we examine the state of the oxygen regime. Aquatic life requires dissolved oxygen to metabolize organic carbon. Contamination of river water by human sewage or industrial discharges increase the concentration of organic carbon in forms usable by bacteria. The more numerous are the bacteria the greater is the demand for dissolved oxygen, leaving less oxygen for fish and other higher forms of aquatic life. At high levels of contamination the fish population begins to die off. This is in connection to fish as a source of natural resources as found in Lau, Karim Lamido and Ardo Kola local Governments of Taraba state.

CONTRIBUTIONS OF ENVIRONMENTAL RESOURCES

The contribution of environmental resources to growth of national income cannot be over emphasize. Environmental or Natural resources refer to the deposits and resources deposited by God. Nigeria is blessed with so many natural resources prominent amongst them is the crude oil which accounts for more than 70% of Nigeria GDP; quite a number of gigantic infrastructural development as well as other silent development were largely funded by the proceeds of the mineral deposits particularly the crude oil, others are: Graphite, Quartzite, Uranium to mentioned but a few. Though some of this resources are yet to be harnessed but reports has it that other countries who utilize and harnessed these resources have earn alot. Countries like Ghana, Kenya, Kuwait etc who utilizes Gold and diamond have developed using the proceeds from these endowments.

This paper narrowed to Taraba State. Taraba State is blessed with so many of these resources prominent among them are shown in the table below with the corresponding local government.

MINERAL BASED RAW MATERIALS

S/N	RAW MATERIALS	LOCATION/LOCAL GOVT. AREA	POSSIBLE PRODUCTS
1.	Graphite	Gashaka	Lead pencils, Dry Batteries, Paints, Dynmo Brushes. Lubricants, Crucible
2.	Calcite	Ibi, Lau, Yorro	Glass, Fertilizer, Lime Paint Bleaching power, Soap, Flux and Paper

1.	Barites	Ibi, Wukari, Karim - lamido, Lau	White Paint, Wall Paper Mud
2.	Quartzite	Yorro, Donga, Takum, Ussa, Jalingo, A/Kola	Abrasives, Glass, Tooth-Paste
3.	Cassiterite (Tin Ore)	Gashaka, Sardauna	Metal Alloys, Tin Oxide & Tin Chloride
4.	Gold	Kurmi, Sardauna, Gashaka	Jewellery, Coinage, Medium of Exchange
5.	Bauxite	Sardauna	Aluminum Abras ives, Refractory. Bricks and Aluminum Compound
6.	Kaolin	Sardauna	Ceramics wares, Paper.. Paints Porcellain Insulators, Soaps. Toothpaste and Pharmaceutical Products
7.	Zircon	Takum, Ussa	Sparking Plug, electric Furnace, Abrasives. Amour Plate, Refractories
8.	Topa	Takum, Ussa	Abrasives, and Ornamental Products
9.	Gemstones	Donga, Sardauna, Yorro, Gashaka, Kurmi & Karim-lamido	Jewelleries and Ornamental Products
10.	Galena	Wukari, Karim-Lamido	Lead Metal, Cable Covering, Paint Ammunition. Metal Alloys e.g Solder and Storage Batteries.
11.	Muscovite (Mica)	Takum, Ussa, Gashaka	Electrical Insulators, Paints and Dry Lubricants
12.	Uranium	Yorro, Zing	Nuclear Energy, Uranium For glas staining Glazes. Dry, Photography, Radium for Treatment of Cancer
13.	Feldspar	Jalingo, Ussa, Takum, & Bali	Glass, Ceramics, Sanitary Wares, Titles, Portcelain Insulators. Production of Artificial Teeth, Soaps and Mild Abrasives.
14.	Limestone	Ardo-kol, Lau, Karim - Lamido	Cement, Lime, Fertilizer, Flux For Iron Melting
15.	Saphire	Gashaka, Sardauna	Metal Alloys, Tin Oxide & Tin Chloride
16.	Tomalin	Kurmi Sardauna Gashaka	Jewellery, Coinage, Medium of Exchange

1.	Saphire	Gashaka, Sardauna	Metal Alloys, Tin Oxide & Tin Chloride
2.	Tomalin	Kurmi Sardauna Gashaka	Jewellery, Coinage, Medium of Exchange

Source: Ministry of Commerce, Industry and Tourism

These available resources when harnessed will not only improve the wellbeing of the people, it will also contribute to the revenue generated by the state. Though, some of these resources are illegally harnessed, the proceeds, does not go into government coffers, hence, not accounted for.example the excavations in Gembu and Karim Lamido.

Recent discoveries in some of the natural resources is the Madrid "Madobiya" this is a tree largely fund in Bali Gashaka and Takum areas of Taraba State. The Tree is belief to have so many use, some of which are the production of toilet seats, Gun handles, tiles to mention but a few, a lot of private investors have gone into fallen down these trees, the state government through the forestry department in the ministry of environment is mandated to conserved these resources through ensuring effective and efficient replacement of these trees been felled and at the same time charge every trailer load of these Madrid. The sum of four hundred thousand naira (N400, 000) is charged. An average of Forty to Fifty (40 - 50) load of trailers leaves Taraba every week. This is by implication means that Taraba State generates (400, 000 x 50= N20, 000, 000.00) weekly. Eight hundred thousand naira (N80, 000, 000) is accounted on monthly basis. Nine hundred and sixty million naira (N960, 000, 000) on the average annually. This is to say that other natural endowment if properly harnessed in line with regulated procedures, Taraba state   cannot only generate revenue to pay salaries but as well as expand for insfrstructural development.

NATIONAL INCOME

National income accounts (NIAs) are fundamental aggregate statistics in macroeconomic analysis. The ground-breaking development of national income and system of NIAs was one of the most far-reaching innovations in applied economic in the early twentieth century. NIAs provide a quantitative basis for choosing and assessing economic policies as well as making possible quantitative macroeconomic modeling and analysis. NIAs cannot substitute for policymakers' judgment or allow them to evade policy decision, but they do provide a basis for the objective statement and assessment of economic policies. Combined with POPULATION data, national income accounts can provide a measure of well-being through per capital income and its growth over time. Also, NIAs, combined with labour force data, can be use to assess the level and growth rate of PRODUCTIVITY, although the utility of such calculations is limited by

NIAs' omission with financial and monetary data, NIAs provide a guide to Inflation policy. NIAs provide the basis for evaluating government policy and can rationalize political challenges to incumbents by people who are dissatisfied with measurable aspects of the government's policies. In emerging and TRANSITION ECONOMICS, implementing a dependable and accurate system of NIAs is a crucial step in developing economic policy.

NIAs, to be most useful, require honest and timely publication. Long-delayed INFORMATION is of no use either in making policy or in monitoring the efficacy of policies already implemented. Delay frequently implies that the government has something to hide. Indeed, once released, NIAs can enforce their own discipline. That is, obfuscation cannot be maintained by altering or exaggerating one aspect of NIAs, say INVESTMENT or growth of total income, since each such number is related to others, and consistency is a check on the accuracy of the components. Because the data cannot easily be faked, autocrats are loathe to publish their countries' NIAs and either proscribe or delay their release. Conversely nation-states that are committed to democracy report their NIAs.

MEASURING NATIONAL INCOME

National income is the total market value of production in a country's economy during a year. It can measure alternatively and equivalently in three ways.

- ❖   The value of expenditures
- ❖   The Values of inputs used in Production
- ❖   The sum of value added at each level of production.

That the first two measure are identical can be seen by considering that any good-say , a loaf of bread can be equivalently valued as either the price that is paid for it in the market by the final consumer or as the distributed factor payments to labour (wages) and to capital (rent, interest, and profit) used in its production. Since national output is the sum of all production, the total value will be the same whether added up by final expenditure or by the value of inputs (including profit) used in their production. The equivalence of the last measure can be seen by noting that the value of every final good is simple the sum of the value added at each stage of production. Again, consider a loaf of bread: Its value is the sum of the value of labour at each successive stage of production and other ingredients added by the farmer (wheat production), the miller (grinding to flour), and the baker (flour plus other ingredients), and the grocer (distribution services).

The Broadest and most widely used measure of national income is gross domestic product (GDP), the value of expenditures on final goods and services at

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market price produced by domestic factors of production (labor, capital, materials) during the year. It is also the market value of these domestic-based factors (adjusted for indirect business taxes and subsidies) entering into production of final goods and services. "Gross" implies that non deduction for the reduction in the stock of plant and equipment due to wear and tear has been applied to the measurements and survey-based estimates. "Domestic" means that the GDP includes only production by factors located in the country whether home or foreign owned. GDP includes the production and income of foreigners and foreign-owned poverty in the home country and excludes the production and incomes of the country's own citizens or their property located abroad. "Product" refers to the measurement of output at final prices as observed in market transactions or of the market value of factors (inclusive of taxes less subsidies) used in their creation. Only newly produced goods including those that increase inventories - are counted in GDO. Sales of used goods and sales from inventories of goods produced in prior years are excluded, but the services of dealers, agents, and brokers in implementing these transactions are included. Measured by expenditure, GDP is the sum of goods and services produced during the period. Total output comprises four groups' purchases of final goods and services: household purchase consumption goods; business

purchase investment goods (and retain unsold production as inventory increase); governments purchase goods and services used in public administration and welfare transfers; and foreigners purchase (net) exports. There is substantial uniformity in the shares of consumption and investment (the sum of capital expenditures and inventories) across nations with quite disparate income levels.

EFFECT OF CLIMATE CHANGES ON THE ENVIRONMENTAL QUANTITY

Climate change is perhaps the greatest challenge facing our planet today (Adebayo and Oruonye, 2013). Some of these challenges manifest themselves in the form of drought, flooding and inundation of coastal lands, low agricultural productivity alteration of surface and ground water and devastation of the ecosystems among others. It has been observed that Africa is one of the most vulnerable regions to the effect of global climate changes due to her low human adaptive capacity to anticipated increase in extreme events resulting from widespread poverty, heavy reliance on rain fed agriculture lack of economic and technological progress (Bako 2013).

In Taraba State, the following local practices enhance climate changes which have heavy effect on national deposit and resources.

a.   Lumbering

This is the felling of trees for the production of timber and recently Madrid. This is very common on the Mambilla

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plateau, Kurmi, Ussa Takum and Bali. The Maisamari forest was cleared about ten years ago, while the yelwa forest was cleared previous years (2012). In the cause of the clearance, the wild life that inhabits the area also disappeared with the forest as their habitats were destroyed.

b.   Deforestation:

This is the deliberate destruction of the forest vegetation as a result of activities of man and his dominated animals (Awudu 2014) this exercise has resulted in different problems ranging from soil erosion, loss of biodiversity hence, affecting the natural presence and resources in this area.

c.   Bush Burning

This is one of the commonest practices in the state. Bush burning destroys rhizomes of perennial grasses and organic contents of it are the soil.

There is loss of biodiversity and species habitat. This had been observed in some areas on the Mambilla Plateau and Shehu mountain areas in Yorro and Zing LGA leading to species range shifts, changes in plant diversity including plant-based medicine. Borokini et al (2012). Observed also that there has been a major depletion of wildlife in the area as 5 Buffalos and 2 bushbuck were sighted.

The environmental protection council (1992) stated that cutting down of trees; bush burning has affected the wildlife population and severally depleted the environment.

DATA ANALYSIS

Mining and quarrying activities comprising the oil and gas and solid minerals sectors and heavily dominated by the oil and Gas sector which accounted for 99.69% shone of the total nominal mining and quarrying GDP value of the N14,551.49 billion in 2010 from 99.60% in 2008. The oil and Gas sector accounted for 0.45% and 5.25% in 2009 and 2010 respectively.
The 16.29% and 15.88% of the GDP in 2009 and 2010 was from oil GAS sector.
Solid minerals which include coal mining, Iron are and quarry and other mining activities accelerated by 12.28% in 2010 compared to 12.08% in 2009.

In 2008, total receipts on federation account from both oil and non-oil sources amounted to N7, 288.71 billion out of which oil revenue accounted for N6, 530.63 billion or 90.34%

i.   Forestry

The rate of expansion in the sub-sector accelerated slightly to 5.86% in 2011 from 5.77% in 2010 reflecting a slight improvement in the demand for wood products.

ii.   Fishing

The growth rate of fishing sector slowed to 5.94% in 2011 from 5.96% in 2010, following lower production of fish, due largely to heavy rainfall.

MAJOR FUNDING

The finding reveals that national income and environmental growth are

adversely not proportional as income is growing and the environment is not thus underutilization of mineral resource that suppose to be of advantage development.

CONCLUSION

It is not a story that Nigeria virtually has the deposits of the various minerals and naturals resources in commercial quantity. Taraba state in particular has more than eighteen mineral deposits in large quantities. Looking at the revenues generated in the aforementioned countries from the effective utilization of these mineral resources, Taraba, as well as Nigeria will be a small heaven if she diversify and venture into the extraction and exploitation of these God given resources.

RECOMMENDATIONS

✓ A friendly economy atmosphere be created through legislation and understanding.

✓ Diversification of the economy: The over dependence on oil and the recent fall in the price of crude in the international market is an eye - opener, just like Kuwait, other areas of endeavor be explore, Tourism inclusive.

✓ Financial support should be given to indigenes that have developed interest in the area of exploration.

✓ Research studies should be conducted on the various benefits of enviromental resources that abound in this area.

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