LIVELIHOOD DECISION AND ENVIRONMENTAL DEGRADATION IN MINING: THE VALUE-ACTION GAP IN THE ARTESINAL BARYTES MINING OF AZARA, NASARAWA STATE.

Muhammad Kabiru Dahiru[1]
Department of Geography
Federal University of Lafia
dahirumk@gmail.com)

.Nassir, Liman .Bala
Department of Geography
Nasarawa State University, Keffi

Vincent Dung Choji
Department of Geography
Nasarawa State University, Keffi

Salihu Habibu Muhammad-Gani
Department of Geography
Plateau State University, Bokkos

ABSTRACT

Anthropogenic activities like mining are products of rational human decisions that are informed by socio-economic motives, belief and value systems of the concerned. This study examined livelihood decision and environmental degradation associated with mining in Azara. Existing researches show that although small-scale mining operations are fraught with adverse socio-economic and physical environmental impact, they are however regarded as both the last and first resort for the poor, landless, and unemployed who hope to break away from the yoke of poverty and social marginalization by partaking in it. Qualitative data were collected from the local miners as well as other mining stakeholders within and outside the mines on issues like the nature of the operation, occupational justifications; hope and fears in the operations, and the way forward. 61.6% of the respondents engaged in mining activity as a result of unemployment, the need for daily income and the lack of well-paying jobs. 68% of the respondents believed that mining causes both environmental and socio-economic problems in the area. The results suggest that decisions about barytes mining are rational in nature, given the facts that barytes mining is a free for all affair that offers instant gratifications (in ready employment and cash) for willing hands, and that the miners are either unaware or oblivious of the environmental and health hazards of the operation. The need for environmental education/awareness on mining operation which should be intensified with proper legislation.

Key Words: *Azara; Barytes; Environment; Mining; Impact.*

JEL Classification: Q20, Q53, I31.

INTRODUCTION

The Azara Barytes Mining Operation

At least 80 percent of the world's baryte is consumed in drilling mud for oil and gas wells; the remainder is used largely in the chemical, glass, paint, and rubber industries (Donald, 1970). Worldwide, small-scale mining has gained prominence despite its informal nature. It employs a huge number of people (in the neighborhood of 13-15million) and affects the livelihoods of a further 80- 100million. And this number is sure to rise as the global economy falters. The number of miners also fluctuates with increasing global demand for minerals, as shown by the recent global increase in the use of mobile phones, which has caused a surge in the informal mining of coltan (a mineral of tantalum and columbite family) (MMSD, 2002). This mining also contributes to the livelihoods of many people other than the miners themselves, their dependents, and the local economy, since these miners do not complete the processing of the minerals themselves but instead, sell the ore to intermediaries, who transport it to the product markets.

In Nigeria, organized mining started around 1939 (Osuntokun, 1998). This was succeeded by small scale and artisanal mining operation as obtained in the study area. The collapse of the big mining companies in the 1970s and the introduction of Structural Adjustment Program (SAP) in the 1980s (whose objective was to diversify production base of the economy, increase competition through market system that promotes small scale businesses and enhance rapid economic growth) led to the proliferation of small-scale and illegal mining activities in the country as well as increased environmental devastation (Dabi & Nyagba, 1999). In Nigeria also, artisanal and small-scale mining is virtually a free for all affair and unregulated activity that all manner of people, including school-aged children, pregnant and breast feeding mothers engage in. The law guiding its operations are mere legacy of the nation's colonial past that underwent little or no changes in statutes up to the early 1980s, a development that is largely responsible for the myriads of problems associated with the activity (Dahiru, 2017). As at 1970s and 1980s when barytes and lead-zinc mining activities were at their peak in Nigeria, there were neither active environmental laws and regulations, nor any consciousness on the part of the people for environmental best practices in the operations. The need therefore for environmental education and proper legislations to guide and regulate mining operation in the country cannot be over emphasised (Dahiru, 2017). This is in view of the fact that the international community which is largely behind most of these operations view the natural resources and environmental quality issues of growing economies as secondary to their mission of improved internal growth and development, which is antithetical to the immediate deserving needs and interest of the poor nations and their people, and responsible for most of the environmental problems in such areas (Dahiru, 2017).

Small-scale mining has gained global importance both as a source of subsistence (for the

poor) and environmental degradation (UN, 1996). This is true for Azara barytes mines, where it is a small scale, privately-owned primitive activity that proceeds with little or no regard for environmental best practices and sustainability (Chaanda, Moumouni, Goki, and Lar, 2010; Dahiru, 2017). Recent global and indeed national socio-economic challenges have stimulated the growth of small-scale mining in Nigeria. This is true for this study area, where the operation employs all manner of people like the aged, child bearing women and school-aged children, who perform different kinds of tasksin the mines, with far reaching implications on the economy. This operation is the ready means of livelihood through instant employment and gratification for the poor unskilled and uneducated that see it as a last resort for escaping from the excruciating weight of poverty and social marginalization (Heemskerk, 2001).

Although the current scale of barytes mining operation in this study area is much lower than it was previously, the operation nonetheless adversely impacts the environment in many complex ways. This may be as a result of the crude and rudimentary implements being used, poor technical knowhow of the operators, and the use of mere intuition in locating and exploiting the material from the ground (Dahiru, 2017).

Statement of the Problem

Azara barytes mining is an age long activity, and the second most important economic activity after agriculture. This activity seems to be progressively pulling the youths out of agriculture, education and other worthwhile endeavors and turning them into hired hands on the mine fields, with the implications of depriving the other sectors of the source of labor and momentum, increasedchallenges of food security and social vices, and brewing a mass of uneducated population. It also seems to be pushing the farmers off their lands through the lucrative sale of their farm lands that are turned into mining plots, thereby ravaging the poor and the environment the more, and creating large scale wastelands in the end. This is not only another disincentive to enhanced and sustained agricultural productivity and food security, but also a disincentive toenvironmental sustainability and well-being of the people on the long run.

Though catalytic in national growth and development, this activity is however associated with accelerated environmental degradation as is the case with the proposed extensive and lush '*Rafin Paa*' forest reserve area of the State, and the danger of the release of lead associated toxic elements (like Ar, Cd, Sb, etc., as in Zamfara gold mines) to the environment, with the potential of killing people in droves (especially children, who are used extensively in some of the mine operations). This area is also deficit in literacy and skills with the belief that its

barytes deposit is infinitely abundant and available to all, and hence its indiscriminate exploitation in a sort of 'frontier mentality' by virtue of which the people are unwittingly destablizing the very fabric of their survival and wellbeing on the long run.

Therefore, this study seeks to investigate the motives behind the activity and the perceptions of the various mining stakeholders of this very activity (e.g the active and passive miners, the locals, traditional rulers, the youths, market women, and the elders) on the ways to efficiently employ the best mining operation techniques without endangering the environment and adversely affecting the livelihoods of the people. This study seeks to examine the motives behind Azara barytes mining operations of Nasarawa State with the aim of analyzing its driving forces and socio-economic implications.

The first section of this work is the introduction, section 2 explains the conceptual and theoretical framework, section 3 discusses mining environmental impact and sustainability. Section 4 expounds the methodology employed in the study while 5 presents the results and discussions arising from the analysis. Section 6 concludes the paper.

CONCEPTUAL AND THEORETICAL FRAMEWORK

This work is anchored on the "ecosystem service" concept, which is described as the benefits people derive from utilizing ecosystems, as well as the "environmental sustainability" paradigm, which is the long-term maintenance of ecosystem components and functions (Neville et al, 2010 and Doris et al, 2005). With regard to this work, it is expected that all mining environmental impacts (MEI) are positive in nature, and if otherwise, they are at least within acceptable limits, as well as basing all development policies on the comparison of cost and benefit principles to the environment for sustainable welfare and development.

This concept regards environmental sustainability as a balance between the desired ends and the costs involved, as well as a balance between the sustainability tripod (i.e environmental, economic, and social) which are important and indispensable in the overall sustainability equation (World Bank, 2006). The people of Azara area were purely agrarian before the commencement of barytes mining in the 1970s, which diversified their socio-economy and adversely affected their natural environment and well-being (Dahiru, 2017). The ecosystem service concept is focused on the links between ecosystem services and well-being of man, since human demands and consumption of natural resources have grown with escalating impact on the environment. This problem is compounded by the increasing reduction in the capacity of ecosystems to continue to sustainably provide their services and the corresponding increasing demand for its resources by the growing population of the earth. In most partsof the world, ecosystem degradation is exacerbated by the poor understandingof its workings, lack of environmental best-bet practice, and the belief that environmental resources are

infinitely available for all to use and pass on to the coming generation. But the growing demands on the increasingly degraded global ecosystems diminish and jeopardize this prospect. The importance of this concept to this study therefore cannot be overemphasized because, while the ecosystem in Azara area provides barytes and other benefits, the increasing demand on this ecosystem for uses such as farming, grazing, and fishing, has resulted rather in drastic fall in its stock and pay offs; it's ability to continuously provide for its dependants on a sustainable basis, as well as the degradation and pauperization of the area at the end. Hence sound ecosystem management is very important, and should involve steps to address the utilitarian links of people to it (MEA, 2005).

MINING ENVIRONMENTAL IMPACT AND SUSTAINABILITY

One of the most poignant paradoxes in life is that man's livelihood activities pose the most potent dangers to his survival and well-being, and it is why regulatory measures are necessary in order to guide and reduce the adverse impact of such activities on the ecosystem as well as help in achieving environmental sustainability (Dahiru, 2017). Though mining adversely impact the environment, it is however catalytic in national growth and development (Bell, 2001).

Most of the environmental problems today are not necessarily due to deliberate intents or disregard for the environment, but are bye products of genuine efforts at worthwhile goals as shown by Noggard (1994), According to him, man influences the ecosystem in manners not likely to result in precisely the very outcomes he initially planned for, and hence capable in principle of inducing real catastrophes at the end. For instance, the farmer who applies Nitrates or other forms of fertilizers on his field which run down the land and add to pollution problems in adjoining lands and water bodies is only trying to make it more productive. The housewife who uses phosphate detergent for her laundry only hopes to make her clothes cleaner and ease up her chores, and so also those who mine materials by surface and other methods attempt to produce their ores at the lowest practicable unit cost possible. Since all mineral production involves some costs and benefits, a logical corollary is that increased demand for these materials will result in corresponding change in the magnitude of their impact on the environment (Dahiru, 2017).

Mining causes significant changes on the nation's socio-economic and physical terrains. For instance, surface mining affects an entire ecosystem, leading to changes in marginal lands and soil fertility/productivity, and perhaps, it has the greatest impact on the land environment in terms of its utility/functionality. For instance, it is a well-known fact that pre 1930, the defunct Plateau State (comprising the study area) was a thickly forested

area with huge potentials for quality arable lands and rich biodiversity that are completely lost to mining today (Mallo, 1999).

Also, some of the abandoned paddocks now serve as means of livelihood for dry season and fish farmers as exemplified by the "Joe Garba" Rock water fish farm,Jos. In the same vein, some of the un-reclaimed pits around the Federal University of Agriculture Makurdi now provide water to the host community in the dry season when the resource is very scarce and highly sought after. In many other cases too, mining has led to the development of rural roads and other infrastructures that serve both the miners and the wider communities alike. Also, mining communities have contributed to the growth and development of strategic towns and cities in Nigeria such as Enugu, Jos and Port Harcourt (Odeku, 2001; Dahiru, 2017).

METHODOLOGY

The Study Area

The study area is Azara; an area within Awe Local Government Area (LGA) of Nasarawa State that is about 110 km South-East of Lafia. It lies within the famous economic mineral-rich Benue trough of the north central Nigeria, on an approximately, 1,535.5km^2 expanse of well drained land (Offodile, 1976; Obaje, 2006) within 08^0 15' and 08^0 30'E Longitude, and 09^0 04', and 09^0 23' N Latitude, on the Northern tip of Awe LGA. The area is also an important agrarian community that is endowed with Rivers, Lakes and Ponds, large forest land and other resources, with a population of 120,000 people according to the 2006 census.

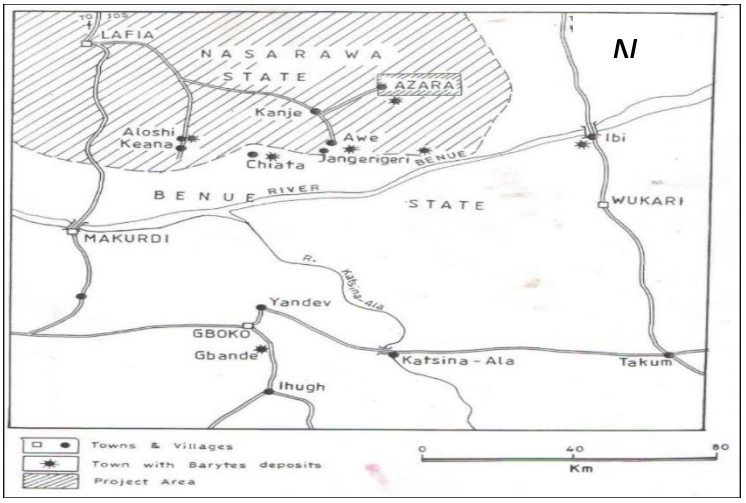

Figure 1: Map showing project and barytes rich areas

Source: Offodile, etal.,(1997

Figure 1 depicts areas with barytes deposits in Azara and other locations (Kanje and Aloshi) within Awe logal government area and Keana.

Methods of Study

This work is explorative and descriptive in nature, and hence a causal comparative research design was adopted for it in order to investigate existing relationship between the variables of interest, and using its findings to establish a relationship conclusion especially where none of the variables of interest has been manipulated before. The following approaches are therefore adopted for it:

1. Observations of the geophysical conditions of the mines and adjoining areas, with the intent that any significant anomaly (relative to the mines) may be attributed to the mining activities therein;
2. Interviews with respondents on the impact of mining, their perceptions, and the way forward.

Types and Sources of Data

Two types of data were used in this study, which consist of stakeholder awareness and public perceptions of the activity and its environmental impact. The main sources of data are the primary (through field observation of the mines and oral interviews with target respondents), and secondary sources (through the review of relevant literature materials). The study population consist of 300 respondents as miners and other stakeholder groups (within and outside the mines).

Sampling Technique and Study Respondents

Purposive sampling technique was used in interviewing respondents in order to accommodate the heterogeneous nature of the respondents (which comprise the miners, community leaders, the elites, market people, the porters, and the youths). The opinion/perception of this group was sought on barytes mining, its advantages and disadvantages to the people/environment, the role of the state government, mining decisions and motive, and the way forward (See Table 1).

Table 1: Sample Size Distribution of Respondents

Respondents	No	%
Miners	150	50.0
Farmers	69	23.0
Nomads	27	9.0
Civil Servants	21	7.0
Traders	15	5.0
Community Leaders	09	3.0
Youths	05	1.7
Women group	04	1.3
	300	100

Source: Field work

RESULTS AND DISCUSSION

The Products of Mining, Mining Decisions and Motives

Azara barytes mining is a lucrative activity with low entry requirements. It offers more instant benefits than many other primary activity, as one does not have to invest one's money in the business, and therefore, one does not have to wait for any set period to earn any return on his money/investment, but needs only to be healthy/strong and ready to work. Its products are important aspects of life and the environment that are represented by the six major groups of solid minerals, namely: metallic, precious, gemstones, specialty metals, mineral fuels, and industrial minerals (Ogezi, 2008). These products support the very foundation of our economies and development; from the stones and gravels for building our roads, houses and other structural edifices, to fossil fuels in the form of oil and gas that are used as forms of energy and in the generation of revenue and Foreign Direct Investment (FDI) (Dahiru, 2017).

On the other hand, mining motives and decisions are the underlining reasons for engaging in mining by its practitioners as 'instant gratification and ready employment'. The miners, though deficient in skills and literacy believe that, their decisions about the activity is more rational than meet the eyes, as none of them denied the inherent problems associated with the operation. All the miners and the non- miners alike are in the business to cater for their immediate needs; its guarantee to offer instant (daily) income, free access to the mines, and lack of alternative/better paying jobs amongs others.

Azara barytes mining is environmentally intensive, extensive, devastating, and unsustainable in nature, given its nature, scale and the implements used. 100 to 200 people work daily in the mines depending on the season of the year. This number gets closer to 300 or more in the dry season and fewer than 100 in the rainy season. Economic reasons dominate the motives behind the activity. The miners are aged between 13-65 years. They are mostly illiterate, semi-skilled and unskilled; some are married with children. Able- bodied youths and child-bearing women constitute over 50% of the miners. The miners are mostly rural folks and poor, who work seasonally in the mines. Even though they are not necessarily involved infull-time mining activities, they nonetheless come from communities with long history of small-scale mining, thereby bringing their long standing experiences to bear on the various aspects of the operation they are involved in.

Findings

Though artisans, the respondents are aware of the adverse impact of mining,and hence they do not wish to continue with it forever, or for their children to be perpetually engaged in it. All the responses agreed that mining was 'an activity in disharmony with the desires and realities of the people and the environment' (Solomons, 1995). The main motive for mining according to the people is 'Poverty' (71%); the 'need for daily income' (57%); 'lack of (other) well paying jobs'(49%); 'poor farm land/yields' (46%); 'meeting immediate needs' like family health, shelter and others, (31%); and 'other problems' like bankruptcy/debts, natural disasters, civil strife, (22%), and others (11%).

The Azara barytes endowment is regarded as an ancestral blessing that outlives all, and hence its wanton exploitation and the phenomenal devastation of the environment. Also, health and environmental risks are clearly down played or completely disregarded issues in this area, with the people taking both for granted. The miners are a very high self indulgent group that employ all manner of intricate schemes and ad hoc measures to mitigate their health conditions,like returning to the town after months of hard work to rest and build up their strength; self medication and extensive use of herbs and devouring of all sorts of food items believed to be body building/health enhancing; fetishisms, or spiritualism among others. Also according to the people, barytes mining is a risky activity that one cannot engage in for long. One only does it for a short period in order to set up other jobs/business, with earnings from the activity regarded as quick money that easily fretter away, and hence the manner the miners spend it out in the field, with the belief of immediate replenishment on return to the pits. These and similar comments are common in the mines, suggesting the life styles of the miners and the perception that mining is only a short term sacrifice to resolve immediate problems and eliminate larger structural

problems affecting the people (Ibro, 34, a pit worker). These views suggest that mining decision and impact are not driven by ignorance or carelessness, but by clear insights and expectations for accruable benefits from the operation.

Perception of Respondents on Mining

As a way of life, barytes mining will continue to take place in this area for as long as barytes exist (Table 2), because of the benefits it affords the people as well as the belief and value system of the people. The respondents' perception of mining environmental impact (MEI), where questionnaire Items 1-10 were used to answer questions on the subject of the study, with decision per item arrived at based on the total response type. From the table also, barytes mining can be seen to adversely impact its locality. The respondents generally perceive the activity as unsustainable, and hence the need, according to about 54% of them, for it to be regulated by the state government. About 52 % of the respondents were of the view that periodic environmental audit of the mines and surrounding areas be conducted to ascertain the extent of changes by the operation on the areas, with a view to putting appropriate measures to ameliorate its adverse impacts and enhance the favorable ones.

Table 2: Summary of Responses on Mining Decision/Future Goals in the Mines

Responses	% (Yes)	% (No)
Mining cause both environmental and socio-economic problems in an area	68	32
Miners desire better and less strenuous jobs outside the mines	64	36
Miners want to quite mining as soon as they make enough for their dream jobs	61	39
Miners don't mind their children becoming miners in the future	34	66
The people (farmers in particular) are worried about mining induced devastation on the environment	6	26
Total	**301**	**199**

Source: Field Work

Mining Decision/Future Goals in the Mines

68% of the respondents believed that mining causes both environmental and socio-economic problems in the area. They (64%) also desire better and less strenuous jobs, an

indication that they do not enjoy the activity since 66% of the people do not wish to see their children become miners in the future.

Table 3: Analysis of Mining Motives

Motive	No of Respondents	%
Poverty/unemployment.	71	24.7
Daily income	57	19.8
Lack of other well paying jobs	49	17.1
Poor farm yields	46	16.0
Family needs	31	10.8
Bankruptcy	22	7.7
Others (vacation jobs, adventure)	11	3.8
Total	287	100.

Source: Field Work

Mining Motives

Table 3 shows the percentage distribution of the motives behind mining activity in the study area. 61.6% of the respondents engage in mining activity as a result of unemployment, the need for daily income and the lack of well paying jobs. 16% attributed poor farm yields as the motive behind their involvement in mining activity. Family needs constitute 10.8% responses.

Table 4: Perceptions of Respondents/Stakeholders on Mining

Perception Options	Yes	%	No	%	Not sure	%
> Degradation of the environment	176.0	63.5	79.0	28.5	23.0	8.3
□ Loss of environmental aesthetics	147.0	53.1	97.0	35.0	33.0	11.9
□ and value Water quality disturbance	143.0	51.6	93	33.6	41.0	14.8
□ Loss of biodiversity and livelihoods	109.0	43.4	119.0	41.0	49.0	16.6
□ Land-use problems and other	117.0	47.2	121.0	41.6	39.0	11.1
□ Conflicts Environmental sustainability	127.0	54.8	107.0	33.6	43.0	13.2
□ Food security risk	139.0	52.1	83.0	30.0	55	16.8
□ Practice regulation	137.0	52.5	89.0	31.1	51	17.4
□ Increased social vices	129.0	46.6	114.0	41.1	34.0	12.3
□ Environmental audit & impact Assessmen	147.0	52.1	87.0	31.4	43.00	16.5

Source: Field Work

Perceptions of Respondents/Stakeholders on Mining

More than half of the respondents were of the view that mining leads to the degradation of the environment, loss of environmental aesthetics and value, hampers environmental sustainability, and affects water quality. They also support environmental audit and impact assessment and believe that mining operation threatens food security.

CONCLUSION AND RECOMMENDATIONS

Barytes mining is an important driver of environmental and socio-economic changes in the study area especially because of its nature/scale, the technology employed, socio- cultural and value system of the people and, ability to offer ready employment and income to the people. The findings of this study have shown the significance of mining environmental impact, the need for environmental best practices in mining; mining environmental regulations, as well as sound developmental policies. Its findings have also shown that Azara baryte mining will continue to adversely impact the environment if cogent measures are not put in place to curtail its adverse effects, especially because of its free for all and primitive nature.

The principal issues with this mining activity include land disturbance, poor farm yields and quality of crops; belief and value systems of the people; heavy metals in the soils and waters; diminished common property resources, and poor safety of the operation, which all have real implications for environmental sustainability, utility, and well being of the people (Dahiru, 2017). Although mining requires much less land space than other primary

activities, it however has the harshest environmental consequences that are hard to mitigate, and hence the need for the following:

1. Concrete mitigation measures to ameliorate its adverse social and physical environmental effects.
2. Environmental education/awareness, best practice and appropriate regulations, without which mining areas will be faced with increased ecological liabilities and backwardness.
3. Deliberate policies and programs for balanced and equitable development that will ease the pressure on the environment, stem down the need for artisanal mining and its adverse effects, as well as provide alternative and more rewarding livelihood pathways for the people.
4. The state should as much as possible discourage the prevailing small scale and primitive baryte mining in Azara area by transforming and formalizing it in order to bring its benefits to the reach of both the State and the public, and encourage more efficient large scale operation by wooing corporate sector led investments into the operation.
5. Proactive measures for effectively curtailing adverse MEI and safeguarding the areas' overall integrity.

REFERENCES

Akpofure, E. & Echonu, N. (1991). Environmental Impact in Nigeria. *International Journal of Science and Technological Research.* 3 (1). 23-29.

Chaanda, M.S. N.G Moumouni, A. Goki, N.G. Lar, (2010). Environmental Impact of Artisanal Barite Mining in Azara Area, Middle Benue Trough, Nigeria: *Online Journal of Environmental Sciences*, 10(1). 38-42.

Dabi, D. D. and Nyagba, J. L. (1999). An alternative approach to the reclamation of the Mine Lands on the Jos-Plateau Nigeria. *Journal of Environmental Science* . 42(5), 707-734.

Dahiru, M. K. (2017). Impacts of Barytes Mining on the Environment of Azara, Nasarawa State. PhD. Thesis, University of Jos-Nigeria.

Donald, B. (1970). Barite: World Population, Reserves, and Future Prospects. Geological Survey Bulletin, 1321. United States Government Printing Office, Washington: 1970.

Heemskerk, M. (2000). Driving Forces of Small Scale Gold Mining among the Ndjuka Maroons: A Cross-Scale Socio-Economic Analysis of Participation in Gold Mining in Suriname. Unpublished Ph.D. Dissertation,

University of Florida, Gainesville.

Kogbe, C. A. (1989). *Geology of Nigeria.* Rock View Nigeria Ltd., Jos- Nigeria.

Lar, U.A., & Sallau, A. K. (2005). Trace Elements Geochemistry of Keana Brines Field, Middle Benue trough, Nigeria. *Journal of Environmental Geochemistry and Health*, 27 (4).

Mallo, S. J. (1999). Reclamation of Minedout Areas. A Case Study of the Jos –Plateau. Nigeria Mining Journal. 3(1), 17-25.

Millennium Ecosystem Assessment (MEA, 2005). Ecosystem Services and Environmental Sustainability. UN, Washington DC.

Neville, R., Andrew, J.S. William, M. S., Neeru, S. E., & Pascal S.R. (2010). Achieving Sustainable Environment through Ecosystem Management and Resource Conservation: The Global Challenge N. Y. Wargner Books.

Obaje, N.G. (2007). Geographical Perspective of Nasarawa Stae. Onaivi Press Ltd.

Odeku, P.S. (2001). The Prospects of Solid Minerals in the Socio-Economic Development of Nasarawa State. Unpublished M.Sc Proposal, Nasarawa State University, Keffi.

Offodile, M.E. (1976).The Geology of the Middle Benue Trough of Nigeria. A Publication of the Paleonthological Institute of the Upsala University, No., 4. Upsala University.

Omotola, J.A. (1990). Environmental Laws in Nigeria(Ed). University of Lagos Press

Osuntokun, A. (1998). Current Issues in Nigerian Environment. Davidson Press, Ibadan World Bank. (2001).

World Bank (2001). World Development Report. Washington DC, USA.

World Bank (2006). Mainstreaming the environment. The World Bank Group and the Environment since The Rio Earth Summit. The World Bank, Washington: DC

ANALYSIS OF INSTITUTIONAL QUALITY, HUMAN CAPITAL AND ECONOMIC GROWTH IN NIGERIA

Yerima Gimba Alhassan
Department of Economics and Development Studies,
Federal University of Kashere, PMB 0182, Gombe State-Nigeria.
ygalhassan@gmail.com
(+234)8036329326

Kabiru Mohammed, PhD
Department of Economics and Development Studies,
Federal University of Kashere, PMB 0182, Gombe State-Nigeria.
ygalhassan@gmail.com
(+234)8036329326

Shehu El-Rasheed, PhD
Department of Economics and Development Studies,
Federal University of Kashere, PMB 0182, Gombe State-Nigeria.
ygalhassan@gmail.com
(+234)8036329326

Mustapha Yusuf Kabara,, PhD
Department of Economics and Development Studies,
Federal University of Kashere, PMB 0182, Gombe State-Nigeria.
ygalhassan@gmail.com
(+234)8036329326

Hassan Yusuf Abdulwahab, PhD
Department of Economics and Development Studies,
Federal University of Kashere, PMB 0182, Gombe State-Nigeria.
ygalhassan@gmail.com
(+234)8036329326

Nadani A. Abdulrahman
Department of Economics and Development Studies,
Federal University of Kashere, PMB 0182, Gombe State-Nigeria.
ygalhassan@gmail.com
(+234)8036329326