

THE NIGERIAN MINING SECTOR: AN OVERVIEW

Stephen J. Mallo

Department of Geology and Mining University of Jos, Nigeria

ABSTRACT

That the mining of minerals contributes only a meager 0.3% to the GDP of the national economy given the enormous mineral potential of Nigeria, is disheartening to say the least. Many a reason has been attributed to this abysmal performance of the sector, with over-dependence on the country's vast and non-renewable oil resources as the most convincing reason. Organized mining having started over a century ago and specifically in 1903, as against the discovery of oil in 1956 indicates that all having been equal, un-employment, poverty, etc would have been presently only at its barest minimum. Nigeria's non-oil mineral resources consist of strategic Minerals that can thrust the nation into the committee of industrialized economies of the world. The paper examines the mineral potentials of Nigeria, the mineral policy framework, state of privatization of Public Mining Companies and its capacity to transform all sectors of the national economy through wealth creation, providing employment opportunities and by equipping Nigerians with the requisite skills, development could spread to the local small scale industries striving in the informal sectors of the national economy.

KEYWORDS: Mechanized Mining; Privatisation; Mineral Deposits; International Investors.

HISTORICAL BACKGROUND

The history of organized mining in Nigeria began in 1903 when the Mineral Survey of the Northern protectorates was created by the British colonial government. Following this development, the Mineral Survey of the Southern Protectorates was founded one year after. For the next four decades after, the mining industry witnessed the influx of British and German foreign mining companies such as the amalgamated Tin Mining company of Nigeria, Exlands, Gold and Base Metals, etc. These companies introduced mechanized mining which led to higher productivity of the mines and consequently land devastation as no law was put in place by the colonial government to guide mineral extraction. By the 1940s, Nigeria was a major producer of tin, columbite, and coal. The increased world demand for petroleum products coupled with the collapse of the international market for mineral commodities and the indigenization decree of the early 70s compounded the ability on Nigeria to sustain the tempo of mineral development.

Tin/Columbite: Tin and columbite was extensively mined from the Jos Plateau, with more than 90% of the cassiterite mineral produced in Nigeria then coming from the plateau highlands. The mining however extended to the south as far as Wamba; in the west to Kafanchan in the north to Bura and in the East to the Jarawa hills. Mining activities also took place in Bauchi and Kano areas of Ningi and Ririwei respectively. Tin production increased rapidly from 1.36 tonnes in 1904 to 5,573 tonnes ten years later, reaching its peak production level of 15,842 tonnes in 1943. The sub-basalt tin of Ngell is believed to still have an untapped reserve of about 3500 tonnes. The Makeri Smelting Company was later established in 1961 for the purposes of smelting high-grade alluvial tin concentrates in two standard oil fired reverberatory furnaces. The company had its highest production of 1,400 tonnes per annum of concentrates in 1968 declining steadily thereafter, until, the late 70s and early 80s when the intake was already below 50000 tonnes per annum. During the same period lead and zinc was also mined in Zurak and Ameri in Northern (Plateau) and Enugu/Ogoja- Southern Nigeria respectively (Mallo 1999).

Coal: The mineral was first discovered in Enugu in 1909 and by 1916, the Agbete Mine had begun coal extraction. By 1920, coal production had reached 180,122 long tons (201,737 short tons). The peak in coal production was in the late 1950s, and by 1960 production was at 565,681 long tons (633,563 short tons). The Nigerian civil war brought some set backs as mines were abandoned to a point of no recovery. There were attempts by the Federal government to mechanize the industry in the 1970s and 1980s with unsuccessful results due to problem of implementation and equipment/machinery sustenance.

Gold: The production of Gold dates back to 1913, in northern and southern Nigeria reaching its peak in the 1930s. The mining of gold was accomplished by colonial mining companies. The second world war of 1943 affected production. The mines were abandoned by the colonial companies, and production never recovered. Gold deposits in Nigeria are found in Maru, Anka, Malele, Tsohon Birnin Gwari- Kwa, Gurmana, Bin Yauri, Okolom-Dogondaji and Iperindo in Kwara State (Nyabo 2001).

Bitumen: Exploration for bitumen in Nigeria began as far back as 1905 when Mineral Survey of Southern Nigeria drilled sixteen (16) shallow boreholes in the western most part of a line of oil seepages now known as the tar sand belt. Recently, between October 2002 and July 2005, a total of sixteen (16) core holes were drilled in different locations, which showed the prominence of high Tar sands and bituminous deposit.

Iron Ore: Nigeria has several deposits of iron ore, but the purest deposits are in and around Itakpe in Kogi State. The National Iron Ore Mining Company was founded in 1979 and given the mission to explore, exploit, process, and supply iron ore concentrate to the Ajaokuta Steel Company (ASCL) in Ajaokuta and Delta Steel Company (DCL) in Aladja. Additional demand has come from several steel rolling mills. The company and its mining operations are based in Kogi State. Export of excess iron ore beyond what is required for domestic needs is currently being explored. Additionally, the Nigerian government has invested in foreign iron ore operations in Guinea (Mallo 2007)

Uranium: The Nigeria Uranium Mining Company (NUMCO) was a parastatal organization that controlled the exploration and mining of uranium in Nigeria and was a public/private partnership with Total Compagnie Minière of France, which owned 40% of the company. In 1989, Total pulled out of the partnership, and in 1993 the government reassigned NUMCO's responsibilities to the Nigerian Geological Survey. The NUMCO Corporation was dissolved in 1996, and the government is in the process of liquidating its remaining assets:

Recently, several important uranium deposits were discovered in Cross River State, Adamawa State, Taraba State, Plateau State, Bauchi State, and Kano State by the British Geological Survey. Nigerian Federal Government had declared 2007 the 'Mineral and Mines Year'. Nigeria has numerous solid mineral deposits and the government is throwing the sector open through appropriate reforms to international investors. The country is believed to have about 76 minerals that are scattered across all the states of the federation. Nigeria's portfolio of minerals includes energy minerals, industrial minerals, metallic minerals, semi precious minerals and gemstones

The post- independence period in Nigeria experienced an upsurge in foreign investments. Nigeria then as many governments of the world, the provided favorable monetary and fiscal incentives to attract foreign investments. The protection of such investments was also guaranteed through trade agreements. The decline of mining in Nigeria was as a result of two major reasons; the discovery of oil in 1956, and the introduction of the indigenization Decree of 1972. This decree led to the establishment of the Nigerian Mining Corporation (NMC) and the Nigerian Coal Corporation (NCC) with specific mandates (Mallo 2003). The list of metallic Minerals is presented In Table 1.

Table 1: Metallic Minerals in Nigeria

S/N	MINERAL	LOCATION	ESTIMATED RESERVE	USER INDUSTRIES	EX-LOCATION	QUALITY
1	Gold	Ilesha (Osun State) Niger State ,Igarra (Edo State), Sokoto State Kaduna State, Kwara State		Jewellery and ornament industries	Most of the deposits are not exploited	
2	Lead-Zinc Ore (Galena)	Ririwai (Kano State) Zuru (Kebbi State) Wase (Plateau State) Ababaliki (Enugu State) Ohaozara, Ishiagu (Abia) Bauchi, Kogi and Cross River States	1,200,000 (in Abakaliki) other deposits are yet to be analysed	Lead and Zinc for battery manufacturing and engineering industries	Most of the deposits are not being exploited	Lead (Pb) 70% Zinc (Zn) 29%

3	Iron Ore	Itakpe (Kogi State), Benue State, Sokoto State, Bauchi State, Borno State, Plateau State, Enugu State	2,500,000,000	Steel manufacture and engineering works	Steel manufacturing and steel rolling mills have been established to exploit some of the deposits.	
4	Columbite	Plateau State, Kaduna State, Buachi State, Kano State, Akwa-Ibom State		Used for producing special steels, ferro-alloys, electronics tube filaments (in rocket and aircraft manufacture)	Small quantities are being exploited. Level of exploitation is < low.	High grade
5	Ilmenite	Jos, Plateau State, Abakaliki in Enugu State		Production of titanium dioxide pigment, and in steel industries	Lack of appropriate technology that can convert ilmenite proven on the Jos Plateau	
6	Cassiterite	Jos, Plateau State, Kwara, Benue, Niger and Ondo States		Tin plating, hardening of copper and lead in alloys	Partial exploration and exploration	High grade
7	Uranium	Ammunition, defense industries, generating electricity			Very low exploration, investigation and exploitation	
8	Copper	Rishi (Bauchi) Zakare, and Banki in Kano State		Used in ammunition, communication and steel industries	Detailed exploration and evaluation required	
9	Molybdenite	Kigom, Plateau State and Ondo States		Special steel , radar equipment, chemical and paint industries	Detail exploration and evaluation required	
10	Manganese		Kaduna, Niger and Sokoto States	Special steel alloys abbrasives, etc	Lack of detailed exploration and development	
11	Wolframite	Electrical and electronic industries	Plateau and Kaduna States	Special and electronic industries	More detailed exploration and evaluation needed	Good quality
12	Rutile and Diorite	Plateau and Kaduna State		Used in stainless and special steel for military hard wares, also as fillers	Lack of detailed investigation	High grade

Source: Mallo (2007)

The Nigerian Mining Corporation was to play a dominant role and to act as a catalyst in the development of the mining industry in Nigeria, charged with the following functions:

1. Exploring and prospecting for, mining or otherwise acquiring, processing and disposing of minerals of various kinds occurring in Nigeria other than petroleum or coal;

2. Smelting, roasting, assaying, amalgamating, refining, or otherwise treating the minerals aforementioned in any manner calculated to render the products and by-products of any such minerals marketable;
3. Purchasing the ores or the products and by-products of any of the minerals aforementioned from any source outside Nigeria in any case where they are not available in Nigeria;
4. Marketing the ores, products and by-products of any or all the minerals aforementioned
5. Performing the other functions conferred on it by or pursuant to this Decree.

The poor performances of these Public Mining Institutions (PMIs) and their inability to adequately deliver on their respective mandates pre-empted the establishment of new mineral policy frameworks in line international best practices. Consequently, these PMIs have been packaged for privatisation to private mining investors.

PRIVATIZATION OF MINING COMPANIES

THE MINING SECTOR: The mineral sector has great potential for generating investments that could lead to wealth creation through employment and poverty reduction. Privatisation policy is actively being pursued in the sector with public interests already divested in some of the enterprises. These interests were previously owned by the Coal Corporation and the Nigerian Mining Corporation.

There are several mining projects being slated for privatisation in the sector throughout the country. There have successful undertakings in this regards. These include the companies and firms with interests in bricks and clay products and in Mining Titles such as Lead, Zinc, Barites, Copper and Salt. Bitumen Blocks are also being privatised including lignite and other minerals.

As part of the on-going reform programme in the Minerals Sector, the Ministry of Mines and Steel Development (MMSD) as mention earlier, is divesting from all its ownership interests in the sector. These interests were previously held through the Nigerian Mining Corporation (NMC), Nigerian Coal Corporation (NCC) and other Federal government owed-owned entities under the Ministry. In line with government best practices the world over, the MMSD is focussing solely on its role as administrator-regulator, while the private sector acts as owner-operator.

To this effect, the Bureau of Public Enterprises (BPE) has packaged several of the enterprises hitherto held by NMC and NCC for privatising to qualified private investors under competitive bidding processes. Consequently, there are three major areas in the mineral Sector slated for privatisation:

1. The Nigeria Mining Corporation (NMC) and its subsidiaries;
2. The Nigerian Coal Corporation (NCC); and
3. The Bitumen Blocks

The objectives of the privatisation process are:

1. To secure investors with demonstrated commitment and technical expertise to conduct the systematic exploration programmes that are necessary for the delineation of further mineral resources;
2. To secure credible investors with the capability and commitment to develop mineral extraction and beneficiation projects over the medium to long term;
3. To obtain fair value for the investments made by the Government and other state owned entities in the mineral properties to date;
4. To promote the development of a local skills base in mineral exploration and mining;
5. To recognize and formalize small scale and *artisanal* mining; and
6. To encourage participation of indigenous investors in the sector, in line with the spirit of the Nigeria Local Content Legislation.

The privatisation strategy adopted has been the unbundling of the Corporations into core and non-core assets. The core assets are sold to private investors under competitive bidding while the non-core assets are appropriately packaged sold to the general public also under competitive bidding process.

A. Investments Companies of the Nigeria Mining Corporation (NMC).

The Nigeria Mining Corporation which was hitherto 100% owned by the Federal government had about 21 subsidiaries, 22 Associated Companies(Out of which 4 are in foreign holdings: Niger Uranium(30%); Guinea Uranium(25%); Guinea Bauxite(13%); Niger Phosphate(10%)) and over 60 Mining Titles that have been slated for privatisation. The following enterprises (subsidiaries of NMC) and Mining Titles have so far been privatised out of the afore-mentioned since their advertisements in June 2006:

(i) Bricks & Clay Product Companies

- Ikorodu Bricks & Clay Product Company, Ikorodu;
- Ibadan Bricks & Clay Product Company, Ibadan;
- Enugu Bricks & Clay Product Company, Enugu;
- Kano Bricks & Clay Product Company, Kano; and
- Kaduna Bricks & Clay Product Company, Kaduna

(ii) Quarry Companies

- NIMCO Quarry, Suleja; and
- Kuru Quarry, Jos.

Efforts are being made to privatise the remaining Bricks and Quarry Companies since the companies. They are as follows:—Naraguta Bricks & Clay Product Company, Jos; Maiduguri Bricks & Clay Product Company, Maiduguri; Izom Bricks & Clay Project, Izom- Niger State; Kujama Quarry, Kaduna; Gubi Quarry, Bauchi; and Gano Quarry, Kano.

(iii) Metals & Industrial Minerals

The following are the metals and industrial mineral companies that have been privatised:

- Nigerian Kaolin Processing Co. Ltd; Kuba/Ladi LG Plateau State
- Nigerian Barytes Mining and Processing Co. Ltd, Azara, Awe LG, Nasarawa.
- Nigeria Tin and Allied Products Ltd, Gurum Plateau
- Nigeria Tin and Allied Products Ltd, Rafin Jaki-Bauchi State.
- Nigeria Tin and Allied Products Ltd, Banke-Kaduna
- Igunn Gold District, Ilesha, Osun State

iv) Mining Titles

- ASEPL 202 (Lead, Zinc, barites, Copper, Salt), Ogoja
- ASEPL 203 (Lead, Zinc, barites, Copper, Salt), Ogoja
- ASEPL 204 (Lead, Zinc, barites, Copper, Salt), Ikom

The properties constitute only a small fraction of the mining projects slated for privatisation, four years (by 2010) into the process. The slow patronage of these mineral concerns is a pointer to the fact that all is not well with the investment climate in terms of both fiscal and monetary policies of the government in addition to a conducive investment climate.

B. Investment of the Nigerian Coal Corporation (NCC)

The Nigerian Coal Corporation (NCC), established in 1950, had the exclusive rights to mine coal in Nigeria until 1999, when the Federal Government of Nigeria established a policy and legislation that de-regulated mineral exploration and exploitation. Coal exploration in Nigeria started as far back as 1916. The proven coal reserves in Nigeria so far totals about 639 million metric tones while the inferred reserves sum up to 2.75 billion metric tones.

The Federal Government decided to commence the rehabilitation of coal industry in 1995 by way of providing funds for mine development and provision of infrastructure to attract private sector investments to the coal industry in Nigeria. This opened up the sector to private industry participation and resulted in joint ventures on an equity participation basis. FGN is currently divesting from all of its operating interests in the sector.

Out of the 22 Coal Blocks owned by the Corporation, 10 are being prepared for privatisation.

C. Investments of the Bitumen Project

Bitumen Blocks

The following Bitumen Blocks have been concessioned to private investors:

- Bitumen Block 1 in Ondo/Ogun States
- Bitumen Block 2 in Ondo State

CURRENT STATUS OF PRIVATISATION (NMC & NCC)

- (a) Under Nigeria Mining Corporation (NMC). The following Mining Titles and Coal Blocks were advertised in both Local and international newspapers between October 2006 and February 2007. Expressions of Interest (EOIs) were received and evaluated. Prospective bidders have been pre-qualified to move to the Due Diligence stage (BPE 2010).

Mining Titles : The mining titles consist of a total of 13(1 PL; 2SML; 9 EPL and 1 ML) as follows:

- PL 18997 (Tantalite, Wolframite, Gemstones (Maradun, Zamfara)
- SML 21302 (Gold (Magami, Shiroro LGA, Niger)
- SML 2130 (Gold (Magami, Shiroro LGA, Niger)
- EPL 17222 (Gold (Bukkuyum LG, Zamfara)
- EPL 17223 (Gold (Bukkuyum LG, Zamfara)
- EPL 17224 (Gold (Bukkuyum LG, Zamfara)
- EPL 17225 (Gold (Bukkuyum LG, Zamfara)
- EPL 17227 (Gold (Bukkuyum LG, Zamfara)
- EPL 14000/EPL 14001 (Gold (Waya, Yauri, Kebbi)
- EPL 13212 (Talc, Gold, Cassiterite, Atakumosa, Oyo State).
- EPL 13214 (Talc, Gold, Cassiterite, Atakumosa, Oyo State).
- ML 20129 (Kaolin Kaloma-Alkaleri, Bauchi State)
- EPL 19000 (Tantalite, Wolframite, Gemstones (Maradun, Zamfara)

There are other NMC subsidiary enterprises and associated companies that are awaiting privatisation, for example, NIMCO Terrazo and Talc Projects at Gurum (Plateau State) and Okolom Isanlu (Kogi State) respectively. Efforts are being made to privatise the following quarry enterprises—Naraguta Bricks & Clay Product Company, Jos; Maiduguri Bricks & Clay Product Company, Maiduguri; Izom Bricks & Clay Project, Izom- Niger State; Kujama Quarry, Kaduna;Gubi Quarry, Bauchi; and Gano Quarry, Kano.

There are twenty two (22) NMC Associated Companies also awaiting privatisation. These are companies where NMC has interests within and outside Nigeria. The NMC shareholdings are currently being verified in these companies for subsequent consideration for divesting.

2. Under Nigerian Coal Corporation (NCC)

- Okpara Mine (Enugu State);
- Onyeama Mine (Enugu State);
- Okaba Coal Field (Kogi State);
- Ogboyoga I Coal Field (Kogi State);
- Ogboyoga II Coal Field (Kogi State);
- Ezinmo Coal Field (Enugu State);
- Inyi Coal Field (Enugu State);
- Ogwashi-Azagba Lignite Field (Delta State); and
- Amansiodo Coal Field (Enugu State)

Organisational Liabilities: The outstanding liabilities of NCC and NMC which are enormous as they include various trade balances, outstanding staff salaries and pensions totalling about N4.44 billion Naira is given Table 2:

Table 2. NMC & NCC Liabilities

S/N	Name of Corporation	Trade Balances (Contractors/Bank Overdraft) (N)	Staff Liabilities (N)	Pension (N)	Total (N)
1	NCC	71,796,908.39	42,292,415.43	2,500,000,000	2.61B
2	NMC	268,941,701.59	15,662,302.85	1,549,737,707.02	1.834 B

Source: BPE (2010)

THE STEEL SECTOR: The iron and steel sector had the potential to launch Nigeria into the prestigious club of industrialized nations. The expectation was that a vibrant iron and steel industry would provide the basis for Nigeria's growth. Development in the sector has a significant backward and forward linkage effect in the economy. The sector was also expected to contribute to wealth creation through providing employment opportunities and by equipping Nigerians with the requisite skills that could spread to the local small scale industries striving in the informal sectors. The steel companies established by government are as follows:

1. Delta Steel Company (DSC) - The Delta Steel Company is located in Alaja near Warri, area of Delta State.
2. Aluminium Smelter Company of Nigeria (ALSCON).
3. Oshogbo, Jos and Katsina Steel Rolling Companies-these are three inland rolling mills owed by government.
4. Ajaokuta Steel Company Limited.
5. National Ore Mining Company Ltd (NIOMCO).

However, by 2004 when the first case of privatization was being carried out in the sector, almost all the companies and steel rolling mills within the sector were not functioning. Only Katsina rolling mill had a semblance of a working firm because private individuals went there occasionally to convert billets to rods and bars. It was therefore obvious that a lot of effort was needed to privatize the companies since they did not seem attractive to prospective investors. These states of affairs have been the guiding norm in the privatization process.

The Bureau successfully concluded the disposal of Oshogbo and Jos Steel Rolling Mills through liquidation of their assets in 2005. The sums of N1.8 billion and N800million were paid by the new owners of Oshogbo and Jos Steel Rolling Mills respectively. While the new owner of Oshogbo Rolling Mills is Kura Holdings Limited, Zuma Steel, a subsidiary of Dangote Group is the new investors in Jos Steel Rolling Mills. Outstanding is the over N3 billion pension liabilities owed to staff of the Steel Rolling Mills. The Federal Ministries of Mines and Steel Development, Finance are primarily responsible for the pension. The Bureau is assisting in facilitating the settlement of the pension liabilities of the companies. Some progress has been made in this regards.

In 2005, the Katsina rolling Mills was successfully liquidated, with Dana Holdings Limited emerging as its new owners. Dana Holdings Limited has paid an agreed bid price of N1.041 billion. The over N1 billion staff pension liabilities being addressed the same away as other Steel Rolling Mills. In 2004, FGN represented by the Ministry of Power and Steel (the Ministry) entered into a Concession Agreement with Global Infrastructure Limited (Global) to rehabilitate, complete, commission and operate Ajaokuta Steel Plant (ASCL). The Bureau had earlier served as a member of the FGN/Ajaokuta Monitoring Committee set up to monitor progress of the concession arrangement put in place between FGN through the then Federal Ministry of Power and Steel and Global Steel infrastructure Ltd.

In May 2007, the FGN represented by Bureau of Public Enterprises (BPE) entered into another agreement with Global Infrastructure to convert the Concession Agreement into a Share Sale Agreement (SPA), at the directive of the Government. The transactions of the Iron and Steel Companies sales are presented in table 3:

Table 3: Transactions of Sales of Steel Companies

S/N	Name of Company	Year of Sale	Purchase Amount	Buyer	Issues
1	Delta Steel Company	2004	\$30 Million Dollars	Global Infrastructure Ltd	Settlement of N7Billion Naira Staff Pension
2	Aluminum Smelter Company of Nigeria	2007	\$250 Million Dollars	Dayson/Rusal Ltd	Nil
3	Jos Steel Rolling Mill	2005	₦800 Million Naira	Zuma Steel West Africa Ltd	Settlement of ₦1.5 Million Naira Staff Pension
4	Oshogbo Steel Rolling Company	2005	₦1.8 Billion Naira	Kura Holdings Ltd	Settlement of ₦1.5 Billion Staff pension
5	Katsina Steel Rolling Company	2005	₦1.04 Billion Naira	Dona Holdings Ltd	₦1.0 Billion Staff Pension

Source: After Mallo, 20:2020

MINING AND THE QUEST FOR VISION 20:2020

Nigeria has a long history of mining which dates back to 1902 with commercial mining of tin on the Jos Plateau by colonial mining investors. It is expected that by now the mineral sector would have developed in scope and depth given the early introduction of the art in Nigeria. That the mineral sector presently contributes only a meagre and un-substantiated 0.3% to GDP as against the oil and gas sector which contributes about 90% of the nation's foreign exchange earning, and about 25% of GDP is a matter of concern. How do we reconcile the Nigerian scenario with that of Ghana where mining accounts for 5% of the country's GDP; and minerals contributing 37% of total export (with gold contributing over 90% of the total mineral export) To date, Ghana is Africa's largest gold producer with production dominated by its indigenous Ashanti Gold Fields (Mallo, 2007)

Even as Nigeria has made a major leap in recent times in terms of introducing the long awaited legal and policy frameworks for mineral investment in line with international best practice, the Bureau for Public Enterprise has only been able to sale some fraction of the mineral investments of the Nigerian Mining Corporation and the Nigerian Coal Corporation and their subsidiaries. Mineral development and exploitation in Nigeria has been highly focused on its oil industry. In an attempt to improve on the contribution of the mineral sector to the National Development, the Federal Government has liberalized foreign investment in Nigeria. Investment incentives have also been introduced to attract foreign participation. These notwithstanding, no significant investments have so far been recorded by the mining majors in Nigeria. The reasons are attributable to constraints which include inadequate access to investment capital, reliable data, land tenure and mineral rights holding, infrastructure, technology, taxation, security of investment and environmental protection policies. Consequently, the mining activity that appears to prevail in the country is that of illegal and low level artisanal participation.

In order to achieve the objective of the Vision 20:2020, Nigeria would have to compete and displace some developing nation from existing international ranking. Nigeria is ranked 41 by the 2007, IMF ranking as against Brazil 10, India 12, South Korea 13, and Indonesia 20 respectively. These nations are expected to vigorously compete with Nigeria in the global economy. Since the IMF uses criteria for ranking of nations based on several benchmarks such as the Gross Domestic Products (GDP), the Gross National Product (GNP), the rise in personal income etc (International Monetary Fund, 2007), the question worth asking is which of these last developing countries does Nigeria expects to surpass/ displace from the development ladder? The President's Seven-Point Agenda (polity, micro-economy, infrastructure, education, health, agriculture, and manufacturing) supports the goals of the Vision 2020. By implication therefore, federal government's expectations are: Polity - the nation will be peaceful, harmonious and stable by the year 2020; Macro-economy- a sound, stable and globally competitive economy with a GDP of not less than \$900 billion and a per capita income of not less than \$4000 per annum; infrastructure – adequate Infrastructure services that support the full mobilization of all

economic sectors; Education – a modern and vibrant education system which provides for every Nigerian the opportunity and facility to achieve his maximum potential and provides the country with adequate and competent manpower; Health – a health sector that supports and sustains a life expectancy of not less than 70 years and reduces to the barest minimum infectious diseases as malaria, HIV/AIDS etc; Agriculture- a technologically advanced agricultural sector that can fully exploit the available vast agricultural resources , ensures national food security and contributes to foreign exchange earnings; and Manufacturing– a vibrant and globally competitive manufacturing sector that contributes significantly to GDP with a manufacturing value added of not less than 40%.

The capacity of any country to advance and occupy an enviable ranking lies on its ability to harness its industrial and non-industrial minerals for the development of both its heavy and light industrial base. As highlighted earlier, Nigeria is endowed with metallic and industrial rocks /minerals such as iron ore, limestone, clays, sand, gravel, diatomite, kaolin, bentonite, silica, barite, gypsum, and talc (Makoju 2000). . These minerals find applications in construction, and in the manufacture of ceramics, paints, electronics, filtration, plastics, glass, detergents, etc. The evaluation of raw materials to determine their suitability for use as industrial minerals requires technical test work, mineral processing trials and end-product evaluation.

Over the years some efforts have been made in the area of capacity building of stakeholders, by way of public lectures/international conferences, short-term courses overseas etc. More significantly in recent times according to the Federal Ministry of Steel Development, 2009 there has been the collaboration between the World Bank for sustainable Management of Mineral Resources Project (SMMRP) and the Federal Ministry of Mines and Steel Development. This has been possible through a credit facility from the International Development Association (IDA) for the purpose of funding the SMMRP (Nweze 2009). The intended goal is to provide a long-term institutional and Technical capacity to manage Nigeria's mineral resources in line with international best practices. The project is also intended to establish a basis for poverty reduction and rural economic renewal in selected areas of the country via the development of non-agricultural income generation opportunities through small-scale and artisanal mining and to diversify away from oil sources of income (Ofikhebua, 2009). Some major undertakings in recent times include the following:

1. The Federal Ministry in conjunction with the SMMRP and Obafemi Owolowo University embarked on a 3 weeks training of 55 staff of the Ministry in Geographic Information System (GIS) in Regional Centre for Training in Aerospace surveys (RECTAS). The exercise provided hands-on-training on Geographic Information Systems (GIS), overview of GIS tools and functionalities of GIS software.
2. A 1.5million dollars training package in Gemstone Identification and Grading Training was also executed by the Gemological Institute of America (GIA) on behalf of the Ministry for the training of participants from both the public, private sector and law enforcement agencies, on gem mining techniques on selected mines in the country. The total package cost 3.5million dollars to including Gemstone infrastructures of international standard located at Jos. (Ofikhebua, 2009).

The British Geological Survey (BGS) has also been commissioned to train about 44 geologists, geochemistry, geophysics and sedimentologists, of the Nigerian Geological Survey Agency and the Universities in Geochemical mapping. The purpose of the project is to provide baseline geo-scientific information through the study of the distribution of important metallic elements on the Nigerian land surface in line with international initiative on mineral distribution. The Global Reference Network is made up of 5000 cell out of which 44 are contained wholly or partly in Nigeria. This corroborative effort is to obtain stream sediments samples from two of the 44 cells, analyse the samples and produce geochemical maps. It is to serve as a training mechanism for a cadre of Nigerian Earth Scientists who will complete the mapping of the remaining cells in subsequent years.

THE WAY FORWARD

Mining development in Nigeria lagged in the 1990s as a result of Nigeria adopting a statist approach to nationalizing foreign –owned mining operations, restricting private sector access to land for mineral exploration and development and subsidizing public sector operation to the detriment of the private investors. The recent attempt by government to liberalize its mineral sector by privatizing government parastatals companies is a sure way of encouraging foreign participation in this sector of the Nigeria economy which is capital intensive. This happened in Latin America and the Caribbeans in the mid 1990s where exploration expenditure was ranked the highest in the World following mineral reforms (Remy, 2000). The challenge for Nigeria is to ensure that the

present reforms deepens and is sustained as this can lead to exploration boom in the new projects where investors are adequately rewarded while the country retains a fair share of the benefits, where best practices are adhered to in terms of environmental protection and social development. To this effect, following points are vital for consideration:

Investment Capital: There is the need to develop local capital markets as a source of equity funding, to make local banks aware of and knowledgeable about, the opportunities for making loans available to properly managed mining ventures; increase foreign direct participation in the sector thereby introducing new technologies and training local professionals for subsequent roles in medium and small-scale mining, to strengthen the management and technical training related to mining in the local educational institutions, and foster an entrepreneurial spirit in the local Nigerian mining community.

Infrastructure Development: The government should ensure that, wherever possible, infrastructure built for mining like, ports, roads, railroads, power projects, training institutions, health facilities, also contributes to increased productivity and / or higher living standards throughout the country. The on-going dredging of the river Niger and Delta region for navigation is commendable. The exploitation of the nation's coal and Uranium and their utilization in the production of Energy will fast-track the growth and industrial development of Nigeria.

Harnessing country's export potential: This implies proper and orderly exploitation and maintenance of a steady level of output of the mining sector, the country's major foreign exchange earner. Given increasing world market prices for oil and other exportable minerals, Nigeria would be prudent if it expanded its mineral exports only to the level necessary to meet balance of payments and taxation.

Creation of employment opportunities and Capacity Building: Modern mines are relatively insignificant employers of labor. If employment opportunities, are provided for the rapidly growing labor force, the peasant farming sector, the informal service sector in the towns and villages, a consumer goods-orientated industrial sector, will have to be developed. An expanded social and administrative infrastructure will also absorb some of the labor. Yet all of these policies require public funds, entrepreneurship and expertise, government leaderships etc., linkages to strategy of capital saving investment and labor-intensive technologies feasible to satisfy the basic needs of the whole population

The trained manpower, is expected to take decision making and operating responsibility in the financing, choice of technology, management, sales, costing, price, research and development, and processing carried out by the minerals industry in the country. A plan can be drawn up jointly by representatives of government and foreign partners on the manpower requirement needs for skilled, technology and professional personnel over several years in advance.

Economic diversification through forward integration: Apart from using proceeds from mineral extraction to expand agriculture, forestry, the textile industry, etc., diversification can be promoted by far reaching forward integration from mining into smelting, refining and fabrication as well as manufacturing of metal containing finished products. The initial advantage of such a policy is that it could rely on the technology, infrastructure and production capital employed by the mining enterprise, and make use of the talents and experiences developed in mining. By fitting into an already existing economic structure, diversification through forward integration will require less initiative and reorientation of resources, and may consequently be easier to carry out. Forward integration into manufactured metal using products will also require substantial non-metal inputs that could constitute the definitive breakaway from the one-sided reliance on the mineral base. It is a fact, that an economy accrues more benefits with each further stage of processing of a mineral commodity.

Environmental Protection: For the avoidance of the past mistake where the Nigeria mining fields were devastated without adequate environmental protection, environmental and social impact assessment/processes should be the watchword of government on mining investment plans. In order for Nigeria's future mining to be sustainable, attention must be given to the full operation cycle. Mine closure, environmental matters and follow up activities must be considered at an early stage of mineral investment.

Maintenance of overall economic and administrative efficiency: Nigeria should aim at a strategy of utilizing foreign investment and skills (in exploration, mine development and mobilization of external finance for mining projects), to develop its mining sector, with sufficient local and state participation- to be able to guide the pattern of development and to control the repatriation of profits. State revenues, derived from these activities,

should be utilized for high priority programs of peasant agricultural development and for expansion of the physical and social infrastructures such as roads, energy and adequate water supply. This is in addition to aiming at a more balanced regional pattern of development and a gradual reduction of social and/ or income inequalities

SUMMARY AND CONCLUSION

The historical beginning of development of mining in Nigeria was through Private Sector Investment. Thus up to the early 1970s, the private sector was virtually the sole operator in the industry. The indigenisation Programme (1972/1977) marked the first significant government participation in mining outside the petroleum sub-sector of the national economy. The oil boom subsequently heralded the protracted neglect of mineral investment/development whose potentials for Nigeria lie in the large size and diversity of its natural endowments. Priority minerals stand at four; these are specialty metals (tantalite, columbite & lithium), bitumen/tar sands, kaolin, and lode deposits of gold. Other minerals with established levels of reserves that can attract investments are coal, lead, zinc, iron ore, bentonite, barites, gypsum, talk, gemstones, and brine salt. These minerals are currently being documented and the exercise is far from completed, requiring superior specialized research expertise and modern technology.

The enabling policy framework (the new Minerals Act, the Mining Cadaster and the Mineral Rights Registry office etc) having been established in line with international best practices, requires support in terms of expertise in the development and maintenance of a standard cadastral system, accurate cartographic map control, and clerical efficiency in acceptance, processing and notifications related to the acquisition, renewal, rejection, cancellation and amendment of all mining rights. This is necessary for establishing confidence in prospective local and foreign private sector investors. The consolidation of fiscal and regulatory regime to encourage foreign investment, and the associated anticipated influx of mining capital, technology and skills will require appropriate capacity building in the mineral sector in order to transform traditional relationships between mining firms, local communities and the government. This transformation necessitates a re-evaluation of the technical capacity to capture the expected increased economic and social benefits from mineral production. The establishment of the National Institute of Mining and Geosciences for the purpose of training middle and high manpower for the mineral industry is a worthwhile compliment to any reformed mineral sector initiative. The short and long-term goals of a realistic development strategy for Nigeria should be efficient utilization of the country's enormous but depleting mineral resources in such a way that the basic needs of the whole population are satisfied within the shortest possible time.

REFERENCES

- Afikhenua John: 2009. Developing Human Resources in the Mining Industry. *The Nation* on Sunday, February, 8th.
- Makoju J.: 2000. Sustaining Gypsum Supply to the Nigerian Cement Industry- The way forward. Workshop of the Ministry of Solid Minerals Development. Nicon Hilton, Abuja.
- Mallo S.J.:1999. Total Quality Management in Mineral Resources Development in Nigeria. M.Sc. Thesis submitted to the Department of Business Administration, ABU- Zaria. Un-published.
- Mallo S.J.:2003. Problems of Manpower Development for the Mineral Industry in Nigeria *Nigerian Mining Journal* Vol.4, Number 1 (pp.60-64), ISSN 1117-4307.
- Mallo S.J.:2007. Mineral and Mining on the Jos Plateau, First Edition. : ISBN 978-978-082-823-3 (ACON Publishers, Jos, Nigeria) (2007)
- Nweze Austin :2009. Competing for intellectual Capital. *The Nation* on Sunday, February, 8th.
- Nyabo P.N.;Taiwo A. O.:(2001). A historical Survey of Solid mineral exploitation and Associated Problems with Examples from parts of Nigeria. *Journal of Environmental Sciences*, University of Jos, Nigeria.
- Remy, F.; Garnett J. Williams J. ©2000). Strategic Review of the Minerals Sector of Nigeria- World Bank Document.

A Mining Strategy for Latin America and the Caribbean. World Bank Technical Paper No. 345. The World Bank, Washington D. C. (1996).

Information from the Research Department of BPE, (2010).

International Monetary Fund Report. (2007).

Received for Publication: 09/02/12

Accepted for Publication: 10/04/12