NEITI Nigeria Extractive Industries Transparency Initiative

THE PRESIDENCY

NEITI OCCASIONAL PAPER SERIES
ISSUE 4, FEBRUARY 2019

IMPROVING TRANSPARENCY AND GOVERNANCE FOR VALUE OPTIMISATION IN NIGERIA'S MINING SECTOR

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NEITI OCCASIONAL PAPER SERIES

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Improving Transparency and Governance for Value Optimisation in Nigeria's Mining Sector

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Executive Summary

In comparison with other countries with similar potential, Nigeria's mining sector is still largely underdeveloped. This situation has arisen in spite of the sector's promising performance a few decades ago, and despite huge proven deposits of valuable minerals across the country, the potential of which is comparable to other moderately to highly endowed nations. Until recently, when there has been a slight improvement, the sector's contribution to Nigeria's Gross Domestic Product (GDP) had not been more than 0.5%. This contribution is a reversal from the historically higher percentages of about 4-5% in the 1960s and '70s.

The management of the Nigeria Extractive Industry Transparency Initiative (NEITI) therefore decided to carry out a comprehensive study to look at transparency and governance issues in the Nigerian mining sector to complement ongoing efforts for improved optimization of the sector for jobs, revenues, growth and sustainable development in Nigeria.

The methodology adopted includes desk review of various literature, including those obtained from relevant government departments in Nigeria and others available on the web. Site and locational visits were also undertaken, while information gathered from previous audits of NEITI were equally utilised. Six key areas of the narrative on transparency and governance were examined and they form the fulcrum of the study in addition to an appraisal of the current status of the mineral endowments of the nation. These include: sustaining a robust regulatory framework; revamping the institutional and technical structures; getting the licensing framework right; enhancing and plugging loopholes in production and revenue profile of the mineral

[1] Ministry of Solid Minerals Development, "Roadmap for the Growth and Development of the Nigerian Mining Industry", March 2016.

endowments; availability and dissemination of geoscience data; a more robust stakeholders participation that also takes into consideration community participation, gender mainstreaming and civil society engagement; and a more conducive finance and business environment. Suggestions for improvement are proffered to enhance the potential of this sector of the extractive industry.

Findings show that despite the long but fractured history of the sector, and the current laudable efforts of government at instituting reforms and strengthening institutions, there are still noticeable shortfalls in meeting the globally competitive standards in governance and transparency issues.

The sustainable and more transparent and accountable management (taking into account the suggestions in the study) of the abundant mineral endowment holds a lot of potential and could be a veritable huge source of revenue generation for the country, which should drastically reduce unemployment and create additional wealth.

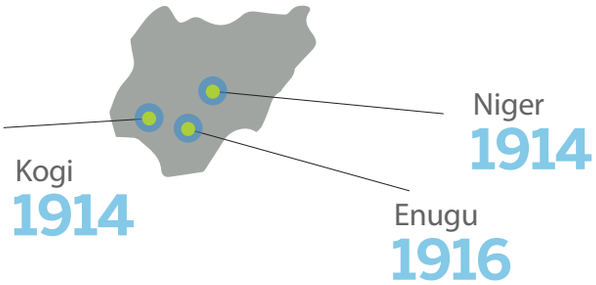
1.0 Introduction

1.1 Historical Perspective

Mining activities in Nigeria started formally in 1902 and 1923 in the Southern and Northern Protectorates respectively. The development of the mining sector was catalysed largely by the commissioning in 1903 and 1904 of mineral surveys in each region by the then British colonial authorities. The Royal Niger Company undertook the first mining activity in 1905, which was the mining of tin ore. The next mineral to be mined was gold, and this activity occurred in 1914 in present Kogi and Niger states. The mining of coal followed shortly after in 1916 in Enugu[2].

At an earlier period, mining contributed significantly to the industrialisation and development of Nigeria's economy[3]. Coal mining gave birth to the railway industry, with the earliest rail infrastructure built to transport mined coal from Enugu to the seaport in Port Harcourt, and to a power plant on the Oji River. With tin ore mining and processing came the establishment of the largest smelter in Africa (Makeri smelter in 1961) as well as a power plant in Jos. Finally, the establishment of industrial complexes and behemoths (at the time) of manufacturing

Mining in Nigeria



Before 1971, there was dominance of British enterprises in Nigeria's mining industry. Up to 120 companies operated in the sector at the time.

[2] See Federal Republic of Nigeria, "Report of the Vision 2020 National Technical Working Group on Minerals and Metals Development", July 2009.

[3] The Guardian: "Growth of Nigeria's Mining Industry Fails to Lift Tax Revenues", August 8, 2018. Available at: https://guardian.ng/energy/growth-of-nigerias-mining-industry-fails-to-lift-tax-revenues/

1971

Starting from 1971, the government reviewed its minerals policy, opting for direct participation in mining. It began to establish corporations that were being funded with public money.

came with iron ore, including the Ajaokuta Steel Mill, with the capacity to produce 5.7 million tons of liquid steel; Delta Steel plant with a capacity of 2 million tons of steel products; and three inland mills in Osogbo, Jos and Katsina.

While coal was mined by government, mining of minerals and metals was carried out by the private sector comprising of expatriate and indigenous entities. Before 1971, there was dominance of British enterprises in Nigeria's mining industry. Up to 120 companies operated in the sector at the time. These companies contributed significantly to employment and to Nigeria's Gross Domestic Product. These companies introduced the use of industrial equipment in mining activities, thereby helping in significant industrialisation of the sector.

Starting from 1971, the government reviewed its minerals policy, opting for direct participation in mining. It began to establish corporations that were being funded with public money. This policy gave birth to the Nigerian Mining Corporation (NMC) to exploit minerals other than coal and marble. The corporation also had subsidiaries through which it engaged in the exploitation of minerals of significant economic value like limestone and columbite. Subsequently the Nigerian Coal Corporation (NCC) and Nigerian Uranium Mining Company (NUMCO) were established to carry out mining and development of coal and uranium respectively. Other entities similarly established by government as a result of this policy were National Steel Raw Materials Exploration Agency (NSRMEA), National Metallurgical Development Centre (NMDC), and the Nigerian Iron Ore Mining Company (NIOMCO). While most of the corporations were established to carry out commercial mining operations, at least one (NMDC) was established to conduct research and development activity.

The government extended the policy of direct participation to the existing private enterprises by acquiring significant stakes in these (private) companies. In 1972, it enacted the indigenisation decree which enabled it to acquire majority shares in the main tin mining companies that were owned by expartriates. This acquisition resulted in the massive

withdrawal of foreign investments in the mining industry from the country. As the foreign corporations left the country as a result of government's indigenisation policy, the bulk of the mining operations by the private sector was left in the hands of small-scale local miners. These factors were largely responsible for production decline in the mining sector, particularly in the metallic minerals sub-sector starting in the late 1970s.

Landmark Events in Nigerian Mining Sector

1905 Mining of tin ore by Royal Niger Company begins

1914 Gold mining commenced in Niger and Kogi statesStates

1916 Coal mining began in Enugu

1919 Geological Survey of Nigeria established

1959 The Minerals Act created to guide exploration and exploitation of minerals in the country

1961 Makeri smelter established in Jos

1971 Beginning of government's direct participation in mining

1971 The Nigerian Steel Development Authority (NSDA) was established to drive the development of iron and steel

1972 The Nigerian Enterprises Promotion (indigenisation) decree was enacted

1979 Ajaokuta Steel Company, Delta Steel Company and Inland Rolling mills were established

1999 The Mining Act was instituted

2003 Privatisation of the public steel companies began

2007 The Mining Act (1999) was repealed and replaced

2008 The Minerals and Metals Act was established

2012 The first strategy roadmap was developed

2012 The First strategy roadmap outlining long term goals for the sector was developed

2016 Current strategy road map outlining short, medium and long-term goals launched

1.2 Overview of the Current Status of the Industry

Mining in Nigeria is currently just picking up from its previously ailing status. Currently, the mining industry is responsible for 0.33% of employment, 0.02% of exports, and 0.3% of the country's GDP. This represents considerable drop in performance compared to the early 1980s. This contribution is considerably lower than other African countries such as Cote D'Ivoire, the Democratic Republic of Congo and South Africa. This comparison takes into consideration an equally comparable level of actual mineral endowment in these countries.

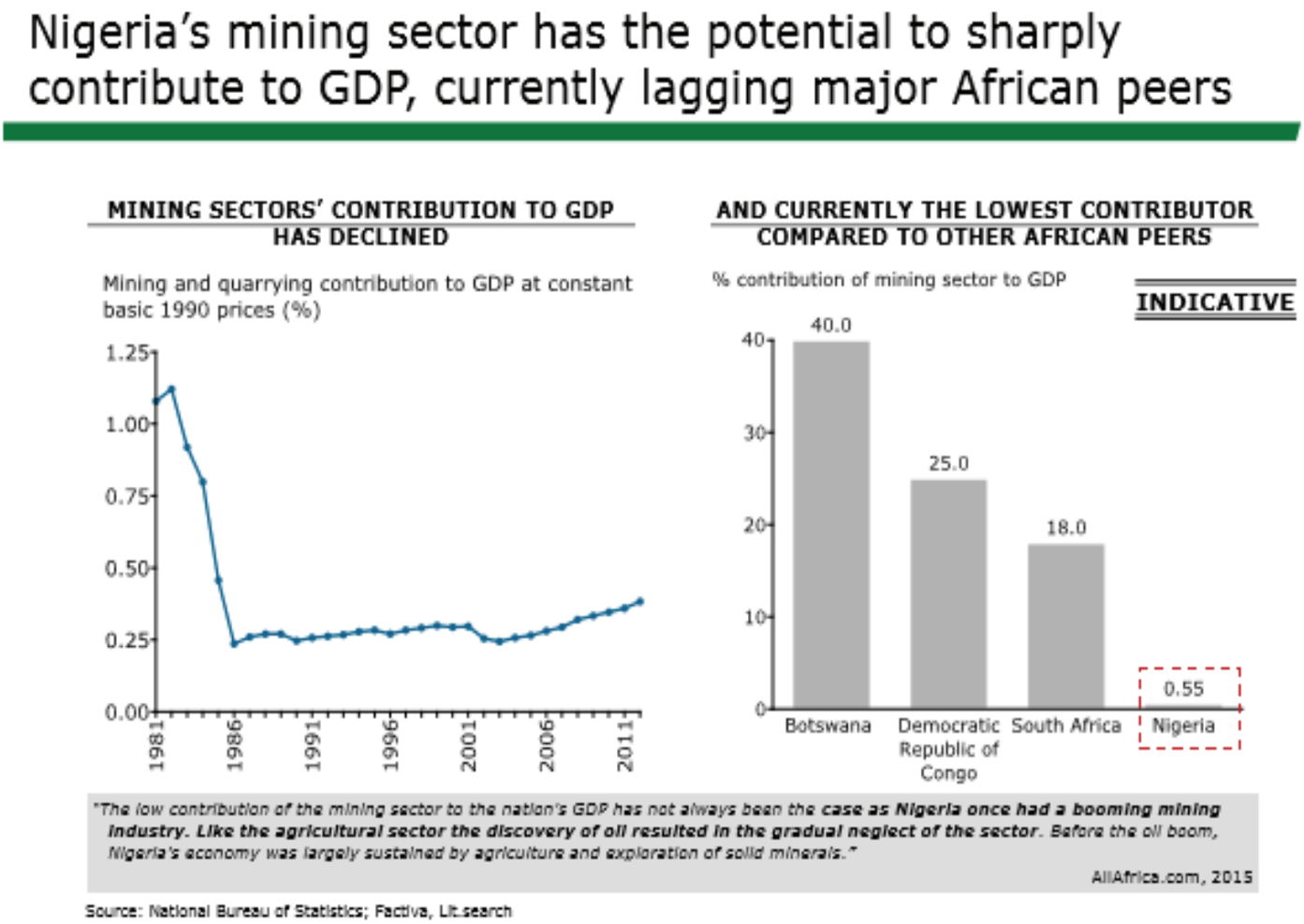


Figure 1: Comparative contribution of the mining sector to Nigeria's GDP

[4] Nigeria's Mining Roadmap, 2016.

1.3 Sector Reforms

The government undertook a wholesale appraisal of the mining industry between 2005 and 2006 which resulted in changes to the fundamental structure of the mining sector.

in 1999, the the Nigerian Government embarked on sweeping reforms towards achieving sustainable growth and development of the country's mining industry. This new focus on Nigeria's solid mineral resources was being deployed as a strategy to diversify the economy which has been largely dependent on petroleum resources for some time now. In the pursuit of this objective, the government of President Olusegun Obasanjo set out to create the conditions that would allow private enterprise to thrive in the sector.

The government then set up a committee to "produce a seven-year strategic plan for the development of solid minerals in Nigeria". The committee's recommendations provided broad framework for growth, including the sector's infrastructural and human capacity development. Notably, the recommendations also sought to address welfare issues pertaining to artisanal and small-scale miners.

The recommendations of the committee formed the foundation for the reforms of the sector. The government undertook a wholesale appraisal of the mining industry between 2005 and 2006 which resulted in changes to the fundamental structure of the mining sector. As a result of this fundamental 'restructuring', government's role was streamlined to that of an administrator and regulator rather than a participant or operator in the sector. This role was ceded largely to the private sector. No doubt these reforms have begun to stimulate renewed vitality in the sector.

Specifically, some of the key outcomes of the reforms was that the Federal Government reestablished exclusive control over all mineral resources in the country; the Mining Act (2007) was enacted; the Mining Cadastre Office (MCO), the Institute of Mining and Geoscience (NIMGS), and the Artesanal and Small-scale Mining Department were established; and the 2008 minerals and metals policy as well as the 2011 minerals and mining regulations were put in place. These were in addition to other actions taken by the government in carrying out the reforms.

The Legal and Regulatory Framework

The reform undertaken by government was aimed as instituting global best standards in the administration of Nigeria's mining sector. The Mining Act (2007) and the complementary policies and regulations put in place were all designed to achieve this objective. The Mining Cadastre Office (MCO) as sole grantor of minerals licenses was designed to reflect the characteristics other world-class systems and entities globally. The new system was a welcome departure from the previous organizational regime where the licensing process was cumbersome, grossly inefficient and notoriously opaque. The inefficiency created needless delays in the processing of licenses while the opacity created opportunities for exploitation and corruption within the system. The new organization i.e. MCO therefore adopted measures specifically designed to address the problems that were inherent in the old licensing system. Some of those measures include a transparent, fair and non-discretionary licensing process. Licenses are currently being issued within 30 to 45 days due to the new systems and regulations that have been put in place. As at 2016, MCO had issued thousands of licenses to entities to carry out mining operations in the country.

In order to consolidate these reforms, further steps have been taken by the current government to institutionalise some of the new systems and processes, to finetune existing regulations and also to address gaps in the sector governance that were not covered by the previous reforms.These steps were captured in the roadmap for the solid minerals sector currently being implemented by the Ministry of Mines and Steel Development.

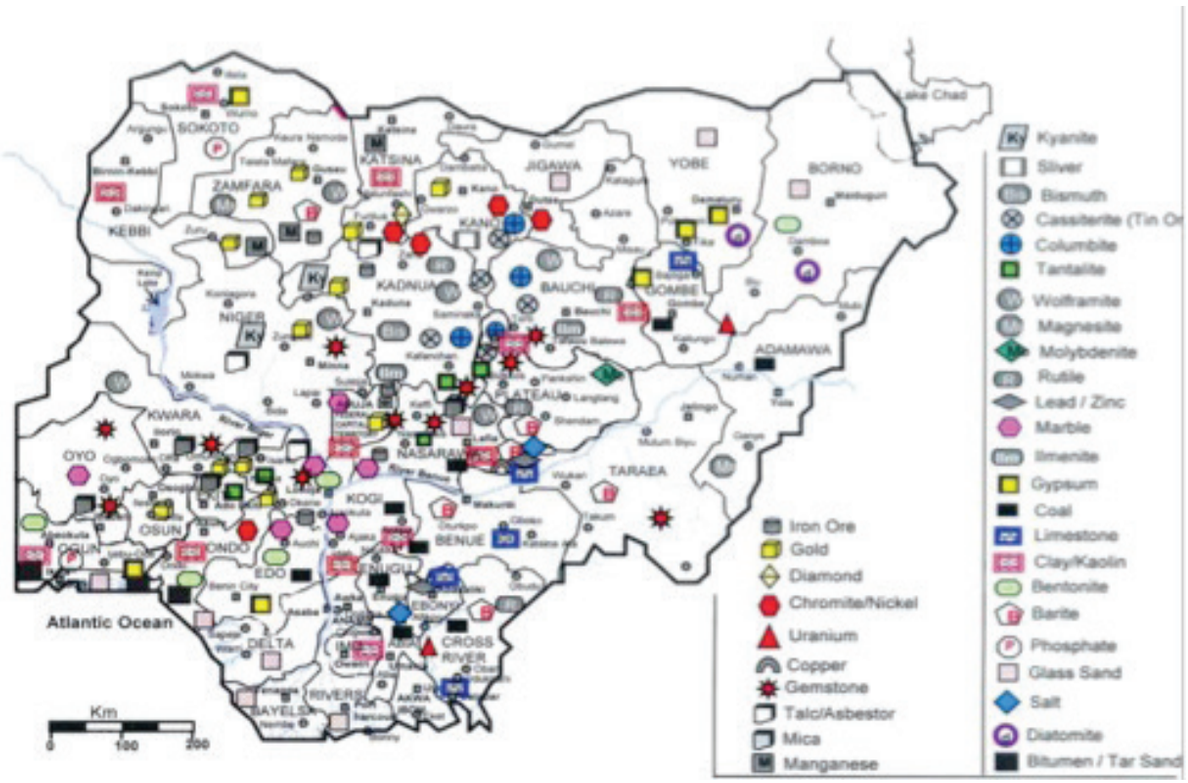
Licenses are currently being issued within 30 to 45 days due to the new systems and regulations that have been put in place

2 Mineral Endowment

It is very important when discussing the transparency dimension of a nation's mineral sector, to at least empirically establish the potential or otherwise of the endowments of such country. In the case of Nigeria, in comparison with other African nations and even globally, the level of the country's mineral endowment is appreciable and worthy of serious attention.

The extent of Nigeria's minerals endowment can be measured in terms of the variety and spread of mineral occurrence across the country. Official figure currently puts Nigeria's minerals endowment at about 44 different minerals found in commercial quantities in 450 locations across the country.[1]

Figure 2.1: Distribution of Minerals Occurrence across Nigeria

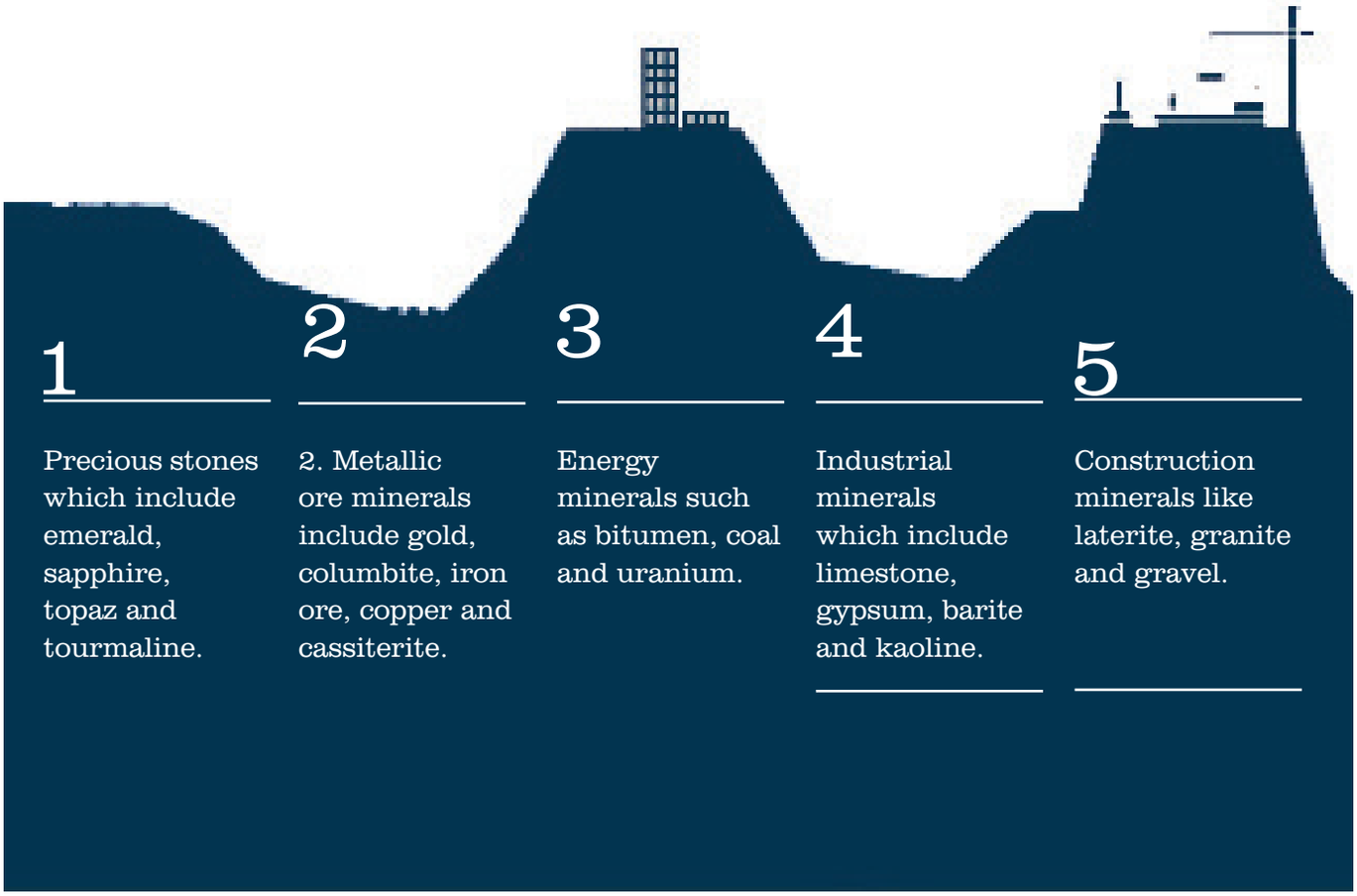


Source: Report of the Vision 2020 National Technical Working Group on Minerals and Metals Development
The figure shows locations of some of Nigeria's minerals across the 36 states and the Federal Capital Territory (FCT).

[1] See Dateer Dayi Damulak (2017): "Nigeria's Solid Minerals Resource Potentials: An Overview, www/researchgate.net

The table below lists the minerals in terms of frequency of occurrences across the states. The list also included minerals not shown on the map.

Nigeria's mineral endowment consist of three broad categories of mineral resources comprising high-value commodities like gold, bulk commodities like iron ore and tin, and gemstones. These minerals can also be grouped into categories depending on their usage. There are five broad categories defined by usage: Precious stones, metallic minerals, energy minerals, industrial minerals and construction minerals



2.1 The Building / Construction Minerals

There is currently high demand for construction minerals due to wide variety of applications and on-going demand for building and construction services within the economy.

These are minerals used by construction companies in road making, concrete casting, house construction etc. Construction minerals are mostly "aggregates" which are granular particulars which can be used on their own or with binders like cement or bitumen. Construction minerals include crushed rock, sand, gravel, clay, chalk, limestone, dolomite, gypsum, etc. There is currently high demand for construction minerals due to wide variety of applications and on-going demand for building and construction services within the economy. Some of the construction minerals found in various locations across Nigeria include limestone, calcite, gypsum, silica sand, dimension stones etc.

Table 2.1: Distribution of Building and Construction Minerals

MINERALS	STATES OF OCCURRENCE
Limestone	Cross River, Enugu, Ebonyi, Abia, Yobe, Borno, Gombe, Jigawa, Sokoto, Taraba, Kebbi, Ogun, Kogi, Benue
Calcite	Jigawa, Kano, Gombe, Taraba
Marble	FCT, Kogi, Edo, Kwara, Oyo, Ekiti, Nassarawa
Gypsum	Borno, Yobe, Edo, Gombe, Benue, Edo, Enugu, Ogun, Sokoto, Taraba, Adamawa
Silica sand	Kano, Jigawa, Lagos, Rivers, Ondo, Delta
Dimension stone	Ogun, Osun, Oyo, Kwara, Ondo, FCT, Kano, Jigawa, Rivers
Bitumen	Edo, Lagos, Ondo, Ogun

2.2 Ceramics

The major use of clay, besides the making of bricks, is in the manufacture of cement. Less absorbent clays are used chiefly in the oil industry.

The ceramics industry is concerned with the manufacturing of objects from clay bricks, floor and wall tiles, sanitary wares, plumbing fixtures, china and earth wares, tableware, insulating materials, electrical and electronic equipment. There are over 200 known locations for sourcing raw materials for ceramics in 26 states of Nigeria, with a cumulative resource base of clay/shale estimated at 125 billion tons. Varieties of these minerals occur in various types depending on location. They include bentonitic, montmorillonite and swamp clay. Clay has been used since the beginnings of civilisation in making cooking pots, bricks, porcelain, and also drainage pipes. Both brick clays and other clays are used for other purposes, such as the manufacture of clay pipes, and for floor and wall tiles. The major use of clay, besides the making of bricks, is in the manufacture of cement. Less absorbent clays are used chiefly in the oil industry, e.g., as filtering and deodorising agents in the refining of petroleum. Some states in Nigeria have already established burnt brick factories based on their clay deposits.

Table 2.2: Distribution of Minerals used in the Ceramics Manufacture

MINERALS	STATES OF OCCURRENCE
Kaoline	Akwa Ibom, Anambara, Bauchi, Bayelsa, Ekiti, Imo, Katsina, Kebbi Kogi,Ogun, Ondo, Plateau and Rivers
Rutile	Bauchi, Cross River, Kaduna, Plateau
Clay	FCT, Adamawa, Borno, Taraba, Katsina, Kwara, Zamfara, Plateau, Yobe, Kano, Kogi, Ekiti, Kebbi, Ogun, Niger, Oyo, Lagos, Rivers, Delta, Edo

2.3 The Steel / Energy Minerals

The raw materials used in the steel industry that are available in Nigeria include Iron ore (the main mineral), dolomite, refractives and coal.

The steel sector is a major driver of industrialisation of any country, and Nigeria has recognised this as being cardinal to its objective of attaining industrialisation. The steel manufacturing projects in Kogi and Delta State, alongside the rolling mills in Katsina and Jos are indicative of this desire. The raw materials used in the steel industry that are available in Nigeria include: Iron ore (the main mineral), dolomite, refractives and coal. Manganese deposits are also found in Cross River State.

Table 2.3 Distribution of Minerals Used in the Steel and Energy Industry

MINERALS	STATES OF OCCURRENCE
Iron Ore	FCT, Zamfara, Taraba, Kaduna, Kogi, Katsina, Enugu, Anambra, Kebbi, Bauchi, Jigawa, Nasarawa
Manganese	Cross River, Katsina, Kebbi, Zamfara
Silver	Ebonyi, Kano
Ilmenite	Benue, Cross River, Kaduna, Plateau
Lead	Cross River, Ebonyi, FCT, Plateau, Zamfara
Zinc	Cross River, Ebonyi, FCT, Plateau, Zamfara
Kyanite	Kaduna, Niger

2.4 Energy Minerals

1.5BN tons

Coal deposits are found in at least 13 states across Nigeria with estimated deposit of 1.5 billion tons while Uranium is found in Jigawa and Cross River states.

Minerals are the main source of power for electricity, manufacturing, and home applications. Energy minerals have become increasingly vital to the global economy. Of these minerals, solid fuels have for long been the primary energy source of electricity, with coal alone accounting for 40% of global energy production in 2000, with this dominance projected to increase further by 2020. In Nigeria, the importance of solid fuels for power generation has become even more significant given the huge energy supply gap in the country. Nigeria's shortfall in electricity supply is over 20000 MW, despite the availability of huge oil and gas reserves in the country. As such, there is need for government to harness alternative sources of energy for the country. The solid minerals sector can play a vital role in achieving this goal.

The main sources of solid minerals fuels are coal and uranium. Coal deposits are found in at least 13 states across Nigeria with estimated deposit of 1.5 billion tons while uranium is found in Jigawa and Cross River states.

Table 2.4: Distribution of Energy Minerals

MINERALS	STATES OF OCCURRENCE
Coal	Anambra, Kogi, Enugu, Benue, Edo, Abia, Imo, Ebonyi, Nasarawa, Delta
Uranium	Jigawa, Cross River

2.5 Glass, Paints and Fillers

Minerals in these category that are found across Nigeria include feldspars (used for glass, ceramics, paints, plastic, rubber).

This category of minerals has wide range of industrial applications including building and construction, household items, industrial raw materials, oil and gas, food and beverages pharmaceutical industries etc. These minerals therefore have the potential to contribute significantly to national productivity, employment generation and government revenue. Minerals in these category that are found across Nigeria include feldspars (used for glass, ceramics, paints, plastic, rubber); quartz (in manufacture of glass and abrasives and for hydraulic fracturing in oil and gas production); glass sand (manufacture of glass and silicon for sand casting and cement manufacture, in food and pharmaceutical industries, as proppants in oil and natural gas recovery, as functional filter for paints, plastic and rubber); talc (used for sinks, stoves, soaps, crayon, lubricants, insecticides, fungicides, and cosmetics); diatomite (for pet nutrition and dermatological products, insecticides, human hygiene products and food and beverages industry).

Table 2.5: Distribution of Minerals used in Production of Glass, Paints and Fillers

MINERALS	STATES OF OCCURRENCE
Feldspar	Borno, Bauchi, Adamawa, FCT, Ekiti, Edo, Jigawa, Kaduna, Plateau, Kano, Kwara, Kogi, Katsina, Yobe, Zamfara
Quartz	Kano, Katsina, Gombe, Plateau, Kogi, Kebbi, FCT
Glass sand	Jigawa, Kano, Enugu, Edo, Rivers, Imo, Ogun
Talc	Kaduna, Niger, Kogi, Osun, Oyo, Kwara, Kebbi, Ekiti
Diatomite	Gombe, Niger, Borno, Yobe
Mica	Ekiti, Kogi, Kwarra, Nasarawa, Oyo

[2] Hartmut Spliethoff (2010). Power Generation from Solid Fuels, Springer Books

2.6 The Oil and Gas Minerals

The oil and gas industry uses minerals such as drilling muds (a mixture of different types of chemicals in water or oil), which act as transportation medium for various cuttings from bottom of a hole to the surface and as lubricant and coolant, among other uses.

While some of the minerals used in manufacturing and construction listed above are also useful in the drilling for crude oil, this category of minerals has major application in the oil and gas industry.
The oil and gas industry uses minerals such as drilling muds (a mixture of different types of chemicals in water or oil), which act as transportation medium for various cuttings from bottom of a hole to the surface and as lubricant and coolant, among other uses. Some of the minerals available found in various locations in Nigeria that are applied for this purpose include baryte (used as weighing agent in drilling muds, also as pigments in paints, as weighted filler for paper, cloth and rubber, compounds for x-ray shielding and diagnostic medical tests); and bentonite (bonding material in production of iron, steel and non-ferrous casting, also as binding agent in production of iron ore pellets, as absorbent in wastewater purification, as mud constituent in water well drilling).

Table 2.6: List of Minerals with Application in the Oil and Gas Sector

MINERALS	STATES OF OCCURRENCE
Baryte	Nasarawa, Plateau, Benue, Adamawa, Gombe, Taraba, Cross River
Bentonite	Borno, Gombe, Benue, Cross River, Akwa Ibom, Edo, Kogi, Ogun, Ondo

2.7 Lapidary Gemstones

200

About 15 varieties of lapidary gemstones exist in Nigeria in at least 200 locations across 22 States and possibly in several other places that are still being explored for possible occurrence of the mineral.

Gemstones are minerals or metals that are highly prized for their beauty, desirability and rarity. Gemstones are classified as precious or semi-precious stones. They are highly valued for their aesthetic qualities but also for their structural characteristics and durability.

Significant deposits of gemstones found in any jurisdiction have normally constituted a major source of revenue for governments at various levels. About 15 varieties of lapidary gemstones exist in Nigeria in at least 200 locations across 22 states and possibly in several other places that are still being explored for possible occurrence of the mineral. Gemstones that have already been identified in the various locations in Nigeria include beryl (ornamental and industrial use as alloys for metal reinforcement); tourmaline (for jewelry and manufacture of cosmetic products); aquamarine; sapphire (highly desirable material for jewelry); amethyst (for jewelry, as detoxifier, in the delivery of infrared light waves, and for medical therapy); garnet (used as abrasive, in waterjet cutting, and as filter media); emeralds, topaz and zircon. All gemstones are used as jewelry and as valuable collectors' items.

Table 2.7: Distribution Of Lapidary Gemstones

MINERALS	STATES OF OCCURRENCE
Beryl	Zamfara, Kebbi, Osun, Kwara, Taraba, Nasarawa, Bauchi, Kano, Kaduna
Tourmaline	Zamfara, Kebbi, Osun, Kwara, Taraba, Nassarawa, Bauchi, Kano, Oyo, Cross River, Kaduna
Aquamarine	Zamfara, Kebbi, Osun, Kwara, Taraba, Nasarawa, Bauchi, Kano, Kaduna
Sapphire	Borno, Oyo, Kaduna
Amethyst	Kebbi, Oyo, Taraba, Nassarawa, Bauchi, Kano, Kaduna
Garnet	Borno, Bauchi, Plateau, Kogi, Oyo, Zamfara
Emeralds	Nassarawa
Topaz	Bauchi, Plateau, Kebbi, Oyo
Zicron	Borno, Bauchi, Plateau, F.C.T
Fluorite	Bauchi, Ebonyi, Plateau, Taraba

2.8 The Agricultural MInerals

Nigeria is blessed with abundant minerals required for producing NPK fertilisers, phosphate, etc.

Agricultural minerals are largely used in fertilizer manufacture. The importance of fertilizer to Nigeria's agricultural development cannot be overemphasised, particularly with the government's policy of diversifying the economy at this crucial period in the national experience. Nigeria is blessed with abundant minerals required for producing NPK fertilisers, phosphate, etc. The most important mineral for this purpose is phosphate, which refers to any rock with high phosphorous content. Commercial quantities of phosphate are found in at least four locations in Nigeria.

Table 2.8: Distribution Of Agricultural Minerals

MINERALS	STATES OF OCCURRENCE
Phosphate	Ogun, Sokoto, Abia, Enugu

2.9 Precious Metals

Several precious metals are found in various locations across Nigeria. They include gold (used for jewelry and as natural currency); columbite (alloys for metal reinforcement and in electronic and telecommunications industry).

A precious metal is a rare, naturally occurring metallic chemical element of high economic value. Several precious metals are found in various locations across Nigeria. They include gold (used for jewelry and as natural currency); columbite (alloys for metal reinforcement and in electronic and telecommunications industry); bismuth (used in water pipes and fishing weights, as solder and in bullets, in thermal electricity generation, as coolants for compact discs, semi-conductors and high-temperature superconductors); cassiterite (as gemstone); galena (in manufacture of lead-acid batteries); sphalerite (to galvanise metals, for roof-cladding, manufacture of dry batteries, for coin production, production of luminous dials, TV screens, paints, x-ray screens and fluorescent light); and malachite (in corpper production, as paint pigmentation); cuprite and lithium.

Table 2.9: Distribution of Precious Metals

MINERALS	STATES OF OCCURRENCE
Gold	Kogi, Bauchi, Kaduna, FCT, Kebbi, Niger, Zamfara, Kwara, Edo, Ogun, Osun, Katsina, Kano
Columbite	Plateau, Jigawa, Bauchi, Taraba, Zamfara, Nassarawa, Kaduna, Kano, Kogi, Osun, Kwara, Cross River
Bismuth	BAUCHI, Kaduna
Cassiterite	Bauchi, Plateau, Kano, Nassarawa, FCT, Kogi, Ekiti, Jigawa, Kaduna, Katsina, Cross River
Galena	Nassarawa, Ebonyi, Bauchi, Benue, Taraba, Plateau, Gombe, FCT
Sphalerite	Nassarawa, Ebonyi, Bauchi, Benue, Taraba, Plateau, Gombe, FCT
Melachite	Bauchi
Cuprite	Sokoto
Tantalite	Cross River, Ekiti, Kogi, Kwarra, Nasarawa
Fluorite	Bauchi, Ebonyi, Plateau, Taraba

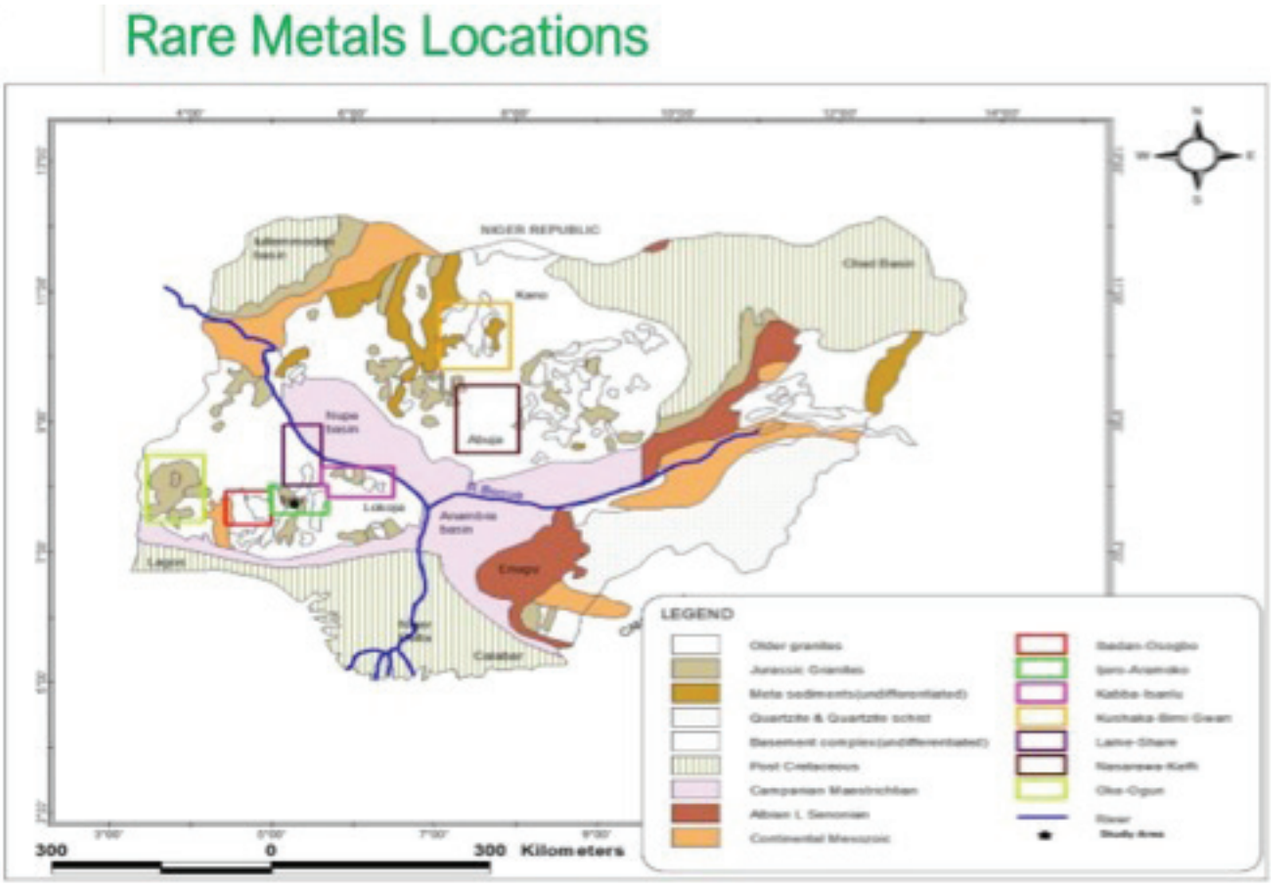


Figure 2.1: Rare metal pegmatite fields of Nigeria (Okunlola, 2005)

3.0 Transparency and Governance Factors in the Solid Minerals Sector

This paper identifies seven main factors in the transparency and governance narratives in the Nigerian extractive industry, particularly in the solid minerals sector. They include:

3.1 Regulatory framework and oversight

There are two main instruments which form the legal and regulatory framework of the Nigerian mining and metals industry. These instruments are the 2007 Mining Act and the Minerals and Metals Policy which came into force in 2008.

The Act also sets boundaries to the powers of the minister, thereby removing the potential for discretionary award of mining licenses.

3.1.1 Nigerian Minerals and Mining Act (2007)

The Act sets out the broad framework for the institutional governance of the mining sector. It specifies the responsibility for the control of property in minerals, water and other related resources and restrictions on unathorised exploitation of mineral resources in Nigeria. The Act also prescribes the establishment and functions of key institutions most notably the Mining Cadastre Office (MCO) and the Mines Inspectorate Department (MID). Crucially, the Act outlines conditions for fair and transparent licensing process which includes competitiveness and prioritisation on the basis of time of application and fulfilment of conditions for issuance. The Act also sets boundaries to the powers of the minister, thereby removing the potential for discretionary award of mining licenses.

3.1.2. Nigerian Minerals and Metals Policy (2008)

The policy sets out broad economic and social objectives of government in relation to the exploitation of minerals in the country. The policy identifies the mining sector as an important means for achieving some of its macroeconomic policy objectives, including economic diversification, employment generation and poverty reduction. The policy aims to enhance private investment into the mining sector and ultimately to substantially increase the contribution of mining to Nigeria's Gross Domestic Product.

The policy identifies the mining sector as an important means for achieving some of its macroeconomic policy objectives, including economic diversification, employment generation and poverty reduction.

3.2 Institution and the Technical Structure

Some of these agencies are discussed below in relation to their structure, organisation and functions.

Nigeria's mining sector is administered by several functional institutions and agencies. These institutions are ultimately supervised by the Ministry of Solid Minerals Development (MSMD). Some of these agencies are discussed below in relation to their structure, organisation and functions.

Mines Inspectorate Department (MID): Supervises mining activities including exploration, mine development and production. The MID enforces mining laws and collects mining revenues.

Mining Cadastre Office (MCO): The main role of the MCO is that of administrator of mineral titles. The Mining Act (2007) confers substantial autonomy on the MCO, and assigns to it exclusive powers to deal with all matters pertaining to the administration of mineral titles. The MCO also maintains a cadastral atlas and a register that contains information about all titles issued for mining activities.

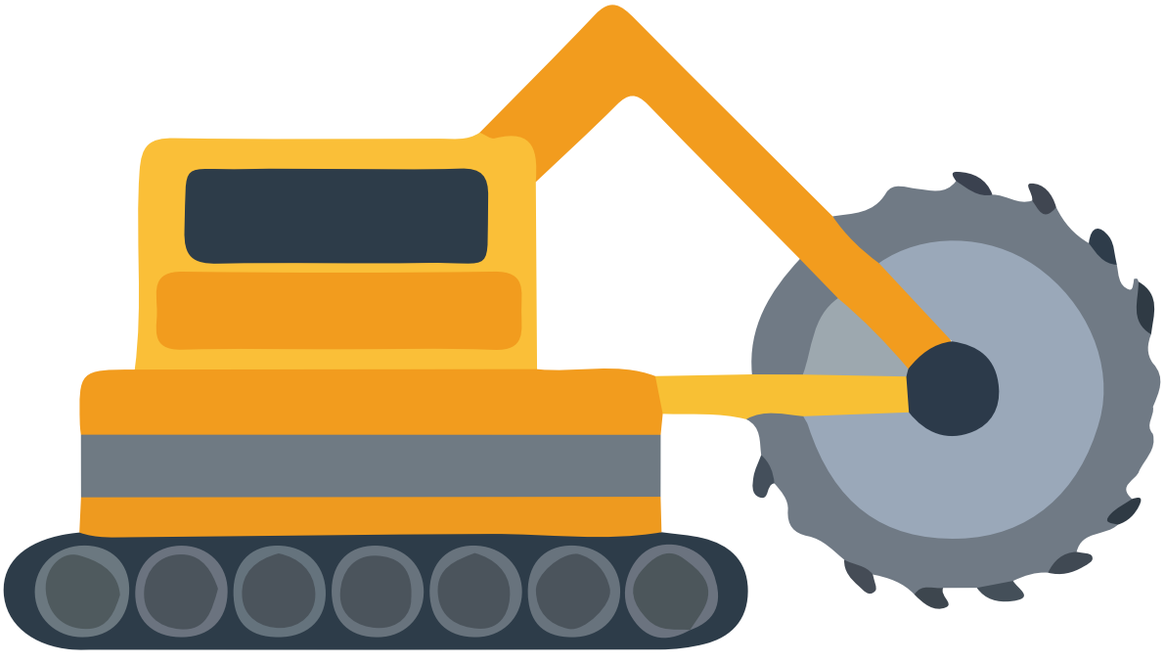
Artisanal and Small-Scale Mining Department: As one of the main outcomes of the reforms in the sector, the Artisanal and Small-Scale Mining Department was set up to institutionalise and coordinate the activities of small-scale miners. The department also provides support (technical) services to this category of operators.

Nigerian Geological Survey Agency (NGSA): The NGSA generates geoscience data for industry operators and stakeholders in the mining sector. In line with global industry practice, the NGSA's responsibility covers acquisition, management, storage, interpretation and communication of geoscience information. The information provided by the NGSA is useful for promoting Nigeria's minerals potential which is necessary to attract private investment to the country through the mining industry.

Council of Mining Engineers and Geoscientists (COMEG): The Council is a standards compliance and enforcement institution which was established long before the latest sector reforms. It regulates the qualifications and practices of extractive industry practitioners. Pursuant to this function, the Council maintains

a register of all professionals, including mining engineers, metallurgists, geoscientists etc..

Others agencies of the Ministry include the Mines Environmental Compliance Department, Metallurgical Inspectorate and Raw Material Development (MIRMD), the Steel and Non-Ferrous Metals Department, Nigerian Institute of Mining and Geosciences (NIMG), Nigerian Metallurgical Development Centre (NMDC), National Steel Raw Materials Exploration Agency (NSRMEA), Council of Mining Engineers and Geoscientists (COMEG).



3.3 Licensing

These licenses are granted in line with guidelines designed to ensure that the licensing process is fair, competitive, transparent and non-discretionary.

Licensing, i.e. the allocation of mineral titles to individuals and corporations by the government is a key element of governance standards in the extractive industry. This factor informed the establishment of the Mining Cadastre Office and the development of strict requirements and guidelines for issuance of mining licenses.

There are six types of licenses which the MCO is empowered to issue to prospective operators in the mining industry. The various licenses: are Reconnaissance Permit (RP) Conditions/ Requirements, Exploration Licence (EL) Conditions/ Requirements, Small Scale Mining Lease (SSML), Mining Lease (ML) OR Quarry Lease (QL) Conditions/Requirements, Water Use Permit (WUP) Conditions/Requirements. These licenses are granted in line with guidelines designed to ensure that the licensing process is fair, competitive, transparent and non-discretionary.

In issuing licenses, the MCO is, among other tasks, required to:

• Consider applications for mineral titles and permits and issue, suspend or revoke any mineral title upon a written approval of the Minister of Solid Minerals Development;

• Maintain a chronological record of all applications for mineral titles in a Priority Register, which is to be specifically used to ascertain the priority and registration of applications for exclusive rights or vacant areas;

• Maintain a General Register, which is to be used for all other types of applications where registration of the priority is not required.

3.4 Collection, Custody and Publication of Geoscience data

the exploration agency similarly generates data on minerals which are utilised in the iron and steel industry.

The collection and maintenance of geoscience data is undertaken by the Nigerian Geological Survey Agency and the National Steel Raw Materials Exploration Agency.

The Geological Survey Agency maintains and publishes geoscientific data including maps, surface and drill cores analytical and remotely sensed data.

On its part, the exploration agency similarly generates data on minerals which are utilised in the iron and steel industry.

In the private sector, companies involved in exploration of minerals also generate some data. However, these data are privately owned, and therefore not publicly available or accessible.

4.0 A Critical Analysis of Transparency and Governance Issues

An analysis of the above findings in relation to the expectations of transparency and good governance in the Nigerian mining sector is discussed below.

4.1 The Regulatory Framework

Nigeria's corporate income tax rate of between 20-30% compares favourably with those of South Africa, Chile and Australia, and is much lower than that of the United States of America at 40%.

Given the review of Nigeria's extensive and comprehensive mining regulations, it is obvious that the country boasts of a regulatory framework that can measure up to some of the best in the world. However, it is obvious that efforts to give Nigeria a world-class regulatory architecture have not produced the kind of investor interest and patronage that was intended. It is very probable though that with increased investor awareness of the continuous reforms to fine-tune the process and address the gaps, investors will come around to the emerging reality and begin to take advantage of the huge potential presented by the Nigerian mining industry.

This potential is reflected in the globally referenced Fraser Institute annual survey of mining companies 2014, which also compared Nigeria with other known global mining destinations such as Chile, Australia, United States of America (USA) and South Africa.

The indices used by the institute are in relation to corporate tax, the royalty payment regime, financial incentives, lease duration, customs duty and ownership requirements.

Nigeria's corporate income tax rate of between 20-30% compares favourably with those of South Africa, Chile and Australia, and is much lower than that of the United States of America at 40%. The royalty regime of 3-5% for metals, gold, copper, iron ore and energy mineral coal, also compares

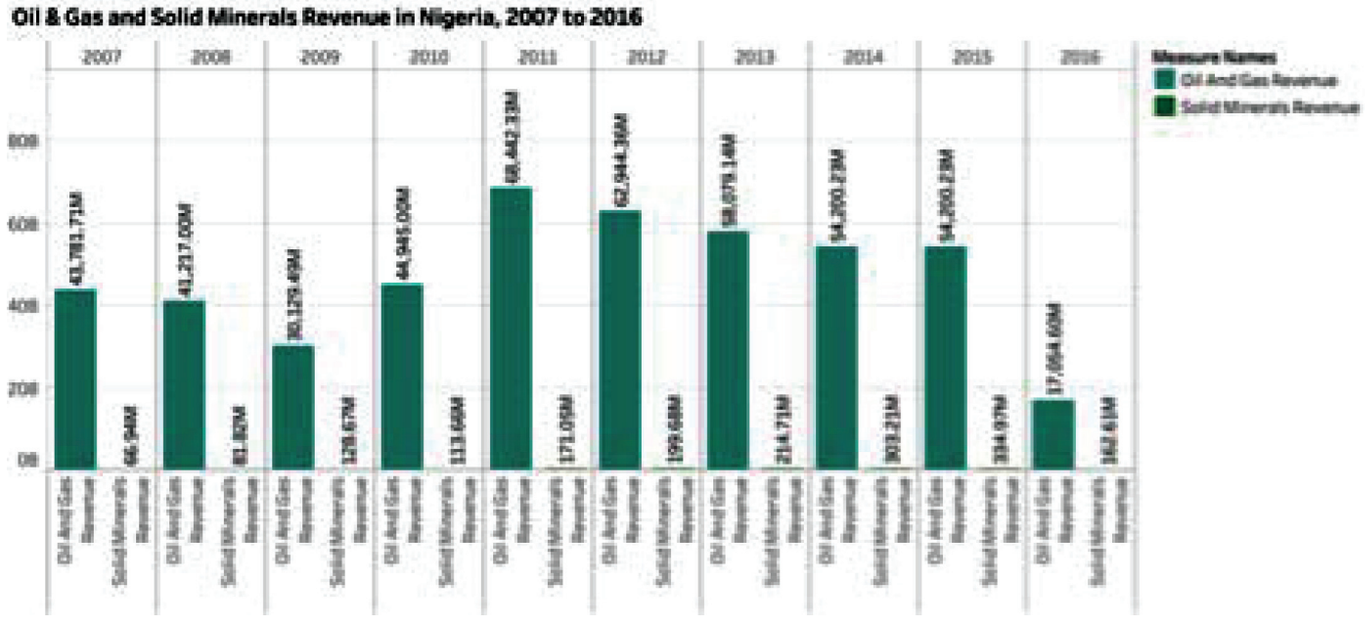
As at 2016, the Mining Index for Nigeria was still comparatively the lowest at 84.1%, in comparison with that of the USA at 133.9%, Australia at 131% or even South Africa at 98%.

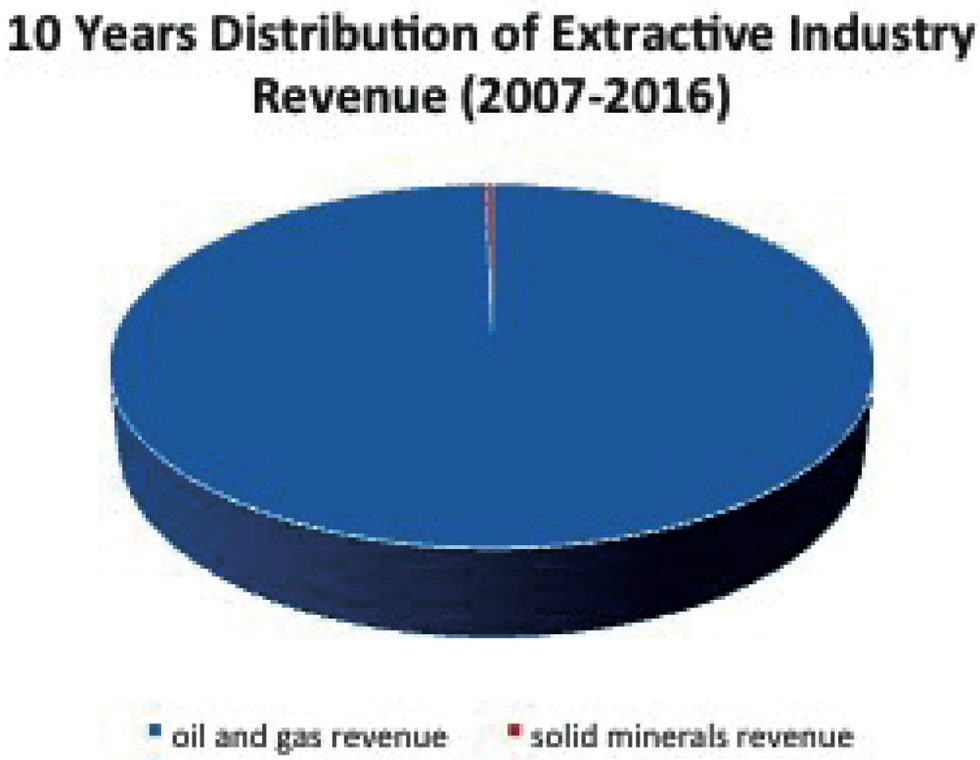
favourably with these countries and is much lower than the USA's regime of 4-10%. The tax holiday incentive of an initial period of three years from the commencement of operations is very attractive by global standards, especially for a green and brown field exploration and mining destination.

The government policy of exemption from customs and import duties for mining equipment is also a major incentive, as obtains in South Africa and the USA. This is unlike Chile and Australia that collect 6% and 5% respectively and in some cases, still collects additional import processing charges.

Perhaps only Chile, which allows for an indefinite leasehold duration on mining leases, could be said to be more attractive in comparison to Nigeria's 25 years lease period. In terms of ownership and foreign participation, foreign companies are encouraged to incorporate local subsidiaries, compared to these other destinations with varying percentages of permissible foreign acquisition. While South Africa allows for a maximum of 26% ownership, in Australia this is limited to only 15%.

However, despite Nigeria's extensive and globally competitive regulatory framework, Nigeria's mining industry is largely unexploited and contributes very little to the country's industrial output. As at 2016, the Mining Index for Nigeria was still comparatively the lowest at 84.1%, in comparison with that of the USA at 133.9%, Australia at 131% or even South Africa at 98%. This is expected, since these are known destinations with long-tested mining cultures, and consistency in the formulation and implementation of their policy framework.


Oil & Gas and Solid Minerals Revenue in Nigeria, 2007 to 2016
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
800
600
400
200
0
43,781.71M
46.94M
41,217.00M
61.82M
30,129.49M
128.67M
44,945.00M
113.60M
68,442.33M
171.05M
62,944.36M
199.68M
58,079.14M
214.71M
54,200.23M
303.21M
54,200.23M
334.97M
17,064.60M
162.61M
Measure Names
Oil And Gas Revenue
Solid Minerals Revenue


10 Years Distribution of Extractive Industry Revenue (2007-2016)
oil and gas revenue
solid minerals revenue

30.54/10.63

Nigeria is still comparatively one of the lowest in the mining world... The Nigerian score reflects the absence of global mining majors and juniors.

Despite efforts at attaining a globally competitive regulatory and governance framework, the policy perception index of Nigeria is still comparatively one of the lowest in the mining world. An index score of 30.54/10.63 is far below that of Australia (76.61/70.47); Chile (70.86/72.23); South Africa (39.78/69.08); and USA (71.8/69.08). This perception will need to be worked upon by improving the indices of governance and consistency in policy execution. The policy perception index is the outcome of surveys of investors working in the market. The Nigerian score reflects the absence of global mining majors and juniors. However, recently in their 2017 survey, the Mining Magazine reports an improvement in the Nigerian policy perception index. This may have drawn largely from the implementation of the 2016 Mining Road Map. Despite this, the score is still comparatively low when compared with that of the major mining destinations.

Nigeria's low score in Policy Perception Index should be reversed through further removal of barriers to investment. While efforts have been made by the current government to improve the ease of doing business score, further attempts should be made to increase the ease of access to critical information, not only about minerals deposits but even about ownership of mineral titles in the country. Mining policies should also guarantee predictability and consistency of application of rules.

Table 4.1: Business Climate for Mining in Nigeria

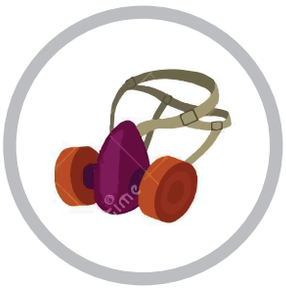
		Australia	Chile	South Africa	USA	Nigeria
Corporate Income Tax		30%	20%	28%	40%	20-30%
Royalty	Coal	2.75-15%	0-14%	0.5-7%	8-12.5%	3-5%
	Gold	2.5-5%	0-14%	0.5-7%	4-10%	3-5%
	Copper	2.5-5%	0-20%	0.5-7%	4-10%	3-5%
	Iron ore	5.35-7.5%	0-14%	0.5-7%	4-10%	3-5%
Financial Incentives		• EDI encourages shareholder investment in small exploration companies by offering tax credits	• Companies under stability tax agreements charged flat tax rate (4-5%), lower than progressive tax rate paid by others	• CAPEX by mining companies can be fully deducted against tax • E.g. spending on prospecting; mining equipment etc.	• Tax structure permits depletion deduction which can lower federal income tax rate by ~3%	• Tax holiday for an initial period of 3 years from commencement of operations
Custom duty		• 5% import duty for importing mining equipment • Additional import processing charge	• 6% import duty for importing mining equipment	• 0% import duty rate for importing mining equipment	• 0% import duty rate for importing mining equipment	• Exemption from custom and import duties on mining equipment*
Lease duration		21 years	Indefinite	30 years	20 years	25 years
Ownership requirement		• Acquisition of 15% or more interest in any Australian mining co • Acquisition of interest in an operational mine	• Non-discrimination between domestic and foreign-owned entities	• 26% stake by a local directly or via holding Co.	• N/A	• Foreign company to incorporate local subsidiary (with exceptions)
Mining production index (2014)		131.2	111	98	133.9	84.1

Notes: EDI = Exploration Development Incentive, EPBS = Enhanced Project By-law Scheme; higher mining production index indicates better performance. Policy perception index is the outcome of surveys of investors working in the market. Nigeria's scores reflect the absence of global mining majors and juniors.

Table 4: The business climate for mining in Nigeria

Notes: EDI = Exploration Development Incentive, EPBS = Enhanced Project By-law Scheme; higher mining production index indicates better performance. Policy perception index is the outcome of surveys of investors working in the market. Nigeria's scores reflect the absence of global mining majors and juniors
Source: Fraser institute annual- Survey of Mining Companies, 2014; Literature Search

4.2 Institution, Oversight and Technical Structure



Revenue from the solid minerals sector continues to be low in comparison with revenue from the other 'half' of the extractive industry revenue.

While the regulatory framework and institutional structure of Nigeria's mining sector has been shown to be well developed to conform to global best practices, a more careful appraisal of the operation of the institutions so far reveals some operational gaps that need to be remedied in order to strengthen the governance of the sector and thus enhance the performance and contribution of mining to Nigeria's economy.

On another level, revenue from the solid minerals sector continues to be low in comparison with revenue from the other 'half' of the extractive industry revenue. Analysis of the revenue profile of the extractive industry shows significantly lower level of earnings from the solid minerals sector relative to the level of endowment.

The ministry should carry a comprehensive manpower audit that relative to the professional requirements of its more technical functions, with a view to closing the capacity gap that currently constrains the agencies from effectively performing their technical and regulatory roles..

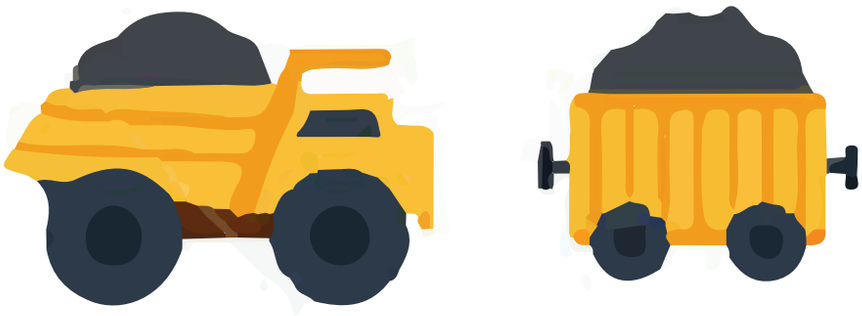
Table 4.2: Extractive Industry Revenue Distribution

YEAR	TOTAL REVENUE- OIL AND GAS ($)	TOTAL REVENUE – SOLID MINERALS ($)	TOTAL EXTRACTIVE INDUSTRY REVENUE ($)	SOLID MINERALS AS % OF TOTAL
2016	17,054,598,000	162,606,247	17,217,204,247	0.94
2015	54,200,232,000	334,972,189	54,535,204,189	0.61
2014	54,200,232,000	303,211,159	54,503,443,159	0.56
2013	58,079,137,000	214,710,925	58,293,847,925	0.37
2012	62,944,355,000	199,676,190	63,144,031,190	0.32
2011	68,442,328,000	171,052,931	68,613,380,931	0.25
2010	44,944,995,000	113,655,540	45,058,650,540	0.25
2009	30,129,486,000	128,671,424	30,258,157,424	0.43
2008	41,217,000,000	81,820,070	41,298,820,070	0.20
2007	43,781,712,000	66,943,499	43,848,655,499	0.15
TOTAL	**474,994,075,000**	**1,777,320,174**	**476,771,395,174**	

The table shows revenue distribution for the extractive industry. Despite the huge endowment in solid mineral resources, the sector has continuously contributed less than 1% of Nigeria's revenue from the extractive sector. The chart below presents a graphic picture of the negligible size of solid minerals revenue.

- **Structure of the Ministry of Mines and Steel Development**

The Ministry of Mines and Steel Development performs both regulatory and technical functions. These functions are carried out by its functional departments as well as agencies that were established for such purposes. The agencies, such as the Mining Cadastre Office are more autonomous than the departments and directorates, and thus exercise more regulatory powers. In practice, these departments and agencies have not effectively delivered on their mandates because they have not been adequately equipped with the requisite tools, skills and even funding to perform their statutory roles. The lack of adequate technical expertise for instance has constrained the Ministry's capacity to fully perform some of its regulatory and technical functions.



The lack of adequate technical expertise for instance has constrained the Ministry's capacity to fully perform some of its regulatory and technical functions.

• Enforcement and Compliance with Industry Laws and Regulations

Some of the laws and regulations that emerged out of the reforms in the mining sector were designed to achieve effective monitoring of compliance by industry operators with global best practices. However, the ministry still faces significant challenges with enforcement. In addition to formalising the operations of activities small-scale and artisanal miners, a key policy thrust of the reforms was to ensure that all mining activities in the country were properly accounted for, given the proliferation of illegal activities within the industry. The Mining Police and the Mines Inspectorate were therefore established to monitor and enforce compliance by all industry operators. Still, illegal mining activity is prevalent across the country. This reality indicates that the mining police and the inspectorate either not being properly utilised or are not well resourced to carry out the task, given the extent of the problem. For instance, the vastness of Nigeria's landmass coupled with the geographic spread of minerals occurrence may be posing serious challenges to effective enforcement. Illegal miners, including Asian and African immigrants, currently populate the industry, with these illegal mining sites spread across the country. As a recommendation, there is an urgent need for the Ministry to strengthen its enforcement capacity through strategic partnership and operational collaboration with law enforcement institutions like the Police, Civil Defence Corps and the Nigerian Customs Service. In terms of enforcement of its own regulations, the Mines Inspectorate Department should ensure that it is always on the field to ensure not only that legitimate mining operators carry out operations strictly in line with the stipulations of their specific license types but also that they meet their regular reporting obligations to the authority.

Table 5: List of Some Selected Illegal Mining Sites in Nigeria

State	Location	Minerals
Zamfara	Sunke	Gold, Tantalite
	Dareta	Gold, Tantalite
	Bagega	Gold, Tantalite
	Gusau	Sand
Plateau	Wase	Lead, Zinc
	Jos South	Tin, Columbite
	Jos East	Tin, Columbite
	Kanam	Tin, Columbite
	Baski-Ladi	Tin, Columbite
	Riyom	Tin, Columbite
	Langtang	Barites
Ebonyi	Ameka	Sand, Laterite
	Ameri	Lead, Zinc
	Offam	Sand, Laterite
	Abaomege	Lead, Zinc
	Enyi-Ogba	Sand, Laterite
Enugu	Agwu	Lateritic soil
	Ezimo	Lateritic soil
	Obolo-Afor	Lateritic soil
	Ugwuonyema	Lateritic soil
Imo	Nekede	Sand, Lateritic soil
	Owomama	Sand, Lateritic soil
	Ihiala	Sand, Lateritic soil
	Nkanga	Sand, Lateritic soil
	UmuakaNjaba	Sand, Lateritic soil
Niger	Shiroro	Gold, Tantalite
	Gurmana	Gold, Tantalite
	Kataeregi	Gold, Tantalite
	SarkinPawa	Gold, Tantalite, Manganite
	Tunga	Gold, Tantalite
	Pandogari	Gold, Tantalite, Manganite
	TakunKpara	Granite
	Madaka	Manganite, Tantalite, Lead
	Izom	Lead, Zinc
	Minna	Gold

• Inadequate Technical Capacity

There is currently a disproportionately high ratio of administrative talents technical expertise comprising geologists, geophysicists, mining engineers,

The point was made in the previous section of this study that the Ministry of Mines and Steel Development is beset with a paucity of technical manpower required by some of its agencies and departments to perform their statutory technical and regulatory functions. The reason for this problem is the lack of targeted recruitment of technical personnel for the industry. There is currently a disproportionately high ratio of administrative talents to technical expertise comprising geologists, geophysicists, mining engineers, etc. This presents a serious challenge to the ministry's capacity to execute some of its supervisory and regulatory functions.

• Inter-ministerial and Inter-agency Collaboration

The point is already made, in the discussion of enforcement of industry laws and regulations, that the Ministry of Mines and Steel Development needs to collaborate with relevant security agencies of government in order to more effectively enforce its prohibition on illegal activities in the industry. This collaboration is also required in the Ministry's work with other ministries and agencies like the Ministry of Environment for effective Environmental Impact Surveys (EIS); the Ministry of Power for instance for effective design and implementation of coal-to-power projects; the Ministry of Finance and the Central Bank of Nigeria (CBN) to secure a robust and sustainable financing strategy for the sector; and the Ministry of Trade for export market development. Unfortunately, the Ministry currently lacks an established structure for this collaboration. There is therefore an urgent need to institute the mechanism for collaboration both at the ministerial and at the civil service levels.

• Clarity in Industry laws and regulations

There are problems caused by overlapping authority and ambiguity in tax regulation and administration.

Although the Nigerian constitution explicitly places mining under the exclusive control of the Federal Government, there is still contention between the federal and states governments over who has the right to issue mining licenses. These contestations no doubt border on limited understanding of the responsibilities of the main political actors (entities). In terms of the Mining Act and the design of the Mining Cadastre Office, the core principle that defines the Act and the Agency are fairness and transparency. This should be sufficiently communicated to all stakeholders. Any source of misunderstanding in the Mining Act as well and the Land Use Act should be clarified to remove any lingering conflict between the Federal and States Governments.

•Revenue Profile and Administration of Industry Fiscal Regime

The mining sector faces fiscal issues on two levels. On one level is the incidence of revenue leakage through inefficient collection of tax and non-tax revenue, and also inefficient tax administration. On the second level, there are problems caused by overlapping authority and ambiguity in tax regulation and administration, mostly resulting in a preponderance of taxes and levies imposed on operators by federal, state, and local government levels. This continues to constitute a burden on existing and potential investors in the sector, thereby undermining the viability of the mining enterprise in Nigeria.

Figures 38, 39 and 40: Pb (Galena)-Zn/sphalerite occurrences in Nigeria

4.3 Aim for Global Best Practices in the Licensing Process

There have been reported instances where a prospective applicant goes for pre-application checking, and on returning for filing, finds out that this has already been covered by another applicant.

On face value, the recently introduced cadastre system is meant to be transparent and fast. As stated in the previous chapter of this study, the Mining Cadastre Office issues six types of licenses, each type distinguished by the stage in the life cycle and type of mineral provides. Licensing requirements are duly published for all categories of licences. This information is publicly available, fulfilling a key requirement of transparency in the sector.

However, the perception of applicants is that it takes more than the advertised fees to obtain the different categories of licences.

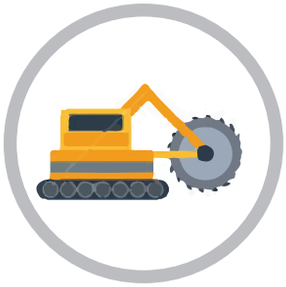
In addition, the issue of complicity arising from license speculators, who are often encouraged by the officials during the process of availability checks, creates a channel of opacity in the licensing process. There have been reported instances where a prospective applicant goes for pre-application checking, and on returning for filing, finds out that this has already been covered by another applicant.

The Mining Cadastre system in Nigeria is computer-based, and maintains a database of mining licences with their ownership status, time validity, geographic location of their mineral concession areas, fees and dues paid, and other relevant information. This system covers all the transactions that occur during the entire life cycle of a mining title, from the initial application through the granting of the licence, payment of annual fees, tracking of the necessary annual reports, re-assignment or lapsing, and final relinquishment of the title.

In line with the Nigerian Minerals and Mining Act (NMMA) 2007, the MCO is governed by the following basic principles:

Digitisation and online licensing procedure will go a long way in reducing opacity in the process.

4.4 Closing The Gap in Production and Revenue



A number of ASMs usually operate without proper licenses, seek to avoid detection by mining inspectors, and avoid paying taxes.

Much of the data on Nigeria's mineral production remain unreliable mostly due to the fact that mining operations are conducted mostly by small scale artisanal miners, and also due to the proliferation of illegal mining across the country. The existence of these factors increases the likelihood that production volumes are either understated or not reported at all by some operators. The constraints of on-site monitoring and enforcement also compounds the problem as operators take advantage of poor oversight to under-declare production.

The challenges associated with underreporting of mineral production have attendant implication for the amount of revenue reported by collection agencies. For the most part, artisanal mining in Nigeria is often an illegal and high-risk activity. A number of ASMs usually operate without proper licenses, seek to avoid detection by mining inspectors, and avoid paying taxes. Available data from annual audit reports of the Nigeria Extractive Industries Transparency Initiative shows that a large part of mining revenue is derived from quarrying activity and from cement production, even though reports also show that in 2016 for instance, minerals exported from the country include tin ore, gold, manganese, tourmaline, aquamarine, beryllium ore, lead and zinc, copper, and feldspar.

The structure of industry operations also has significant implication for type and availability of revenue data from the mining sector. The materiality threshold for the solid minerals sector limits reporting of revenue for only a few operators. This means that the thousands of artisanal and small scale miners who dominate the sector are not captured in the summary of revenue from the sector. This system entails that production and revenue figures from the mining industry may not reflect the true measure of volume of activities in the sector.

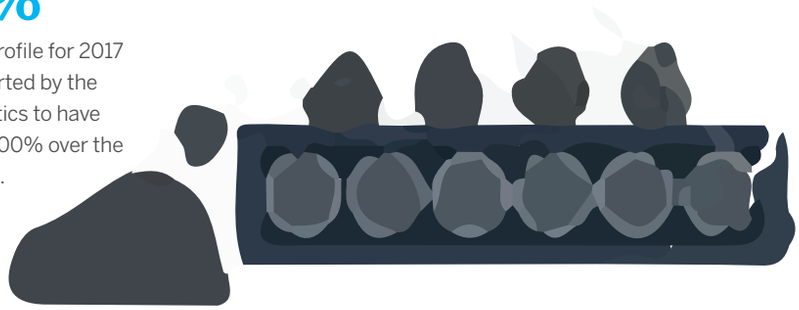
The loss in revenue as a result of this ommission could

also have been minimised if these stakeholders were properly organised. Since they are yet to be properly organised into mining clusters and cooperatives, despite some efforts, this creates a situation of low monitoring and tracking and hence an aggregate loss of revenue. This also opens a huge window for non-transparency.

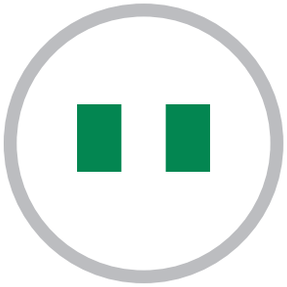
At the very local level, non-legal taxes and levies by the local government are imposed. Collusions with supervisory organs at the local and state levels have also been reported in numerous instances. It is however noteworthy that with some efforts, the revenue profile for 2017 has been reported by the office of statistics to have improved by 500% over the previous years. This positive development has largely been due to improved logistics provision for mines inspectors, and reshuffling and strengthening of the relevant departments. However, even these latest improvements fall short of performance projections at the start of the reforms, considering the enormous mineral potential and endowment of Nigeria, as such steps should be taken to attract major miners to the sector by improving the policy environment.

500%

The revenue profile for 2017 has been reported by the office of statistics to have improved by 500% over the previous years.



4.5 Establish a Robust Geological Information System



Availability of reliable, scientifically generated, information reduces investment risks in the mining industry.

For any mining activity to be viable, operators require reliable scientific information that pinpoints the location and concentration of minerals in a particular area. Availability of reliable, scientifically-generated information reduces investment risks in the mining industry. Nigeria faces challenges to timely collection and dissemination of accurate data required by both indigenous and foreign investors. The challenges are in relation to:

i. Insufficient Mapping and Accurate Estimation of Nigeria's Minerals

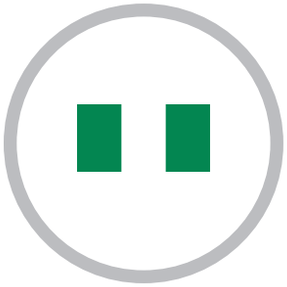
Following the enactment of the Mining Act and the establishment of the Geological Survey Agency, Nigeria carried out an Airborne Geophysical Survey to aid effective and viable mineral exploration in the country. This survey involved magnetic, radiometric and limited electromagnetic surveys of some parts of Nigeria. This survey was the first major survey in more than thirty years to update Nigeria's geoscientific database. Although this effort at data gathering was necessary, it alone was not sufficient to stimulate investor interest and build sufficient confidence in the sector.

ii. Data Management and Dissemination

Poor storage and archiving of historical data has meant that data from geological studies which were commissioned in the earlier periods of Nigeria's mining industry, have been lost or destroyed.

The purpose of collecting data on mineral resources is primarily to make the data available to industry operators. The Nigerian Geological Survey Agency (NGSA) is collecting and analyzing data to estimate actual volume of minerals available in the different locations that they have been found. However, whatever data that is being collected is not readily accessible to prospective users. These data are not being published in easy-to-access web portals or, as is usually the practice, in journals that are widely consulted by those who have need for data on mineral endowments around the world. Lack of information or access increases investment risks, and potential investors are unwilling to commit the huge funds that are normally required as capital costs in mineral exploration, unless they have access to specific information about the size of mineral reserves.
Poor storage and archiving of historical data has meant that data from geological studies which were commissioned in the earlier periods of Nigeria's mining industry, have been lost or destroyed. This means that the problem is not only that of being able to conduct geological mapping but equally importantly that of preserving, so that scientific data collection does not become an episodic, repetitive and therefore costly venture, with little return on investments in these multiple processes.

4.6 Create a More Conducive Environment for Stakeholders Participation



Availability of reliable, scientifically generated, information reduces investment risks in the mining industry.

Small-scale miners currently dominate Nigeria's mining industry. This dominance by small-scale miners is due largely to the absence of industry majors in the sector. The absence of major global players continues to constrain optimization of the sector's potentials. In addition to the economic cost of this participation gap, existing players and stakeholders face a myriad of challenges that need to be addressed for the country and the various constituencies to derive optimum benefits from exploitation of Nigeria's abundant mineral resources. A remediation strategy needs to create conditions for the competitive mix to shift towards a more balanced structure while addressing this:

• Create Attractive Conditions for Mining Majors to Return

Apart from cement manufacturers in the mining of limestone, there are few or no major miners in Nigeria's solid minerals sector. Major investors have stayed away largely due to what they consider a hostile business environment and unpredictable policy environment. The lack of adequate infrastructure, especially transportation facilities like good quality roads roads, rail and port facilities for moving especially bulk minerals as well as inadequate power supply also constitute a major disincentive to large-scale investment in the sector. Collectively, this huge infrastructure deficit adds to the prohibitive cost of doing business and discourages investment in the sector altogether. Therefore, to persuade investors to make multi-decade commitments to Nigeria, the Ministry's proposed investment team will need to lead the creation of enabling conditions for early stage explorers to emerge, and also coordinate with other MDAs and investors to add vital, low cost infrastructure.

• Support Industry Juniors to Access Credit for Capital Equipment

The reality is that small-scale miners often lack the capacity to access credit as creditors consider them too risky due to their nature and scale of operations.

Juniors are equally not insulated from the challenges that confront the major investors. They also face other challenges which are peculiar to their sizes and the fact that they are not yet established miners with significant capital base. Juniors find it difficult to access the kind of finance required for a capital-intensive operation like mineral exploration. Especially due to inadequate or lack of access to geoscientific information, mining in Nigeria is largely a speculative venture with significant amount spent on prospecting before a miner can discover mineral in mineable quantity. The reality is that small-scale miners often lack the capacity to access credit as creditors consider them too risky due to their nature and scale of operations. The Ministry should put in place a short to medium time plan to provide s credit guarantee scheme specifically for industry juniors to access capital for critical mining equipment.

• Consolidate operations of Artisanal and Small-Scale Miners

Artisanal mining in Nigeria is fraught with a multitude of challenges at both the operational and personal levels. A key characteristic of ASM in Nigeria is that it is mostly an illegal and high-risk activity. The risks arise from the operational hazards of a clandestine operation and an occupational one from the crude methods that practitioners are often exposed to. A number of ASMs usually operate without proper licenses, seek to avoid detection by mining inspectors, and avoid paying taxes. The workers in ASM operations typically face harsh working and living conditions which have become part of the life in ASM conditions. Majority of these workers are women and children. Because ASMs are mostly illegal operations they often rob government of tax revenue from these operations. And also because of its weak regulation, ASM activities have resulted in significant environmental destruction of previous topsoil, vegetation and animal habitat. ASM operators lack the necessary expertise, and relying on crude equipment, the

yields are often very low. Hence the high poverty levels and harsh economic conditions that are often observable in ASM communities.

Given the multifaceted nature of the ASM problem, it is obvious that addressing the ASM issue will produce multiple benefits for the sector, its operators and other stakeholders. Government should therefore take steps to regularize ASM operations by encouraging cooperatives among small scale mining communities, to enable government monitor and regulate small scale mining operations. Other measures recommended in other sections including increased security and surveillance, provision of institutional financing support and improving the policy space for majors to enter the sector will provide a more long-term and sustainable solution to the ASM problem in Nigeria.

• Create Partnerships for Improving Transport and Logistics Infrastructure

The lack of port facilities for handling delicate and valuable minerals like precious metals and gemstones also affect the operations of logistics participants.

Poor transport infrastructure has been shown to affect negatively the operations of more than one category of mining stakeholders. However the lack of good road, adequate rail network and ports for exports affect logistics operators in a direct way as logistics companies rely primarily on transport infrastructure to convey bulk loads of ore and minerals from ore/mine-site to the refining or processing factory for export. The lack of port facilities for handling delicate and valuable minerals like precious metals and gemstones also affect the operations of logistics participants. The provision of remains a major challenge for the economy, not just the mining industry. Wherever possible government should seek partnerships with majors and other interested entities to provide critical infrastructure around key mining zones. Corporate partners should be given opportunity to recover cost through capital investment models that have been adopted in the petroleum industry and also with companies engaged in the mining of manufacturing and construction minerals.

• Improved Volume of Production will Aid Refining and Processing Business

Operators involved in refining and processing of minerals face the problem of adequate power supply to carry out these energy-intensive processes.

Like most primary commodities, most minerals require further processing to enhance the market value. Operators involved in refining and processing of minerals face the problem of adequate power supply to carry out these energy-intensive processes. Refiners also face the problem of insufficient scale of operations required to make this venture economically viable. This limited scale is due largely to the absence of majors producing larger quantities coupled with the fact that smaller scale producers are scattered across Nigeria's vast geographic territory. Improving the conditions for industry majors and juniors to thrive will therefore enhance the viability of refining and processing business.

• Establish Critical Marketing infrastructure

The lack of marketing infrastructure and institutions like licensed buying centers continue to limit the capacity of traders to carry out their activities in an efficient and profitable manner. Other constraints include an active commodities exchange and certification or uniform reference standards. Traders therefore find it difficult to obtain the right prices for minerals, creating market inefficiencies that limits the benefits to traders and also the government. In order to address this problem, the Ministry should take practical steps to collaborate with partners to establish these marketing institutions.

• Industry Stakeholder Engagement

As government plans for changes in the sector, the needs of critical stakeholders should be factored into the reforms processes to ensure continued participation of all stakeholders. The ministry as an umbrella institution should be a platform for conducting effective stakeholder engagement during this process.

The Ministry should put in place incentives to encourage state governments to acquire mineral licenses and partner with investors to operate the mines established from those titles.

• Incentives State Governments to Participate in Mining Operations

Practical and sincere steps should be taken to secure the cooperation of state governments in the development of the mining industry. State governments currently derive little benefit from mining, just like the Federal Government due to the well outlined problems of the sector. However, the lingering contention between the states and federal institutions over the ownership of minerals tend to imply that the Federal Government is enjoying the benefits of mining at the expense of the states. But both suffer the consequence of the consequences of the problems of the sector which are partly cause by the lack of cooperation between the parties. The state needs to be convinced that there is greater benefit in participation than the current parallel system of multiple taxes, levies and charges which often dissuade and drive investors away. The Ministry should put in place incentives to encourage state governments to acquire mineral licenses and partner with investors to operate the mines established from those titles. This will bring immediate benefits to the states in terms of direct returns on investment, in addition to the improved revenue from derivation and statutory federal allocations. Needless to say, stability and harmonious policy, regulatory and political environment will accelerate the return of major investors to the sector.

• Minimize Costs and Maximize Benefits to Communities from Mining Activity

The Ministry should establish a mechanism for ongoing engagement with mining communities.

Mining activities affect host communities in ways that reflect the existing problems in the sector. The environmental problems arising from poorly regulated artisanal mining affect communities directly in terms of lives and livelihoods of inhabitants. Farmlands and destroyed and replaced with something that is not viable. Environmental pollution and poor safety standards exacerbate occupational hazards and affect the health and wellbeing of the people predominantly abandon primary occupations like farming for the false promise of wealth from precious stones. In order to stem this situation, the Ministry should establish a mechanism for ongoing engagement with mining communities. This should result in practical results to the communities through equitable benefits sharing, environmental protection and recovery and participation in mining enterprise through ownership of stakes in mining ventures.

• Partner with Donors and International Agencies for Financial and Technical Support

The collaboration with donors and international partners will contribute towards improving technical capacity.

Engagement with donors, development finance institutions and international agencies should be scaled up conducted in a strategic way to enhance access to development financing, technical assistance, research and expertise from international partners with clear proven expertise in mining development.

• Create Partnerships to Revive Professionalism in Mining

Associations of mining engineers, geoscientists, etc. provide the vital expertise (human resources) and regulation through certification for the sector. As the sector has suffered, this constituency has fallen into corresponding decline given the lack of viable opportunities in the sector. This decline is reflected in falling university enrolment and poor training. While the collaboration with donors and international partners will contribute towards improving technical capacity, a more impactful and sustainable strategy would be for the Ministry to partner with education authorities like the Universities Commission to overhaul the existing faculties and upgrade the capacities of other technical institutions to offer mining related professional courses.

4.7 Opening Up and Deepening a Transparent Business Friendly Environment

The MCO should upgrade its current ICT platform for hosting information to ensure that the portal is functional at all times and accessible from all parts of the world.

As was earlier observed, Nigeria still ranks low in the list of attractive mining investment destinations. While attempts have been made by the previous government and the current administration through the sector reforms, there is still more work to be done on the ground to restore confidence in the sector.

• Improve Access to information and Service Delivery

The effort to improve geological information collection and management is a good first step. It is equally important to make access to this information effortless by prospective investors. This will include not only the format and quality of information but availability and accessibility. The MCO should upgrade its current ICT platform for hosting information to ensure that the portal is functional at all times and accessible from all parts of the world. Information about beneficial owners of mineral titles should made accessible to assure potential investors of competitiveness of licensing and ownership.

• Address Gender Disadvantages in the Mining industry

Although women have become increasingly involved in mining activities, their roles are largely limited to source of labour in the mines. They are increasingly being marginalized by discriminatory property rights syststem in most parts of the country. In order to ensure that women share in the benefits of mining in a way that is commensurate with their contributions, the Ministry should initiate consultations with relevant institutions and commission studies to identify the causes, nature and scale of gender bias and how it affects the mining sector. Such consultation and study should lead ultimately to creating opportunities for greater involvement of women in decision making in the sector and empowering women to participate in mining increasingly at the ownership level.

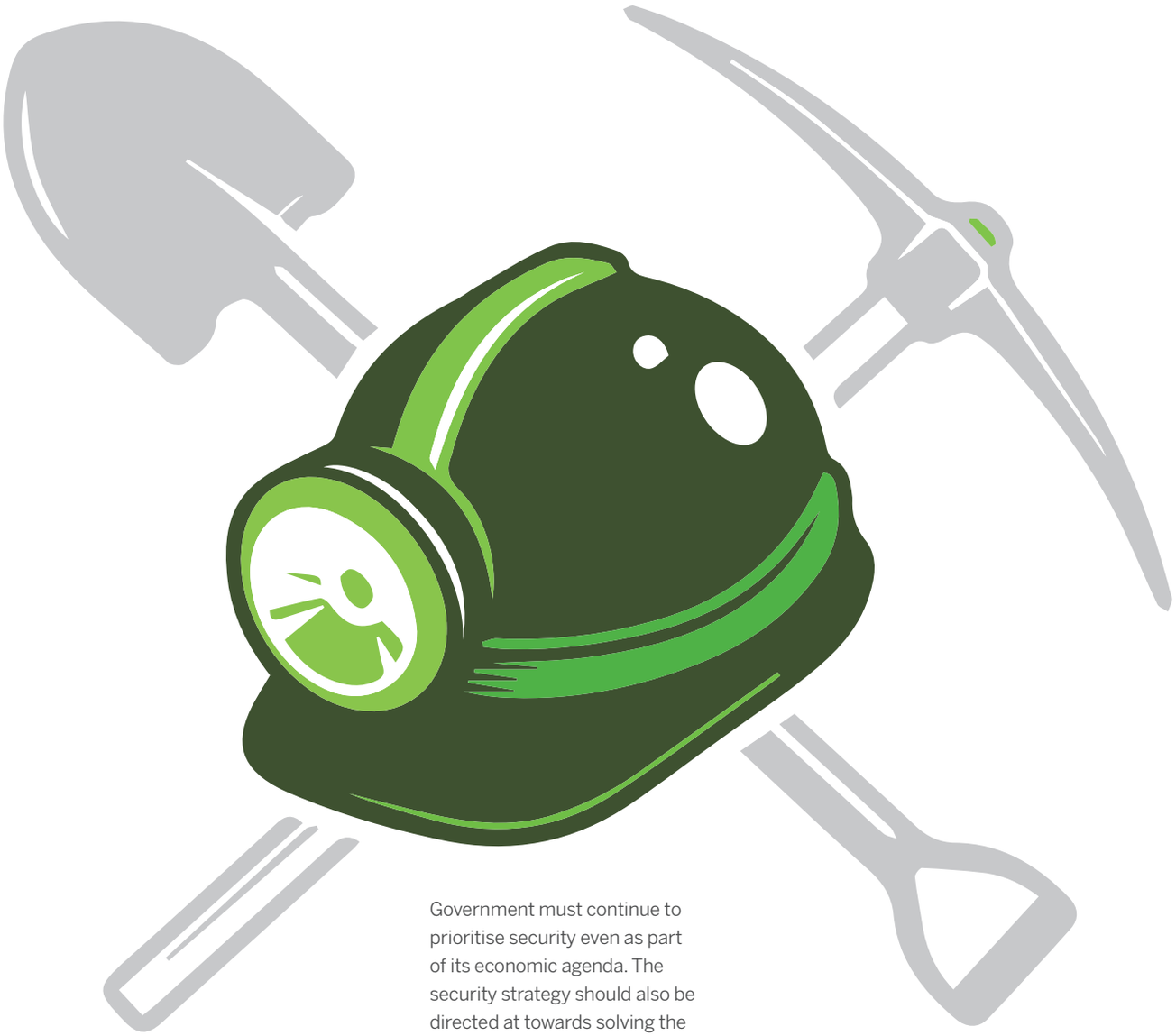
• Stimulate Interest of Financial Institutions in the Mining Sector

The lack of credit and capital from the securities market makes it hard to acquire critical capital equipment like rigs and draglines.

Credit financing for the mining sector is currently limited to trading activities. Financing of production is minimal due largely to the absence of reliable data for exploration activities. The lack of credit and capital from the securities market makes it hard to acquire critical capital equipment like rigs and draglines. This leads to other problems of the sector including the ASM problem outlined earlier in this paper. The financing problem reinforces the recommendation for provision of adequate geoscientific data with which banks can base their credit decisions to the mining sector. Stakeholders and governance institutions in the mining sector should also begin to cultivate a systematic relationship with financing institutions that with stimulate interests by the banking sector and help banks to understand the potential of the mining industry in Nigeria.

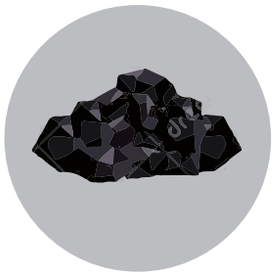
• Prioritise Security as an Economic Development Agenda

Physical security is an important consideration to investors just as is the security of investment. Despite efforts by government to tackle traditional security challenges, new issues have cropped up including kidnappings which pose immediate and direct danger to miners and their operations. Apart from mine site security, logistics related security, general terrorism, basic crime are legitimate sources of anxiety for investors and operator. Given government's efforts thus far, including making security one of its three priority focus, it is obvious that the security problem does not have easy solutions. However government must continue to prioritise security even as part of its economic agenda. The security strategy should also be directed at towards solving the problem of illegal mining in the industry.



Government must continue to prioritise security even as part of its economic agenda. The security strategy should also be directed at towards solving the problem of illegal mining in the industry.

Conclusions



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This study has shown that there is a huge mineral endowment potential in Nigeria with much of the over 54 mineral finds available in Nigeria.

Nigeria has a long but truncated mining history, dating back to over 100 years. This study has shown that there is a huge mineral endowment potential in Nigeria with much of the over 54 mineral finds available in Nigeria, which if properly harnessed could substantially increase the revenue profile of the country and enhance the much needed foreign exchange in terms of earnings through export of these metals. This can significantly contribute to the national stock of foreign exchange, and be a tool for wealth creation with its attendant multiplier effects including creating the much needed jobs. However transparency and governance issues, which are the sine qua non for a holistic beneficial development of the sector, are still on the low side. Current efforts including the new mining roadmap, concerted reorganisation of the regulatory ministry and the strengthening of the organs of the ministry, though on going, still have not yet resulted in the desired quantum leap. This is due to the long years of neglect.

Seven main areas for improvement of transparency and governance issues were identified and discussed. They include sustaining a robust regulatory framework; revamping the institution and technical structure; getting the licensing framework right; enhancing and plugging loop holes in the production and revenue profile; availability and dissemination of geoscience data; a more robust stakeholders participation that also takes into consideration community participation, gender mainstreaming and civil society engagement; and a more conducive finance and business environment. Suggestions for improvement are proffered to enhance the potential of this sector of the extractive industry.

Overall, a comparative narrative indicates that despite the long but fractured history of the mining in Nigeria, if properly developed along acceptable global standards of consistency of governance and transparency, the sector still holds a lot of promise and prospects for the holistic development of the Nigerian economy, which will be beneficial to all, as it transitions from the lower rung of the community upwards.

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