

# ENERGY AND NATURAL RESOURCES REPORT

## VOLUME 1

## PARTNER'S NOTE

Energy is pivotal to the socio-economic growth and development of any nation and as Nigeria continues to grapple with issues surrounding the extraction, exploitation, and beneficiation of resources in its energy and natural resources sectors in the era of sustainable development and energy transition, certain considerations come into play.

This maiden edition of Tope Adebayo LP's Energy and Natural Resources Report 2023 seeks to examine the current state of play in the Oil and Gas, Power, and Mining sectors of the Nigerian economy as it relates majorly to energy access, efficiency, sustainability and security. The transition to clean energy for the purpose of achieving Nigeria's energy security goals in the power sector does, as of necessity involve the simultaneous, strategic and deliberate development of its oil and gas, power and mining sectors.

This Report considers amongst others, Nigeria's Decade of Gas agenda and the issues surrounding it. Where are we almost three years down the line? Are we likely to achieve significant progress by the end of the earmarked decade or are we set to continue on the same trajectory of failed projections and deliverables as is our custom?

What role does the decade of gas play in our energy transition plan and how does the power sector plug into this plan? With the repeal of the Electric Power Sector Reform Act 2005 and the recent enactment of the Electricity Act 2023 which seeks to amongst others, provide for a holistic integrated resource plan and policy that recognizes all sources for the generation, transmission, and distribution of electricity, including the integration of renewable energy to Nigeria's energy mix, what improved role hopefully will renewable energy sources play in our energy security agenda and how are State governments poised to take advantage of the provisions of the Act which now vests in them the power to regulate their individual electricity markets in order to achieve energy security within their jurisdictions? Where is our mining industry headed and what are we doing to develop that industry? Will we be proactive in aligning our mining policies and development agenda with the development of future minerals which are minerals key to advanced energy future (which interestingly dovetails into the energy transition agenda)? How do we tackle insecurity issues plaguing our mining industry in a manner that allows us to attain sustainable exploitation and beneficiation of that sector? Are we likely to attract sufficient funding for the attainment of these goals?

These are questions we expect to stimulate your mind as you read this Report which comprises of three chapters on

Power, Oil and Gas and Mining respectively. Your guess is as good as ours on what 2024 portends but we hope to see significant improvements in the overall energy transition agenda as Nigeria consolidates on current gains and pursues the implementation of more recent policies.

From the Energy Desk

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## THE NIGERIAN MINING SECTOR IN 2023 - FUTURE OUTLOOK



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Despite abundant solid mineral resources, which include gold, lead, zinc, coal, bitumen, iron ore, limestone and barite, the Nigeria mining industry only contributes 0.15 percent to the nation's GDP. The contribution, projected to hit 0.34 percent in 2025, is far from the three percent target set out in the country's mining roadmap.<sup>1</sup> The Federal Government, in a bid to attract investment, generate revenues and develop the local mining industry, has begun legal, regulatory, institutional, and fiscal reforms for the mining sector, some of which include the digitalizing (upgrade and automation) of the mining cadastral office, the national electronic geo-databank which would assist in quick and effective information management and investment decisions, amongst others.

While there has been a year-in-year-out steady growth in the mining sector for some time now, the industry is still plagued by certain challenges that have become seemingly unsurmountable. In this Report, we have briefly discussed some of the major challenges and our recommendations whilst focusing on current developments in the sector as well as future outlook even as the world transitions to cleaner energy.

<sup>1</sup>Mining adds N505b to Nigerias GDP amid struggles | The Guardian Nigeria News - Nigeria and World News Nigeria The Guardian Nigeria News Nigeria and World News

## 03 CHALLENGES IN THE MINING SECTOR





#### Insecurity & Illegal Mining

Insecurity can be said to be the most prominent challenge encountered in the mining sector and this spans through illegal mining, rural banditry and smuggling.

Illegal mining refers to mining activities that are undertaken without State permission, land rights, mining licences, and exploration or mineral transportation permits. It can take the form of a subsistence activity such as artisanal mining, or it can manifest in large-scale organised crime spearheaded by illegal mining syndicates. Rural banditry refers to armed violence driven principally by the criminal intent to steal and plunder. It is motivated by the quest for economic accumulation. The victims are individuals and communities with material valuables. Security analysts and practitioners have identified four different dimensions of rural banditry in the North-West, namely village raids, especially of mining communities; highway robbery; kidnapping; and cattle rustling. Village raids are the invasion of rural communities, especially at night, with the principal purpose of material plundering.

The prevailing theory is that due to the cash-based nature of



transactions especially in gold mining, rural bandits have been drawn to the region by illicit and artisanal mining, raiding mining sites for gold and cash, which led to the death of over 150 people in the northwestern part of Zamfara State between mid-2016 and mid-2019.<sup>2</sup>

The intersection of illegal mining, rural banditry and violent local conflicts in the North-West, especially in Kaduna, Katsina and Zamfara States, seems evident and some locals in Zamfara State agree that rural banditry is a fallout of illegal mining. A typical example is the incidence report of 7th November 2016, when gunmen on motorcycles killed at least 40 miners at a site in Bindin village in the Maru Local Government Area (LGA) of Zamfara State, stealing all the mined gold and a large amount of cash.<sup>3</sup>

According to Enhancing Africa's Response to Transnational Organised Crime (ENACT) report, ENACT was told by locals from Zamfara, that those who sponsor illegal mining also sponsor rural banditry and cattle rustling in mining communities in order to create conflict situations for local cattle breeders. Such conflicts lead to the sacking of villages and the displacement of local populations, which creates opportunities for illegal miners to operate.<sup>4</sup> According to an analyst,<sup>5</sup> because Zamfara State is mostly surrounded by forests (with little or no government presence), the Rugu, Kamara, Kunduma, and Sububu forests have become major hideouts for criminals from where bandits launch their attacks on outlying towns, highways and villages. The plague of insecurity led to the ban on mining activities in Zamfara State by former Head of State, President Mohammadu Buhari in 2021, when he declared a no-fly zone in the State.<sup>6</sup>

According to an FDI Intelligence Report,<sup>7</sup> in November 2022, a local terror group threatened to attack a gold mine in the Bukuyum local government area of Zamfara after miners refused to pay a 10% levy. These sort of reports on banditry and insurgencies across several mining States have discouraged foreign investors from participating in the Nigeria mining sector.

Former Minister of State Mines and Steel Development, Uchechukwu Ogah, disclosed that Nigeria has in the past six years lost revenue estimated at \$5 billion to the smuggling of gold. The spike in gold smuggling in the country has once again highlighted the socio-institutional and structural problems in our governance system.

#### $^{2}\mathsf{lbid}$

<sup>3</sup>International Crisis Group, Violence in Nigeria's North West: Rolling back the mayhem, Africa Report N°288, 18 May 2020, 11.

<sup>4</sup>2020-11-19-illegal-mining-policy-brief.pdf (enact-africa.s3.amazonaws.com)

<sup>5</sup>See for instance, S Suleiman, Rural banditry in Zamfara state, northwest Nigeria, Kujenga Amani, 13 June 2019, <u>Rural Banditry in Zamfara state, Northwest Nigeria - Kujenga Amani (ssrc.org)</u> <sup>6</sup>Ibid

<sup>7</sup>Reviving Nigerias neglected \$700bn mining sector | fDi Intelligence Your source for foreign direct investment information - fDiIntelligence.com



During a local interview conducted recently, Nigeria's Minister of Mines and Steel Development admitted that "we do not have the resources to pre-empt all these illegal activities because Nigeria is vast". Instead, the government has turned its focus on data-gathering projects to add legitimacy to the sector.

Insecurity has hindered mining investments that might have otherwise spurred the industry's expansion, and operators and investors continue to have serious concerns about the accessibility and safety of mining sites. The Nigerian government in recent times has however been supporting a number of infrastructure initiatives to build transportation links for the movement of equipment to mining sites and the excavation of minerals for sale and export and we are hopeful that these would boost investors' confidence in the mining sector.

We therefore recommend that States with commercial quantities of solid minerals across the nation should begin to consider the establishment of State-owned enterprises (SOE) that can serve as leaders and drive investment interest in the sector. This would also help curb insecurities as individual States can channel their security formations around mining interests in their States.<sup>8</sup>

#### Lack Of Geological Data & Inadequate Funding

Due to the capital-intensive nature of the industry, a lot of funding is necessary to grow the sector, the lack of geological data to put Nigeria on the mining map of the world has made the country unattractive to investors and investors-funding. The Solid Mineral Development Fund (SMDF) and Mineral Sector Support for Economic Diversification Project (MinDiver Project) have been key government initiatives in growing the sector funding. However, funding is still inadequate as data gathering requires the use of advanced technology especially during the exploration phase.

The Minister for Solid Minerals, Mr. Dele Alake during the 2024 budget defence before the House of Representatives committee on solid minerals lamented that:

<sup>8</sup>A state like Nasarawa is setting up military bases/camps close to mining locations to give investors a sense of security.



Without generating geo-scientific data, which we will use in convincing foreign investors, we will just not be doing ourselves justice. We need a lot of funding in exploration and as you have rightly mentioned, it is the business of the government to embark on exploration. We cannot leave exploration in the hands of the private sector, because when we do that, they will generate the data and keep half of it to themselves for pecuniary purposes and give us only half and that will not be in our overall economic and security interest in this country. So, it is proper for the government to devote a substantial amount of funding to exploration. And we are asking for a conservative figure of N250 billion for exploration.<sup>9</sup>

There is therefore a need for the government to invest in exploration activities to help generate sufficient data to spur investment in the sector.

#### Local Beneficiation & Low-Level Mining Mechanization

In Nigeria, most of the mineral resources mined, are exported in their raw form (e.g., Lead and Zinc) as the value chain is largely underdeveloped. The exportation of these minerals in their raw form disenfranchises the nation from any form of beneficiation that should have been gained through mineral processing.

Artisanal and small-scale mining accounts for 70% of mining activities. Most miners engage in traditional mining methods, with the use of basic tools, due to the lack of adequate sector funding which inhibits the level of mining mechanization.

Other challenges include conflict of laws and regulations, lack of adequate power and infrastructure, poor stakeholders' engagement & host community participation, amongst others. A few of these challenges and their recommendations are briefly discussed:

<sup>2</sup>FG backtracks, admits powerful Nigerians behind illegal mining, terrorism | The Guardian Nigeria News - Nigeria and World News Nigeria The Guardian Nigeria News Nigeria and World News

## CHALLENGES IN THE MINING SECTOR





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Harmonize land use and mineral rights laws in Nigeria:

It is expected that the proposed Metallurgical Bill before the legislative house would seek amongst others to harmonize the laws governing land use and mineral rights in Nigeria to ensure consistency and clarity. There is also the need to amend conflicting laws that border on mining activities and educate the public on land, mineral rights and the role of the government.



Targeted Investments & Infrastructural Policies:

Taking into consideration, the significant commercial quantities of strategic minerals like gold and coal in States like Zamfara and Enugu, we recommend that the government begins to implement targeted investments, infrastructural development and policies to help maximise the potential of these States and turn them into major contributors to the solid mineral sector thereby driving growth and economic development in the country.



Host Community Participation:

The FGN should establish a clear framework for the compliance, monitoring, reporting and enforcement of host community obligations. This would in turn reinforce trust between the government, the mining companies and the host communities. The government may also want to enforce whistleblowing policies within these communities and ensure that stiff penalties are enforced.



Stakeholders Engagements:

Regular consultations and engagements with relevant stakeholders, including mining companies, local communities, and civil society organizations, should be conducted to address issues and concerns related to CDAs.

### FEDERAL GOVERNMENT MINING INITIATIVES – HOW FAR HAVE WE GONE?

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In 2002, the Federal Government, in a bid to advance the solid minerals sector established the Natural Resources Development Fund to diversify the economy, reduce reliance on the petroleum sector, and expand solid minerals development. However, between 2002 and 2023, there have been multiple reports of corruption and diversion of funds and deposits into the fund amounting to trillions of naira.

Some of the notable FG initiatives in the mining sector are: (1) in the last quarter of 2016, a \$30 million intervention fund was approved from the fund and released for the facilitation of exploration operations and the formalisation of Artisanal Miners. (ii) In 2017, the World

Bank-assisted Mineral Sector for Economic Development Project (MINDIVER), under the Ministry of Mines and Steel Development, gave the country's solid mineral sector a facility of \$150 million to enhance the mining sector's contribution to the Nigerian economy. (iii) In 2019, the Presidency directed the Federal Ministry of Finance to allocate funds to the SMDF to manage the Presidential Artisanal Gold Mining Development Initiative to formalise and institutionalise the artisanal gold mining industry.

However, despite these staggering figures, we are yet to point out the significant effects these disbursed funds have had on the

# FEDERAL GOVERNMENT MINING INITIATIVES – HOW FAR HAVE WE GONE?



mining sector as records of the fund's contribution to the mineral sector remain unclear. Rather financial records from 2007 to 2011 reveal that the fund has suffered misappropriation to the tune of N365 billion in fund allocation despite the National Assembly's efforts to check such practices. According to a 2019 audit report,<sup>10</sup> the Nigerian government allegedly diverted a substantial amount of 903.63 billion naira allocated to the fund in ten years.

A study of some of these past mining initiatives by the FG reveals that, for the mining sector to become an active contributor to the nation's GDP, the FG may need to consider a Public-Private Partnership (PPP) collaboration, where investors with access to large funds and expertise can actively play and drive the profitability of the sector.

The Federal Government should consider revitalizing the Nigerian Coal Corporation through a Public-Private Partnership (PPP) collaboration with private investors to unlock the potential of Coal, Gold, Bitumen, Lead/Zinc, Iron Ore and Barites, in the various States with commercial quantities to attract investments and drive development in the coal sector. The Segilola Gold Project mine in Osun State owned by Canadabased miner - Thor Explorations Limited is Nigeria's most advanced gold project today. However, according to Segun Lawson, the Chief Executive Officer of Thor Exploration, he experienced serious difficulties with financing early on in the project as he could not even get investors in the room with him let alone get them to invest the project, noting that a major obstacle for traditional mining investors in Nigeria is the country's reputation as a non-mining State. It took the efforts of regional infrastructure lender, Africa Finance Corporation (AFC), who invested the sum of a \$78 million debt-equity financing to bankroll the project. Today, the project stands as a testimony to Nigeria Government and the international financing community that mining can be a viable proposition in Nigeria.

Considering the recent activities with gold mining in the nation, it is expected that the FG would move for the establishment of a national gold company under a PPP model to drive primarily exploration, exploitation, and gold beneficiation in the sector. Partnering with private investors will accelerate the growth of the gold industry and this would in turn promote economic growth, support job creation, and bring about sustainable development.

## SOME OF THE RECENT INITIATIVES BY THE FG





#### AFC Partners with SMDF on Nigeria's \$700b Mining Sector

Following the successful flagship investment of African Finance Corporation (AFC) in the first commercial-scale gold mining project in Nigeria, the AFC, the Nigerian Mining Sovereign Wealth Fund and the Solid Minerals Development Fund (SMDF) recently entered into an alliance with the sole aim of expediting commercial scale, private sector-led mining projects by providing the necessary funding and technical advisory. AFC and SMDF signed a memorandum of understanding (MOU) for parties to drive viability by co-developing mining projects to mitigate risks that would otherwise have hindered financing. It is understood that the alliance will focus on precious metals and minerals critical to the global energy transition. However, only projects that have completed their pre-feasibility studies and secured relevant government and regulatory permits are eligible for funding consideration. We are optimistic that the partnership amongst these three known and respected organizations will significantly improve the development of mining projects in the country as we hope to see investors take advantage of this development to meet their financial and technical requirements as soon as possible.

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#### The Nigeria Geological Survey Agency Acquires State-of-the-art Equipment

In June 2023, the NGSA through the MinDiver Project acquired two state-of-the-art equipment; (a) The Z-300 LIBS Analyzer to enhance its capacity in the provision of analytical services. The Z-300 is most widely used for mineral exploration including Lithium in both hard rock and brines. It is also used in the forensics, authentication, archeology, oil/gas exploration areas due to the wide elemental range. (b) The Triple Quadrupole Inductively Coupled Plasma Mass Spectrometry (TQ-ICP-MS). The Thermo Scientific iCAP TQ-ICP-MS is a highperformance ICP-MS utilizing triple quadrupole technology for ultratrace quantification of elements in a variety of challenging matrices. It offers a superior interference removal capability without compromising detection power. This instrument meets the needs of specialized areas of mining, geology, geochemistry as well as environmental. It is expected that with this new equipment, a lot of savings will be made from conducting analysis locally instead of overseas.

#### REA, NASENI Seal \$150m Lithium Battery Manufacturing Deal With Chinese Investor

At the COP 28 in Dubai, the Rural Electrification Agency (REA) of Nigeria and the National Agency for Science and Engineering Infrastructure (NASENI) signed a groundbreaking Cooperation Agreement with the SHENZEN LEMI Technology Development Company. This partnership which is backed by a US \$150 million investment from LEMI will facilitate the establishment of a Lithium-lon Battery manufacturing and processing factory in Nigeria scheduled to commence in phases from the 2nd quarter of 2024.<sup>11</sup>

The Agreement was signed, under the leadership of the Ministry of Power and the China Ministry of Ecology and Environment.

## Nigeria to Engage German Firm in Search For \$700bn Mineral Deposits Nationwide

In October 2023, the Federal Executive Council (FEC) of Nigeria signed an MoU with GeoScan GmbH, a German firm possessing cutting-edge technology capable of exploring mineral deposits up

<sup>11</sup>REA, NASENI Seal \$150m Lithium Battery Manufacturing Deal With Chinese Investor (leadership.ng)

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to 10,000 meters below the surface for the search and location of the estimated \$700 billion solid minerals deposit in the country. The MOU was signed by Oliver Haeggberg, CEO of GeoScan GmbH, Germany, and Fatima Shinkafi, the Executive Secretary and Chief Executive Officer (CEO) of SMDF, representing Nigeria.

Considering how expensive geodata gathering is, this particular topnotch technology is said to be 80% cheaper than current exploration processes and three times faster in locating underground deposits.

The Minister for Solid Minerals, Dele Alake said the partnership with GeoScan GmbH will help Nigeria fully explore its solid minerals resources estimated at \$700 billion with 90% yet unexplored, to make a substantial contribution to the country's Gross Domestic Product (GDP), aligning with President Tinubu's Renewed Hope Agenda of positioning solid minerals as a significant economic driver alongside petroleum.

The need for new mining technologies in the Nigeria mining industry cannot be over emphasized, these technologies do not just increase efficiency and productivity, but also drive transformative change in the areas of health, safety and environmental protection. Advances in mining technologies, including automation, digitalization, and artificial intelligence, also enhance operational efficiency, safety, and sustainability. The Nigeria mining industry must therefore begin to embrace technology innovations if it must compete and lead in the global mining market.

<sup>12</sup>U.S. Geological Survey, 2021

### HOW THE DEMOCRATIC REPUBLIC OF THE CONGO (DRC) IS EXPLOITING NEW TECHNOLOGIES FOR MINING.





The Democratic Republic of the Congo (DRC), one of the top 10 resourcerich countries in the world, is the world's largest producer of cobalt, a key ingredient in smartphone batteries and laptops, and essential for the lithium-ion batteries that power electric vehicles and store renewable energy. The country accounts for approximately 70% (0.84 million tonnes) of world cobalt mine production and is home to more than half of the world's cobalt reserves. The DRC also produces large quantities of copper, supplying approximately 6.5% (1.06 million tonnes) of world copper mine production, as well as gold, diamonds, gemstones, oil, tin, tantalum, tungsten, and zinc.<sup>12</sup>

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The DRC, though still strongly associated with artisanal and small-scale mining (ASM) and known for its low levels of mechanization; on the other hand, now has industrial or large-scale mining (LSM) producers in the DRC

adopting some of the most advanced mining technologies. Two distinctive examples to be discussed are the Kibali gold mine and the Kamoa-Kakula copper project.

#### The Kibali Gold Mine

The DRC boasts some of the most advanced examples of new mining technologies, which include an array of innovations bringing increased efficiency and productivity, as well as transformative change in the areas of health and safety and environmental protection. The most notable example is the Kibali gold mine, one of the most autonomous underground mines globally, located in one of the world's most remote and infrastructurally under-endowed regions.

### HOW THE DEMOCRATIC REPUBLIC OF THE CONGO (DRC) IS EXPLOITING NEW TECHNOLOGIES FOR MINING.



The mine has implemented a fully automated production level and material handling system. It is equipped with an integrated, automated ore-handling and shaft system, the first of its kind in Africa, and includes features such as multiple driverless loaders that load and haul on a single haulage drive, and a smooth, high-strength roller-compacted concrete haulage surface, which improves haulage speed with minimal spillage. On the surface, drones are used for pit and stockpile measurements (Ramdoo, 2019). The entire automation system is remotely operated from a safe control room located on surface. This means that driverless loaders descending into a massive orebody close to 800 m below surface can be safely managed above ground.<sup>13</sup> The company is also maintaining a strong focus on energy efficiency through the development of a battery grid stabilizer project completed in 2020 to augment the mine's three hydropower stations and offset the cyclical load of the winder. With such audacious move to cleaner energy sources, the new technology will further reduce the mine's carbon footprint and use of thermal power.

#### The Kamoa-Kakula Copper Project

On December 1, 2020, Ivanhoe Mines and Zijin announced the closing of an equipment financing facility for their Kamoa-Kakula copper project in the DRC, in the Kolwezi District of Lualaba Province, within the DRC Copperbelt. The Kamoa-Kakula began producing copper concentrates in May 2021 and began commercial production on July 1, 2021. Phased expansion is projected to make Kamoa-Kakula the third-largest copper complex globally. The Kamoa-Kakula is powered by clean, renewable hydro-generated electricity and is projected to be among the world's lowest greenhouse gas emitters per unit of metal produced, as confirmed by a 2020 independent audit performed by Hatch Ltd. of Mississauga, Canada.<sup>14</sup> The Kakula Mine will have one of the most favourable environmental footprints of any tier-one copper mine worldwide. Along with a relatively small surface footprint, approximately 55% of the mine's tailings will be pumped back into underground workings. Ivanhoe Mines has pledged to achieve net-zero operational greenhouse gas emissions (Scope 1 and 2) at the Kamoa-Kakula Copper Mine.

The mine is operated by automated mobile mining equipment, controlled remotely or semi-remotely, to in turn reduce the risks of injury to employees, thereby reducing human exposure to risks like rockfalls, earth tremors and other dangerous situations.

<sup>&</sup>lt;sup>13</sup>Impact of New Mining Technologies on Local Procurement in the DRC (iisd.org).

<sup>&</sup>lt;sup>14</sup>Kamoa-Kakula Copper Complex Ivanhoe Mines.

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## ENERGY TRANSITION OPPORTUNITIES AND THE FUTURE OUTLOOK





The energy transition move by nations of the world will put new, and greater, pressures on the global mining industry, triggering demands for enhanced mineral supply chain security. This is due to the fact that many new-energy items – from turbines to vehicles – need greater volumes of minerals than their existing, old-energy equivalents.

A typical electric car requires six times the mineral inputs of a conventional car and an onshore wind plant requires nine times more mineral resources than a gas-fired plant,<sup>15</sup>. Minerals like cobalt, lithium, and nickel are common in the makeup of a range of tech products. Lithium, nickel, cobalt, manganese and graphite help increase the performance and improve the longevity of batteries. While the magnets inside wind turbines and electric vehicle motors require rare earth minerals.

In a 2021 report,<sup>16</sup> the World Economic Forum projected that "The production of minerals such as graphite, lithium and cobalt could increase by nearly 500% by 2050 to meet the growing demand for clean energy technologies."

Countries are beginning to think outside the box and are exploring unconventional mining practise in search for future minerals.

<sup>15</sup>International Energy Agency's (IEA) report *The Role of Critical Minerals in Clean Energy Transitions.* <sup>16</sup>Fostering Effective Energy Transition,

# ENERGY TRANSITION OPPORTUNITIES AND THE FUTURE OUTLOOK



Norway has become the first country in the world to move forward with the controversial practice of commercial-scale deep-sea mining to accelerate the hunt for precious metals which are in high demand for green technologies.

Although environmental scientists have warned that it could be devastating for marine life. The Norwegian government said it was being cautious and would only begin issuing licences once further environmental studies were carried out. The deep-sea hosts potato-sized rocks called nodules and crusts contain minerals such as lithium, scandium and cobalt, critical for clean technologies. Norway's proposal will open up 280,000 sq km (108,000 sq miles) of its national waters for companies to apply to mine these sources - an area bigger than the size of the UK.

In Nigeria, the following minerals: Gold, Lead, Zinc, Coal, Bitumen, Iron ore, Limestone and Barite were designated as strategic in the 2015 mining roadmap. As of 2023, almost a decade after, this list of strategic minerals in Nigeria is yet to be revised despite the global move by nations to transition to cleaner energy sources. The Federal Government through the Ministry of Mines and Steel Development should therefore carry out a review of the Solid Minerals Roadmap to align it with current market realities and implement sustainable strategies for boosting revenue from other strategic minerals. A quick win would be to revise the list of Strategic Minerals in Nigeria to include minerals of the future such as cobalt, lithium, nickel, copper, graphite & titanium and then begin to develop policies along these minerals so that Nigeria can quickly project and establish itself as a strategic contributor of future minerals globally. To attract investors and investor-funding, the FGN should also consider streamlining the licensing process for these transition minerals, offer incentives (tax breaks, reduced royalty rates, grants, etc.), and implement measures to manage exploration risks through either insurance or risk sharing mechanism with exploration companies. The number of licenses issued should begin to be commensurate with the demands for these minerals for energy transition.

The FGN should also seek to create significant investment opportunities for the establishment and expansion of industries related to solar energy, hydrogen, and electric vehicles locally and collaborate with relevant stakeholders to ensure that the Energy Transition Plan (ETP) is consciously implemented.

### ENERGY TRANSITION OPPORTUNITIES AND THE FUTURE OUTLOOK





Above all, adequate infrastructure and efficient logistics are key essential for the success of mining projects anywhere in the world. Definite and deliberate improvements in transportation, energy supply, and port facilities by the FG are factors considered pertinent to enhance competitiveness of Nigeria's mining operations on the global scale and drive local beneficiation across the mining value chain.

As 2024 unravels, we hope the government will take deliberate and positive steps to address insecurity in the mining sector beyond rhetoric. If this is tackled to a significant degree, it will no doubt boost investor confidence and attract more financing into the sector. We expect to see more adoption of new mining technologies to drive innovation, aggregate data, create visibility needed by mining companies and minimize risks to human health and the environment. From cloud-based management systems to smart sensors, access to real-time data, including artificial intelligence, machine learning and predictive tools, the adoption of new mining technologies is set to increase productivity, reduce costs and position Nigeria on the path to a low-carbon future. However, the impact of such technological advancements may not be felt to any significant degree in the Nigeria mining space for some time to come.

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