

Curtailing Illegal Mining Operation in Nigeria

Amosu C.O. and Adeosun T.A

Department of Mineral and Petroleum Engineering Yaba College of Technology, Yaba.

Date of Submission: 25-12-2020

Date of Acceptance: 06-01-2021

ABSTRACT: Nigeria is endowed with significant solid mineral resources that have the potentials to attract investors and investments to boost economic growth in the country. The mineral resources range from Tin, Copper, Bauxite, Diamond and Gold to mention a few.

Unfortunately, this endowment is being undermined by constant illegal mining by some persons including foreigners, believed to be sponsored by moneybags. The Nigerian government may have lost about N4 billion in three years, owing to illegal practices and corrupt activities of companies operating in the mining sector in Nigeria. Illegal mining began to gain prominence after independence in 1960. Mining rights belong to the federal government but it grants licenses for exploration, mining and sale of minerals. In the absence of effective policy, illegal mining has continued unabated and no royalties are paid to the federal government. This paper presents the loopholes and the ways to curtail the activities of illegal mining of minerals in Nigeria.

KEYWORDS: Illegal, Mining, Government, Foreigners, Mining Rights, Minerals, Nigeria, License, Reform, Services, Monitoring.

I. INTRODUCTION

Illegal mining is the mining activity that is undertaken without permission of the state or government, particularly in the absence of land rights, mining licenses, and exploration or mineral transportation permits (Dozolme, P., 2018). Illegal mining can be a subsistence activity, as is the case with artisanal mining, or it can belong to large-scale organized crimes spearheaded by illegal mining syndicates (Huerbsch B. and Spiro J., 2016) and (Sieber N. and Brain J. 2014). Approximately 80 percent of small-scale mining operations can be categorized as illegal, on an international level (Hentschel T., Hruschka F., and Priester M., 2003). Despite strategic developments towards "responsible mining," even big companies can be involved in (partially) illegal mineral digging and extraction, if only on the financing side (Castilla O., Amancio N. and Lopez F., 2015).

The mining practice that is not responsible to the States or government harms the environment and ecology. In addition, the environmentally unfriendly materials and methods used in mining put the health of everyone in the community in grave danger. At the behest of their masters, the miners, working mostly in the South West and North West zones of Nigeria use diggers, shovels, hoes and axes to dig for minerals. Different from the mechanized mining which involves mining and processing minerals to add value, illegal miners extract minerals, especially Tin, Diamond and Gold, in their rawest form and also smuggle them out of the country to buyers who are willing without any interception by Nigeria Customs Service securities.

These Illegal and unsafe mining activities take place in rural areas, like in the towns and villages where labour is relatively cheap. The villagers are hired or employed to dig for minerals, but due to their crude methods, they sometimes experience the collapse of mines that results in several deaths. Most times, they form craters on the land from the digging they create, which are wide and deep. These formed craters or trenches become "mining ponds" when it rains, which is very dangerous because of the acidic and poisonous metallic residue from the mining operations. The dug trenches are abandoned once mining is over. The Katsina and Zamfara States are the evidence of acute lead poisoning that is caused by the processing of ore, contaminating the local river where they fetch drinking water, affecting more than 3,500 children and killing over 400 adults. Media reported at the time indicated that lead concentration in the atmosphere of some homes reached 23,000 parts per million which was well above the 400 parts per million threshold considered safe by Ministry of Mines and Steel Development (MMSD).

Another dangerous angle to illegal mining, in the mining communities is armed conflict, banditry, crime widespread violence and kidnapping due to gang rivalry over the resources of mining. The Inspector General of Police in Nigeria hence banned mining in Zamfara State 2 (two) years ago

where over 80% of illegal mining for Gold occur. Illegal mining and gang violence escalated to the point where all mining activities in the State were discontinued and halted on the orders of the IG (Inspector General of Police). Nonetheless, conflict, violence, death as a result of illegal mining operation continues to thrive which supports and encourages illegal migration from all over West Africa.

An exploration license is not a mining lease; the title implies that the holders should report minerals that they find within a 20 square kilometres area. But too often, they become Illegal miners without the rights to mine any mineral. Even when licenses are issued to mine limestone, for example, the practice has been to mine other minerals without reporting it. The time has come for the federal government to pay more attention to the mining sector and minimize loss of revenue. Every dime will count in view of the parlous state of the economy. At the moment, our minerals contribute less than 1% to GDP. How can we scale up the value chain in terms of exploration, mining and processing? Where are the lapidaries — mining labs used for processing and cutting precious stones such Emerald, Topaz, Amethyst and Onyx? Beyond artisanal output, we need large scale and industrial licensees to mine commercial quantities of our minerals. With all the minerals that Nigeria is blessed with, we should aim to compete in the international market by standing up to the economic saboteurs and implementing relevant government policies – all the policies are available in black and white; getting the job done does not require any rocket science.

Nigerian government should avoid red tape and unnecessary bureaucracy which are usually our biggest headaches in implementing strategic reforms; clearly, the Honourable Minister needs the support to succeed so that the mining sector can become a shining example. The number one market in the world for Diamond, Emerald and Amethyst is in Antwerp, Belgium and it is controlled by the Jews. To become a global player, the Ministry can create an institutional framework of collaborations and partnerships with organizations: the Nigeria Chapter of the Extractive Industry Transparency Initiative (NEITI), the Nigeria Police, Nigeria Immigration and Customs Service should come together under a Presidential Task Force (PTF) that is subject to the approval by the President, in order to combat the menace of illegal mining. The proposed PTF intervention must focus on the multi-dimensional nature of illegal mining, as part of its mandate to curb: economic

sabotage, armed violence, conflict, crime, illegal immigration, public health crisis and national security implications.

In West Africa, Illegal mining created problems in Liberia, Sierra Leone and Republic of Congo several years ago; but, it was the incessant smuggling of Diamond that became the albatross of Sierra Leone that resulted in armed conflict, bloodshed and heavy losses in tax revenues. Rebels sold Diamonds in Sierra Leone in the 1990s, from the areas they controlled, at the height of the civil war, in what became the “Blood Diamonds” saga known to the world as the purchase of arms. This illegal export of Diamonds was estimated by the United Nations to worth about \$125 million each year.

As long as illegal mining has a market to run, the practice will proceed. The campaign to arrest and prosecute illegal miners should be intensified. However, while enforcement of the law is a good thing, paying fair price to artisanal miners or their employers will also do the trick. With the right incentives, fairness and equity, small scale operators (artisanal miners) and industrial licensees should come together under the close supervision (Ehi B., 2020).

THE METHOD OF ILLEGAL MINING AT THE SITE

The illegal miners totally rely on crude and local tools like digger, hoes, axes, cutlasses, buckets, and other local materials for digging and creating holes. The few modern material used include rock blaster and petrolpumping machine to draw water out of the mining pits. The drilling of rocks and the evacuation of debris after blasting is purely manual by relay method. The young miners injected different types of intoxicants into their bodies or consume them orally, so which made them work.

LEGAL AND ILLEGALITY OF MINING OPERATIONS IN NIGERIA

The matter of legal or illegality is a function of the existing political environment and the forces behind any decrees, ordinances, laws, and by-laws in a country. In Nigeria, the federal government is in charge of all the mineral resources within the nation and therefore promulgated the law that bans any private individual or group of individual from mining such mineral without being licensed by the appropriate government agencies. A private miner intending to be licensed is expected to be registered and certified by the C.A.C. (Corporate Affairs Commission) in Abuja, and also

applies for a mining lease from the FMSMD (Federal Ministry of Solid Mineral Development). The application is to be accompanied with appropriate survey sketch plans that describe the location and the coverage area of the proposed mining site. The agency therefore determines the appropriate royalty to be paid to the government.

Illegal miners are not ill-informed about the procedural approach to mining activities within the country, even though they are generally not educated. They are not ignorant of the existing laws, but, deliberately ignore such laws with disregard, and sometime with supports from corrupt officers of the federal agencies.

EFFECTS OF ILLEGAL MINING ACTIVITIES IN NIGERIA

1) THE PHYSICAL ENVIRONMENT:

Surface mining operations generally interfere and changes the makeup of morphology of the mining site as a result of digging, quarrying and dumping of debris heaps. Once an abandoned mining site has been left unreclaimed, such area becomes a badland looking like erosional features of residual hollows, canyon and mesa-buttes. The sizes of these features are dependent on how much of those materials have been extracted from the site and the depth of the targeted mineral. These morphological alterations are obviously distinct in mines consisting of hard rock, which tend to have slopes that are very steep and for which little material is left for refilling, for instance the stone quarries. At the mining location in Pandogari, in Niger/Plateau, the overburden dumps left behind at the time of opening the mine, and the abandoned polje-like wells that often causes ground subsidence by dewatering. The mining activities also interfere with the channels of surface water. Series of major river tributaries and brooks were diverted from the mining wells which also affected the river regime. Apart from this, the washing of the mined minerals and the rain storm find their ways into the neighbouring streams thereby causing river turbidity and alkalinity. For instance, according to (Akinyede et al, 2003), and (Walter Lichem, 2003), about 5000 people die each year from diseases that are water-related. The fact remains that illegal miners are not mindful of any environmental implication of their activities and therefore has no plan for mitigation of any form. The alteration of the soil profile and rock-bedding plain at the mining site also interfere with the groundwater regime. There is a resultant loss of groundwater quality due to the infiltration of contaminated wastewater and in washout and leaching of dumps, heaps and the mine itself.

2) THE BIOLOGICAL ENVIRONMENT:

The activities of extraction impose noise pollutions on their surrounding areas particularly from the drilling and blasting of mineral bearing bedrocks. In addition to the sound of the explosion, the pronounced vibrations and reverberations amount to an additional dynamic burden on the environment that does not only infuriate the neighbouring settlements, but poses as potential sources of structural damage to animal life. The noise and vibration effects of the mining activities on the animals and birds force them to migrate from their natural habitat which may also have negative impact on the cycle of their bio-physical life. On the local plant life, apart from the clearance of sizable area for the mining activities, the incidence of micro-fine dust (aerosol) generated from rock explosions settles on the vegetal leaves, thereby reducing the process of photosynthesis which on the long run can lead to stunted growth of vegetal life.

3) THE AQUATIC ENVIRONMENT:

The aquatic ecosystems can be disrupted by qualitative and quantitative changes in surface water conditions, while wetlands can be altered by groundwater level disruption. Fragile ecosystems in extreme locations are particularly susceptible to permanent damage or destruction. Finally, on the economic aspect, although high proportions of idle youths find solace at such mining site, the negative effect on the water-foods security is huge. Fertile expanses of land that are devastated and rendered uncultivable for long period of years deny the farmers' access to such scarce land, hence a general decrease in food production. Even after the mine has been abandoned and re-cultivated, the residual changes in soil physics and chemistry, available water resources, etc. can lead to the appearance of different plant and animal associations constituting an irreversible alteration stemming from the mining distortions (Jaiye D., 2013).

MONITORING AND SURVEILLANCE OF MINING ACTIVITIES IN NIGERIA

In furtherance of the effort of the government to curtail the nefarious activities of illegal miners in the country, the Ministry of mines and Steel Development has purchased and distributed six surveillance vehicles (at the rate of 8.5 million naira each) to enhance the monitoring activities of mines officers at the mines sites of the country. They can access mines sites which other vehicles cannot get into. The purpose of the vehicles was the fact that they were standard

mining vehicles anywhere in the world, and there was the need to have one in each state of the federation to ensure proper monitoring. It has been noted that one of the problems hampering the regulatory operations in the mineral and metal sector was the inability of mines officers to get into the far and remote areas where illegal mining operations are prevalent.

The efforts of the ministry are to proffer solutions to those problems facing mining operations and aimed at increasing the revenue accruable to government from the mining operations, enhancing the regulatory functions of the government, as well as decreasing the rate of illegal mining operations in the country.

In this regard, quarry operators are to comply with Nigeria's mining law and regulations for sustainable development of the nation's minerals and metal sector. The purpose was to establish a regular interface with the operators to sort out operational challenges and find ways of addressing them(Onoja N., 2013).

THE REPORTS OF NIGERIA EXTRACTIVE INDUSTRIES TRANSPARENCY INITIATIVE (NEITI) ON ILLEGALITIES

The Nigerian government may have lost about N4 billion in three years, owing to illegal practices and corrupt activities of companies operating in the mining sector in Nigeria, two separate solid minerals audit reports by the Nigeria Extractive Industries Transparency Initiative have revealed. The many schemes through which these companies have defrauded the Nigerian government include unlicensed mining, non-remittance of revenues, and evasion of taxes, illegal practices, and incessant smuggling of solid minerals out of the country.

1) ACTIVITIES OF UNLICENSED MINERS AND EXPORTERS

The NEITI report states that activities of unlicensed miners are prevalent within the industry, leading to even more loss of government revenue. The Ministry of Mines and Steel Development established that more than two million people in Nigeria profit off illegal mining in the country. Moreover, the NEITI reports have shown that Nigeria's vast landmass may pose a serious challenge to enforcing the laws and regulations relating to the mining sector. Some of these laws have not been designed to achieve effective monitoring and compliance, measurable to global standards and best practices. Although the Mining Police and the Mines Inspectorate was established

to monitor and enforce compliance by all industry operators, illegal miners, including Asian and African immigrants, currently populate the industry with unapproved mining sites in different locations across the country. According to NEITI, six states in Nigeria have been identified as the top destinations for the illegal mining of solid minerals in the country. Of the six states, Niger State leads with 10 illegal mining sites where minerals such as Gold, Lead, Zinc and Tantalite are consistently extracted, illegally. Plateau State is next on the list with seven illegal mining sites yielding Tin, Columbite, Barite and Zinc. Ebonyi and Imo States have five illegal mining sites each, while Enugu and Zamfara states have four sites from where minerals, which include lateritic soil, lead, zinc, and Gold, are mined illegally. The statutory requirement is that mining companies must obtain permits from the country's Ministry of Trade, regularly, before they can export solid minerals. Unfortunately, most of these mining companies have continually violated Nigerian laws by exporting minerals without beneficiation, an action that has come at a huge cost to Nigeria and has affected the country's revenue base significantly. The Nigerian Minerals and Mining Act 2007 require that any exporter of solid minerals must request for a permit to export – evidence of a request for a permit to export minerals by the exporters are not provided according to the report. The continuous presence of foreign nationals, who are the major patronisers of mined products from artisanal and small miners have led to reduced value addition, revenue leakages and inaccurate transaction records.

2) CONTRADICTIONS IN DATA

Analysis of the NEITI solid minerals audit reports done by the Premium Times Centre for Investigative Journalism, showed contradictions between the reconciled data of many extractive companies and those of government agencies. The review of NEITI's 2015 and 2016 Solid Minerals Audit Reports showed that the export data of some mining companies were not captured by regulatory agencies of government. Previous reports also showed that the 13 percent derivation payments to solid-mineral producing states were not paid. In addition, the Ministry of Mines and Steel Development did not put in place a framework for separating solid mineral revenues

3) NON - PAYMENT OF ROYALTIES

In 2014, exports figures reported by companies were different from those declared by

government agencies. The report revealed that multiple business activities of some operators limit the extent to which some statutory payments (e.g. taxes) in respect of their extractive activities can be identified and reconciled. This practice is mostly found among the companies in the construction and cement manufacturing sectors. In the report for 2016 solid minerals activities, three companies denied the audit team access to their records during data validation and failed to attend reconciliation meeting. It was also revealed that some expatriate companies do not have a trackable record of tax payment in Nigeria as they do not keep their accounts within the country, and they prepare their accounts in a language other than English. This was the case for Mercury Mining Investment, owned by the Chinese and is situated on the Benin-Ore road, Ofusu, Ondo State. According to the report, the company has not kept its activities records and books in its Nigerian premise. Instead, they are in China, and they have no evidence of tax payment. Consequently, this made it impossible to verify, validate and reconcile their Company Income Tax (CIT), Value Added Tax (VAT), Education Tax (EDT) and Withholding Tax (WHT), royalty and other fee payments to the relevant government agencies.

CONSEQUENCES OF THE MINING SECTOR IN NIGERIA

According to the NEITI's occasional paper on Improving Transparency and Governance for Value Optimisation in Nigeria's Mining Sector, Nigeria is enriched with over 34 commercially viable solid minerals deposits across the country which includes Gold, Coal, Gypsum, Kaolin, Sapphire, Granite, Copper, Iron Ore, Sand, Clay, Laterite, and Bitumen amongst others. In comparison with other countries with similar potential, Nigeria's mining sector is still largely underdeveloped. This is 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 was a slight improvement, the sector's contribution to Nigeria's Gross Domestic Product (GDP) was not more than 0.5 per cent. This contribution is a reversal from the historically higher percentages of about 4-5 per cent in the 1960s and '70s. With the obvious challenge of the Nigerian government to meet its financial obligations and achieve its long term economic diversification plan, the long-forgotten minerals and mining sector is now thought to be the

new frontier of salvation, with its potential, according to government records, to generate N8 trillion naira annually (Akintunde B., 2020).

Solution Options, Reforms And Roadmaps For Growth And Development Of The Mining Sector In Nigeria

Major challenges to the growth of the sector which include:

- i) Insufficient geosciences data;
- ii) Inadequate mineral production data and information;
- iii) Inadequate infrastructure;
- iv) Lack of major industry participants;
- v) Limited engagement and leverage of industry stakeholders;
- vi) Poorly organized institutions lacking in technical talent;
- vii) Lingering opacity;
- viii) Lack of regulatory enforcement;
- ix) Security issues;
- x) Poor investor perception;
- xi) The issues of lack of clarity in governing laws;
- xii) Conflicts between different levels of government in terms of rights to issue mining licenses and allocation of revenue from the sector.

The Committee envisaged that the revitalization of the sector to achieve a world class mining industry which can serve as a source of the economic development and revenue diversification can be achieved by the following:

- i) Proactive communication of the strategic plan established in the Roadmap to stakeholders including other branches of government, community activists, potential investors etc;
- ii) Creation of an investor friendly regulatory environment;
- iii) Coordinated infrastructure investments;
- iv) Establishment of community partnerships;
- v) Provision of investment funding;
- vi) Institutional reform;
- vii) Improved Geoscientific databases
- viii) Use of mining as a developmental catalyst (Shasore O. (SAN.), 2016).

Reasons For Illegal Mining, Non – Compliance (Policy Recommendation)

Nigeria has much to gain from reorienting its legal and policy framework towards ASGM (Artisanal Small Scale Gold Mining) miners, who currently carry out the bulk of solid minerals mining activities. Although the Mining Act and Regulations include a number of incentives to attract larger investors, there has been no large-scale

Gold rush in Nigeria by larger mining companies at this level so far. In the meantime, artisanal miners are extracting and processing Gold using dangerous methods, without sufficient access to land, equipment, and financing, while their revenues are going untaxed. The Minerals and Mining Act and Mining Regulations only briefly address the needs of artisanal miners, primarily by requiring miners to form cooperatives in order to access extension services. Now is the time to get the framework and incentives right so that ASGM activities can better contribute to economic development, both on a national and a local scale, without the negative impacts on human health and the environment that are currently taking place. The legal and policy recommendations presented below are intended to enable and encourage formalization of artisanal miners by focusing primarily on licensing and the related issues of access to land and organization into mining cooperatives or other associations. They range from specific amendments or additions to the mining laws and regulations to concrete steps that Ministry of Mines and Steel Development (MMSD) and others can take to improve the ability of miners to navigate the mineral licensing process and to secure access to land. These priorities include:

i) STRENGTHEN ACCESS TO LAND

Many miners do not hold title (in the form of a Small-Scale Mining Lease) to the lands where they are working to extract mineral-bearing ore. This may be because they do not know how to obtain a mining lease, they lack the resources to obtain a lease, or because title to the land in question is already held by somebody else. A lack of formal title can discourage artisanal miners from making longer-term investments to improve their mining activities, without the assurance that they can recover their investment. (SDC Experiences with Formalization, note 36). It also means that miners cannot use the land on which they are working to secure credit for obtaining new tools and developing improved technologies. Nor do they have the security of knowing they can continue to mine in a given location for a specific length of time. In Nigeria, these challenges are rooted in the country's complex land tenure history, the rapid assignment of mineral titles (including for lands under customary title) to speculators and investors following passage of the 2007 Mining Act, and the often-fraught relationship between artisanal and larger-scale miners. Many mineral deposits lie on lands that have been formally registered to titleholders (predominantly

small- and medium-scale operators, as Nigeria has few large-scale Gold mining operators at present), (GEUS Scoping Study, note 134).

ii) IMPROVE ASGM (ARTISANAL SMALL SCALE GOLD MINING) LICENSING PROCESS

The most fundamental tenet of formalization involves the ability to obtain a mineral title. As mentioned above, secure title can go a long way towards helping artisanal miners improve their operations by investing in safer and more effective mining technologies. While Nigeria's Mining Act and regulations do allow artisanal miners to obtain a Small-Scale Mining Lease, the process is difficult and costly. The license fee of 10,000 naira (approximately \$63 U.S. at current exchange rates), while not prohibitive – particularly for mining cooperatives – is still a substantial sum for poor communities. In addition to the fee, the mineral lease application requires a pre-feasibility study, proof of sufficient working capital and technical competence, and details such as coordinates about the location of the proposed lease. As an examination of artisanal and small-scale mining legislation has concluded, mineral rights should be simple to administer, easily understood by the miners, and enable miners to scale up to the next level of mining operation (UNECA Compendium, note 1). As such, use of the Small-Scale Mining Lease as the primary vehicle for licensing artisanal miners should be revisited. Rather, it would be more effective to create a separate Artisanal Mining License for artisanal miners – one that is tailored to their specific needs and operations.

iii) STRENGTHEN ACCESS TO CREDIT

One of the most fundamental constraints to the ability of miners to upgrade equipment and engage in safer mining practices is their lack of financial capacity. With limited cash on hand, miners cannot invest in equipment and supplies without access to credit. Currently, miners rely on what are sometimes referred to as predatory lenders for materials and supplies, which obligates them to sell their mineral to the lenders at below-market prices. This creates a cycle of dependence that is a barrier to the implementation of change in mining practices. Strengthening access to credit facilitates greater profitability because it allows miners to participate in the broader market and provides greater stability because miners can make longer-term investments (Artisanal and Small-Scale Gold Mining, 2017).

iv) IMPROVE ACCESS TO MARKETS

Although the Minerals and Mining Act requires all minerals obtained under a Small Scale Mining Lease to be sold to a licensed Mineral Buying Centre (Nigerian Minerals and Mining Act, the majority of artisanal Gold miners sell their Gold to unlicensed buyers. Despite generally reliable access to market information via their cellular phones, many miners are obligated to sell their minerals onsite to —middlemen who have already loaned cash to them for various financial needs. This enables the middlemen (sometimes known as —retailers) to set the price at which they will purchase the Gold, which is often below market value, and which is in turn sold to the buyers (sometimes known as —wholesalers). Foreign nationals have been identified as one of the primary purchasers of artisanally-mined minerals (HarunaYahaya and co., 2010), with purchased minerals smuggled out of the country on the black market. While miners can generally obtain a higher price through minerals' buyers and sellers associations. The location of such associations in capital cities can be quite far from processing sites. There can also be uncertainty about the fluctuating market price and method for measuring mineral yields, rendering the benefits of making the trek to town difficult for miners to gauge. Direct or indirect market access is essential for miners to receive a fair price and avoid the black market (UNEP Analysis of Formalization Approaches, note 56). Strategies to supplant the black market fall under two general frameworks: (1) Using government parastatals to bring the market to the miners; and (2) Incentivizing private action to bring the miners to the market. Ideally, the middlemen would be incorporated into improved marketing approaches, as the miners often trust them.

v) Strengthen Community Education And Outreach

Education and awareness-raising is a key component of strategies to reduce mercury and lead exposure. Health concerns can play an important motivational role and complement other strategies intended to accelerate the formalization of artisanal and small-scale miners. Awareness-raising is especially important for reaching vulnerable population groups such as women and children. As has been noted, —a more “bottom up” approach to ASM policymaking, and implementation which stresses sensitization and education as a prerequisite to formalization, would be a logical first step toward safeguarding livelihoods (Maconachie and Hilson, Safeguarding

Livelihoods or Exacerbating Poverty, note 3). MMSD's Safer Mining Programme has been targeting miners about safer practices, and the medical group had previously worked with communities through its Health Education Unit to educate them about mining safety.

vi) IMPROVE COORDINATION AMONG INSTITUTIONS AND STAKEHOLDERS.

The lead and mercury problems associated with ASGM activities, along with the challenges posed by formalization, involve a wide range of government institutions, community members, and civil society groups at the federal, state, and local level. International organizations also play a role. While the Federal Ministry of Mines and Steel Development has exclusive jurisdiction over solid mineral activities, the Federal Ministry of Environment has authority over environmental degradation, environmental impact assessment, and exposure to toxic chemicals. The Federal Ministry of Health has also been involved in remediation and treatment of lead poisoning, but, as noted above, it also has a role to play in developing a public health strategy on mercury as part of Nigeria's National Action Plan. The environmental, health, and economic impacts of ASGM affect a large number of stakeholders, including miners and their communities, traditional rulers, miners' associations, and civil society groups, among others.

vii) THE COOPERATIVE BARRIER:

Under the Minerals and Mining Act and Regulations, artisanal miners are strongly encouraged, and in some cases required, to form a cooperative in order to proceed with their activities. Miners must be part of a registered cooperative in order to receive extension services from the Ministry, (Minerals and Mining Act, note 69) and while both individuals and cooperatives are allowed to apply for a small-scale mining lease, the Ministry holds the view that the only way for artisanal miners to obtain such a lease is through a registered cooperative. The requirements for forming a cooperative are specific to each state, but commonly include the preparation of bylaws and payment of a registration fee, among other things. Once miners have legally formed a cooperative, they must also register it with MMSD's central office in Abuja, which imposes additional steps and fees.

viii) Collect Royalties From Artisanal Mining Company

In order to successfully encourage the formalization of artisanal miners, the economic incentives must be aligned for all parties. Currently, a three-percent royalty is required to be paid on mined Gold under Section 33 of the Mining Act and Section 99 of the Mining Regulations, to be collected by MMSD's Mines Inspectorate. Artisanal miners who are not registered with MMSD are presumably not paying royalties, although it is quite possible that they are making informal payments to certain officials at the traditional or state/local government level (Civil Society Legislative Advocacy Centre, 2012). The federal government would undoubtedly benefit from capturing a legitimate share of the royalties from artisanal mining activities that are currently being lost to informal trade and export. States, which are supposed to receive a share of royalties paid to the federal government under the derivation principle, would also benefit. Moreover, miners who are already making informal payments would be subject to a form of double payment under a more formal royalty system. The challenge is therefore how to incorporate royalty payments into a formal licensing system without discouraging miners from obtaining mineral licenses. In essence, registered miners should still be better off economically even after paying royalties, compared to unlicensed miners.

ix) STRENGTHEN EXTENSION SERVICES

There exists a range of technologies that can help miners reduce their use of mercury, or stop using it all together, but miners are not aware of these alternatives or how to adopt them. The low success rate of programs to introduce cleaner Gold processing technologies has been attributed to both a lack of awareness and limited access to alternative technologies (as well as the ease of use and effectiveness of mercury in Gold recovery). Mining extension services can play a key role in disseminating improved technologies (Report to the UNEP GC Meeting, note 54). While Section 91 of the Mining Act directs MMSD to provide extension services to small-scale and artisanal mining cooperatives across a wide range of areas, these services do not appear to be reaching a large number of artisanal miners in areas with ASGM activities. The implementation in 2013 of MMSD's Safer Mining Programme is addressing some of these needs, as the program includes the distribution of mine safety kits and clothing, the use of field demonstrations on best mining

practices, and the importation of wet milling machines for installation in three areas in Zamfara (Federal Republic of Nigeria, 2012). It is critical that MMSD adhere to its plans to extend the program beyond Zamfara. Ideally, this work would be incorporated into the ongoing functions of MMSD's zonal and federal mining officers. MMSD has begun to implement training programs on safety, health, and environmental issues in Gusau and Zamfara, including the distribution of mining safety kits, and has also appointed an Extension Service Officer in the town of Bagega, where a large amount of ASGM activity occurs.

II. CONCLUSION

Illegal mining has been a plague and unsafe to the mining economy of Nigeria. This has continued with little and no royalties paid to the Federal Government. It is experienced in small-scale (Artisanal Mining) and in large-scale organized crime spearheaded by illegal mining industries. Most of these crude illegal practices are harmful to the environment and ecology, especially where it occurs in the rural areas (towns and villages). Also noticed with it is the increase in the rate of armed conflicts, banditry, crime widespread violence, gang rivalry and kidnapping.

It is expedient for the Nigeria Extractive Industry Transparency Initiative (NEITI) in collaboration with the Nigeria police, Nigeria Immigration and Customs Service to form alliances under a Presidential Task Force (PTF) to combat the menace.

To further curb this disaster, Nigeria government should enforce the laws that ban any private individual or group of individuals from mining mineral without being licensed by the appropriate government agencies. If unchecked, the effect of illegal mining activities in Nigeria could cause:

- Physical distortions of the environment, of which illegal miners do not have plans for mitigation, especially on host community, groundwater regime and disposal of produced wastes generated from mining.
- Biological disturbances to the ecosystem through noise, vibrations, dusts that affects plants and animals progress.
- Aquatic imbalance that leads to water-food shortages

The policies framework that could be recommended, especially to the small-scale Artisanal miners who are involved in the bulk of solid minerals mining activities include:

- Strengthen their access to land, and soften the imposition and effects of the land tenure system on them.
- Improve the licensing process, especially regulating licensing fee moderately.
- Strengthen their ability to get easy credit for meeting market demands.
- Improve on their access to the market and given simple mining lease, to avoid selling to unlicensed buyers.
- Provide community training to them on the consequence of poisoning and pollution of mining to health issues.
- Register them under a structured cooperative body to help their activities.
- Incentives should be provided to mining, especially to those that makes informal payment under the royal system.
- Strengthen their access to extension services on cleaner mining technologies and its alternatives provided.

REFERENCE

- [1]. Akintunde B.(2020): Shady practices by registered mining companies cost Nigeria billions of Naira.
- [2]. Akinyede, J.O, and Boroffice, R.A. (2003): Space application and sustainable National Development' in proceeding of papers presented at the 38th Annual General Meeting (AGM) of Nigerian Institution of Surveyors, Lokoja, Kogi state, pp5-14
- [3]. Artisanal and Small-Scale Gold Mining in Nigeria(2014): Recommendations to Address Mercury and Lead Exposure .Environmental Law Institute (ELI).
- [4]. Castilla O., Amancio N. and Lopez F.(2015): the Companies Accused of Buying Latin America's Illegal Gold.
- [5]. Civil Society Legislative Advocacy Centre (2017): Policy Brief on Solid Mineral Sector for the National Assembly, <http://www.cislacnigeria.net/wpcontent/uploads/2012/07/Policy-brief-onsolid-minera-sector.pdf>.
- [6]. Dozolme, P. (2018): Learn What Illegal Mining Operations Are.
- [7]. Ehi B. (2020): How Illegal Mining Is Sabotaging the Nigerian Economy, Guardian Newspaper.
- [8]. Federal Republic of Nigeria (2020): Programme on Safer Mining in Zamfara is in Progress, <http://www.nigeria.gov.ng/2012-10-29-11-09-25/news/489-programme-on-safer-mining-inzamfara-state-is-in-progress..>
- [9]. GEUS Scoping Study (note 134), at 6.
- [10]. GEUS Scoping Study (note 134), at 6.
- [11]. HarunaYahaya& Co.(2007-2010): Nigeria Extractive Industries Transparency Initiative (NEITI) Financial Audit: An Independent Report Assessing and Reconciling Financial Flows Within Nigeria's Solid Minerals Industry at 81,
- [12]. Hentschel T., Hruschka F., and Priester M.(2003):Artisanal and Small-scale Mining -Challenges and Opportunities, International Institute for Environment and Development, London.
- [13]. Huerbsch B. And Spiro J.(2016): Illegal Mining In South America and Financial Risk,- Taking Shine off Gold.
- [14]. Jaiye D. (2013):The environmental Implicationof Illegal Mining Activities in Nigeria, A case study of Pandogari and BarkinLadi/ Bukuru Surface mines In Niger/Plateau States. Federal University of Technology. Minna, January.
- [15]. Minerals and Mining Act (note 69), § 91.
- [16]. Maconachie&Hilson, Safeguarding Livelihoods or Exacerbating Poverty (note 3), at 301.
- [17]. Minamata Convention(2013) : (note 109), Annex C, 1(h).
- [18]. Nigerian Minerals and Mining Act (note 69), Sec. 95.
- [19]. OnojaN.(2013): Curtailing illegal mining activities-Government's response.
- [20]. Report to the UNEP GC Meeting (note 54), at 14.
- [21]. Shasore O. (SAN).(2016):Nigeria's Solid Minerals as a source of Economic Development –Tapping a latent resource?
- [22]. SDC Experiences with Formalization (note 36), at 22-23
- [23]. Sieber N. and Brain J. (2014): health Impact of Artisanal Gold Mining in Latin America.
- [24]. UNECA Compendium (note 1), at 90.
- [25]. UNEP Analysis of Formalization Approaches (note 56), at 34.