
Resource governance: Examining laws regulating mining of mineral resources in Nigeria with emphasis on gold mining and its effect on the security of life and environment.

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Abstract

Nigeria is blessed with abundant resources including gold and other mineral and natural resources. However, gold mining in Nigeria has continue to posed a threat both to security of life and the environment. The main objective of the study is to examine laws regulating mining of mineral and natural resources in Nigeria with emphasis on gold mining and to identify the effects of gold mining on security of life and environment. The study adopts doctrinal and comparative research methods making reference to other jurisdictions with gold deposit as previous studies were mainly doctrinal and not comparative. The findings indicate that there is no specific legislation in Nigeria that regulates gold mining apart from the Minerals and Mining Act 2007 regulating mining and exploration of all forms of solid minerals which gives room for illegal mining contrary to what is obtainable in some jurisdictions like Ghana and Brazil that have some specific regulations on gold mining. The study suggests for policy review, legislative amendment(s) and or enacting specific legislation that would regulate gold mining and all forms of illegal mining. The study equally recommends for deployment of advanced technology in the mining sector as this would ensure more protection and improve security, safety and wellbeing of people in the affected area as well as environment in such a way that government would benefit more from the abundant gold deposit in Nigeria.

Keywords: Environment, gold mining, illegal mining, mineral resources, security of life.

1. Introduction

Nigeria has identified gold mining as one of the potential alternatives to oil and gas for the country's foreign exchange earnings and has set up policies to ensure the positive utilization of the resources. However, the rampant killings, kidnappings and other violent crimes that currently bedeviled Zamfara and other parts of North-western Nigeria is attributed to the illegal gold mining

activities in the area (Vanguard, 2021; Alumona & Kingsley; 2019). There are reports indicating that some foreigners exchange arms with gold in Zamfara (This Day, 2020). Thus, gold mining activities in Nigeria was conceived to boost economic development but has now become threat to the country's national security and environment (Igwe, 2021). This calls for a study on how Nigeria could exploit its abundant gold deposit for

its economic and social development and at the same time enhancing security of life and protecting the environment through legal mechanism.

Thus, due to the continued fluctuation and decline in oil price and demand for Nigeria's oil by the major economies and the antecedent negative effects of that on Nigeria's economy, government is making effort towards diversification of the economy from heavy reliance on oil and gas (Vanguard, 2021; Adewunmi, 2020; Tracy, 2013). In view of the potentials of gold mining becoming Nigeria's viable alternative foreign exchange earner, plans are made to refocus on the country's solid minerals (Kayode, 2016). As part of the government strategies to revive the solid minerals industry, seven (7) strategic solid minerals have been identified by the Ministry of Mines and Steel Development for priority development. The minerals are gold, limestone, barites, iron ore, coal, bitumen and zinc (Ministry of Mines and Steel Development, 2016).

On the one hand, mining of gold in Nigeria is characterized by informal mining largely operated by small, medium and artisanal miners both locals and foreigners, with high rate of mining activities that posed danger to the environment thereby affecting wellbeing of the host communities (Igwe, 2021; Ako, T.A. et al, 2014). Again, the widespread killings, kidnappings and other violent crimes that presently bedeviled Zamfara state and other parts of North-western Nigeria is attributed to the illegal gold mining activities in the area (Vanguard, 2021; Alumona & Kingsley; 2019). It is argued that illegal mining is mainly committed by small-scale and artisanal miners, majority of whom lack the capital and equipment to carry out sustainable mining activity. There are reports indicating that some foreigners exchange arms with gold in part of Zamfara as earlier mentioned (This Day, 2020). From the foregoing, it is clear that

gold mining which is viewed as alternative to oil and gas is fast becoming threat to the country's national security and environment.

In terms of theoretical framework, this study adopts stakeholder theory which maintained that in a corporation, every stakeholder has significance to the firm's existence and as such, must be regarded and protected. In this regard, (Parmar et al 2010; Schaltegger, Jacob & Edward, 2019) emphasised on sustainable business ethics as key to corporate operation and sustainability. In essence, activities of gold mining companies in the affected areas must be guided by law and ethics in such a way that life of members of the host communities and the environment must be respected and protected. Another concept adopted in this study is the Corporate Social Responsibility (CSR) to support the stakeholder theory. In their work (Freeman, Edward and Sergiy, 2017) emphasised on the significance of CSR to continuous corporate existence. This study at the end would recommend to the policy makers on how regulation of mining (gold) could be improved thereby advancing the economy and social development and at the same time improving protection of life and environment through legal mechanism. The study apart from consolidating literature and filling the gap in this area, would equally suggest for policy review, legislative amendment(s) and deployment of advanced technology in enhancing the protection of life and environment in Nigeria.

The main objective of this study is to examine the current legislation and other rules governing mining of mineral and other natural resources in Nigeria with a view to identify how legislative intervention can specifically regulate gold mining in Nigeria to ensure safety of life and environment.

2. Literature Review

According to (Interpol Report, 2021) criminal groups involved in illegal gold mining resort to human trafficking and migrant smuggling to maximize their profits, using coercive and violent techniques. The report concluded that illegal gold mining can pose insecurity and the presence of arms on mining sites posing serious security threats to law enforcement. In his work (Olanrewaju, 2011) on environmental degradation and Nigeria's national security, posited that in recent times, the question of whether to identify environmental threat as falling within the definition of national security has assumed considerable importance. He argued that the traditional approach has been for environmentalists and security specialists to define their fields in specific ways, with neither seeking any nexus between such environmental problems as deforestation, erosion and loss of biodiversity on the one hand, and security problems such as non-proliferation, terrorism and civil conflict on the other hand. According to Olanrewaju, by early 1970s, scholars gradually begin to conceive the idea that the concept of "national security" must shift from the narrow traditional concept of "organized violence" or "war system". The advocates of re-conceptualizing the concept of national security argued that since governments have fundamental responsibilities to protect their populations from violence and disease, the concept of "security" must of necessity enter the discourse about when violence or disease prevalence reach levels that threaten to disrupt economic activity, weaken governance functions internally, and wear down a state's power and influence externally. Thus, the concept of "national security" now encompasses all manner of threats ranging from poverty to overpopulation and from ethnic and religious tensions to environmental

degradation. Olanrewaju submitted that if redefining national security to include environmental degradation is not to end up as a meaningless orotundity for Nigeria in the 21st century, the country must think of re-strategizing its national security and develop within it a credible, coherent and flexible definition of national security. Nigeria must also look at its goals and in pursuance of these goals set thresholds that would help determine at what point an environmental problem rightfully constitutes a threat to national security. He observed that Nigeria is yet to articulate such a foundational premise. He therefore concluded that there is the need to undertake a thorough assessment of the role of relevant regulatory agencies to ensure that they do not end up with overlaps, competing agendas and conflicting goals.

Adedoyin, Alaxender and Ogechukwu (2018) assessed the implications of illegal mining to Nigeria's national security. Their research concluded that there is wide spread illegal mining in the country with its attendant economic loss and that in spite of the recurrent organized criminal trend, government's explicit national security policy does not seem to prioritize illegal mining as a national security concern. The study also finds that the extant laws and institutions established for the protection of the solid mineral deposits of Nigeria are inadequately structured to provide the needed security coverage for these minerals from illegal mining. They concluded by suggesting upgrade in respect of the security status of the crime of illegal mining so that policies, laws and institutions entrusted with the task of protecting these national assets can be structured and directed to purging the nation of this economic crime.

On the one hand, the Constitution of the Federal Republic of Nigeria (1999) as amended, the Land Use Act 1978, the Nigerian Minerals and Mining Act (2007),

the Nigerian Minerals and Mining Regulations (2011) and Others Guidelines on Mineral Titles Submission, are some of the laws that apply to the mining sector in Nigeria. The Nigeria Investment Promotion Act (2004), the Environmental Impact Assessment Act (1992) and the Foreign Exchange (Monitoring and Miscellaneous Provisions) Act (1995) are secondary laws that govern the mining sector. In all the above-mentioned legislations, there is no specific provision on gold mining at most, the provisions especially under the MMA 2007 focused on mining generally. The above literature reviewed have identified the connection between mining, gold mining, environmental degradation and security challenges. However, all the literature reviewed used doctrinal approach in their studies. However, this study adopted both doctrinal and comparative methods to achieve its objectives thereby making it distinct from the previous studies.

3. Methodology

The methodology adopted in this study is doctrinal and comparative. The doctrinal methodology analyzed existing laws and regulations governing mining activities in Nigeria. The data collected from doctrinal method was analysed through content analysis. The comparative method on the other hand was used in highlighting experiences of some selected jurisdictions that have natural and mineral resources, notably, Ghana, Kenya and Brazil. The choice of comparative methodology was to have insight about the selected jurisdictions with a view to see their experiences in regulating gold mining and to have basis for recommendation in Nigeria as previous studies reviewed in this study were mainly doctrinal not comparative. The outcome of this study would be disseminated through publication in journal article such as this, hoping that relevant stakeholders particularly legislators, executive, security

agencies, traditional rulers, mining companies and the host mining communities would read through and benefit from the findings.

4. Result and Discussion

Illegal Mining

Nigeria faces a number of issues related to illegal mining that require attention, including heightened environmental harm and heightened health risks for those living in mining regions (Olujobi & Irumekhai, 2024). Since dispute over the natural resources lead to banditry, abduction, and other violent crimes as such, illegal mining also poses a security danger to mining communities (Amosu and Adeosun, 2021). Despite the challenges, there is prospect that gold mining would help government is to generate income and create jobs and thereby improving Nigeria's economy (Mercy, 2015). With its wealth of mineral resources, Nigeria can potentially accelerate industrialization and growth (Olujobi & Irumekhai, 2024).

On the one hand, it is a fact that, mining illegal is becoming prevalent notwithstanding the fact that section 2(1) of the MMA 2007 prohibits mining without obtaining relevant approval. To further sanction mining operations, section 5 of the MMA 2007 established the Mining Cadastre Office, which is led by Director General. As stated in section 5(5) MMA 2007, the Mining Cadastre Office has responsibility of reviewing applications for permits and mineral titles; issuing, suspending, and rescinding any mineral title with the Minister's written consent; and receiving and processing applications for the transfer, renewal, modification, relinquishment, or extension of areas. Section 7 of the MMA 2007 mandates the Mining Cadastre Office to keep records of files such as the exploration license register, mining lease register, and small-scale mining lease register.

Mining Regulators in Nigeria

The Constitution of the Federal Republic of Nigeria 1999 specifies who owns and controls mineral and natural resources. In Nigeria, mineral resources are owned and controlled by the federal government for the benefit of all residents, as stated in section 44(3) of the constitution. According to Section 1(1) of the Minerals and Mining Act of 2007, the Federal government have the control of all mineral resources in Nigeria. This provision re-emphasize the fact that all mineral resources in Nigeria belongs to the federal government and not states or local government hence the conflict between the states and federal government because, majority of the mining areas falls within the territory of states. Furthermore, section 1(2) of the MMA 2007, states that even if a piece of land was previously owned by someone (individual or an entity), the land would still be conveyed to the federal government inline with the Land Use Act where such land is discovered to have minerals resources of commercial quantity.

Another unit or department established by section 17(b) MMA 2007 that is relevant here is the Mines Inspectorate Department. This Department oversee and enforce mineral titleholders' adherence to health and safety guidelines outlined by the MMA 2007 and any other applicable law. There is also the Mines Environmental Compliance Department in charge of reviewing all plans and other processes that holders of mineral title are required to prepare regarding their environmental obligations as well to monitor and enforce compliance by holders of mineral title with all environmental requirements. Other duties include periodic audit of the environmental requirements and obligations liaising with relevant government agencies as regards to social and environmental issues in mining operations, reclamation of land and mine

closure. Furthermore, section 19(1) MMA 2007 made provision for the establishment of Mineral Resources and Environmental Management Committee, across the states in Nigeria.

The Committee's duties include advising the Minister on matters pertaining to compensation and returns of reports affecting mining title grants; matters relating to pollution and degradation of lands wherein minerals are being extracted; other matters relating to the development of mineral resources within the State as the Minister directs; advising the Departments on the supervision of mineral exploitation as well as the implementation of social and environmental safety measures; advising LGAs and communities on the application of environmental protection programs among others.

In line with section 22(1) MMA 2007, the use of land for mining operations will take precedence over other land uses and be regarded as constituting an overriding public interest under the Land Use Act when it comes to access, use, and occupation of land for mining operations. Section 22(2), which reads as follows: (2) If a mining lease, or quarry lease small-scale mining lease, is granted in respect of land covered by an existing and legal statutory or customary right of occupancy, the Governor of the State concerned shall within 60 days of such grant or declaration revoke the title inline with section 28 of the Land Use Act. Upon careful consideration of the discussion that preceded, it is clear that, though there are regulators in the mining sector, but there is nowhere gold mining is mentioned.

Incentives Under Minerals and Mining Act 2007

All businesses, companies and firms are eligible for the incentives (section 23 MMA 2007). According to section 24 of the MMA 2007, these incentives include a capital allowance of up to 95% of eligible

capital expenditures and infrastructure costs. A resident permit or expatriate quota, alongside exemption from customs duties and other benefits including import duties on plant, machinery, equipment, and accessories imported especially and solely for mining operations (section 25(1)(a)(b)(c) MMA 2007). Additional incentives include tax relief for three years, which the Minister may extend to another two-year period (section 28 MMA 2007), free transferability of funds for loan servicing or remittance of foreign capital in the event of sale or liquidation (section 27 MMA 2007), and authorization to keep and use earned foreign exchange (section 26 MMA 2007). These provision would motivate businesses and companies interested in the mining sector but still, there is prevalence of illegal and unregistered miners mostly small-scale and therefore cannot benefit from these incentives because they mostly not registered or incorporated companies as required by the Companies and Allied Matters Act 2020.

Deduction of Environmental Cost

The MMA 2007 provided some incentives inform of deduction for environmental protection, rehabilitation, repossession, and mine closure to be deducted by companies engaged in the exploitation of mineral resources, based on section 30 MMA 2007. However, it is required that the correctness of the reserve should be certified by an independent person as stipulated by the Act. On the one hand, Section 33 MMA 2007 stipulates the payment of royalty. Section 33(2) of the MMA 2007 offers an exception, by empowering the Minister to lower or waive the royalty on any mineral being exported only for analysis, experimentation, or as specimen. All these provisions are good incentives to encourage and motivate businesses and companies engage in the mining sector. However, these incentives are only

available to registered businesses and not illegal and unregistered miners.

Payment of Compensation

Section 104 of the MMA 2007 provides that, in the event of revocation of a right or certificate of occupancy over land, the mining lessee is required to reimburse the government for the amount of compensation that the Governor paid to the state lessee or the holder of the certificate of occupancy, as the case may be. Furthermore, section 107 MMA 2007 stipulates that, subject to availability of valuation report from a government-licensed valuer, the owner of land based on state lease or right of occupancy must pay the occupier reasonable compensation for any disturbance of the owner's or occupier's surface rights. They must also pay the owner of any crop, trees with economic value, building, or work that has been damaged, detached, or destroyed by the holder of the mining title or his agent. Accordingly, compensation payable shall be determined by the Mining Cadastre Office in consultation with the state agency and government valuer (section 108 MMA 2007). This provision seeks to ensure that occupiers of land are paid due compensation for their land. Where the holder of mining or mineral license refused or neglected to pay the compensation, the Minister may suspend the mineral title until the title holder pays the amount awarded as compensation and deposited with the government such further sum as security or any further payment as the Minister may demand. Where the licence holder still defaults in making payment after 30 days of the suspension, the Minister may revoke the mineral title of the person in default (section 109 MMA 2007).

There is equally an obligation on the licence holder to pay to the owner or occupier of any land within the area of the lease or licence, compensation for damage caused to buildings or crops (section 113 MMA 2007). However, the MMA 2007

envisioned a situation in which the lessee or license holder may turn over a piece of land to the government. The lessee is also entitled to compensation in such a case. Compensation must be given for any interference with a way, building, or plant, as well as for the costs incurred in exploring the area needed for public purposes and, in the case of a mining lease, for the loss or reasonable expectation of profits from proven minerals on the land needed for public purposes.

Section 111 of MMA 2007 requires the license holder to consider the impact of mining activities on the environment and take any required actions to prevent environmental damage brought on by the mining operations. Land reclamation and land mine restoration were covered by MMA 2007 Sections 114 and 115. Any area that has been excavated or otherwise exploited must be restored by the grantee, according to the title holder. All these provisions are to sanction the right of both the title holder and protect the interest of government and even the community at the same time in such away that no party is put into disadvantage.

Community Development Agreement (CDA)

Development of host communities is very crucial in the mining sector. It is there to protect the interest of the host communities due to the effect of extraction of minerals from the community (Akinleye, 2023; Dupuy, 2014). It aims to improve the living condition of members of the host communities, and enhance the strength and effectiveness of the communities (Petrusevski, 2022). The CDA also seeks to mitigate adverse effect of exploration from the communities and distribute project benefits (Gunton & Markey, 2021).

Section 116 MMA 2007 made elaborate provision on CDA and made it obligatory on holders of a Mining Lease, Small-scale

Mining Lease or Quarry Lease shall prior to the commencement of any development activity within the lease area, conclude with the host community where the operations are to be conducted an agreement referred to as a CDA or other such agreement that will ensure the transfer of social and economic benefits to the community.

Section 116(2) MMA 2007 provides that, the CDA shall contain undertakings with respect to the social and economic contributions that the project will make to the sustainability of such community. Furthermore, section 116(3) MMA 2007 contains specific provisions which CDA shall address in the host community based on community's peculiar needs including (a) scholarship for educational advancement, skilled training and employment opportunities; (b) financial support for infrastructural development and maintenance such as education, health or other community services, roads, water and power; (c) development and support to small and micro enterprises; (d) agricultural product marketing among others.

However, host communities in most countries in Africa including Nigeria are generally poor and lacks the basic capacity and expertise to negotiate and implement CDAs. The companies therefore exert a substantial degree of leverage over host communities (Oshionebo, 2019). This is one of the major areas of concern because, most of the companies commenced extraction or mining without formal execution of CDAs with the host communities because the communities are mostly ignorant of the law. For example, in 2024, there was a community called Gwana in Alkaleri Local Government Area of Bauchi State where the Community in the name of Gwana Community Development Association v. ABY Diamond Mines and Constructions Ltd & 3 Ors (unreported case) where the community filed an action

before the Federal High Court, Bauchi division in suit No FHC//BAU/CS/56/24 against the company for failure to execute CDA before commencing mining in the community. This is one of the several cases where companies engaged in mining without executing CDAs. This is even with section 116(4) MMA 2007, empowers the Minister of Mines to intervene in a situation whereby a title holder is about to commence development work on the lease area and there is no conclusive agreement between the host community and the title holder. Additionally, section 116(5) MMA 2007 states that, CDA shall be subject to review every 5 years.

Environmental Obligations on Mineral Title Holders

Section 118 of the MMA 2007 imposes an obligation on every holder of a mineral title to minimise, and mitigate any environmental impact resulting from activities carried out under this Act; and rehabilitate and reclaim the land excavated arising from mining operations to its natural state or to such state as may be specified in this Act or other relevant laws and regulations. However, even with this provision, cases of environmental effect are still coming up.

Offences

Section 131 MMA 2007 prescribed illegal mining; dishonest and deceptive statements; false or non-declaration and other acts as offences under the Act. This section provides that, a person who--(a) conducts exploration or mines minerals or carries out quarrying operations otherwise than in accordance with the provisions of the Act; (b) knowingly makes false or misleading statement (c) knowingly gives any information which is false or misleading or refuse to declare in any material particular; (d) removes, possesses or disposes of any mineral contrary to the provisions of this Act, is guilty of an offence. Section 133 MMA 2007 imposes specific penalty on title holders for

violation of the MMA 2007. Violators would have their licence revoked and on conviction at the first instance, to a fine not less than ₦20,000,000; and imprisonment of not less five years.

Additionally, section 135 MMA 2007 prohibits the use of false or fraudulent scales in dealing with mineral resources. Any person who knowing them to be false or fraudulent commits an offence and is liable on conviction to a fine of not less than N100,000.00 or more than N1,000,000.00 or to imprisonment of not less than 1 year or to both. Another offence is that of misrepresentation under section 136 MMA 2007 which may lead to revocation of licence while section 136(3) MMA 2007 also has provision for both civil and criminal prosecution against any person who makes false representation. Other offences under the MMA 2007 includes obstruction under section 138, which states that, (1) Any person who without lawful cause- (a) interferes with or obstructs any mining or quarrying operations authorised under this Act commits an offence liable on conviction to a fine not exceeding N500,000.00 or to imprisonment for a term not exceeding 2 years or to both. It is clear from all these provisions that, nowhere gold mining is mention.

Resolution of Dispute

Section 141(1) MMA 2007 provides that, any dispute involving a holder of a mineral title and the Government in respect of this Act or relevant regulations, shall be resolved first on an amicable basis. Furthermore, section 141(2) of MMA 2007 states that, where the dispute is in the nature of a bona fide investment dispute, and such dispute is not amicably settled, it shall be resolved in accordance with the provisions of the Nigerian Investment Promotions Commission Act LFN (2004). In line with section 141(3) MMA 2007 and it is the Federal High Court that assumes jurisdiction.

Experience in other jurisdictions

Ghana, which is the Africa's leading gold producer, has recently been in forefront of countries characterized by unlicensed mining activities (Akotey, 2023). Two significant barriers to guaranteeing safety and efficiency in Ghana's mining sector were identified in one study on the subject. These include a weak regulatory framework for the mining industry and the failure to enforce previously imposed limits. The Ghanaian Minerals Commission, which is responsible for supporting the Minister of Mines with small-scale licensing procedures and operations monitoring, established seven small-scale mining district centers (in Tarkwa, Dunkwa-on-Offin, Bibiani, Asankrangwa, Assin Fosu, Akim Oda, and Bolgatanga) to offer technical assistance to miners and improve supervision after the government acknowledged the contribution of small-scale miners (SSMs) to Ghana's development, leading to the enactment of the Small Scale Gold Mining Law (PNDCL 218), Mercury Law (PNDCL 217), and Precious Minerals Marketing Corporation (PMMC) Law (PNDC Law 219) in 1989 (Bansah et al, 2016). Asumda (2022) argued that, Ghana possesses the institutions, legislation, and policies needed to efficiently oversee and regulate gold mining operations in order to promote growth and reduce environmental damage. Nevertheless, due to insufficient implementation and oversight to guarantee adherence, several mining regulations and policies that affect development and the environment directly or indirectly are not sufficiently followed. There are many obstacles facing the regulatory bodies in the gold mining industry. These include, among other difficulties, dealing with numerous rules and inter-institutional conflicts; inadequate coordination between the institutions; political meddling in the

permit procedure; and a lack of sufficient institutional and human competence.

In contrast to South Africa and China, the PNDCL 218 lacks specific regulations or protections for the environment, human health, and safety in the small-scale mining industry. As stated in the law, "any individual licensed to mine gold may win, mine, and produce gold by any effective and efficient method and shall in his operations observe good mining practices, health and safety rules, and pay due regard to the protection of the environment." Because neither "effective and efficient method" nor "good mining practices" are defined, miners are free to operate as they choose, and monitoring officials find it challenging to do their duties effectively. This makes the clause unclear (Kazapoe, et al, 2023).

In Kenya for example, there are regulations for artisanal and large-scale gold mining to preserve the environment, natural resources, and rights permits, licenses, and other relevant matters, like the 2007 Employment Act and the Occupational Health and Safety Act, to shield children from child labour and exploitation. The majority of devolved governmental entities lack specific environmental legislation. Nevertheless, despite the significant harm that ASGM causes to the environment and human health, national regulations have not been implemented or activated (Tampushi, Onyari, & Muthama, 2021). Because of legislative inadequacies, artisanal gold mining is still regarded as illegal and informal in several developing nations. ASGM's formalization is under progress in Kenya following the creation of the Mining Act, 2016, which will oversee and control the industry by acknowledging ASGM as a significant economic activity. The Act suggests giving county mining offices more authority and control over ASGM and giving Multi-Agency County Mining Committees more authority over licensing

procedures. Although the current mining law and environmental regulations in Kenya prohibit the use of chemicals for ASGM, this industry is nevertheless growing despite lax enforcement, a lack of licensing and permit procedures, and other issues (Tampushi, Onyari, & Muthama, 2021).

On the one hand, about 200,000 individuals are employed in Brazil's artisanal and small-scale gold mining (ASGM), which generates about 6 tons of gold (Au) annually. The Amazon region, where miners have been extracting gold for over 40 years, is the site of the majority of this mining operations. According to studies, almost 99 percent of miners in the Tapajos River Basin work without the legal mining and environmental permits. A combination of impractical or inadequate policies and regulations, a lack of political will, a lack of infrastructure to enforce the current regulations, and a lack of incentives for miners to abide by the law are to blame for this (Sousa et al, 2011).

5. Conclusion

The study suggests for policy review, legislative amendment(s) and deployment of advanced technology in protecting and improving security, safety and wellbeing of people in the affected area as well as environment in such a way that Nigeria would benefit from the abundant gold deposit. As stated in the literature review section, related works in the area of research have identified the connection between gold mining, environmental degradation and security challenges.

i. Various challenges exist that affects exploration of mineral and natural resources in Nigeria ranging for inadequacy of the law especially the MMA 2007 as the main legislation to have specific provision on gold mining, illegal mining, lack of knowledge and expertise by the host communities to insist on having a comprehensive and

implementable CDAs that protects the interest of the host communities both in terms of safety of life and the environment, inadequate fines under MMA 2007 for violation of mining laws among others. On the one hand, the MMA 2007 has made clear provision for violation of provisions contained therein. Whether the offenders (companies and individuals) are prosecuted for violation would be the focus for future studies because, prosecution and conviction regarding violation would serve a deterrent. Further researchers in this area should equally consider empirical research in this area of study especially on the role of technology in enhancing gold mining in Nigeria.

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