



Mining and Climate Change

Policy Paper: Mining and Climate Change

Executive Summary

In recent years, the Nigerian government started to prioritize the development of the minerals resources sector which suffered decades of neglect following the civil war. The drive to attract investment in the sector led to several legal, regulatory and administrative reforms. Most recently, it designated 7 strategic minerals including coal as priority minerals for driving investment into the sector. Coal as a mineral is a high carbon pollutant which comes with high environmental degradation. Already many coal and other mineral mining host communities around the country are facing severe environmental pollution, socioeconomic and health challenges as a result of the mining operations carried out in their communities.

The 2015 Paris Agreement and the United Nations Sustainable Development Goals set in 2015, which Nigeria assented to, is committed to end the use of fossil fuels particularly coal to fight climate change and to achieve sustainable development for all peoples of the world. Unfortunately, in Nigeria these aspirations cannot be attained with government's prioritization of coal as an energy source for power generation especially when communities where coal are mined are continually being devastated. The severe negative effects and impacts of mining and climate change on these mining host communities will have catastrophic impacts if urgent measures are not taken to ensure that they and their future are well protected and the future of their future generations secured. On the other hand, climate change has demonstrated to be a threat to the operations and profitability of mining companies.

Studies have indicated that the mining of certain minerals are very crucial for the development of renewable energy technologies needed to fight climate change. A new concept of climate smart mining can help achieve the balance of continued mining and achievement of sustainable development especially for populations that host mining operations. For Nigeria, this is an opportunity for mining and climate change to dialogue.

This paper provides specific contributions for improving environmental impact assessments for mining projects and improving the legal and regulatory frameworks that govern mining in Nigeria and importantly building climate adaptation and resilient capabilities for both mining companies and host mining communities. It provides a background for actors and stakeholders mining sector, including host mining communities, environmentalists and human rights activists to commence a dialogue on mining and climate change in Nigeria. The hope is that it makes a significant contribution towards building a more holistic sustainable mining sector in Nigeria.

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Acronyms

BIA	Biophysical Impact Assessment
CCVA	Climate Change Vulnerability Assessment
CDA	Community Development Agreement
CDP	Carbon Disclosure Project
CIA	Community Impact Assessment
CO ₂	Carbon dioxide
CSM	Climate Smart Mining
EIA	Environmental Impact Assessment
ELAW	Environmental Law Alliance Worldwide
EPRP	Environmental Protection and Rehabilitation Program
FMEnv	Federal Ministry of Environment
FMMSD	Federal Ministry of Mines and Steel Development
GHG	Green-house Gases
ICMM	International Council on Mining and Metals
MECD	Mines Environmental Compliance Department
MinDiver	Minerals Resources Project and Mineral Sector Support for Economic Diversification Project
NASPA-CCN	National Climate Change Adaptation Strategy and Action Plan for Climate Change
NCCPRS	National Climate Change Policy and Response Strategy
NDCs	Nationally Determined Contributions
NEEDS	National Environmental, Economic and Development Study
NESREA	National Environmental Standards and Regulations Enforcement Agency
SIA	Social Impact Assessment
UNFCCC	United Nations Framework Convention on Climate Change

Chapter 1: Nigeria's Mining Sector and Climate Change

1.0 Mining in Nigeria - Growth, Decline and Revival

Organized commercial mining¹ in Nigeria has spanned nearly 12 decades. The mineral surveys of the Southern and Northern Protectorates conducted by the Secretary of State for colonies between 1904 and 1909 marked the commencement of mining in Nigeria with Royal Niger Company mining tin ore in Jos Plateau in 1905. The discovery of coal in Enugu in 1909 and later the rail connection with Jos, Enugu and Port-Harcourt in 1927 helped boost mining and rail communication in Nigeria tremendously. The coal from Enugu helped provide the much needed power for the tin ore mines to increase their production while the rail lines made it easier and cheaper to export both coal and tin ore out of Nigeria. By the late 1940s, major mining of monazite, limestone, lead-zinc ores, iron ores, gold, granite, coal, tin and columbite were in operation, with Nigeria becoming a major exporter of coal, tin and columbite.

The progress and growth that was being achieved was soon hindered and halted by the discovery of crude oil in 1956 as government neglected the mining sector in favour of new found quick source of revenue. Also was the start of the Nigerian civil war in 1967, which led to the shutdown of many mines and the evacuation of foreign mining experts. The oil boom of the 1970s and government's drive to indigenize mining companies adversely affected efforts to resuscitate the mining industry. However, economic woes of the 1980s that followed fluctuating crude oil prices necessitated renewed interest in reviving the solid minerals sector through a private-sector led economic programme. This led to the creation of the Ministry of Solid Minerals Development in 1995, the formulation of a new National Policy on Solid Minerals Development in 1998 and the enactment of the Minerals and Mining Act, 1999.

The return of Nigeria to democratic rule at the turn of the new millennium, came with different regulatory and institutional initiatives to transform the mining landscape in Nigeria. Reforms included the establishment of: Nigerian Geological Survey Agency; Nigeria Institute of Mining and Geosciences; Mining Cadastre Office; Mines Environment Compliance Department; Artisanal and Small Scale Mining Department and the enactment of the: Nigerian Minerals and Mining Act, 2007; National Minerals and Metals Policy 2008; and Nigerian Minerals and Mining Regulations 2011. Through the assistance of the World Bank, two key sector transformative projects were launched - The Sustainable Management of Minerals Resources Project and Mineral Sector Support for Economic Diversification Project (MinDiver). Ever since, government have continued to launch one initiative after another to ensure continued growth of the industry.

1.1 Changing Mining Landscape

As an energy intensive sector, mining has long been a major contributor to green-house gas emissions² and it is not until recently that the mining industry started to feel the impacts of climate change on its operations. In 2009, 76% of 41 global mining companies that made disclosures to the Carbon Disclosure

¹ Community Mining has been ongoing in Nigeria since the 9th century AD which are indicative from Igbo Bronze archeological remains - https://en.wikipedia.org/wiki/Archaeology_of_Igbo-Ukwu

² According to estimates, in 2010 the mining industry global GHG emissions is 1Gt carbon dioxide equivalent (CO₂e) - approximately 2% of global total emissions (the scope of the study comprised of mining, smelting and refining excluding the emissions from burning of coal - <http://www.icmm.com/website/publications/pdfs/climate-change/measurement-reporting-verification>

Project (CDP) reported that climate change represented physical risks to their operations. Amongst themes of challenges³ that were disclosed, challenges to environmental management and mitigation and increasing pressure points with community relations were also disclosed by the mining companies. According to the disclosure, the pressure points increase as host mining communities suffer from environmental stressors such as drought, flood, rising temperature and natural disasters which result to loss of livelihoods and property, increased famine and disease. It also revealed that companies may face direct risks to operate over competition for resources such as water and energy.

Meanwhile, in 2018, the Federal Ministry of Mines and Steel Development (FMMSD) launched a roadmap for the sustainable development of the mining and metals sector in Nigeria. Amongst the roadmap objectives is an industrial minerals strategy that prioritized 7 minerals: coal, lead/zinc, iron ore, bitumen, barites, gold and limestone for development. These minerals are vastly untapped and also has the potential to contribute to Nigeria's economic development. For environmentalists and climate campaigners, its deeply concerning that coal - a highly environmentally polluting hydrocarbon and greenhouse gases (GHG) emitter that is reputed have contributed to generations of industrial revolution CO₂ emissions⁴ was also listed as a priority mineral especially after Nigeria signed to commit to the 2015 Paris Climate Agreement and made commitments⁵ to cut her carbon emissions. Analysis⁶ show that if Nigeria develops its coal potential especially for the generation of electricity based on its National Energy Masterplan, Nigeria will by no means meet its United Nations Framework Convention on Climate Change (UNFCCC) Nationally Determined Contributions (NDCs) based on either the 20% unconditional and 45% unconditional mitigation objectives.

Asides the fact that coal is a high polluter, its mining in Nigeria including the mining of Lead and other minerals has already led to significant environmentally pollution, social injustice, abuse of rights, health challenges and death some members of host mining communities. Unfortunately, this has been the tragic historical experience of Nigeria's extractive industry - starting from the Iva valley massacre and the pollution of water bodies on the Plateau in the late 1940s, to Niger Delta environmental pollution and agitations since the 1990s, to Lead poisoning in Zamfara state in the 2000s.

Currently, the growing insecurity in Nigeria, some of which are associated with mining activities particularly in the North West, North Central states – Zamfara, Kaduna, and Niger States and the toxic relationship that some mining companies, government and host mining communities are building is significantly changing Nigeria's mining landscape. This is more evident as the effects and impacts of mining activities intersect with adverse climate change impacts. This is a concerning complex situation because most of the host mining communities are agrarian communities whose lives and livelihoods depend on land and water bodies that are polluted from mining activities. Not only that these situations drive

³ The challenges disclosed by mining companies were categorized into different themes by which the mining sector is impacted climate change - https://www.bsr.org/reports/BSR_Climate_Adaptation_Issue_Brief_Mining.pdf

⁴ Coal has contributed 46% of carbon dioxide emissions worldwide and accounts for 72% of total greenhouse gas (GHG) emissions from the electricity sector - <https://endcoal.org/climate-change/>

⁵ Nigeria's National Determined Contributions (NDCs) committed to reduce Nigeria's historical (1850-2010) greenhouse gas (GHG) of 2,564.02 million tonnes unconditionally by 20% and conditionally by 45% based on Nigeria's 2010-2014 emissions baselines.

⁶ Analysis on coal by Akachukwu Okafor published on <https://drive.google.com/file/d/1e-MOHVVc5hcVeucwB2mF8v8uCpa5KgIK/view?usp=sharing>

conflicts, they also increase food insecurity in the communities and the country and also worsen climate vulnerabilities of host mining communities which limit their opportunities of achieving sustainable development.

Elsewhere, on March 29, 2017, the mining world was hit by the shocking news of El Salvador's Legislative Assembly's unanimous passing of a law banning metal mining in El Salvador. The New York Times reported the news as "El Salvador, Prizing Water over Gold...". A Salvadoran legislator pointed out that a decade ago, the impact of climate change on EL Salvador would be difficult to tell but things have now changed. Decades earlier critics of the mining sector in El Salvador had been drawing attention to the growing vulnerability of El Salvador's water resources under climate change conditions and argued that the vulnerability will be exacerbated if mining in the country is allowed to continue. In Chile, South Africa, Russia, Zambia, Australia the mining sector have been alerted to growing climate change risks posed by climate change.



Chapter 2: Conceptualizing Climate Change in the Mining Sector

2.0 Aligning Climate Change and Mining

Long before the El Salvadoran Legislative Assembly's ban on mining, there have been demands by policy think tanks, key actors, and stakeholders in the mining sector for the development of policies and frameworks that help address the risks that climate change pose on the mining sector, environment and local communities. This is to help build the climate resilience that is needed for both the mining sector and local communities to lead environmentally safe, inclusive, sustainable development.

For instance, in 2013, the International Council on Mining and Metals (ICMM) published a report on adapting to a climate change by the mining and metals industry in which it acknowledged the increasing climate change risks on the mining industry, growing vulnerability of local communities to climate change impacts and stressors exacerbated by mining operations. It went further to provide frameworks for addressing these challenges. The report further outlined four commitments for all its members to subscribe to in order to address GHG emissions. The commitments are: i) introduce emissions reductions strategies; ii) ensure the efficient use of natural resources; iii) support R&D of appropriate low carbon technologies; and, iv) measure and report on progress. These efforts including the recommendations of a report⁷ advocated for i) improving social and environmental standards in the extractive sector; ii) support for national and regional dialogues on responsible mining which have been argued as practical ways for addressing the challenges posed by climate change on the mining industry.

While it is very evident that mining industry contributes to GHG emissions, exacerbates climate change impacts on the environment, natural resources and local communities, studies show that the mining industry is central to development and growth of clean energy technologies that is key for GHG emissions reductions required to keep average global temperature below 2°C. According to a 2017 World Bank report, the production of graphite, lithium and cobalt alone would increase by nearly 500% by 2050 and over 3 billion tons of minerals and metals including graphite, lithium, cobalt, Indium, Vanadium, Nickel, Silver, Neodymium, Lead, Molybdenum, Aluminum, Zinc and Copper will be needed to deploy wind, solar, geothermal power and energy storage needed to achieve clean energy transition. This has reinforced the need for the mining industry to develop more climate resilient, environmentally responsible and friendly - Climate-Smart Mining⁸ (CSM) approaches to its operations - without which negative impacts from mining activities especially on already vulnerable local communities and environment will increase.

This is the reality that the mining sector is currently in – it must have to change to fit in with the changing world. Exploring the concept of climate smart mining in Nigeria, first requires an understanding and analysis of the legal and regulatory frameworks governing mining in Nigeria and its impact on the environment. This will help reveal the extent of work that may be required for a climate compliant mining sector.

⁷ The report is the work of the Climate Diplomacy initiative which is a collaborative effort of the Federal Foreign Office of Germany in partnership with adelphi, a leading think tank and public policy consultancy on climate, environment and development - <https://www.climate-diplomacy.org/file/2366/download?token=pNCxjxXU>

⁸ Climate Smart Mining is a new approach developed by the World Bank - <https://www.worldbank.org/en/topic/extractiveindustries/brief/climate-smart-mining-minerals-for-climate-action>

2.1 Challenges with Legal and Regulatory Framework of Mining in Nigeria

In Nigeria, current acts, policies and regulations on minerals, mining and environment have not been robust enough to respond to the growing environmental and climatic changes and anthropogenic pressures on the environment and mining landscape. This have been due to lack of growth and development of the sector over the years, especially with regards to the capacity and will of government to enforce regulations and laws. For instance, in the past, experts such as Gbite Adeniji criticized the Minerals and Mining Act of 1999 for not incorporating the provisions of the Environmental Impact Assessment (EIA) Act which is central to protection of the local ecosystem. As an improvement, the revised Minerals and Mining Act 2007 though provided for Environmental Impact Assessment to be conducted based on the Environmental Impact Assessment (EIA) Act CAP E12, LFN 2004 and guidelines as approved by the Federal Ministry of Environment (FMEnv). However, provisions of EIA Act, guidelines set by the FMEnv and enforced by the environmental regulations of the National Environmental Standards and Regulations Enforcement Agency (NESREA), are still inadequate to respond to the environmental and climatic vulnerabilities that are induced or exacerbated by mining activities which an EIA is meant to assess and mitigate.

One of the challenges is that while the National Minerals and Metals Policy 2008 and Minerals and Mining Act 2007 provides for every holder of an exploration license, small-scale mining lease, mining lease, quarry lease and water use to submit an EIA statement approved by FMEnv and an Environmental Protection and Rehabilitation Program (EPRP) to the Mines Environmental Compliance Department (MECD) before the commencement of mining operations. MECD doesn't have the powers to reject a satisfactory EIA statement issued by the FMEnv even when it determines that an EIA was not carried out based on EIA Sectoral Guidelines for Mining of Solid Minerals, Beneficiation and Metallurgical Processes or other environmental regulations of NESREA that pertains to mining, even in a situation that MECD in itself determines that the EIA met all the guidelines and regulations but that the EIA is inadequate to assess and mitigate for peculiar environmental and climatic conditions.

Asides the challenge of not adequately fulfilling the requirement of an EIA that is satisfactory and adequate for environmentally sound mining, it creates conflict of interest and power play between government agencies and departments especially as the Ministry of Mines and Steel Development and Ministry of Environment and NESREA have powers of providing guidelines and regulations that may not be aligned. On the issue of an EIA, experts such as Usman N.L have argued about the inappropriateness of the Minister issuing a mining lease even before a satisfactory EIA statement is obtained from the FMEnv. This current practice has seen some mining companies going ahead to start full mining operations without an EIA. Usman had argued that the Mining decree as it was then, to be reviewed to make a satisfactory EIA report a fundamental requirement for the granting of a prospecting license or mining lease. 20 years after his advocacy, this is yet to happen.

Another challenge is that the environmental regulations have no clear definitions or interpretation of the terms it used in its provisions and fails to classify certain terms. For instance, Part 1, Section 2(1) of the National Environmental (Mining and Processing of Coal, Ores and Industrial Minerals) Regulations 2009 states that "New development in the Mining and Processing techniques shall apply up-to-date, efficient cleaner production technologies to minimize pollution to the highest degree practicable". Section 3(1) of same Part 1 further states that "Every facility shall adopt cleaner production processes and pollution prevention measures that would yield both economic and environmental benefits". Meanwhile, these

provisions have no clear definitions and classification or categorization of what "up-to-date", "efficient cleaner production technologies", and "cleaner production processes and pollution prevention measures" are that are necessary to minimize environmental degradation and pollution in the sector.

This gap provides an opportunity for Nigeria to become a mining pollution haven especially with the challenges that government agencies and departments including NESREA and the Mines Environmental Compliance Department are faced with fulfilling their mandate. This concern about increased environmental degradation and health impacts of mining was expressed in the National Policy on Environment (Revised 2016), in which the Policy feared that the challenges may further complicate the "extremely friendly tax and regulatory regimes" that government may extend to mining companies in the bid drive to increased investments in the sector. As a result, the Policy proposed an appropriate review and enforcement of the Minerals and Mining Act 2007 amongst other recommendations. Already the impacts of these gaps are already been felt.

2.2 Impact of Weak Frameworks on the Environment and Local Communities

According to Guidebook for Evaluating Mining Project EIAs produced by the Environmental Law Alliance Worldwide (ELAW), environmental impact assessment is a process that helps identify, predicts, and analyzes possible physical environmental effects/impacts as well as social, cultural and health impacts of a proposed activities and how the impacts can be mitigated. It further states that an EIA process is to help inform decision-makers and the public particularly potentially affected communities and individuals of the environmental consequences of implementing a proposed project.

The guidelines provide some provisions that are of interest when conducting and reviewing an EIA. For conducting an EIA, the guideline highlighted importance of community impact assessment (CIA) and also determining the community's development trends - community life plans or development plans). These are very critical issues that ensures that how a host community will be impacted by a project is rigorously assessed and the future development plans of a host mining community is critically considered when planning a project. For reviewing EIAs, some questions stand out: 1. Does the EIA focus on the issues that most concern the community? 2. Does the description of the existing environment reflect actual conditions? Is the information sufficient? 3. Is the impact analysis clear about the extent and significance of the impacts? Is the analysis rigorous enough? These are questions that the EIA reviewers must interrogate before issuing a satisfactory EIA statement. It is very evident that the guideline is human/people and community centered.

Unlike the ELAW's EAI guidelines, an analysis of the Ministry of Environment's EIA guidelines including social impact assessment (SIA), biophysical impact assessment (BIA) reveals that the guidelines are not human/people centered. It reveals that the impact of projects on the human person particularly of the local host mining communities has little or no importance, value and relevance to the EIA process and its eventual outcome. The impact of projects is dominantly framed to create an illusion that it is only the physical environment and possibly animals/wildlife that will be impacted by the project being planned. This to a great extent removes the people/communities live and depend on the environment and ecosystem for their sustenance and that are affected by impacts of projects from the entire picture. This is exemplified in the list of stakeholders for the "Public Involvement/Stakeholder Engagement Process" of the Social Impact Assessment Guideline and Standard, in which out of 10 stakeholders listed, "Members of the Public" was listed last without specific mention of host mining communities that will be directly affected by the project.

Environmental impact assessment guidelines and standards that are weak in assessing for and mitigating the impact on local host project communities leaves mining companies to believe that the government has no interest in protecting the host communities from harmful environmental, socioeconomic, cultural and health impacts of mining operations. Unfortunately, this seems to be the case from many reports⁹ of deadly environmental pollution, impact and human rights abuse and violations across host mining communities in Nigeria. Unfortunately, relevant environmental and mining agencies and departments have been unable to address these challenges.



⁹ Global Rights Nigeria have published reports on the impact of mining especially coal in Kogi and Gombe states and impact of other mining activities across the country including Ebonyi, Zamfara, Oyo, Plateau, Niger and Osun states - <https://drive.google.com/file/d/1m2leuTMITeULDVhh55WrCwevBhRtkD22/view?usp=sharing>,

Chapter 3: Mainstreaming Climate Change in Nigeria's Mining Sector

3.0 Current reality

Mainstreaming climate change in the mining sector has been a topic of discussion on the global landscape for over a decade. The 2015 Paris Agreement and United Nations Sustainable Development Goals set in 2015, brought new attention to the mining sector - what is mined, mining processes, technologies and its impact on the environment, ecosystem, health, wellbeing and livelihoods of local communities that host mining operations. Besides commitments and efforts to keep coal, hydrocarbons and polluting minerals and metals in the ground, there has been an increasing campaign for the greening of the mining sector. This ensures that mining sector builds climate mitigation capabilities, reduce its environmental and carbon footprint, build resilience and that local communities that are affected by the impact of mining and climate build adequate climate adaptation and resilient capabilities for today and the future. These requirements and shifts are very important for balance as mining continues to be an essential part of the fight against climate change and achieving sustainable development.

In Nigeria, mainstreaming of climate change in the mining sector is fairly new and unexplored. A recent study¹⁰ of mainstreaming climate change in the EIAs of projects in the Niger Delta (Rivers, Bayelsa, Delta, Cross River, Edo, Akwa Ibom, Ondo, Abia and Imo state) between 2011 and 2016 revealed that of all 70 EIA reports reviewed including 2 mining, beneficiation and metallurgy EIA reports, none of the reports had climate change adaptation and consultation with the stakeholders including public and host communities. Meanwhile some of the reports had climate baseline, climate change impacts and mitigation but not adaptation. It is important to note that any project including mining projects that do not provide for the consultation with local communities that will be affected by the mining activities and provide an adaptation plan is problematic, human unfriendly, unfair, unjust and unsustainable.

Developing a climate adaptation plan for local communities that will be impacted by mining activities cannot be possible without first conducting a climate change vulnerability assessment (CCVA). This is the part that is conspicuously missing in the EIA guidelines and standards, environmental regulations and policies currently in use in Nigeria. A climate change vulnerability assessment is meant to identify the people and other things is vulnerable, where and when are they vulnerable, and why are they vulnerable, and also consider the social, economic, and environmental systems upon which people depend. Like the community impact assessment advocated for by ELAW, climate change vulnerability assessment seeks to understand the impact on people and reduce the risk through adaptation measures. This is the foundation of a people centered, climate smart and sustainable mining that Nigeria needs to pursue.

3.1 Climate Smart Mining – Building Blocks

As being advocated by the World Bank the building blocks of climate-smart mining are 1. climate mitigation, 2. climate adaptation, 3. reducing material impacts, 4. creating marketing opportunities - all of which must be conducted under strong governance and adequate regulatory framework and also ensure full gender and multi-stakeholder engagement.

Climate Mitigation building block provides for i) Integration of renewable energy in the mining sector; ii) Innovation in extractive practices; and, iii) Energy efficiency in mineral value chain.

¹⁰ Mainstreaming Climate Change into the EIA Process in Nigeria: Perspectives from Projects in the Niger Delta Region - https://res.mdpi.com/d_attachment/climate/climate-07-00029/article_deploy/climate-07-00029.pdf

Climate Adaptation building block provides for i) Forest-Smart Mining with landscape management; ii) Resource efficiency in mineral value chain; and, iii) innovation waste solutions.

Reducing Material Impacts building block provides for i) Adoption of a circular economy for low-carbon minerals; ii) Reuse / recycling of low-carbon minerals; and, iii) Low-carbon mineral supply chain management.

Creating Marketing Opportunities building blocks provides for i) De-risking investments for low-carbon minerals; ii) Leverage carbon finance instruments; and, iii) Robust geological data management.

These building blocks are essential for greening the entire mineral and mining sector value chain – from the energy and water input for mining and processing to the type of technology used, to the type of materials used, management of by-products and waste, management of the environment and ecosystem, creating climate adaptation and resilient livelihoods for the local host communities and many more that lead to sustainable development. It is however not all the blocks that may be required but the most essential that are universally applicable. Therefore, individual countries are encouraged to build on these building blocks based upon their peculiar contexts.

3.2 Recommendations

To mainstream climate change in Nigeria's mining sector there is need to:

1. Conduct continuous and extensive dialogues and study on the intersection of mining and climate change in Nigeria and its impact on host mining communities, mining companies and other stakeholders.
2. Articulate what Nigeria's unique climate smart mining building blocks are in addition to already provided building blocks and how it should be actualized by the industry.
3. Review Nigeria's energy policy, masterplan and the priority minerals for the minerals sector to exclude coal because of the high environmental and carbon footprint that is associated with its mining and combustion.
4. Review environmental impact assessment guidelines and standards to include rigorous community impact assessment, climate change vulnerability impact assessment with appropriate mitigation and adaptation plans.
5. Revise the Minerals and Mining Act 2007 to provide for:
 - a. Extensive inclusive, gender and multi-stakeholder engagement process particularly with host mining communities;
 - b. Detailed environmental impact assessment to be conducted and satisfactory statement issued before an exploration license or mining lease is issued by the Minister;
 - c. Mandatory inclusion of climate adaptation projects in community development agreements (CDA) with host mining communities; and,
 - d. Design of Environment Protection and Rehabilitation Program that is climate compliant.
6. Review the National Climate Change Policy and Response Strategy (NCCPRS) and National Adaptation Strategy and Plan of Action for Climate Change Nigeria (NASPA-CCN) to develop carbon emissions reductions targets for the metals, minerals and mining sector and design appropriate response strategies, mitigation and adaptation plans.

7. Revise the National Environmental Regulations especially those that are applicable to the mining sector to clearly classify for cleaner, more efficient, climate friendly technologies, production processes and pollution prevention measures that are permitted for use in the mining sector that secures a climate smart mining pathway for Nigeria.

8. Conduct a comprehensive National Environmental, Economic and Development Study (NEEDS) for Climate Change in Nigeria that is inclusive of the mining sector.

9. Review of the National Policy on Environment, forest, water, land use policies to ensure that they are directed towards comprehensive environmental protection from all sectors of the economy including mining sector for the achievement of national development and sustainable development goals.



3.2 Conclusion

The concept of climate smart mining is a win-win for all stakeholders in the minerals and mining sector as it guarantees continued long term sustainable mutual and peaceful coexistence of all stakeholders particularly mining companies and local host mining communities. Achieving climate smart mining for Nigeria has to be an all stakeholder effort and must start with the recognition that host mining communities are people who have rights, dignity that should be respected and upheld as much as that of other persons are. This will create the consciousness for developing mining and environment frameworks that are people centered which the inclusion of community impact assessment and climate change vulnerability assessments will help achieve. These will contribute to building climate resilient, mitigation and adaptation capabilities that leads to sustainable development in the agriculture and land use, water, and fisheries sector.

The civil society, host communities and media have a duty to continue hold government, mining companies and other stakeholders to be transparent, accountable in their activities. Importantly, there is need for increased extensive and inclusive sector dialogue on the pathway that Nigeria wants the mineral and mining sector to take. At the end, we must have to take decisions that leads on a pathway that guarantees sustainable development for all.

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