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REGULATORY FRAMEWORK FOR LITHIUM EXPLORATION
IN NIGERIA: Analysis of existing laws and policies.

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ABSTRACT

Lithium is a critical mineral central to the global transition toward renewable energy and electric mobility. Despite its economic and strategic importance, many countries lack comprehensive legal frameworks to guide their exploration and extraction. This paper investigates the current gaps in lithium policy, explores global best practices, and proposes a comprehensive legal framework for sustainable lithium exploration. Drawing from existing literature and international case studies, it identifies key legal, environmental, and socio-economic challenges influencing policy development. The research concludes with actionable recommendations to formulate a responsive and inclusive legal regime that promotes investment, protects the environment, and ensures community benefit.

INTRODUCTION

The rising global demand for lithium, fueled by its application in batteries for electric vehicles, energy storage systems, and portable electronics, has elevated its status as a strategic resource. However, many countries, particularly in the Global South, face legal and institutional voids in governing lithium exploration. This research paper seeks to develop a model legal framework tailored to national contexts that balances economic opportunity with environmental protection and social equity. The study explores legal principles, comparative legislation, and stakeholder interests that are critical to the formulation of an effective policy.

Confirmed lithium deposits in states such as Nasarawa, Kaduna, and Kogi, along with notable prospects in Plateau, Kwara, Ekiti, Oyo, and the Federal Capital Territory, strategically position Nigeria to benefit from the global energy transition. However, to harness this potential effectively and sustainably, there is a pressing need to develop a comprehensive legal and regulatory framework tailored to the peculiarities of lithium exploration and extraction.

Currently, lithium exploration in Nigeria operates under the broader provisions of the 2007 Nigerian Minerals and Mining Act (NMMA) and the 2009 National Minerals and Metals Policy, which serve as the principal legislative and policy instruments for the mining sector. While these frameworks provide general guidelines for mineral development, they do not specifically address the strategic, environmental, and technological considerations associated with critical minerals such as lithium. As a result, problems such as licensing bottlenecks, weak environmental safeguards, limited foreign investment, illegal mining, and poor value-chain integration remain prevalent.

Developing a robust legal framework for lithium exploration is therefore vital to ensure transparency, sustainability, and economic efficiency in the sector. Such a framework should clearly define ownership rights, exploration licensing procedures, fiscal regimes, community benefit mechanisms, and environmental protection standards. Moreover, it should align with international best practices, encourage responsible mining, attract global investors, and support local value addition through refining and processing industries.

In this research paper, the creation of a dedicated legal structure for lithium exploration is not merely an administrative necessity but a strategic national priority. It offers Nigeria a pathway to diversify its economy, reduce dependence on crude oil, and strengthen its participation in the global clean energy value chain. A well-crafted framework will position Nigeria to responsibly leverage its mineral wealth, balancing economic growth with social and environmental sustainability.

LITERATURE REVIEW

The global shift toward clean, sustainable energy has significantly increased interest in critical minerals, especially lithium, which is essential for producing rechargeable batteries and other green technologies. Experts and policy analysts agree that countries with lithium reserves have a unique opportunity to play a key role in the emerging energy transition economy. But to do so effectively, their legal and governance systems must support transparent, responsible, and sustainable resource management (World Bank, 2020; IEA, 2023).

In examining Africa's mineral landscape, researchers such as Hilson (2018) and Campbell (2021) note that the success of mining-sector reforms depends heavily on the strength of a country's legal and regulatory frameworks. These systems must strike a careful balance between economic development, environmental protection, and the rights and welfare of local communities. Some African nations, such as Zimbabwe and Namibia, have already taken steps in this direction, revising their mining laws to address lithium specifically, while promoting local value addition, attracting foreign investment, and ensuring environmental sustainability.

In Nigeria, the Nigerian Minerals and Mining Act (NMMA) of 2007 and the National Minerals and Metals Policy of 2009 primarily establish the legal foundation for mining. These laws vest ownership of all mineral resources in the Federal Government, giving it complete control over exploration and production licensing. However, as observed by Ejumudo (2019) and Olawale (2021), the current legal framework falls short in managing critical minerals such as lithium. The existing laws do not adequately address key challenges such as supply chain transparency, high-value export regulation, and the unchecked spread of illegal artisanal mining.

Research by Nwosu and Ali (2022) highlights additional issues, including bureaucratic red tape, inconsistent law enforcement, and corruption in the licensing process. These problems have discouraged international investors and left Nigeria's lithium sector fragmented and largely informal

the absence of clear fiscal incentives and supportive investment policies further limits private sector participation. At the same time, weak environmental and social safeguards increase the likelihood of unsustainable mining practices and community conflict.

On the global stage, frameworks such as the OECD Due Diligence Guidance for Responsible Mineral Supply Chains and the African Mining Vision (AMV) shape effective lithium governance. These tools emphasize transparency, traceability, local beneficiation, and the fair distribution of mineral wealth. Countries like Chile and Australia, leaders in lithium production, offer practical examples. Both have

adopted well-defined legal and fiscal regimes, alongside strong environmental oversight, to attract investment and enable industrial-scale production. The literature also highlights the need to integrate social and environmental considerations into mining policy. Adekoya (2020) argues that meaningful community engagement, environmental impact assessments (EIAs), and benefit-sharing mechanisms are crucial for building trust and ensuring long-term sustainability. Without these, mineral development can lead to environmental degradation, community unrest, and a loss of public confidence in government institutions.

In summary, effective lithium regulation is not just about securing investment; it also requires earning and maintaining a social license to operate.

BACKGROUND TO POLICY

Many countries with lithium reserves are now under pressure to draft legal frameworks rapidly. However, the urgency often leads to reactive, fragmented policies. Without comprehensive legislation, lithium exploration proceeds under outdated mining codes or temporary permits, resulting in legal uncertainty, environmental harm, and community backlash.

Before the recent discovery of significant lithium deposits in states such as Nasarawa, Kogi, Kwara, and Ekiti, Nigeria's mining sector had long remained underdeveloped and overshadowed by oil revenues. The nation's overreliance on petroleum exports discouraged investment in solid minerals, resulting in weak institutional structures, limited geological data, and minimal technological advancement in exploration. Most mining activities that existed were small-scale, poorly coordinated, and environmentally unsustainable, contributing little to national income or industrial growth.

The emergence of lithium as a globally sought-after mineral often referred to as “white gold” has shifted global attention toward the strategic importance of critical minerals. Lithium's central role in powering electric vehicles, renewable energy storage systems, and modern electronics has made it a cornerstone of the clean energy transition. This growing international demand presents Nigeria with an opportunity to reposition itself as a key supplier within the green energy value chain, thereby promoting economic diversification and reducing dependence on oil revenues. Despite this opportunity, Nigeria still lacks a specific legal and policy framework to guide lithium exploration, extraction, and commercialization. The existing Nigerian Minerals and Mining Act of 2007 do not adequately address the evolving realities of critical minerals, technological value addition, or

environmental sustainability. This policy gap has led to unregulated artisanal mining, illegal exports, and substantial revenue losses, undermining environmental safety and national economic accountability.

The development of a comprehensive policy for lithium exploitation has therefore become a national priority. Such a framework would establish a transparent, coordinated system that promotes responsible mining practices, environmental stewardship, and equitable benefit-sharing. It would also attract credible local and foreign investment while ensuring that lithium resources are processed domestically to drive industrial development, job creation, and technology transfer. Ultimately, the policy aims to transform lithium from a raw material extracted with minimal benefit into a catalyst for sustainable economic transformation. Through precise legal, fiscal, and institutional mechanisms, Nigeria can curb illicit mineral trade, strengthen environmental governance, and ensure that the nation's lithium wealth supports long-term economic diversification and the global clean energy transition.

The absence of clear guidelines on land rights, environmental impact assessments (EIA), and benefit-sharing and foreign investment rules creates regulatory gaps. This situation demands a dedicated policy approach that aligns with international norms and national development goals.

Overview of Legal Provisions Governing Mineral Ownership and Licensing in Nigeria.

The Nigerian Minerals and Mining Act (2007) serve as the primary legal framework regulating the ownership, exploration, and exploitation of mineral resources in Nigeria. The Act vests full ownership and control of all mineral resources in the Federal Government of Nigeria, acting on behalf of its citizens. According to Section 1, all minerals found within Nigerian territory belong to the state, which reserves the right to manage and allocate them for the public good. Furthermore, Section 1(2) empowers the government to assume control of any land containing commercially valuable mineral deposits, though such actions remain subject to the provisions of the Land Use Act. The government retains ownership of minerals until they are extracted. Under Section 1(3), once a licensed operator legally mines the minerals in compliance with the Act, ownership transfers to that operator.

The administration and coordination of the mining sector fall under the purview of the Minister of Solid Minerals Development, as provided in Section 4. The

Minister is responsible for developing a coherent national policy for mineral resource development. Supporting this function is the Mining Cadastre Office (MCO), established under Section 5, which acts as the sole agency responsible for issuing, managing, and revoking mineral titles and permits. Applications are processed in the order they are received, ensuring transparency and fairness as mandated by Section 8.

To support the sector's growth, the Act also established the Solid Minerals Development Fund (SMDF) under Section 34. This fund facilitates capacity building, data collection, and infrastructure development for mining communities. Under Section 9, the Minister may designate specific areas for exploration and mining through a competitive bidding process, granting licences to the most capable bidders. Importantly, Section 22 gives mining operations priority over other land uses, allowing mining activities to proceed without being obstructed by conflicting land interests. However, licenses can be revoked under Section 151 if the holder violates the law, fails to meet license conditions, or becomes insolvent. In sum, the legal provisions in the Constitution, the NMMA 2007, its Regulations, and associated laws provide the “what” and “who” for ownership of minerals and licensing in Nigeria. The Ministry of Solid Minerals (Ministry of Mines and Steel Development / Solid Minerals) is the central actor given the authority by these laws to manage those provisions: to design the rules and policies; to issue, revoke, or oversee licences, to regulate exploitation; to ensure compliance with environmental, social, and health & safety obligations; and to collect revenues and manage records. Understanding the framework of ownership and licensing thus necessarily entails understanding both the statutory law and the Ministry's role in implementing, regulating, enforcing, and reforming that law. For any discussion or research on mineral ownership/licensing in Nigeria, the Ministry is not simply a passive actor; it is a key institution tasked with bridging law and practice.

PROBLEM IDENTIFICATION IN POLICY FORMULATION.

Nigeria's growing interest in lithium exploration coincides with a surge in global demand for the mineral, driven by the rise of electric vehicles, renewable energy storage, and modern technologies. However, despite its significant potential, the country's existing legal and regulatory framework remains inadequate to support the efficient, transparent, and sustainable development of its lithium resources. Several key challenges continue to hinder the establishment of a dedicated legal framework for lithium exploration. These include:

- **Regulatory Uncertainty** - Existing mining laws may not differentiate lithium from other minerals, despite its strategic importance. Ambiguity in licensing procedures and regulatory authority hampers investor confidence.
- **Environmental and Social Impacts** - Lithium extraction, particularly from brine (e.g., salt flats), can deplete water resources and disrupt fragile ecosystems. Lack of mandatory EIAs and weak enforcement pose serious environmental risks.
- **Community Rights and Benefit Sharing** - Indigenous and local communities often lack formal land titles or consultation mechanisms. Conflicts arise from exclusion from decision-making and the unequal distribution of mining revenues.
- **Institutional Capacity** - Regulatory bodies may lack technical and human resources to oversee complex exploration activities. Coordination gaps between national and subnational agencies lead to inconsistent rule application.
- **Foreign Investment vs. National Control** - Balancing state ownership with private sector involvement is politically sensitive. Over-reliance on foreign capital without safeguards can undermine national interests.
- **Weak monitoring and enforcement** persist because authorities often fail to enforce existing laws effectively. Limited funding, a shortage of trained personnel, and inadequate monitoring systems hinder efforts to track mining operations and ensure compliance. These gaps have fueled illegal lithium mining, especially in states such as Nasarawa and Kogi, causing environmental damage and reducing government revenue.
- **Insecurity in Mining Areas** - Many lithium rich regions face security challenges such as banditry, local conflicts, and illegal armed mining groups. These issues not only endanger workers and investors but also make it nearly impossible for regulators to monitor exploration activities safely. Insecure environments drive away legitimate companies and leave the resource open to illegal exploitation.
- **Poor Data and Geological Information** - Accurate geological data is vital for investment and planning, but Nigeria still lacks a comprehensive, up-to-date

geological database. Limited mapping and data transparency make it difficult for investors to assess potential sites and for the government to monitor activities effectively.

POLICY RECOMMENDATION

Developing a sustainable and transparent legal architecture for lithium exploitation in Nigeria requires a holistic and multidimensional approach. Such a framework must integrate legal reform, institutional strengthening, environmental protection, industrial policy, and international collaboration. The following recommendations provide a strategic roadmap for achieving this objective.

- **Formulate a Lithium-Specific Legislative and Regulatory Framework** - Nigeria should establish a comprehensive legal framework dedicated to governing lithium and other critical minerals. Policymakers could enact a Lithium Development and Industrialization Act or amend the Nigerian Minerals and Mining Act (2007) to include new provisions for strategic minerals. The framework should clearly define licensing procedures, fiscal regimes, value-addition requirements, and environmental standards. It should also ensure that authorities transparently manage all mining revenues to benefit the national treasury rather than unregulated or shadow economies.
- **Strengthen Institutional Coordination and Oversight** - Nigeria's mining governance has long suffered from fragmented oversight and weak institutional capacity. To enhance efficiency, the Ministry of Solid Minerals Development, the Mining Cadastre Office (MCO), and the National Environmental Standards and Regulations Enforcement Agency (NESREA) should receive improved funding, technological tools, and capacity-building programs. Establishing a National Lithium Development Authority (NLDA) would further ensure centralized coordination, promote interagency collaboration, and improve accountability across the value chain.
- **Promote Domestic Value Addition and Industrial Integration** - To maximize economic benefits, Nigeria must move beyond the export of raw lithium and focus on building a robust domestic value chain. The government should require investors to commit to full-cycle operations, including exploration, refining, cathode production, and battery manufacturing, to retain more value within the country. The government should deploy Fiscal incentives, tax exemptions, and public-private partnerships to encourage local processing and technological innovation. This approach will accelerate

industrialization, create high-value employment, and position Nigeria as a regional hub for clean energy technology.

- Ensure Environmental Sustainability and Social Inclusion - Environmental management and community welfare must be integral to Nigeria's lithium policy. Every lithium project should undergo rigorous Environmental and Social Impact Assessments (ESIAs) and meet strict reclamation and pollution-control standards. The government must also ensure Free, Prior, and Informed Consent (FPIC) for host communities and enforce Community Development Agreements (CDAs) that guarantee inclusive participation, equitable benefit sharing, and social justice. Integrating environmental sustainability into mining operations will mitigate ecological degradation and build community trust in the sector.
- Secure Nigeria's Strategic Position in the Global Lithium Value Chain - To strengthen its global competitiveness, Nigeria should adopt a proactive approach toward positioning itself in the worldwide lithium economy.
 - Forge international partnerships: Establish bilateral and multilateral agreements with technology-driven economies to expand market access, advance infrastructure development, and facilitate technology transfer.
 - Encourage value chain investment: Require foreign investors to develop the entire lithium value chain in Nigeria, focusing on refining and battery production, where they generate the highest economic value.
 - Leverage regional trade frameworks: Utilize the African Continental Free Trade Area (AfCFTA) and African Mining Vision (AMV) to attract responsible investments and expand Nigeria's export base across Africa.
- Enhance Data Transparency, Research, and Technological Innovation – Effective policy implementation depends on credible data and innovation. The government should strengthen geological exploration through initiatives like the National Integrated Mineral Exploration Project (NIMEP) to improve data accuracy and investor confidence. Establishing a centralized National Lithium Data Repository and digital mining registry will foster transparency and compliance with the Extractive Industries Transparency Initiative (EITI). Furthermore, investing in lithium-related research, innovation centres, and academic partnerships will support technology transfer and human capital development in the mining sector.

RECOMMENDATIONS

A comprehensive and future-proof legal framework should include the following components:

1. **Legal Classification and Ownership** - Clearly classify lithium as a strategic mineral; define ownership and access rights, particularly in indigenous territories.
2. **Transparent Licensing and Permitting** - Establish a unified and transparent system for exploration licenses, including timelines, clear criteria, and public access to information.
3. **Mandatory Environmental and Social Impact Assessments** - Require EIAs for all lithium projects with third-party verification, mandate community consultation and prior informed consent (FPIC) for affected groups.
4. **Benefit-Sharing Mechanisms** - Allocate a percentage of revenue to local development funds, including provisions for community equity participation where feasible.
5. **Capacity Building and Institutional Reform** - Strengthen regulatory agencies with technical and financial support, promote inter-agency coordination through a dedicated lithium oversight body.
6. **Investment Safeguards** - Provide legal stability for investors while including exit clauses for environmental non-compliance, encourage local content, technology transfer, and job creation through licensing conditions.
7. **Periodic Review and Adaptive Regulation** - Mandate periodic review of laws to respond to market, environmental, and technological changes. Incorporate climate change mitigation and circular economy principles into the legal framework.

CONCLUSION

Nigeria stands at a critical crossroads in its journey toward becoming a major player in the global lithium economy. The country's growing lithium reserves offer a rare opportunity to position itself at the heart of the clean energy transition.

Although the country possesses promising lithium deposits, it lacks a legal and institutional framework tailored to the unique dynamics of critical mineral governance. This research shows that, relying on outdated or generalized mining laws, such as the Nigerian Minerals and Mining Act of 2007, are no longer sufficient. Lithium, as a strategic and high-demand resource, requires a modern legal approach that reflects its environmental impact, economic potential and social consequences. Lessons from countries like Chile, Australia, and Zimbabwe highlight the importance of clear, investor-friendly regulations, strong environmental safeguards, and systems that ensure local communities benefit from resource extraction. Nigeria must adopt a similar path, creating laws that not only govern extraction but also encourage value addition, local processing, job creation, and technology development. Ministry of Solid Minerals Development, along with other key institutions such as the Mining Cadastre Office, the Ministry of Environment, and the National Assembly, has a vital role to play in leading this transformation. With the right mix of political commitment, institutional reform, stakeholder input, and international collaboration, Nigeria can build a legal framework that truly supports sustainable growth in the lithium sector.

Ultimately, a dedicated, well-crafted legal framework for lithium is not just necessary it is essential for Nigeria's long-term prosperity and leadership in the global clean energy movement. It's about setting Nigeria on a course toward economic diversification, global relevance in green technology, and responsible resource governance.

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