ECONOMY

Research article

MINERAL BENEFICIATION: TOWARDS TRUE SOVEREIGNTY, DEVELOPMENT AND SECURITY IN NIGERIA[1]

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Abstract. Nigeria's paradox of poverty in the midst of plenteous mineral resources is as legendary as that of the African continent as a whole. The explanation does not lie in the once propagandised "resource curse" in the Western literature about Africa. This article demonstrates that the poverty is attributable mostly to the lack of domestic mineral beneficiation, leading to the entrenched loss of sovereignty (economic, technological, and intellectual), underdevelopment, and widespread insecurity for most Nigerians. Drawing insights from "Development Criminology," a specialism in General Criminology, the article posits that for Nigeria, a resource-rich country, to rise from these predicaments, it must earnestly ramp up the beneficiation of its mineral resources. Critical for Nigeria is to address the deviances and criminalities in its resource-related political economy as they manifest in policy poverty, infrastructure deficiency, financial incapacity, and technological dependency. The fundamental solution resides largely in reorienting its regulatory responses to its subsoil use, leveraging local and continental synergies to address financing gaps, prioritising mineral beneficiation as a national security strategy, and fostering innovative contributions of the academia to induce technological self-reliance through specialized human capital development. The broader appeal of the article is in demonstrating that "mineral beneficiation is destiny," not just for Nigeria but for Africa generally. Further, it invites more scholars to advance the "Development Criminology" specialism into a full-fledge theoretical framework for illuminating the nuanced intersection between mineral resources and critical political economy, with particular focus on sovereign domestic mineral beneficiation as a game changer.

[1] This article is based on the 7th Combined Convocation Lecture delivered by the author at Prince Abubakar Audu University Anyigba, Kogi State, Nigeria, to an audience of about 1,200 participants, on 22 January 2026.

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INTRODUCTION: THE LEGENDARY PARADOX

In a comparative continental context, Africa's 'Paradox of Poverty in the Midst of Plenty' is uniquely legendary. Nigeria epitomizes this paradox more than any other African country. Africa's subsoil is home to the greatest metallic and non-metallic wealth globally. It has a long history of the ancestral interactions between mountains, rivers, volcanoes, lakes, ancient woodlands, forests, and desert soil. Over millions of years, these interactions have transformed into abundant deposits of minerals and fossil fuels.

Today, the deposits constitute, relatively, the world's greatest treasures. On a per capita basis for natural resources (mainly mineral reserves), each African resident could be 15 times richer than their European or American counterpart[2]. Yet, Africa has hosted more than 60% of the world's poor in the last three years. 23 out of the 28 poorest countries in the world were in Africa[3].

[2] Litvinenko V.: The New Reality of Russian-African Partnership. *Forpost.* 17.12.2025. https://forpost-sz.ru/en/spmi/2025-12-17/vladimir-litvinenko-novaya-realnost-rossijsko-afrikanskogo-partnerstva (accessed: 18.12.25)

[3] Poverty in Africa: Real-Life Consequences and Sustainable Solutions 2023. *Outreach International*. 09.2023. https://outreach-international.org/blog/poverty-in-africa/ (accessed: 15.01.2026)

This paradox has been widely but erroneously explained as the "resource curse"—the situation wherein mineral abundance correlates positively with poverty, underdevelopment, political instability, and existential insecurity [Auty 1993; Sachs, Warner 1995]. However, not all resource-rich countries are poor. Australia, Canada, 21st-century China, and Russia are strong counter-examples. The real explanation for the paradox lies in the fact that African countries, more by design than by default, sell their resources in their raw form: with little or no beneficiation! As some scholars put it, these countries "have through disastrous governance effectively sold the national wealth for less than nothing"[4] [Diene et al. 2022: 16].

Nigeria's current reality demonstrates how insidious and enigmatic this paradox remains in Africa. Although endowed with at least 50 known mineral reserves, including the now well-sought-after rare earth metals[5], Nigeria has not fully vacated the toga of being the "poverty capital" of the world. In 2024, the Minister for Solid Minerals Development, Dr. Dele Alake, stated that Nigeria's mineral reserves were tentatively valued at $750 billion by a World Bank-appointed German firm, GeoScan. This, he said, was a conservative estimate, and added that "by the time we conduct a serious, accurate data exploration, we will discover that we have trillions [of dollars] of solid minerals embedded under [the soil]. So, the President's projection of a one trillion-dollar economy is not a fluke"[6].

Yet, it was widely held that, between 2021 and 2024, up to 47% of Nigerians lived in multidimensional poverty[7]. Extrapolated globally, Nigeria was home to nearly 11.7% of the world population living in extreme poverty, with the poverty threshold at $2.15 a day. This rate was the highest among the African countries, closely matched or followed by the Democratic Republic of the Congo, which accounted for around 11.5% of the global population in extreme poverty[8].

IMPERATIVE OF MINERAL BENEFICIATION

The anomalous paradox in Africa is grounded heavily in the failure of the countries to beneficiate their stupendous mineral resources. Mineral beneficiation involves the processing and refining crude minerals in order to increase their asset value. By improving physical or chemical properties of a raw material through separating

[4] He referred particularly to Zimbabwe and the Democratic Republic of Congo.

[5] 53+ Minerals Found in Nigeria and Their Locations. *Nigerian Mineral Exchange.* 23.05.2025. https://nigerianmineralexchange.com/53-minerals-found-in-nigeria-and-their-locations/ (accessed: 14.01.2026)

[6] Alaran F. Alake: Nigeria's Mineral Reserves Valued at $750 bn. *Thisdaylive.* 30.04.2024. https://thisdaylive.com/2024/04/30/alake-nigerias-mineral-reserves-valued-at-750bn (accessed: 12.01.2026)

[7] Multidimensional poverty is an approach to measuring poverty that takes into account not only financial indicators (income or expenses), but also other aspects of the population's life that shape their well–being. This approach is considered more comprehensive than traditional monetary methods, as it allows assessing deprivation in areas such as health, education, living conditions, access to services, and other factors.

[8] Share of global poverty in Africa, by country 2025. *Statista.* https://statista.com/statistics/1228553/extreme-poverty-as-share-of-global-population-in-africa-by-country/?srsltid=AfmBOorKlBVk1djskUIluO9zm-UM6rXyd7MwvOUDUpmdo3RvZGlw9Vvs (accessed: 12.01.2026)

valuable materials from waste, improving their grades, and preparing them for industrial use or export, beneficiation creates a stronger value chain for prosperity [Isheloke, Blottnitz 2023].

In state policy terms, beneficiation is to encourage downstream processing to improve trade performance and accelerate structural transformation of the economy. In 2009, the African Union developed the Africa Mining Vision (AMV) to serve as a roadmap for African governments to take the management of their natural resources in this direction. This roadmap identified mineral beneficiation as one of the most important means for governments to achieve their goals in relation to sovereignty, development, and security [Busia, Akong 2017; Ali et. al 2019].

Mineral beneficiation and the sovereignty question. Genuine sovereignty requires mastery over mineral beneficiation: the resource-to-product value chain. Put differently, true sovereignty is anchored on the power not only to control but also to beneficiate your own minerals domestically. Although Article 2 (4) of the United Nations (UN) Charter (1948) made "sovereignty" sacrosanct, and Member states are called upon to respect it[9], its scope fell short in optimally protecting resources in weak or developing countries. That was why within the first decade after the United Nations was established (1952–1962), its General Assembly was pressured, by independent Latin American countries (Chile in particular), to pass significant resolutions that were directed at establishing each Member state's sovereignty over its mineral resources in its pursuit of development. These include: Resolution 626 (VII) 1952 Right to exploit freely natural wealth and resources[10], Resolution 1314 (XIll) 1958 International respect for the right of peoples and nations to self-determination[11], Resolution 1803 (XVII) 1962 Permanent sovereignty over natural resources[12].

Fittingly, some UN agencies began to argue in recent times that to exercise true sovereignty over mineral resources, nations must move away from the "colonial model" of raw material exportation and go towards domestic beneficiation and processing [Ayuk, Pedro, Ekins 2020].

Africa has been on board with this argument for some time. The Organization of African Unity (later changed to African Union) did pass treaties and development blueprints between 1968 and 2016, clearly designed to domesticate the stronger principle of 'true' sovereignty over mineral resources in the Continent. These include

[9] Sovereignty, Territorial Integrity 'Sacrosanct', Secretary-General Tells Forum of Small States, Stressing Borders Cannot Be Redrawn at Great-Power Whim. *UN Secretary General Press Release.* 17.03.2022. https://press.un.org/en/2022/sgsm21188.doc.htm (accessed: 12.01.2026)

[10] Resolution 626 (VII) Right to exploit freely natural wealth and resources. *UN*. 21.12.1952. https://docs.un.org/en/a/res/626(vii) (accessed: 13.12.25)

[11] Resolution 1314 (XIll) Recommendations concerning international respect for the right of peoples and nations to self-determination. *UN*. 12.12.1958. https://docs.un.org/en/a/res/1314(xiii) (accessed: 18.12.25)

[12] Resolution 1803 (XVII) Permanent sovereignty over natural resources. *UN*. 14.12.1962. https://docs.un.org/en/a/res/1803(xvii) (accessed: 18.02.26)

African Convention on the Conservation of Nature and Natural Resources (1968)[13]; African Mining Vision (2009)[14]; Agenda 2063: the Africa We Want (2013)[15]; Statute of the African Minerals Development Centre (2016)[16].

Nigeria, in addition to adopting the related UN principle as part of a general international law, began to incorporate the sovereignty question into its domestic laws since Independence. Nigeria's 1963 Constitution vested the ownership and control of all minerals, including oil and natural gas, in the government. So also did the Petroleum Act 1968, the Land Use Act 1978, the Constitution of the Federation 1999, the Minerals and Mining Act 2007, and the Petroleum Industry Act 2021. Despite their remarkable provisions, the effect of these laws in terms of delivering true sovereignty to Nigeria remains minimal [Okwelum 2023].

In 2024, Nigeria ratified the African Union's Statute of the African Minerals Development Centre 2016[17]. This treaty was borne out of the conviction of Africa's Heads of Governments that "the time is now for... the Continent to regain ownership of its natural resources and to implement the Africa Mining Vision [with its emphasis on beneficiation], with a view to maximizing the benefits derivable from mineral resources exploitation for the present and future generations...". To date, Nigeria is one of only four African countries (the rest being Guinea, Mali, and Zambia) to have done so, out of the 15 required for the treaty to come into force.

The imperativeness of domestic beneficiation is starkly evident when located in specific dimensions of sovereignty—the economic, technological, and intellectual—which, if effectively secured, would ensure that the country could engage globally from a position of strength. This conclusion is shared by prominent Russian Africanists I.O. Abramova and D.A. Degterev [Abramova, Degterev 2025].

With economic sovereignty, countries autonomously determine what happens to their economic assets. For instance, rather than exporting unprocessed cobalt, lithium, or rare earth elements to foreign refineries (often operated by the same corporations that extracted the raw ore), these countries—not external actors—decide how their mineral wealth is processed before it enters into global arena, who profits, and how their resources are deployed toward national development objectives. Erstwhile colonies, which can do so, reclaim control and reassert the capacity to make binding decisions over their productive assets and economic strategies.

In transforming their commodities domestically, these countries gain greater values. An investment of roughly $2.5 per ton in ore beneficiation can yield a value increase of

[13] African Convention on the Conservation of Nature and Natural Resources. *UNESCO*. 15.09.1968. https://www.unesco.org/en/cultnatlaws/african-convention-conservation-nature-and-natural-resources (accessed: 12.03.2026)

[14] Africa Mining Vision: African Minerals Governance Framework. *African Union*. 2009. https://au.int/sites/default/files/documents/30984-doc-africa_mining_vision_english.pdf (accessed: 12.03.2026)

[15] Agenda 2063: The Africa we want. *African Union*. 31.01.2015. https://au.int/en/ Agenda2063/popular_version (accessed: 30.10.2025)

[16] Statute of the African Minerals Development Centre African Union. *African Union*. 30.06.2016. https://au.int/en/treaty/ statute-african-minerals-development-centre (accessed: 12.01.2026)

[17] Ibid.

$15–$20 per ton in the final pellets. Raw cobalt ore worth $5.8 per/kg becomes battery-grade cobalt oxide worth at least $16.2 per kg when processed. Gold processed into bullion and jewelry becomes a $1 billion business annually in South Africa, for example. Refined lithium sells for 10 times the price of raw lithium ore in global markets. These figures are indicative, mainly to demonstrate the value differential between raw and processed minerals, as well as the high return on investment through beneficiation [Gyllenram et al. 2022; Pickles 2023].

Thus, local mineral beneficiation is capable of unlocking massive wealth and changing countries from being stagnant suppliers of cheap raw materials for foreign industries. By and large, it can empower them to dominate global markets, attract high-paying buyers, create jobs locally, and build industrial economies[18]. This is economic sovereignty!

Technological sovereignty is another pillar in mineral beneficiation. All value-additions depend heavily on technical expertise and institutional capacity. For instance, establishing a cobalt refinery requires expertise in metallurgical chemistry, plant management, environmental compliance, and quality assurance. It entails the training technicians, developing supply chains for processing chemicals, and establishing quality control systems. Over time, the investment in these activities creates endogenous technological capacity—the ability to maintain, upgrade, and innovate processing infrastructure without dependency on external expertise—to extract and transform minerals into valuable goods.

Scholars view “intellectual” or “cognitive” sovereignty as the capacity of societies to define their own development agenda, to generate knowledge suited to their contexts, and to reject externally imposed frameworks. Such societies can protect their collective mindsets, values, and psychological well-being from external manipulation or disorientation of their intellectual foundations, shared memories, and core cultural values from the outside [Brcic 2025; Kovalev 2023]. Beneficiation requires domestic expertise, research innovations, and decision-making frameworks that the educational institutions in the societies develop.

Over time, this generates intellectual or mental resources indigenous to the societies—knowledge that cannot be controlled or withdrawn unilaterally by external actors. With this, countries avoid or minimize their resource sector being managed by foreign experts using foreign methodologies suited to foreign profit maximization.

Imperative of beneficiation and the development question. To the extent that GDP is a veritable measure of development, the mining sector could be a significant phenomenon. On its own, it contributes approximately 7% of the world’s GDP—through its direct operations and essential raw material supply[19]. Scholars who factor in

[18] Ede O. The Billion-Dollar Potential of Local Mineral Processing in Nigeria – Are You Ready to Tap In? *Nigerian Mineral Exchange.* 22.02.2025. https://nigerianmineralexchange.com/the-billion-dollar-potential-of-local-mineral-processing-in-nigeria-are-you-ready-to-tap-in/ (accessed: 12.01.2026)

[19] In Nigeria, the figure is around 0.75% (2023), whereas South Africa, Democratic Republic of Congo and Botswana had 18%, 25%, and 38%, respectively.

the "beneficiation" component, along with its related industries and indirect impacts, estimate this contribution to reach up to 45% [Korinek 2020; Scurfield et al. 2024; Zhou et. al 2024].

Mineral beneficiation increases the value of domestic use and exports. It also fosters domestic industrial development by providing essential inputs for the manufacturing, construction, and agriculture sectors. The establishment of value chains (processing plants, manufacturing facilities, and marketing services) creates more jobs than the simple extraction of raw ore and undergirds sustainable development.

Imperative of beneficiation and the security question. By the logic of "Development Criminology," any country that neglects domestic mineral beneficiation compromises development and makes itself a playground for various criminal actors, inflicting insecurity. These actors engage in illegal extraction, trafficking, gangsterism, banditry, insurgency, and terrorism. Where the "triangle of criminality"[20] is complete, the criminal actors operate with impunity [Cohen, Felson 1979]. Such is the situation in Nigeria with its vast unutilized land (suitable target), weak governance or law enforcement (lack of control), and illicit profit from high-value minerals like gold, lithium, and rare earth elements (motivation).

The failure to beneficiate can also exacerbate the vulnerability of geopolitical dependencies. Erstwhile colonies are used as pawns in the proxy wars among "superpowers" or the colonial metropoles in their quest for control over the mineral resources of these colonies. Such manipulations threaten national stability and security, particularly during hostile supply chain disruptions. We see this currently in situations, including the "Russia versus Europe" skirmishes and the "China versus USA" trade squabbles. Thus, although domestic beneficiation is an economic imperative, it can, and indeed does, serve as a base for national security concerns.

BENEFICIATION FOR SOVEREIGNTY, DEVELOPMENT, AND SECURITY IN NIGERIA

The international, continental, and national frameworks on sovereignty, which were meant to foster post-World War II economic independence for the natural-resources-rich developing countries, seem not to have worked in Nigeria. As outlined previously, true sovereignty encompasses control over economic resources, technological autonomy, and the intellectual capacity to define as well as execute development pathways endogenous to the society. Apart from the brief indigenization episode in the early 1970s, which proved disastrous [Adejugbe 2008; Collins 1974], Nigeria is, by and large, yet to be independent in the control and management of her mineral resources.

[20] Introduced by M. Felson and L. Cohen under the "Routine Activity Theory," the triangle refers to the convergence of motivated offenders, suitable targets, and the absence of capable social control, constituting an opportunity for crime to be committed regardless of economic conditions.

Major critical investment and development decisions on these resources are still commanded by foreign powers or companies. Although Nigeria's national anthem refers to the country as "Our sovereign Motherland," the reality shows that Nigeria lacks genuine sovereignty.

For Nigeria, and the African continent broadly, beneficiation must result in a strategic pivot from neo-colonial "extractivism" toward autonomous industrialization, economic resilience, and geopolitical leverage in an increasingly multipolar world. Nigeria possesses a sizeable proportion of the critical mineral reserves—lithium, cobalt, nickel, rare earth elements—that the world now seeks for batteries, solar cells, wind turbines, and semiconductors. If domestically beneficiated, they will bring wealth that could underpin sustainable development.

The Nigerian Economic Summit Group Pre-Conference discussion in 2024 observed that the Nigerian mining sector, rather than contributing to the economic growth, has become a theater for all sorts of conflicts, terrorism, banditry, and poverty manifestations.[21] It is now trite knowledge that the insecurity in the states like Kaduna, Kogi, Katsina, Niger, Nasarawa, Plateau, and Zamfara has been fueled mainly by illegal mining in the ungoverned spaces.

Several sources directly attribute this insecurity, and similar ones in other African countries, to prominent political figures, retired or serving armed forces personnel, and their foreign sponsors [Denisova 2023; Ehrhardt Alao, Umar 2023]. These players are suspected of arming bandits to terrorize local populations, driving them from their ancestral lands to allow for unchecked and highly profitable mineral extraction. They identify mineral-rich communities, acquire these lands through a combination of coercion, deceit, and the exploitation of poverty, displace the inhabitants, and commence the mining operations. Finally, they cart away trucks upon trucks, "leaving with our gold and that black stone [lithium]"[22], and respond to any challenge or obstruction with bullets from their "army of occupation."

By and large, the failure to locally beneficiate the mineral resources under state regulation creates a perverse economy where insecurity becomes a profitable business model for illegal miners, the bandits or terrorists that protect them, and their sponsors or financiers. The perpetrators use the profits from this illegal trade to purchase more weapons, fund more attacks, and bribe officials, creating a vicious, self-sustaining cycle of violence and exploitation. These things happen mainly in "forgotten communities" with little or no government presence.

While announcing in 2025 that 3,000 illegal gold miners had been flushed out of these communities, the Minister of Solid Minerals Development, Dr. Dele Alake,

[21] NESG Hosts NES 30 Pre-Summit Webinar on Transforming Nigeria's Mining Industry. *Nigerian Economic Summit Group.* 14.08.2024. https://www.nesgroup.org/blog/NESG-Hosts-NES-30-Pre-Summit-Webinar-on-Transforming-Nigeria%E2%80%99s-Mining-Industry (accessed: 26.06.2026)

[22] How Yahaya Bello Fingered in Illegal Mining Fuels Insecurity in Kogi West, As Indigenous Lands Are Seized by Force. *Akelicious.* 21.12.2025. https://www.akelicious.net/how-yahaya-bello-fingered-in-illegal-mining-fuels-insecurity-in-kogi-west-as-indigenous-lands-are-seized-by-force/ (accessed: 21.05.2026)

revealed that: "The gravity of illegal mining worsened with the emergence of companies that collaborate with individual miners to perpetrate this evil. While individual illegal miners are unable to excavate deeply due to the limitations of modern equipment and finance, corporate collaborators encourage deeper excavation and scale up the criminality[23]."

Nigeria neglected domestic mineral beneficiation for too long. Consequently, it allowed ample room for rabid insecurity to bloom. This has diminished the investment value, limited the development efforts, and attracted the unenviable status of a "Country of Particular Concern"[24] with serious implications for its sovereignty and international standing.

MAJOR CHALLENGES TO MINERAL BENEFICIATION

Given the benefits and fundamentality of mineral beneficiation, it beggars belief that Nigeria (and, by extension, Africa) has been held back in this venture for so long. Yes, there was evidence of strong "resource nationalism" across Africa in the 1960s to 1980s. The failed Nigeria's indigenization program earlier mentioned provides a representative picture of the movement. A critical look at several experiences on the Continent reveals several constraints or challenges that negated the move towards effective ownership through beneficiation of mineral resources. A few of such constraints are outlined below.

Policy poverty. This is not an absence of policy; it's more about policy frameworks with serious impotencies or contradictions that frustrate or limit implementation for national interests. For instance, Nigeria's Indigenization Program was a series of economic policies legislated through Decrees in 1972 and 1977[25]. These policies held sway well into the civilian administration of President Shehu Shagari, which the military overthrew in 1983. The governments designed the instruments ostensibly to transfer control and ownership of land and businesses or enterprises from foreigners to Nigerians. They aimed to boost local participation, retention of profits, and national economic strength by reserving certain sectors exclusively for Nigerians as well as mandating local equity in others.

[23] Ewepu G. 1 year of Mining Marshals: Over 3,000 illegal gold miners flushed out – Alake. *Vanguard.* 21.03.2025. https://www.vanguardngr.com/2025/03/1-year-of-mining-marshals-over-3000-illegal-gold-miners-flushed-out-alake (accessed: 12.01.2026)

[24] US-Nigeria relations: what it means to be a "country of particular concern" and why it matters. *The Conversation.* 16.11.2025. https://theconversation.com/us-nigeria-relations-what-it-means-to-be-a-country-of-particular-concern-and-why-it-matters-269044 (accessed: 26.06.2026)

[25] Nigerian Enterprises Promotion Decree 1972. *Supplement to Official Gazette Extraordinary.* Vol. 59. № 10. 28.02.1972. https://archive.gazettes. africa/archive/ng/1972/ng-government-gazette-supplement-dated-1972-02-23-no-10-part-a.pdf (accessed: 29.06.2026); Nigerian Enterprises Promotion Decree 1977. *Supplement to Official Gazette Extraordinary.* Vol. 64. № 2. 13.01.1977. https://archive.gazettes.africa/archive/ng/1977/ng-government-gazette-supplement-dated-1977-01-13-no-2-part-a.pdf (accessed: 29.06.2026)

This was indeed the first notable post-colonial effort for economic independence. However, inherent contradictions rendered it nugatory. Although it handed the ownership and control of the means of production to the state (government), it legitimized the capitalist mode of production and, at the same time, demanded the redistribution of wealth and income to achieve egalitarianism as a primary objective. In the end, a large ownership of enterprises shifted to the parasitic national bourgeoisie, but the control of the economy remained in the hands of foreigners, who then used this Nigerian bourgeoisie as fronts [Onuoha 1988]. Obviously, domestic mineral beneficiation took a back seat.

Decades later, Nigeria formulated another policy in 2016, titled "Roadmap for Growth and Development of the Nigerian Mines and Steel Industry," which is still being operated today. This policy expanded the Minerals and Metals Policy of 2008, whose main focus was to foster private sector involvement, geological mapping, and fiscal incentives—reportedly, to unlock the vast potential in the solid minerals sector. The focus was on transforming the sector from neglect to a global player by improving data, reforming laws, building infrastructure, and incentivizing investment. The Roadmap aimed for a 10% GDP contribution from the sector by 2026 through value chain development, from the current less than 1%[26].

Although the policy prioritizes value chain development to shift from raw mineral export to domestic processing for job creation and industrial growth, it leaves beneficiation at the mercy of 100% foreign ownership. This was a major departure from the indigenization requirement of 60% Nigerian ownership of manufacturing. Today, as the Solid Minerals Development Ministry adheres to this policy, it is unclear how it will establish "a vibrant minerals and metals industry for wealth creation, poverty reduction, promotion of economic growth, and significant contribution to the GDP of Nigeria"[27] without enforcing local beneficiation.

Infrastructure deficiency. Despite recent policy momentum, infrastructure deficiency poses a significant barrier to mineral beneficiation in Nigeria. Processing facilities require reliable electricity, water, and transportation infrastructure—systems grossly underdeveloped in many African regions. For instance, a cobalt refinery demands a minimum of 40 MW of stable power. Many African nations lack this capacity. Nigeria generates around 4.5–5.5 MW, far below the installed capacity of about 13–14 MW. The projected 25 MW by 2025, according to the deal struck with Siemens Energy in 2018, was never realized[28].

[26] Roadmap for the Growth and Development of the Nigerian Mining Industry. *Ministry of Mines and Steel Development of Nigeria.* 2016. https://www.minesandsteel.gov.ng/wp-content/uploads/2016/09/Nigeria_Mining_Growth_Roadmap_Final.pdf (accessed: 29.06.2026)

[27] The Ministry's Mission Statement. *Ministry of Solid Minerals Development.* https://msmd.gov.ng/news/ (accessed: 21.05.2026)

[28] FG, Siemens sign electricity deal lasting till 2025. *Valuechain.* https://www.thevaluechainng.com/fg-siemens-sign-electricity-deal-lasting-till-2025/ (26.06.2026)

Thabo Mbeki summed up this challenge when he observed that everybody in Africa talks about beneficiation of raw materials without showing where the amount of electricity to achieve that resides[29]. For instance, the plan to do iron smelting in some African countries ran into problems because of lack of electricity. Now, the AI technology that is critical for the 4th industrial revolution consumes a lot more electricity. Unless Africa steps up with her energy production, she will be further left behind in mineral beneficiation.

Financing gaps. While some aspects of the overall value-addition process, such as craft-based jewelry making, can be labor-intensive, the large-scale industrial activities of mineral processing, smelting, and refining are prohibitively capital-intensive. A major processing hub, for instance, might cost over $5 billion. Apart from the size of the investment, beneficiation projects have long lead-times before generating returns. This requires "patient capital" that can withstand extended development and construction periods, which private investors usually avoid.

In Nigeria, the local mining finance system remains underdeveloped. This is magnified by the fact that the basic requirement of a strong industrial base (including steel, automotive, and chemical manufacturing) is virtually non-existent. Commercial banks in Nigeria are often hesitant to provide loans to mining companies due to the perceived high risk and the long gestation period of mining projects.

Clearly, traditional financing mechanisms have consistently failed to bridge the gap between geological potential and structured capital deployment for beneficiation. Government policy continues to be disproportionately dependent on external actors—private equity, development banks, bilateral investors—each with conditions and expectations that invariably frustrate beneficiation and undermine sovereignty.

Technological dependency. Crucially, no country can attain optimal mineral beneficiation without technological sovereignty, including domestically produced hardware of heavy machinery or equipment and humanware of highly trained technicians, engineers, chemists, and managers. Africa's Agenda 2063 (Aspiration 1, Goal 2) provides for Human Capital Development through "Well Educated Citizens and Skills Revolution Underpinned by Science, Technology and Innovation."[30]

More than 10 years after the enactment of this aspiration, the African Union Member States have recorded only 23% performance[31]. Little wonder, therefore, that there is, on average, about a 60% deficit of qualified domestic managers and specialists in the mineral resource complex across Africa. As recently observed, "The workforce is

[29] Mbeki's reflections on Africa's Past, Present and Future, with Dr. Mbuyiseni Ndlozi, during the Thabo Mbeki Foundation Africa Day Lecture in Dar es Salaam, Tanzania. 24.05.2025. *Youtube**. https://youtu.be/r_Mg-CvK_mo?si=KsnXL1N539cZ9n (accessed: 12.12.2025) (*Here and hereafter: Youtube has been blocked in Russia since 2024 due to its violation of the law of Russian Federation – *Editor's Note*)

[30] Our Aspirations for the Africa We Want. *African Union.* https://au.int/en/agenda2063/aspirations (accessed: 29.06.2026)

[31] GOAL 2: Continent Performance by Priority Areas. *African Union Development Agency*. https://www.nepad.org/agenda-dashboard-v2 (accessed: 30.10.2025)

extremely poorly qualified, and the shortage of qualified specialists is extremely severe. The shortage of specialized engineering personnel is critical… [This means that] most minerals are exported, unprocessed. Consequently, the extraction, transportation, and even processing of natural resources without a trained national workforce and indigenous technologies yield only a mere fraction of the true value of Africa's mineral wealth, fail to generate significant added value, and fail to provide adequate income to the economies of supplier countries[32].”

Mining technology in Nigeria remains concentrated in foreign companies. Multinational corporations have adapted to policy reforms by deepening technical control even where ownership has formally transferred, leading to a state of affairs where technology remains proprietary and expertise remains largely foreign. Nigeria’s, nay Africa’s, sovereignty continues to be reduced to formal ownership without substantive control, as a substantial number of mines face a significant deficit in qualified mining engineers.

In 2023, the Sub-Saharan African Skills and Apprenticeship Stakeholders Network reported that Dangote Refinery recruited 11,000 Indian technological expatriates because of the lack of specific, job-ready technical skills among many Nigerian youths and university graduates[33]. The report generated a plethora of comments, most of them linking the situation to a disconnect between the Nigerian academic curriculum and practical industry requirements. One of the blistering comments put it this way: “This is the clinical diagnosis of a disease that doesn’t just affect Abuja: it affects the entire African body... It's not India that humiliates us; it’s our inability to produce skills that match our ambitions... While we politicize technical education, India professionalizes. While we churn out theoretical degrees, India trains thousands of operational technicians... We can have oil, bauxite, gold, cobalt, lithium... But without people who can transform them, we remain tenants of our own development. We provide land, raw materials, tax breaks, sometimes even public funds... Others provide brains. And in the end, they leave with the biggest share of added value... As long as our [educational] schools are pedagogical graveyards, others will come work for us, surpass us, and tell us how to manage our own wealth[34].”

The challenges outlined in the foregoing are not insurmountable. Nor do they constitute a death knell for domestic beneficiation. Rather, they point to the areas that

[32] Litvinenko V. The New Reality of Russian-African Partnership. *Forpost.* 17.12.2025. (In Russ.). https://forpost-sz.ru/en/spmi/2025-12-17/vladimir-litvinenko-novaya-realnost-rossijsko-afrikanskogo-partnerstva (accessed: 18.12.2025)

[33] Onuh Ch. Dangote Refinery: Why Nigerians were ignored, 11,000 Indian workers hired. *Business Day*. 26.07.2023. https://businessday.ng/news/article/dangote-refinery-why-nigerians-were-ignored-11000-indian-workers-hired/ (accessed: 12.01.2026)

[34] The Truth about 11000 Indians Hired to Work in the Dangote Refinery. *Facebook*** post by Amaefule Francis Izuchukwu, circulated on the *Dara National Discourse* WhatsApp** Platform as “Dangote, India, and the Burning Mirror: What's Happening in Nigeria is Happening in Africa” on 15.12.2025. https://facebook.com/amaefule.francis.3/posts/the-truth-about-11000-indians-hired-to-work-in-the-dangote-refinerywhat-is-happe/3094773284027212/ (accessed: 16.12.2025) (**Here and hereafter: Facebook is blocked in Russian Federation. Facebook and WhatsApp belong to Meta, which is recognized as an extremist organization in Russian Federation – *Editor’s Note*)

have led Nigeria's sovereignty, development, and security into a very parlous state. By the same token, they flag the critical domains where visionary leaders should seek solutions.

CRITICAL SOLUTIONS

Reorientation of regulatory (policy and legal) responses. Mining in Nigeria started as far back as the 1940s with the production of coal, columbite, and tin. However, following the discovery of oil in 1956, attention was shifted away from mineral mining to crude oil production and has, unfortunately, remained like that since then [Brickstone 2020].

At the African Mining Week 2025, held in October 2025 at the South Africa Cape Town International Convention Centre, Nigeria's Solid Minerals Minister, Dr. Dele Alake, announced a return of policy attention to the sector in the country. The Minister stated that Nigeria has started shifting from raw material exports to mineral beneficiation. This, he said, is part of the strategic vision to drive economic diversification through reforms, digitalization, and attracting foreign investment for local processing of critical minerals like lithium[35]. In this vision, there is a new policy touchstone of "No mineral leaves Nigeria unprocessed,[36]" signaling a commitment to beneficiation as the organizing principle of minerals governance.

Nevertheless, Nigeria must systematically develop a brand-new comprehensive policy that addresses several impotencies and contradictions in the existing governance ecosystem, most of which are traceable to the incoherent way in which the ecosystem emerged. For instance, the Minerals and Mining Act 2007 was passed before its underpinning policy was developed in 2008. The Roadmap (akin to an action plan) for this policy was not launched until 2016, and the Regulations for operationalizing the 2007 Act came in 2021.

A key feature of the new comprehensive policy should be to align it squarely with the AMV, for which, as shown earlier, local beneficiation is the priority. Stakeholders such as the Nigerian Extractive Industry Transparency Initiative[37], the Nigerian Economic Summit Group[38] and the National Association of Miners[39], who had discussed these challenges before, can assist in the development of the highly needed new policy. After that, new legislation—preferably from an Executive Bill—must be

[35] Let's Make Minerals the Fulcrum of Africa's Transformative Industrialization – Alake. *Federal Ministry of Information and National Orientation.* 05.10.2025. https://fmino.gov.ng/lets-make-minerals-the-fulcrum-of-africas-transformative-industrialization-alake/ (accessed: 29.06.2026)

[36] Roberts R. Nigeria determined to build 21st century mining hub. *Resourcing Tomorrow.* 2025. https://resourcingtomorrow.com/news/industry/nigeria-determined-to-build-21st-century-mining-hub (accessed: 29.06.2026)

[37] The Nigeria Extractive Industry Transparency Initiative. *NEITI.* https://neiti.gov.ng/ (accessed: 23.06.2026)

[38] The Nigerian Economic Summit Group. *NESG.* https://www.nesgroup.org/ (accessed: 21.06.2026)

[39] Nigerian National Association of Miners. *The Miners Association of Nigeria.* https://www.minersassociationofnigeria.ng/ (accessed: 20.06.2026)

enacted, and this law must mandate the responsible Minister to promote local beneficiation, as is done in South Africa, for example.

For over two decades now, South Africa's Mineral and Petroleum Resources Development Act 2002 and the Diamonds Amendment Acts 2005 have obligated the Minister of Mineral Resources to promote the beneficiation of minerals in the Republic. Further, some elements of their regulatory frameworks, including the South African Mining Charter of 2018, provide incentives for mining companies only to the extent that these companies increase their level of domestic beneficiation. Nigeria should examine this model closely as it seeks to overhaul its governance ecosystem for the mineral resources sector.

Leveraging of local and continental synergies. Establishing domestic mineral beneficiation can be a very expensive venture. For instance, it is widely known that the Dangote Refinery, which was estimated in 2013 to cost about $9 billion, ballooned to around $20 billion by the time it commenced production in 2024. In today's foreign exchange environment, that would amount to about 2.9 trillion naira. Staggering as this figure may sound, it presents no excuse for the neglect that Nigeria had visited on solid mineral beneficiation for most of its postcolonial political life.

Yes, traditional sources for "development" funding (including the IMF and the World Bank) have increasingly restricted funding for extractive industries, particularly in regions with weak governance perceptions. However, small to medium scale processing plants cost much less and should be more affordable locally. For example, the lithium battery plant (Avatar Energy) in Nasarawa State, inaugurated in May 2024 with a daily capacity of 4,000 tons and expected to create 4,000 jobs, apparently cost $100 million. The iron-ore mining and processing facility by African Natural Resources and Mines Limited in Kaduna State was established at a cost of $600 million. The company reportedly aligns with the government's vision of value addition and beneficiation. It is also "touted as one of the biggest foreign investments in the mining sector"[40].

Besides, since the sector represents a potential source of over $1 trillion in value, a visionary government should see that it is highly strategic to leverage local and regional synergies to fund domestic beneficiation. The establishment of the Mining Intervention Fund since 2016[41], to open up the solid mineral sector by supporting local artisanal and small-scale miners with single-digit loans[42], was an initiative in the right direction. A study of its implementation would be a useful contribution.

[40] Alaran F. Alake Lauds $600 Million Iron-Ore Mining, Processing Facility in Kaduna. *This Day*. 27.03.2024. https://www.thisdaylive.com/2024/03/27/alake-lauds-600-million-iron-ore-mining-processing-facility-in-kaduna/ (accessed: 16.01.2026)

[41] Ministry of Mines generates over N9bn in 34 months. *The Guardian*. 03.09.2018. https://guardian.ng/business-services/ministry-of-mines-generates-over-n9bn-in-34-months/ (accessed: 16.01.2026)

[42] The Federal Executive Council approved 30 billion naira in 2016 for the initiative and later supported it with 5 billion naira from the then Ministry of Mines and Steel Development and the Bank of Industry (2.5 billion naira each). See: FEC approve thirty billion Naira intervention fund for mining exploration in Nigeria.

Under the current administration of President Bola Ahmed Tinubu, Nigeria has launched the "Africans for Africa Investment Fund"[43] to raise regional capital for processing infrastructure. The initiative emphasizes partnerships with non-traditional sources—Saudi Arabia, United Arab Emirates (UAE), India, and South Africa, and the pursuit of supply chain security through mineral sourcing agreements. At the recently concluded UAE Abu Dhabi Sustainability Week, President Tinubu invited "partnerships that ensure not just extraction of minerals but local processing and value-addition, thus creating jobs and strengthening industrial capacity at home"[44]. Appropriate balance between sovereignty and cooperation can secure funding from this platform.

On the continental level, the setting up of the African Minerals Strategy Group (AMSG) in 2024, which explicitly frames African beneficiation as a response to the surge in the demand for critical or rare earth metals, provides additional opportunities to leverage funding.

These financing leverages and the "industrial-actor" role of government align with the multipolar world dynamics in which Nigeria should not be dependent solely on Western finance or Chinese capital. Nigeria can assert sovereignty by being present at the table with enough autonomy to make the right choices among multiple actors. It can leverage resources as Mali has done to promote its local beneficiation[45].

Further, as the Chair of the AMSG[46], Nigeria should be able to coordinate with other African nations to establish processing hubs and harmonized mineral trade policies. This will disrupt the present "race to the bottom" where individual nations compete to attract investors by lowering beneficiation requirements in accordance with the colonial and neo-liberal playbooks. If the resulting funding and autonomous governance are applied righteously to domestic beneficiation, African countries should be able to gain greater or true sovereignty, development, and security.

Prioritization of mineral beneficiation as National Security Strategy. Since World War II, the world has witnessed the use of domestic beneficiation to transform geological endowments, particularly of critical minerals, into strategic national power with which to secure economic and defense needs. The Global North has continued to build secure domestic supply chains for the essential minerals to cater for these needs.

TodayFM. 2025. https://todayfmlive.com/fec-approve-thirty-billion-naira-intervention-fund-for-mining-exploration-in-nigeria/ (accessed: 06.01.2026)

[43] Africans for Africa Investment Fund. *AFA Initiative*. https://afainitiative.org/fund/ (accessed: 20.06.2026)

[44] National Statement by His Excellency Bola Ahmed Tinubu, GCFR President of the Federal Republic of Nigeria at the Abu Dhabi Sustainability Week (ADSW) 2026, 11th – 15th January. *State House.* 14.01.2026. https://statehouse.gov.ng/national-statement-by-president-tinubu-at-the-abu-dhabi-sustainability-week-adsw-2026/ (accessed: 17.01.2026)

[45] The new military rule has established a big and expensive gold refinery (holding a majority stake), leveraging the expertise of a Russian conglomerate Yadran Group, with financial backing from a Swiss investor to build this first internationally certified refinery in Mali. See a *Youtube** video titled "This is a Game Changer", https://youtube.com/shorts/weX5cmUZ5t8?si=OM91CWL2K_7ghmK1 (accessed: 16.01.2026)

[46] *African Minerals Strategy Group.* https://africamineralsgroup.org/ (accessed: 04.01.2026)

By so doing, its countries reduce reliance on volatile foreign sources, foster economic resilience, create high-tech jobs, and ensure availability for defense and emerging technologies like artificial intelligence.

In 2022, the US launched an initiative named the Minerals Security Partnership (MSP), in collaboration with some key actors including Australia, Canada, the EU, Finland, France, Germany, Japan, South Korea, Sweden, the UK, India, Italy, and Norway. The aim was to build secure, sustainable, and diverse supply chains for critical minerals (like lithium, cobalt, nickel, rare earths) essential for clean energy and advanced technologies, countering supply concentration in China. MSP was to provide diplomatic and financial support for strategic projects in partner countries and resource-rich countries.

In December 2025, the US released its newest National Security Strategy, a 29-page document. The African region received only three paragraphs, focusing on its valuable mineral resources and the need to move US engagement with the Continent from aid to trade and investments. This reflects the way Western powers have always viewed the region—a site for extracting raw materials for industrial development in the West and a market for Western manufactured goods[47].

The significant point is for Africa to learn how to prioritize the beneficiation of her mineral resources as an essential foundation to security strategies on the Continent. In Nigeria, for instance, the National Security Strategy 2014 (updated in 2019) and the National Counter Terrorism Strategic Plan 2025–2030 focus on protecting sovereignty, promoting prosperity, and ensuring stability through counterterrorism, regional cooperation, cyber/maritime security, and institutional modernization. However, the documents made only a passing reference to the mineral resources sector. Yet, the sector has been widely known as a site for domestic existential insecurity (where beneficiation is neglected) and international scramble or exploitation (where resources are not guarded as national security assets). Nigeria must redesignate mineral beneficiation as a core pillar in its national security strategy if it is to enjoy peaceful development and high global reckoning.

Innovative contributions of the academia. One of the critical factors promoting mineral beneficiation in developed countries is the availability of skilled personnel, which is a function of intentional specialized human capital development. A well-trained workforce, including geologists, engineers, technicians, and specialized managers, is crucial for operating complex processing facilities efficiently and safely. Developed countries have a large pool of skilled professionals to draw from, due mainly to the contributions of their academia. However, they foster it—spend for it—big time.

[47] Bangura Y. From Liberal Internationalism to ''Flexible Realism'': Dangers and Pitfalls in America's New Strategic Policy. *Policy and Politics: Indepth Analysis of Nigerian News and World Reports.* 23.12.2025. https://policyandpolitics.com.ng/2025/12/23/from-liberal-internationalism-to-flexible-realism-dangers-and-pitfalls-in-americas-new-strategic-policy/ (accessed: 16.01.2026)

Academia drives innovation through fundamental and applied research, develops new technologies for efficient separation and purification, trains future experts, and fosters industry-university collaborations to solve real-world challenges. These contributions ultimately enhance resource recovery, reduce negative environmental impact, and improve the economic viability of local mining operations. In essence, academia acts as a vital engine for the scientific advancement and technological evolution of mineral beneficiation, ensuring the industry remains efficient, profitable, and environmentally responsible.

For Nigerian academia to perform this indispensable role for local mineral beneficiation, the government must fund it properly; then hold it accountable to develop geosciences, metallurgy, chemical engineering, electrical/electronics, mineral processing programs, and other relevant specialties with practical industry requirements. The institutions must produce processing technologies suited to available energy, water, and climatic conditions as well as create solutions for environmental management specific to the geographies of their countries.

In the 2018–2022 period, the Nigerian government identified and funded about 12 Nigerian universities for mineral research. The government awarded them 84 million naira (approximately $240,000) in 2018 and 142.6 million naira (approximately $600,000) in 2022, with the determination that their reports will not remain a mere academic exercise but that their value "will begin to impact positively on the sector"[48]. In 2025, 15 universities received 1 billion naira (approximately $620,000) each for research/innovation hubs. However, none of the hubs focused on mineral research. The contributions of the research in these universities to domestic mineral beneficiation remain relatively unknown.

Questions must be raised about the relevance of curricula for the mineral sector in these universities, whatever other factors may be responsible for this pitiable result. For instance, both in the 383-page Benchmark Minimum Academic Standards for Engineering & Technology (BMAS 2014 version) and the 1101-page Core Curriculum and Minimum Academic Standards for Engineering & Technology (CCMAS 2023)[49], "mineral beneficiation" appears only in two peripheral places—not essentialized! In fact, no single course unit in the entire Engineering & Technology field carries that concept in its title. This suggests a woeful neglect of local beneficiation by academia as a strategy for sovereignty and national prosperity in Nigeria.

For Nigeria's academia to help the country to significantly advance along the value chain, from extraction to processing and production, it must give dedicated focus to domestic beneficiation, integrate practical geoscience and mineral processing into university curricula, emphasize field trips, and provide hands-on experience in industry or with advanced equipment. Further, it must run centers of excellence in mining,

[48] 14 Tertiary Institutions Get N142.6m For Mining Research. *Edutorial*. 23.03.2022. https://edutorial.ng/14-tertiary-institutions-get-n142-6m-for-mining-research/ (accessed: 16.01.2026)

[49] These documents, produced by the National Universities Commission, as official curricula for Nigerian Universities.

mineral processing, extractive metallurgy, and subsoil management generally in order to produce job-ready professionals.

In Russia, Empress Catherine II St Petersburg Mining University is the flagship technical university that delivers on these requirements for the country. It has over 250 years' experience in producing competent specialists, including geologists and mining engineers, to drive domestic beneficiation for Russia. The University is already extending this experience to Africa through the Subsoil Africa Consortium of Universities, a special purpose vehicle established in 2023 as part of the Russian-African Partnership for technological sovereignty in the mineral resources sector.

Nigeria now has a new Federal University of Mining and Geoscience that the National Assembly approved in 2024. This University will serve Nigeria well by collaborating with the Mining University in Russia for mutually beneficial cross-fertilization. It would be a fitting partnership for the Subsoil Africa Consortium of Universities to promote.

CONCLUSION

Since the early post-independence period, African states have nominally owned mineral resources within their territories. Actual control and beneficiation have resided with multinational corporations, foreign investors, and other external actors. This pattern has resulted in deeper structural asymmetries in several African countries: the paradox of poverty in the midst of plenty, lack of processing infrastructure, technological dependency, limited domestic capital generation, and a perverse international division of labor that reserves raw material production for the periphery ("Global South") and value-added manufacturing for the metropolis ("Global North").

By establishing domestic beneficiation in policy and practice, African countries can reclaim genuine sovereignty (autonomous control) over their mineral resources, in the context of the emerging concept of "resovereignization" in a multipolar world [Degterev 2024]. They can transition from price-takers in global commodity markets—where raw ore is sold at volatile and low prices—to producers of beneficiated goods, capturing substantially greater value. More profoundly, they can negotiate with transnational corporations and manage their own development and national security paths.

Mineral beneficiation, as presented in this article, is not merely an industrial strategy or a technical question. It is a civilizational or destiny principle. The existing constraints or challenges are real and substantial but not insurmountable. It is left to Nigeria's—nay, Africa's—governments and citizens alike to cultivate the right mindset, the endogenous technological and institutional capacities as well as leverage the resources of the emerging multipolar global system to enable them to reset their development pathways towards genuine sovereignty, sustainable development, and unbreachable national security.

The "Development Criminology" specialism introduced in this article needs to be developed into a full-fledge theoretical framework to better illuminate the intersection

between mineral resources and critical political economy. In particular, further studies of all methodological genres are necessary to determine more robustly the place of domestic mineral beneficiation in unravelling the "paradox of poverty in the midst of plenteous geological endowments" that has bedeviled Nigeria and several other African countries for too long.

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Научная статья

ПЕРЕРАБОТКА ПОЛЕЗНЫХ ИСКОПАЕМЫХ: НА ПУТИ К ПОДЛИННОМУ СУВЕРЕНИТЕТУ, РАЗВИТИЮ И БЕЗОПАСНОСТИ НИГЕРИИ[50]

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Аннотация. Парадокс бедности на фоне изобилия минеральных ресурсов для Нигерии является столь же хрестоматийным, как и в целом для Африканского континента. Это явление не объясняется неким «ресурсным проклятием», концепция которого некогда активно продвигалась в западной литературе об Африке. В данной статье показано, что причина бедности Нигерии заключается главным образом в отсутствии эффективной системы переработки полезных ископаемых внутри страны, что

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ведет к утрате ей экономического, технологического и интеллектуального суверенитета, неудовлетворительному экономическому развитию и незащищенности большей части ее населения. Используя в качестве теоретической базы концепции криминологии развития, одного из подразделов общей криминологии, автор статьи утверждает, что для преодоления этих трудностей Нигерии, стране, исключительно богатой природными ресурсами, следует радикально увеличить масштабы переработки минерального сырья. Крайне важно при этом оздоровить систему политико-экономических отношений в сфере природных ресурсов и вести борьбу с аномальными и криминальными явлениями в этой области. Именно эти явления ведут к провалам избранной политики, дефициту необходимой инфраструктуры, финансовой несостоятельности страны и ее технологической зависимости. Фундаментальное решение заключается в изменении подхода к регулированию недропользования, расширению финансового сотрудничества (как на местном, так и на и общеафриканском уровнях), которое позволило бы компенсировать дефицит источников финансирования, а также в приоритетном развитии внутренней переработки полезных ископаемых в качестве стратегии национальной безопасности. Кроме того, необходимо поощрять представителей научных и академических кругов к разработке инновационных предложений, которые будут направлены на достижение технологической самодостаточности через развитие квалифицированного человеческого капитала. В более широком концептуальном смысле статья демонстрирует, что «переработка полезных ископаемых определяет судьбу» не только Нигерии, но и всей Африки. Она также призывает исследователей к дальнейшей разработке дисциплины «криминология развития» которая может стать полноценной теоретической основой для изучения сложных взаимоотношений между минеральными ресурсами и критической политической экономией. Особое внимание уделяется суверенной переработке полезных ископаемых, которая, по мнению автора, способна в корне изменить сложившуюся ситуацию.

Ключевые слова: Африка, Нигерия, бедность, внутренняя переработка полезных ископаемых, технологии, Россия, суверенитет, развитие, безопасность, консорциум «Недра Африки»

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