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Two Doors into African Minerals: Large-Scale Bureaucracy, Artisanal Corridors, and Illicit Financial Flows.

A comparative governance perspective on Tanzania, Ghana, Mozambique, the Democratic Republic of the Congo, and Zimbabwe.



Abstract

Large-scale mining (LSM) long occupied the centre of Africa's mining bureaucracy: cadastral systems, concession law and fiscal regimes were written around industrial capital. This paper asks whether artisanal and small-scale mining (ASM) now functions as a second door into African resources, and as a conduit for illicit financial flows (IFFs), amid high gold prices and the critical-minerals rush. Using Tanzania as the anchor case and comparing Ghana, Mozambique, the Democratic Republic of the Congo (DRC) and Zimbabwe, it argues that ASM communities are rarely the principals of either the scramble or the illicit flow. The vulnerability sits in a porous governance zone: licences that working miners cannot easily use, local institutions too weak to reconcile production with trade, and midstream chains dominated by pre-financiers, dealers and destination refiners. Gold is the proven IFF corridor (Ummel & Schulz, 2024; UNCTAD, 2020). Critical minerals are the emerging one. Formalisation that is captured converts ASM from a livelihood system into a legal-informal on-ramp.

Keywords: artisanal and small-scale mining; illicit financial flows; critical minerals; Tanzania; Ghana; Mozambique; DRC; Zimbabwe; formalisation
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Introduction

Large-scale Mining (LSM) did not merely operate in Africa. It trained the state. Mining statutes, investment codes and "bankable" licences were designed for firms that could hire counsel and wait. ASM was treated as residual. It was tolerated, periodically raided, rarely designed for (Fritz et al., 2018; Mutagwaba et al., 2018).

That division is no longer stable. Rising mineral prices and the difficulty of rural livelihood alternatives have expanded ASM across the continent (Fritz et al., 2018). Gold markets and energy-transition demand have also made small, fast, cash-based extraction interesting to actors who do not need a twenty-year concession. African policy frameworks now treat "green" or critical minerals as strategic industrial assets (African Union, 2025). The practical question is whether the governance gap around ASM has become an entry point for that rush, and whether illicit financial [out]flows (IFFs) move through that gap as well as through LSM contract opacity and trade misinvoicing.

This perspective paper uses three layers of analysis, policy ambition, regulatory design, and systemic structures, and adds a fourth observation: when those layers do not align, **a second door** opens beside the official concession door.

Framework: two doors, not one villain

A second door exists when four conditions coincide:

1. Prices or strategic demand rise faster than state oversight.
2. Formal ASM instruments exist on paper but are costly, centralised, or easy to warehouse and rent.
3. Local institutions cannot reconcile what left the pit with what entered official buying.
4. Aggregators, dealers, pre-financiers, paper cooperatives, foreign buyers, can move product into formal export or neighbouring-country trade.

Two distinctions follow.

Gold versus critical minerals. Undeclared ASM gold is the best-measured African mineral IFF corridor. Ummel and Schulz (2024) estimate that 321 – 474 tonnes of ASM gold are produced in Africa each year without being declared (about USD 24 – 35 billion at May 2024 prices), and that at least 435 tonnes of gold were smuggled from the continent in 2022, with the United Arab Emirates the principal import hub for undeclared African gold. Critical minerals (cobalt, lithium, graphite, tantalum) show a younger pattern: rushes, export bans, state buying mandates, and leakage through regional ports.

Miner versus conduit. Tanzania's Mining Commission has stated that although smuggled gold is often attributed to unlicensed artisanal miners, licensed miners and dealers are frequently involved because of pre-financing arrangements (as quoted in Pellerin & Ummel, 2025). The IFF node is typically the aggregator and the export route, not the pit.

LSM has not left the IFF story. UNCTAD (2020) estimated extractive-export-related IFFs from Africa at about USD 40 billion in 2015 and identified gold as the largest commodity channel in that estimate. Those trade-gap methods are debated, but the direction of the finding is consistent with later gold-specific reconstructions (Ummel & Schulz, 2024). A serious comparison has to watch both doors.

Tanzania: industrial deposits, leaky first-mile gold

Tanzania's critical-mineral flagships remain industrial: nickel at Kabanga, graphite at Mahenge, rare earths at Ngualla (Lifezone Metals, 2024; Black Rock Mining, 2025; Peak Rare Earths, 2024; Uongozi Institute, 2025). Policy attention follows those projects. ASM is already present in graphite-producing regions and is structurally important in gold (Mutagwaba et al., 2018).

The governance pattern is persistent. Policy language emphasises formalisation and local participation; licensing remains demanding for small operators; district and village authorities often lack technical capacity, geological information and a clear mandate (Mutagwaba et al., 2018). Primary Mining Licences (PMLs) are reserved for Tanzanian citizens and are limited in area, while dealer and broker licences structure the official buying chain. In 2024, 548 dealer licences and 1,290 broker licences were issued (Pellerin & Ummel, 2025).

That architecture can reduce leakage when mineral markets and purchase rules work. It can also be used as a shell. Pellerin and Ummel (2025) report the Mining Commission's own assessment that smuggling continues despite mineral markets and an anti-smuggling task force, and that licensed miners and dealers are frequently implicated through pre-finance. They also report a SWISSAID trade-gap estimate of about 12 tonnes of illicit Tanzanian gold in 2023 vis-à-vis the UAE, with a gross value of about USD 1.29 billion at mid-2025 prices. In October 2024 Tanzania required mineral rights holders and licensed dealers to sell at least 20% of gold to the Bank of Tanzania or designated refineries (Pellerin & Ummel, 2025).

Beneficial-ownership gaps add a second IFF channel that is not unique to ASM. Global Financial Integrity (2025) finds implementation and enforcement weaknesses in beneficial-ownership rules in Tanzania's mining sector more broadly.

For critical minerals, the Tanzanian risk is therefore prospective more than proven: if graphite and other ASM-accessible minerals are forced through an LSM-shaped licence while dealers remain lightly scrutinised, the second door will be built before the rush fully arrives.

Ghana: a structured scheme in a political market

Ghana is the most elaborate formalisation experiment in this set. The Community Mining Scheme (CMS), introduced in 2019, created designated areas and a pathway for small operators. Independent commentary and subsequent official review have pointed to a recurring problem: schemes that were supposed to be community-owned were, in many cases, not known to communities or traditional authorities and resembled unregulated mining in practice (Arthur-Mensah, 2025a; Ablordeppey, 2025).

In March 2025 the government disbanded or suspended CMS operations, revoked or withheld licences, and announced a shift toward community cooperatives; Cabinet later approved the Responsible Cooperative Mining and Skills Development Programme (rCOMSDEP) as the successor framework (Arthur-Mensah, 2025a, 2025b; Ablordeppey, 2025). The reversal is evidence in itself: an ASM instrument that is not insulated from partisan and local elite control becomes a patronage asset, then a scandal, then another reset.

Ghana also shows why pit-level policing fails. Analyses of the gold economy emphasise off-site financiers, buyers, land and licensing gaps, and the interaction of legal and illegal actors in the same trading hubs (Hunter & Ofosu-Peasah, 2025). A scheme can align regulation with ASM operations on paper and still be captured by systemic structures, party competition, chieftaincy, and LSM-ASM land conflict.

Mozambique: bureaucracy without a usable map

Mozambique is closer to Tanzania's regulatory problem. All domestic gold production is artisanal and small-scale, which should make formalisation conceptually simpler. Hilson et al. (2021) found the opposite after three decades of effort: a bureaucratic licensing scheme, overlapping responsibilities inside the mines ministry, and a shortage of information about miners. Formalisation lost momentum even though policy commitment existed.

Later geoscience work made the spatial problem explicit: artisanal gold is often more active outside centrally designated areas than inside them, so miners have little reason to apply for passes where the state has drawn the map (Hilson et al., 2021). Recent government measures, a multisectoral commission on illegal mining and degraded sites, domestic refining ambitions, and preparation for mercury-free formalisation under planetGOLD, repeat a familiar sequence: national coordination first, local geology and district capacity still in question (360 Mozambique, 2026; Club of Mozambique, 2026).

DRC: the state tries to own the ASM door

Cobalt is the critical-mineral version of the argument. ASM has been a material source of global cobalt and a reputational problem for battery supply chains. The state's answer was Entreprise Générale du Cobalt (EGC), created in 2019 as a Gécamines subsidiary with a mandate to purchase, process and export artisanal cobalt (Okun, 2026).

After years of delay linked to scarce designated artisanal sites, EGC began reporting traceable volumes and, in the first half of 2026, ranked among the DRC's larger cobalt-hydroxide exporters, with official data cited by Fastmarkets showing 3,531 tonnes of contained cobalt metal exported in that period (Okun, 2026). Partnerships with industrial concession-holders, including a 2026 memorandum with ERG Africa, are being used to open artisanal zones inside large concessions (Global Mining Review, 2026).

That is an explicit attempt to close the informal door by nationalising the first mile. The limit is structural. EGC still depends on available, serviced ASM zones and on négociants choosing the official channel when the unofficial one pays faster. State monopsony can reduce opacity. It can also concentrate rent if cooperatives, quotas and sites are captured. The DRC case does not prove that ASM is the scramble. It proves that governments now treat ASM cobalt as strategic enough to build a second official door, because the unofficial one was already in use.

Zimbabwe: rush, ban, eviction, leak

Lithium shows how quickly ASM becomes an on-ramp when a mineral is re-priced as critical. In 2022 thousands of artisanal miners entered sites such as Sandawana. The government banned exports of unprocessed lithium in 2022 to force beneficiation and curb smuggling (Statutory Instruments 213 of 2022 and 5 of 2023, discussed in Murisa & Moyo, n.d./secondary reporting; see Mkodzongi, 2024; Chitagu, 2025). Small producers lost price and access; Chinese and other industrial buyers retained processing capacity; ore continued to move toward South Africa and Mozambique, including to buyers shipping through Beira (Chitagu, 2025; Mkodzongi, 2024; Global Witness, n.d.).

Global Witness (n.d.) documented the Sandawana rush, subsequent eviction, and the role of politically connected intermediaries. Al Jazeera reporting recorded artisanal sellers facing collapsed raw-ore prices after the ban while remaining dependent on Chinese buyers who could process locally (Mkodzongi, 2024). Here the second door was closed on the miner and left ajar for the better-connected buyer.



Four conclusions follow.

1. LSM still owns the bureaucratic high ground. Kabanga, Mahenge and Ngualla in Tanzania, industrial lithium in Zimbabwe, and industrial copper-cobalt in the DRC are negotiated in the old building (Uongozi Institute, 2025; Lifezone Metals, 2024). ASM is not replacing LSM. It is flanking it.
2. ASM becomes a scramble entry point when the small-scale instrument is easier to capture than to use. A PML, community concession or cooperative card that a working miner cannot afford, but a financier can warehouse, is not inclusion. It is a tradable permit (Mutagwaba et al., 2018; Pellerin & Ummel, 2025; Arthur-Mensah, 2025a).
3. IFFs in ASM chains are real, especially in gold, but they are midstream and downstream more than they are artisanal (Ummel & Schulz, 2024; Pellerin & Ummel, 2025; UNCTAD, 2020). Enforcement that stops at the pit will look busy and still leak, and
4. Critical minerals inherit gold's governance problem before they inherit gold's measured volumes. Zimbabwe's lithium rush and the DRC's cobalt first-mile politics are the preview (Chitagu, 2025; Okun, 2026). Tanzania's graphite ASM is the warning.

Policy implications

If the diagnosis is a second door, the remedy is not another ban and not another action plan.

- Make the small licence usable by the operator who works the ground, and costly to warehouse (Mutagwaba et al., 2018; Hilson et al., 2021).
- Reconcile first-mile production with official buying. Mineral markets and central-bank or state purchase rules reduce IFFs only if local institutions can see volume (Pellerin & Ummel, 2025).
- Govern aggregators. Beneficial ownership of dealers, lessees, cooperative leaders and offtakers matters more than counting shovels (Global Financial Integrity, 2025).
- Do not use export bans as a substitute for an ASM pathway. Zimbabwe shows a ban can evict small producers and professionalise the leak (Chitagu, 2025; Mkodzongi, 2024).
- Keep both doors in view. Closing ASM informality while leaving LSM ownership opacity untouched is selective visibility (UNCTAD, 2020; Global Financial Integrity, 2025).

Conclusion

The bureaucratic centre of African mining was built for large-scale capital. That has not changed. What has changed is that ASM is no longer only the margin of that system. In gold it is already a major production and IFF corridor (Ummel & Schulz, 2024). In critical minerals it is becoming a rush mechanism, sometimes incorporated by the state, as with EGC, sometimes used and then cleared away, as with Zimbabwean lithium.

ASM is not, by itself, the new scramble for African resources. Unaligned policy, unusable regulation and weak systemic structures make ASM available to the scramble. The miner is the entry point only in the sense that the corridor begins at the pit. The beneficiaries are those who can finance, licence-rent, aggregate and land the mineral in a jurisdiction that asks fewer questions.

For Tanzania the test is practical. If graphite and other ASM-accessible critical minerals are forced through an LSM-shaped licence, while dealers and beneficial owners remain lightly watched, the second door will open on schedule. If formalisation is built for the operator, the local institution and the first buyer, ASM can remain a livelihood system instead of becoming the quiet on-ramp of the next extractive cycle.

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