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The Emerging Artisanal and Large-Scale Mining Interface in Africa's Green Minerals Sector

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1. Introduction and Context

Western governments are under enormous pressure to identify, and source sustainably, fresh supplies of what are considered or termed as critical minerals in their jurisdictions. Each covets specific raw materials to manufacture the low-carbon technology required to assist with meeting ambitious targets linked to the green energy transition, as set out by the Paris Agreement.[1] This nomenclature is aligned with the green energy transition, and is partly the baseline used for green minerals by the African Union and its African Minerals Development Centre (AMDC). The quantity of green minerals required to achieve these goals, however, is enormous. Data shared by the World Bank offers a glimpse of the challenge that lies ahead for Western governments: how 3,000 solar panels are needed to generate 1 megawatt (MW) of capacity of solar PV, meaning that a 200 MW solar project could be a big as 550 American football fields; under a 2-degree scenario, production of graphite, lithium, and cobalt needs to increase more than 450 percent by 2050—from 2018 levels—to meet demand for energy storage technologies; and enormous increases in the production of base metals must take place, for example, aluminium and copper, to at least 103 million tons and 29 million tons, respectively, by 2050.[2] To bring this production to fruition, an estimated US$1.2 trillion will be needed across transition metals supply.[3]

The added challenge for Western governments is the need to navigate China, which has long had a dominating presence in the midstream and downstream of most of the world's critical minerals supply chains, including control of 40 percent of copper, 59 percent of lithium and 73 percent of cobalt (supply).[4] Its current position of influence is the result of a series of shrewd moves made over the past four decades. These include Beijing establishing the state-owned China Mineral Resources Group to centralize iron ore purchasing and oversee the development of foreign mines; Chinese firms investing billions of dollars in Indonesian nickel, exports of which were banned in 2020; and how, in the 1980s, domestic firms, with the backing of the government, gained control of upstream supplies of rare earths.[5]

The scramble for critical minerals has coalesced heavily around commodities needed to manufacture the lithium batteries that power electric vehicles, that feature in personal electronics, and are used to produce solar panels and wind turbines; these 'battery minerals' (cobalt, lithium and graphite) are heavily coveted by Western governments.[6] New battery chemistries, specifically, complex cocktails of graphite, lithium and cobalt, have made new applications possible,[7] fuelling the growth of a dynamic and expansive electro-mobility market comprising supply chains that span multiple countries.[8] The respective roles played by these three 'battery minerals' are as follows: for cobalt,

[1] The goal of the Paris Agreement, 2015, is to limit the rise of the global average temperature to well below 2 °C above pre-industrial levels, as well as to limit the temperature increase to 1.5 °C above pre-industrial levels. See United Nations Framework on Climate Change (UNFCCC). 2015. Adoption of the Paris Agreement. Conference of the Parties, Twenty-Fifth Session, 30 November - 11 December 2015, Paris.
[2] Hund, K., La Porta, D., Febregas, T.P., Laing, T., Drexhage, J. 2020. Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition. The World Bank, Washington DC.
[3] "The role of African mining in the energy transition", www.woodmac.com/news/opinion/africa-mining-energy-transition/ (Accessed 3 March 2023).
[4] Castillo, R., Purdy, C. 2022. China's Role in Supplying Critical Minerals for the Global Energy Transition: What Could the Future Hold? Brookings Institute, Washington DC.
[5] S&P Global. 2023. China's global reach grows behind critical minerals. S&P Global, New York.
[6] Deberdt, R., Le Billon, P. 2021. Conflict minerals and battery materials supply chains: A mapping review of responsible sourcing initiatives. The Extractive Industries and Society 8(4), Art. 100935.
[7] European Commission 2018. Report on Critical Raw Materials and the Circular Economy. Report on Critical Raw Materials and the Circular Economy. European Commission, Brussels.
[8] Heredia, F., Martinez, A.L., Urtubey, V.S. 2020. The importance of lithium for achieving a low-carbon future: overview of the lithium extraction in the 'Lithium Triangle'. Journal of Energy & Natural Resources Law 38(3): 213-236.

the negative anode material; lithium, the material that contributes to the battery's low weight and high reactivity; and graphite, providing thermal stability and energy density thereby preventing overheating (of the battery).[9] Africa is already an important source of these minerals, and is expected to play an even bigger role moving forward. It accounts for 15 percent of global production of graphite, led by Mozambique and Madagascar; close to three-quarters of the world's cobalt; and is expected to supply at least 10 percent of lithium by 2027.[10]

Intensified exploration for 'battery minerals' has impacted demand for other minerals used to manufacture green energy technologies, many of which are now consequently identified as 'critical'. The continued expansion of countries' critical minerals lists are a testament to the fluidity of criticality. In this particular context, it should be treated as 'a dynamic concept, as market fundamentals change over time', conditioned by a range of factors, including 'Structural change, shifting political risks, new technologies, changes in recycling behavior, the discovery of new substitutes, demand growth, [and] environmental policies'.[11] Simply put, minerals are labelled 'critical' by governments when 'they are of high economic importance but are scarce and therefore subject to high import dependency',[12] specifically, if 'it serves an essential function in the manufacture of a product, the absence of which would cause significant economic or social consequence, and if its supply chain is vulnerable to disruption'.[13] Examples of minerals now found on major critical minerals lists across the globe[14] include copper, which is used in the manufacture of wind turbines, relied upon for its electrical conductivity and, together with gold and silver, comprises more than 50 percent of the value of a computer; tin, relied upon to improve corrosion resistance, taking the form of a thin film that conducts electricity used in touch screens and for use in electronics; silicon, used as a semiconductor and in glassmaking; platinum, utilized in the production of hard disks and ceramic capacitators; and rare earth minerals, which feature in a range of renewable energy technologies and, due to their luminescent properties, are found in fluorescent lighting and LCD screens. Africa has been identified as a strategic destination for supplies of these, and other, *supplementary* (i.e., non-battery) critical minerals as well (Table 1).

With Western countries' critical minerals lists continually expanding, an interface between artisanal groups and multinational mining companies at points of production seems almost unavoidable. This is already playing out on multiple fronts in Africa, most visibly with the 3Ts (tin, tungsten and tantalum) but also increasingly with other minerals such as cobalt and lithium. It is no secret that the governments of Western countries have struggled to engage with ASM, particularly in Africa, where most of the sector's activities proliferate in the informal economy. They have passed a series of laws and endorsed a collection of codes, frameworks and policies to guide firms on how to source minerals responsibly from the region and other areas of the developing world. Western governments have taken this particular approach because they believe it provides a blueprint for responsible mineral sourcing. At the same time, however, the rules, stipulations and regulations imposed have had catastrophic impacts on the region's ASM community, confining the sector's operators and groups, as well as their dependents, to the informal economy. Until now, Western governments, in collaboration with local policymakers, have been able to maintain the *status quo*. With their sights set on derisking, they have skilfully pressured companies into sourcing (with considerable success) from the large-scale mining companies operating in Africa and to avoid their artisanal counterparts completely; this makes for far easier tracking and tracing of commodities. But this has pushed the region's ASM groups that are extracting critical minerals deposits to the

[9] Scott, S., Ireland, R. 2020. Lithium-Ion Battery Materials for Electric Vehicles and their Global Value Chains. Office of Industries Working Paper ID-068, U.S. International Trade Commission, Washington, DC.; Tsuji, K., 2022. Global Value Chains: Graphite in Lithium-ion Batteries for Electric Vehicles. Office of Industries Working Paper DID-090, US International Trade Commission, Washington DC.

[10] 'Spotlight on growing African lithium supply', www.spglobal.com/commodityinsights/en/market-insights/latest-news/metals/100523-interactive-feature-spotlight-on-african-lithium-supply-prices-outlook#:~:text=S%26P%20Global%20Market%20Intelligence%20expected,12%25%20of%20global%20supply). (Accessed 3 March 2024).

[11] Coulomb, R., Dietz, S., Godunova, M., Nielsen, T.B. 2015. Critical minerals today and in 2030: an analysis of OECD countries. ESRC Centre for Climate Change Economics and Policy, London School of Economics and Political Science, London, p. 10.

[12] Hendriwardani, M., Ramdoo, I. 2016. Critical Minerals: A Primer. Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, International Institute for Sustainable Development, Ottawa, p. 2.

[13] Subcommittee on Critical and Strategic Mineral Supply Chains of the Committee on Environment, Natural Resources, and Sustainability. 2016. Assessment of Critical Minerals: Screening Methodology and Initial Application. Executive Office of the President, National Science and Technology Council, Washington DC, p. 4.

[14] Notably, The Critical Minerals Strategy, 2023 – 2030 implement in Australia; The Canadian Critical Minerals Strategy; the European Union's Critical Raw Materials Act; The UK's Critical Minerals Strategy; and The US Department of Energy's Critical Mineral and Material Strategy.

margins. This report explores how policies and laws implemented in Western countries to reshape sourcing strategies for critical minerals have created a potentially-explosive interface between artisanal and large-scale miners in Africa. It reflects on the likely fallout from this approach amid an intensified scramble for critical minerals in the region.

Table 1: Key *supplementary* critical minerals found in Africa[15]

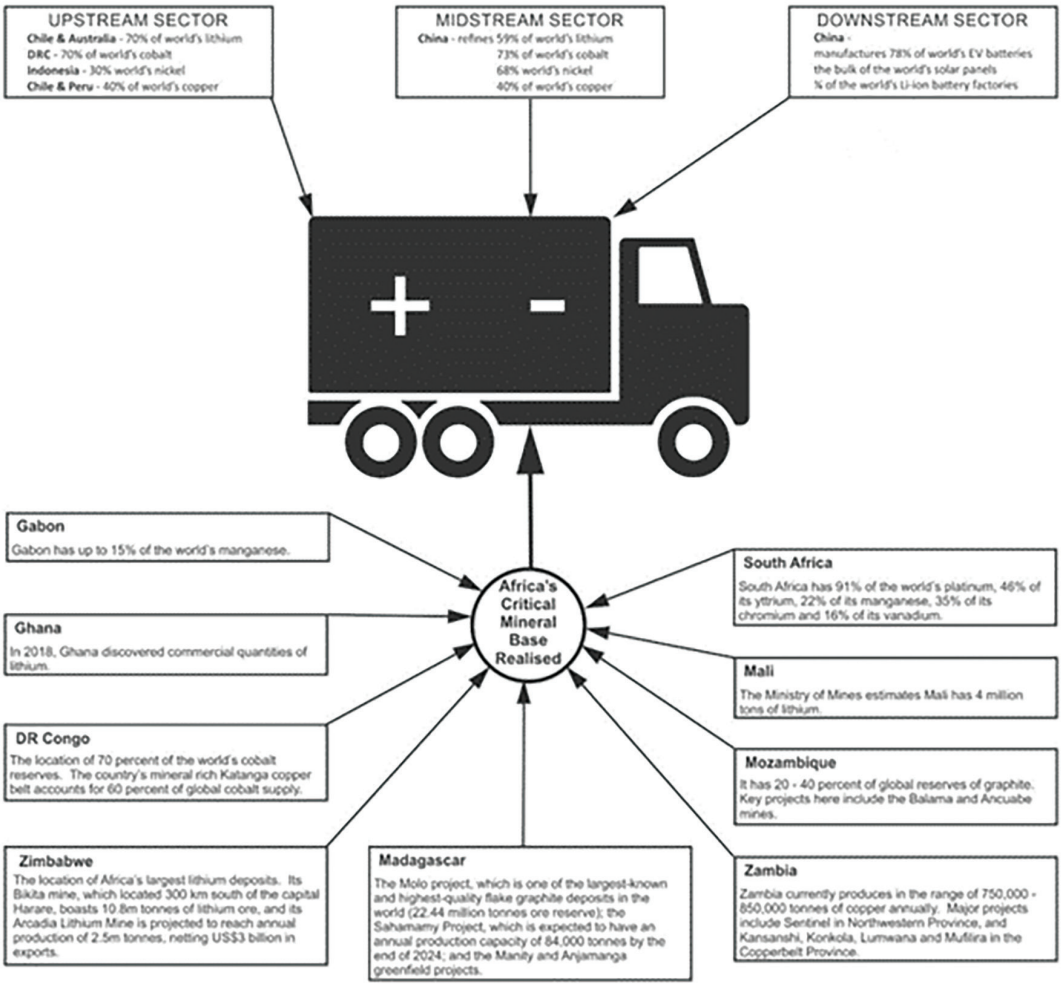
Critical Mineral	Location (s)	Description	Key Facts
Copper	Zambia, DR Congo	Used in wiring as well as features in the components of electrical equipment.	Africa has 10 percent of global copper reserves.
Bauxite	Guinea, Ghana, Sierra Leone	The aluminium extracted is used to produce foil, cans and utensils.	Africa has over 30 percent of global reserves of bauxite.
Rare earths	Malawi, Zimbabwe, South Africa, DR Congo	Used in green technologies (wind turbines, solar panels and electric cars); they feature in magnets, sensors and lasers.	Africa has an estimated 15 percent of reserves of rare earths.
Chromite	Zimbabwe, South Africa	Stainless steel, pigments, and refractory materials.	Africa has 95 percent of the world's reserves.
Manganese	South Africa	Used to produce steel, batteries and fertilizers.	Africa has 30 percent of the world's manganese reserves.
Platinum	South Africa, Zimbabwe	Used as catalysts in fuel cells.	South Africa has close to 75 percent of global production of platinum.

[15] Data extracted from "The Inflation Reduction Act Is the Start of Reclaiming Critical Mineral Chains", https://foreignpolicy.com/2022/09/16/inflation-reduction-act-critical-mineral-chains-congress-biden/ (Accessed 4 March 2023); "Mission critical: How Africa can profit from its mineral boom", https://african.business/2023/01/resources/mission-critical-how-africa-can-profit-from-its-mineral-boom/ (Accessed 15 February 2023).

2. Marginalizing artisanal and small-scale mining (ASM)

Western countries' perpetually-expanding critical minerals lists have put the spotlight on ASM in Africa (see Figure 1 for a graphical overview of the current state of the region's critical minerals sector). Despite having long extracted a range of ores that contain what now fall on to one or more of these lists, ASM operators in Africa now find themselves having to comply with stringent operating standards enshrined in a series of laws, codes and frameworks designed specifically to facilitate more responsible mineral sourcing. Most ASM groups have, unsurprisingly, been *excluded* from these schemes which, in the spirit of derisking, are designed to engage multinationals and in some cases, reposition them altogether, to 'supply' minerals. Before studying more closely the rapidly-emerging interface between artisanal and large-scale mine operators in sections of the region where reserves of critical minerals occur, it is instructive to examine policy treatment of the former. A greater appreciation of the context in which ASM parties engaged in the extraction of critical minerals in Africa now operate is imperative.

Figure 1: Potential contributors to a critical minerals sector in Africa[16]



16 'Platinum production in South Africa and major projects', www.mining-technology.com/data-insights/platinum-in-south-africa/ (Accessed 3 March 2024); Zainudeen, N.M., Mohammed, L., Nyamful, A., Adotey, D., Osae, S.K. 2023. A comparative review of the mineralogical and chemical composition of African major bauxite deposits. Heliyon 9(8), Art. e19070; African Ministerial Conference on the Environment. 2023. Environmental aspects of critical minerals in Africa in the clean energy transition. Expert group meeting, African Ministerial Conference on the Environment, African Union, 14 - 16 2023, Addis Ababa.

17 Organization for Economic Cooperation and Development (OECD). 2016. OECD Due Diligence Guidance for Responsible supply Chains of Minerals from Conflict-Affected and High-Risk Areas. Organization for Economic Development and Cooperation (OECD), Third Edition, Paris. The bedrock for the OECD Due Diligence Guidance was laid at the International Conference on the Great Lakes Region (ICGLR) 11 member states in Lusaka, 15 December 2010.

18 They are as follows: 1) Establish strong company management systems; 2) Identify and assess risk in the supply chain; 3) Design and implement a strategy to respond to identified risks; 4) Carry out independent third-party audit of supply chain due diligence at identified points in the supply chain; and 5) Report on supply chain due diligence.

19 Dodd-Frank Wall Street Reform and Consumer Protection Act (Public Law 111-203), 21 July 2010.

20 'Responsible Sourcing', www.lbma.org.uk/responsible-sourcing (Accessed 4 April 2024).

A necessary starting point for such a critique is the OECD *Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*, which was unveiled by the OECD in May 2011.[17] It pressures companies sourcing minerals to follow a five-step Due Diligence Guidance framework,[18] which its architects maintain provides a blueprint for ensuring responsible sourcing from high-risk or conflict-affected areas. The OECD *Due Diligence Guidance* took effect nearly a year after the US Government passed the *Dodd-Frank Wall Street Reform and Consumer Protection Act*, which requires details of the origins of minerals sourced from DR Congo that are 'necessary to the functionality or production of their products to be shared and to be certified as 'conflict-free'.[19] Both, however, have had catastrophic impacts on the ASM sector in Africa, *disempowering* most operators and groups.

The architects of the OECD *Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* insist that 'Observance of this [*Due Diligence*] Guidance is voluntary and not legally enforceable' but the way in which it has been embraced by Western governments and meticulously followed by companies suggests otherwise. Countless frameworks, codes and guidelines have since been launched, from the London Bullion Marketing Association's Responsible Sourcing Program,[20] through Fairtrade and Fairmined Gold,[21] to the Responsible Minerals Initiative, the design of each of which was informed or inspired by the *Guidance*. It seems inexplicable that a document developed purposely to provide guidance on responsible sourcing in a *specific* area of the world (i.e., the Great Lakes Region of Africa)[23] now underpins *all* schemes developed to facilitate transparent and traceable sourcing of minerals, conflict-affected area or otherwise. In short, whilst observance of the guidance may indeed be voluntary, its near-universal embracement in policymaking, industry and donor circles has meant that it should, in effect, be viewed as *de facto law*. The challenge for ASM groups, however, is that the standards and guidelines enshrined within the OECD *Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* are near-impossible for most to meet.

Section 1502 of the Dodd-Frank Act requires companies that file reports to the US Securities and Exchange Commission (SEC) and use conflict minerals (tin, tantalum, tungsten and gold) – limited to DR Congo and neighbouring countries – to carry out due diligence and outline the steps they have taken to avoid purchases of (mineral) commodities to finance armed groups. These rules were extended to ASM and to assist with compliance, in 2011, the International Conference on the Great Lakes Region (ICGLR) adopted a conflict-free certification framework for the sector which initially was financed and supported by the German Institute for Geosciences and Natural Resources (BGR).[24] Today, the most popular certification scheme for ASM in the Great Lakes Region is the iTSCi Program for Responsible Tin Sourcing, administered by the International Tin Association. The reference point for iTSCi is the *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* but is also set up to facilitate compliance as well as local laws regulation in the United States, despite being launched a full year prior to the enactment of the *Dodd-Frank Act*.[25]

The impact of the *Dodd-Frank Act* on DR Congo's ASM groups has been nothing short of catastrophic. Section 1502 provided then-President Joseph Kabila justification for issuing a six-month ban on all artisanal mining activity in DR Congo, from September 2010 to March 2011. The estimated 1-2 million people engaged in ASM in DR Congo simply had nowhere to go: with few income-earning alternatives apart from

[21] 'Gold and precious minerals', 'Gold and precious metals', www.fairtrade.net/product/gold; 'Fairmined', https://fairmined.org (Accessed 4 April 2024).

[23] This is stated explicitly in the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. It reports that 'The Guidance was developed through a multi-stakeholder process with in-depth engagement from OECD and eleven countries of the International Conference on the Great Lakes Region (Angola, Burundi, Central African Republic, Republic of Congo, Democratic Republic of Congo, Kenya, Rwanda, Sudan, Tanzania, Uganda and Zambia), industry, civil society, as well as the United Nations Group of Experts on the DRC' (OECD, 2016, p. 3).

[24] Chang, S., Christensen, H.R. 2023. Nothing Gold Can Stay: Artisanal Mine Certifications and Conflict Dynamics in the Congo. Working Paper No 2024-144, Becker Friedman Institute, Chicago.

[25] 'Providing Support for Due Diligence to Enable Responsible Trade', www.itsci.org/about-its-ci/ (Accessed 4 April 2024).

[26] De Koning, R. 2011. Conflict Minerals in the Democratic Republic of the Congo: Aligning Trade and Security Interventions. SIPRI Policy Paper 27, Stockholm International Peace Institute, Solna; Seay, L. E. 2012. What's Wrong with Dodd-Frank 1502? Conflict Minerals, Civilian Livelihoods, and the Unintended Consequences of Western Advocacy. Worling Paper 284, Center for Global Development, Washington DC.

(generally low-paid) agriculture or joining a militia, most operators, along with the estimated 5-12 million other people dependent on their work, suffered mightily from the ban, unable to purchase food, pay school fees for their children or cover payments for healthcare.[26] Even legislators in the United States eventually admitted as much, a message that was communicated explicitly at the *Hearing Before the Subcommittee on Monetary Policy and Trade of the Committee on Financial Services US House of Representatives (One Hundredth Thirteenth Congress First Session)*, 21 May 2013. The Chairperson of the Committee opened the meeting, 'The Unintended Consequences of Dodd-Frank's Conflict Minerals Provision', by drawing attention to how artisanal miners' lives had been impacted by the legislation:

> As much as 17 percent of Congolese rely on the mineral trade, with a majority of the revenues accruing to artisanal miners unaffiliated with the conflict. Many of these people have seen their livelihoods eliminated as the market for legitimately mined minerals has evaporated. The consequences have been so impactful that the Congolese now refer to Section 1502 as "Loi Obama" or "Obama's law."

The reference made to 'so impactful', however, extended well beyond the six-month ban. Its lifting did little to alleviate hardship among ASM groups because by this time, there was, in effect, a boycott on all Congolese tin (cassiterite), tungsten and tantalum. This arose over concerns about the Congolese state's rather pedestrian responses to fulfilling its requirements under Section 1502 by the April 2011 deadline. Under pressure from the Electronics Industry Citizenship Coalition (now the Responsible Business Alliance), the Malaysia Smelting Corporation (MSC), which hitherto had purchased 80 percent of Eastern Congolese tin, reduced its imports of minerals from the country considerably; this crippled local sellers (and artisanal miners).[27]

Within Africa's rapidly-emerging green minerals space, increasingly, this is the context – *i.e.* rural poverty and destitute – in which artisanal mining groups find themselves coming into contact with large-scale companies. As part of ongoing efforts to de-risk production, Western governments seem keen to reconfigure sourcing strategies for critical minerals, wherever possible, with the goal of repositioning large-scale mining companies to be the main 'supplier' of critical minerals in the region. Whilst such an approach facilitates easier tracking and monitoring of minerals, it entails pushing companies into an oversight role, in which they are tasked with tracking and buying ore gathered by ASM groups, or in the most extreme of cases, replacing these (ASM) operators altogether. Although the circumstances behind the move were very different, the abovementioned DR Congo case set a precedent for Western governments and industry bodies to key in on large-scale mining companies becoming a focal point of critical minerals supply in Africa. In the DR Congo case, some experts believed at the time that the Congolese government used *Dodd-Frank* and the conflict minerals narrative more broadly to justify the ban and to push 'industrial mining companies to relocate artisanal miners and take control over their concessions'.[28] It could be argued that, for host governments, this approach is the most convenient because it speaks to the most popular mining-led development strategy pursued in Africa to date: export-led large-scale mineral extraction sustained by a well-financed exploration facility. At the same time, however, doing so would mean endorsing a culture of rent-seeking around permit fees, royalties and taxes linked to large-scale mining and mineral exploration activities that has galvanized in a number of countries in Africa, and ignoring how simultaneously, policy and regulation marginalize artisanal and small-scale groups.[29]

[27] Seay, 2012.

[28] Stoop, N., Verpoorten, M., van der Windt, P. 2018. More legislation, more violence? The impact of Dodd-Frank in the DRC. PLOS One 13(8), Art. e0201783, p. 3. See also Geenen, S. 2012. A dangerous bet: The challenges of formalizing artisanal mining in the Democratic Republic of Congo. Resources Policy 37(3): 322-330.

[29] Hilson, G., Hilson, A., Maconachie, R. 2018. Opportunity or necessity? Conceptualizing entrepreneurship at African small-scale mines. Technological Forecasting and Social Change 131: 286-302.

Proponents of the *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* may not state, explicitly, that they wish to exclude ASM altogether but they continue to subscribe to guidelines that are clearly incapable of engaging, let alone empowering, the sector's operators and groups. Early on, it was evident that exclusion was going to be a recurring theme with iTSCi and other (mineral) traceability schemes launched in Eastern DR Congo in line with the requirements of the *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* and/or the *Dodd-Frank Act.* By 2015, some five years after their initial launching, only 9 percent of 3T and gold mines in Eastern DR Congo, and only 4 percent of sites in South Kivu, had been incorporated into a certification scheme.[30] The situation has not gotten much better: in 2021, ITSCI only covered 2,523 mines *in Central Africa.*[31]

The *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* certainly recognizes ASM but uses several choice words and phrases[32] when describing the sector's activities. At a time when every move companies make when sourcing minerals is scrutinized, these descriptions are unlikely to encourage parties to actively seek out ASM groups in Africa for potential partnerships. Neither is the document's rather cavalier use of the word 'legitimate' likely to inspire: for companies needing clear instruction, it casts doubt over whether partnering with ASM parties is advisable altogether. The *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* acknowledges, on the one hand, that 'The legitimacy of artisanal and small-scale mining is a difficult concept to define' and therefore declares that in the context of the Guidance, 'legitimate refers, among others, to artisanal and small-scale mining that is consistent with applicable laws', rightly recognizing that 'in most cases, artisanal and small-scale miners have very limited or no capacity, technical ability or sufficient financial resources to do so [i.e., formalize]'.[33] But at the same time, it offers companies little guidance on how to engage with ASM, noting that 'When the applicable legal framework is not enforced, or in the absence of such a framework, the assessment of the legitimacy of artisanal and small-scale mining will take into account the good faith efforts of artisanal and small-scale miners and enterprises to operate within the applicable legal framework (where it exists) as well as their engagement in opportunities for formalisation as they become available'.[34] The designs of each of the schemes and frameworks that have since surfaced to guide responsible sourcing of critical minerals are also heavily informed by the *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* (Table 2). Each focuses on a specific mineral or collection of commodities but is, in essence, an extension or repackaging of the Guidance, and therefore do little to clarify the meaning of 'legitimate' in the context of ASM.

[30] Diemel, J.A., Hilhorst, D.J.M. 2019. Unintended consequences or ambivalent policy objectives? Conflict minerals and mining reform in the Democratic Republic of Congo. Development Policy Review 37(4): 453-469.
[31] iTSCi. 2021. The iTSCi Programme: 2021 Annual Report. International Tin Association, St Albans.
[32] Examples include 'while sourcing from areas of artisanal and small-scale mining ("ASM"), support the formalisation of security arrangements between ASM communities, local government, and public or private security forces, in cooperation with civil society and international organisations, as appropriate, to ensure that all payments are freely made and proportionate to the service provided, clarify rules of engagement consistent with the Voluntary Principles on Security and Human Rights, the UN Code of Conduct for Law Enforcement Officials and the UN Basic Principles on the Use of Force and Firearms by Law Enforcement Officials' (p. 25); 'informal working groups or communities are not expected to carry out due diligence as recommended in this Guidance, but they are encouraged to remain involved in due diligence efforts of their customers and formalise so they can carry out due diligence in the future' (p. 64); and 'The Guidance in particular recognises that due diligence regarding artisanal and small-scale gold mining in conflict-affected and high-risk areas presents challenges' (OECD, 2016, p. 64).
[33] OECD, 2016, p. 69.
[34] OECD, 2016, p. 69.

Table 2: Selected traceability schemes implemented for critical minerals, informed by the *OECD Due Diligence Guidance*[35]

Name of Scheme/ Policy	Critical Mineral(s)	Organization/Implementing Body	Description/Reference to the *OECD Due Diligence Guidance*
iTSCi Program	Tin	Tantalum-Niobium International Study Center and the International Tin Association (formerly ITRI)	'Our activities are based around inclusivity and encouraging progressive improvement in the supply chain. The Programme aims to aid compliance with the US Dodd Frank Law, section 1502 on conflict minerals, in relation to the Rules published by the SEC but is not in itself a certification system'.
Tin Code	Tin	International Tin Association	'Its development was guided by expectations set by the OECD Due Diligence Guidance for Responsible Business Conduct, the International Labour

35 'The ITSCI Programme', www.tanb.org/view/itsci#:~:text=and%20the%20International%20Tin%20Association,Diligence%20Guidelines%20and%20UN%20recommendations; 'Tin Code', https://tincode.org/standard/; Responsible Business Alliance. 2018. Tin and Tantalum Standard. Responsible Business Alliance, Alexandria; Aluminium Stewardship Initiative. 2023. ASI Performance Standard Version 3.1. Aluminium Stewardship Initiative, Melbourne; The Copper Mark. 2022. Joint Due Diligence Standard for Copper, Lead, Molybdenum, Nickel and Zinc. The Copper Mark, New York.

			Organisation, UN Sustainable Development Goals, OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas and 3T Supplement and Voluntary Principles on Security and Human Rights'.
LME Policy on Responsible Sourcing of LME-Listed Brands	All	London Metal Exchange (LME)	'From the relevant date as specified by this Policy, in order to qualify as an LME-listed Brand, a Brand must either be sourcing 100% Secondary Materials or be compliant with the OECD Guidance'.
ASI Performance Standard	Aluminium	Aluminium Stewardship Initiative	'...the Entity shall exercise risk-based Due Diligence over its Aluminium supply chain in accordance with the OECD Due Diligence Guidance of Minerals from Conflict-Affected and High-Risk Areas (OECD Guidance) ...'

Due Diligence Standard for Copper, Lead, Molybdenum, Nickel and Zinc (the Standard)	Copper, lead, molybdenum, nickel and zinc	The Copper Mark, the International Lead Association (ILA), the International Molybdenum Association (IMOA), the Nickel Institute (NI), the International Zinc Association (IZA) and the Responsible Minerals Initiative (RMI)	'The Standard was developed to...Enable the implementation of the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD Guidance) for producers and/or traders of copper, lead, molybdenum, nickel and zinc... The Standard was developed to: 1. Enable the implementation of the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD Guidance) for producers and/or traders of copper, lead, molybdenum, nickel and zinc'.

In short, the *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* leaves engagement with ASM to the discretion of the executives of the multinationals, and owners of mineral smelters and refiners suppliers, whose every move is being monitored by the NGO community and general public. With so little guidance on how to source responsibly from ASM, therefore, it is likely far too risky for Western companies to actively identify and partner with operators in Africa for the purpose of forming a closed pipeline to secure supplies of critical minerals. It is an area of the world (i.e. Africa) where images depicting ASM's impacts – a child navigating a site, a defaced landscape or a large group of people working alongside a river – routinely attracts harsh criticism. At the same time, what continues to be dismissed is how policy and legislative frameworks that require payment of costly licensing fees, individuals to navigate bureaucracies to lodge applications for their permits, and which prioritize the demarcation of lands to multinational companies for mineral extraction and exploration, is fuelling the sector's informality in all corners of the region. The unmonitored and unregulated operators found here are generally the source of the problems mentioned above (i.e. environmental degradation, safety concerns and poor working conditions) that attract so much criticism from observers. Whilst the Guidance encourages 'supporting host countries governments' efforts for the progressive professionalization and formalisation of the artisanal sector, through the establishment of cooperatives, associations or other membership structures',[36] it is unclear why companies would even take such a risk, as it could also lead them to being branded (unfairly) as perpetrators of illegal activities.

[36] OECD, 2016, p. 27.

Ironically, moving forward, companies sourcing critical minerals from Africa are destined to target locations previously worked by ASM groups. As the next section of this brief explains, policymakers in Africa are creating an interface between artisanal and large-scale operators engaged in the extraction of critical minerals by ringfencing territories hitherto worked by the former for the latter. Whilst this could yield more effective monitoring and regulation in the eyes of Western governments, and may speak more clearly the *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* and the demands of the traceability schemes it has spawned, tensions between artisanal and large-scale operators targeting critical minerals in Africa are bound to intensify.

3. The Emerging Artisanal-Large-Scale Mining Interface in Africa: The Case of Green (Critical) Minerals

In certain sections of Africa, redirecting supply chains for critical minerals from artisanal groups to companies for the purposes of making tracing and tracking of extracted commodities easier promises to create friction between these parties. Assuming, of course, that Western countries are able to wrestle control of sizable segments of the region's critical minerals economy, it would mean ushering a blueprint of sourcing which is inevitably going to push companies into certain spaces long occupied by ASM operators. It would also mean adopting a strategy that is markedly different, and undoubtedly less appealing, to what Chinese buyers have in place in the likes of DR Congo, Rwanda, Zimbabwe and Burundi: namely, purchasing commodities such as cobalt, lithium and the 3Ts directly from ASM groups, without the aid of guidelines akin to the *OECD Due Diligence Guidance.* Should *OECD Due Diligence Guidance*-inspired sourcing schemes and standards have traction, there would, as indicated, be a push for large-scale mining companies to infiltrate certain spaces of the critical minerals sector that artisanal operators have occupied *hitherto*. There are, of course, destinations in the region producing critical minerals where, because of the nature of geological formations and the type of extraction techniques required, there is minimal risk of overlap with ASM: the bauxite found in Guinea, manganese in Gabon, uranium in Namibia, zinc in Eritrea, and graphite in Mozambique and Madagascar.[37] The same cannot be said, however, for a mineral such as tin, 97 percent of the global supply of which originates from developing economies, 40 percent of it from ASM operations.[38] Nor would it be straightforward to further reorient production of cobalt, 70 percent of which is mined in DR Congo, 10-20 percent by hundreds of thousands of artisanal miners.[39] Small-scale operators also account for a sizable proportion of global production of other critical minerals, key examples being tantalum (26 percent) and tungsten (6 percent).

The interface between artisanal and large-scale operators that is galvanizing on the critical minerals front in Africa differs markedly from the developments witnessed in its gold-rich terrain in recent decades. In the case of the latter, research has shown it is largely an access issue: that the alluvial and shallow hardrock deposits that ASM operators covet have been included as part of concessions awarded to companies. The former, however, would entail companies being *intentionally* introduced to supply chains which ASM have long controlled. As will be explained in this section of the brief, focusing on the cases of lithium and cobalt, this has the makings of an interface in which relations between the parties potentially become combustible.

[37] Chandler, B. 2022. Africa's critical minerals: Africa at the heart of a low-carbon future. Mo Ibrahim Foundation, London.

[39] 'Tin Market', https://tincorp.com/tin-market/ (Accessed 4 April 2024).

[38] Gulley, A.L. 2022. One hundred years of cobalt production in the Democratic Republic of the Congo. Resources Policy 79, Art. 103007.

3.1 Case Study 1: Locating Lithium

In Africa, on the back of pipeline projects in the likes of Zimbabwe, Mali and Ghana, lithium production is expected to increase 24-fold by 2027, to 270,000 mt (of lithium carbonate), or account for 12 percent of global supply.[40] The region's lithium is concentrated in pegmatites and may also contain important sources of other valuable metals such as tantalum, caesium and tin. They are coarse-grained igneous intrusions that form tabular bodies of rock which typically occur in stacks or swarms; a single deposit may contain several pegmatite bodies.[41] Conventional mining methods are used to extract pegmatites: they are first identified through exploration work, and then heavy machinery is used to remove soil and to pinpoint lithium-rich deposits within the hard rock.

Ghana's lithium was put on the map by Australian-incorporated and London-listed Atlantic Lithium, which controls the Ewoyaa Lithium Project, the country's first lithium mine. All eyes in Ghana are on the lithium deal the government brokered with Atlantic, which many claim will not deliver enough benefits to the country. Contentious points include the project benefitting from subsidized electricity, it rumoured to having received a 10-year tax holiday, and the government allegedly having a diluted 13 percent stake in the local Ewoyaa leaseholding company. The country's Green Minerals Policy (which was allegedly implemented in June 2023) has yet to be published; critics believe this to be intentional on account of the government not wishing to exposing itself to scrutiny.[42]

The commotion caused by the government's secrecy around its Green Minerals Policy and the terms of the 15-year lease it brokered with Atlantic Lithium, however, has overshadowed an emerging development: small-scale operators working within the lithium-rich Saltpond Enclave. Here, several individuals have secured small-scale mining leases to mine feldspar but are now interested in extracting more lucrative lithium. As is the case in many areas of Africa, the lithium found in pegmatites in Ghana appeal to artisanal and small-scale operators because they can be worked in a conventional manner, no different to the other minerals they have long targeted, such as gold, diamonds and coloured gemstones. They are typically well-defined and can be targeted with precision, and are appealing because they net considerable returns financially. In Africa, the extraction of lithium on an artisanal and small scale is a relatively recent phenomenon, and yet to be widely reported. The Government of Ghana appears disinterested in supporting these operators; much like gold, it is leaning toward demarcating the lands these individuals covet to companies. Whilst a decision has not officially been made, these small-scale miners have been told informally that their applications to extend their mineral rights to include lithium will not be approved. The plan is to award these lands to Barari DV Ghana Ltd., a subsidiary of Atlantic Lithium, a move which, given the controversy surrounding the government's deal with the company, is likely to fuel tension with local communities. In Ghana, there is an artisanal-large-scale mining interface brewing in the country's lithium-rich areas that the government appears to be ignoring (and instigating) but which promises to be contentious from the outset.

In neighbouring Nigeria, an interface between artisanal and large-scale miners already exists. Despite artisanal miners playing a very visible and important role as 'pathfinders' or *discoverers* of lithium, it has become clear, early-on in the development process, that the Government of Nigeria has limited capacity in supporting these operators. Seeking to diminish a decades-long economic dependence on oil, the Government of Nigeria has moved quickly to develop what it projects to be a US$37 billion lithium mining industry concentrated heavily in Nassarawa, Kogi,

40 'Spotlight on growing African lithium supply', www.spglobal.com/commodityinsights/en/market-insights/latest-news/metals/100523-interactive-feature-spotlight-on-african-lithium-supply-prices-outlook#:~:text=S%26P%20Global%20Market%20Intelligence%20expected,12%25%20of%20global%20supply) (Accessed 2 February 2024).

41 Goodenough, K., Deady, E., Shaw, R. 2021. Lithium resources, and their potential to support battery supply chains, in Africa. British Geological Survey, Nottingham.

42 'Ghana's lithium deal: Separating fact from fiction', www.theafricareport.com/331005/ghanas-lithium-deal-separating-fact-from-fiction/ (Accessed 2 February 2024).

Kwara, Ekiti and Cross River states.[43] Here, commercial quantities of lithium have mostly been exploited by artisanal miners *hitherto* but are likely to be cast aside by the country's policymakers who, similar to Ghana, appear likely to award the mineralized lands to companies. Examples include Vancouver-based Thor Exploration Ltd., which, through its fully-owned subsidiary Newstar Minerals Ltd., has secured over 600 square kilometres (km^2) of prospective lithium pegmatite terrain in the country;[44] Toronto-based Orosur Mining's Lithium West project, which consists of four exploration licenses covering 323 km^2, operated through its wholly-owned UK subsidiary, Lithium West Ltd.;[45] and Nigerian-incorporated Continental Lithium, which holds 15 prospecting leases, covering a combined 113,500 acres, in the country's lithium belt.[46] The government's plans to promote large-scale lithium mining has been bolstered by a local media that has drawn attention to the supposed health-related and environmental impacts of activities undertaken by artisanal operators.[47] The fates of the country's artisanal lithium operators, who are still being relied upon as 'pathfinders', thus remains uncertain; but there have been national calls, most recently in January 2024, for a Presidential Executive Order to discourage informal artisanal lithium mining, and a ban on export of the mineral is already in place.[48]

Zimbabwe, which is rumoured to be in a position to be the world's sixth-largest producer of lithium, imposed a ban on unprocessed (lithium) ore well before Nigeria. Officials in the country claim the move was made to capture as much value as possible from lithium extraction in the country. It promulgated, on 16 December 2022, the *Base Minerals Export Control (Lithium Bearing Ores and Unbeneficiated Lithium) Order* (S.I. 213 of 2022), which effectively banned exports of unprocessed lithium with immediate effect.[49] The decision to do so was influenced heavily by artisanal lithium rushes involving thousands of people in localities such as Sandawana. What makes the emerging artisanal-large-scale lithium miner interface in Zimbabwe unique, however, is that the main corporations involved are Chinese-owned. These include Zhejiang Huayou Cobalt, which owns the US$422 million Arcadia Lithium Project; the Bikita Lithium Mine belonging to the Sinomine Resource Group (SRG); and Eagle Canyon International Group Holding Limited and Pacific Goal Investments, which have forged a US$13 billion deal with the government to construct a facility that produces lithium batteries.[50]

In summary, an artisanal-large-scale lithium mining interface is emerging in Ghana, Nigeria and Zimbabwe, and is most advanced in the latter. Similar dynamics could surface in other countries in Africa with pipeline lithium projects such as Mali, Mozambique and Tanzania.

3.2 Case Study 2: The Complicated Case of Congolese Cobalt

As indicated, DR Congo produces close to three-quarters of the world's cobalt.[51] Artisanal mine operators account for between 15 and 30 percent of this output.[52] Their livelihoods, however, have, as indicated, been heavily impacted by the changes the *Dodd-Frank Act* and *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* have ushered into DR Congo.

Heading the list is the relationship they have with large-scale miners which, at best, is contentious. The momentum around 'clean cobalt' in Western policymaking and consumer circles has allowed companies, commodity traders and other actors to redefine the country's artisanal-mining zones in a selective manner, specifically as 'chaotic, ungoverned spaces riddled with hazardous working conditions, child labour, and other human

[43] 'Nigeria to tap $37bn market as firm confirms lithium deposits', https://businessday.ng/energy/article/nigeria-to-tap-37bn-market-as-firm-confirms-lithium-deposits/ (Accessed 23 March 2024); 'Need To Regulate Exploration, Mining Of Lithium', https://dailytrust.com/need-to-regulate-exploration-mining-of-lithium/ (Accessed 4 February 2024).
[44] 'Thor Explorations Announces Formation Of Nigeria Focused Lithium Subsidiary With Acquisition Of Over 600km2 Of Prospective Lithium Pegmatite Exploration Tenure', https://thorexpl.com/news/thor-explorations-announces-formation-of-nigeria-focused-lithium-subsidiary-with-acquisition-of-over-600km2-of-prospective/ (Accessed 4 April 2024).
[45] 'Nigeria', www.orosur.ca/projects/nigeria/ (Accessed 4 March 2024).
[46] 'Nigerian Lithium Belt', continental-lithium.com/nigerian-lithium-belt/ (Accessed 22 March 2024).
[47] 'Nigeria taps into the global lithium market', www.dw.com/en/nigeria-taps-into-the-global-lithium-market/a-67135006 (Accessed 14 April 2024).
[48] 'Nigeria's metal sector seeks restrictions on illegal lithium mining', https://news.metal.com/newscontent/102586283/nigeria's-metal-sector-seeks-restrictions-on-illegal-lithium-mining
[49] See Statutory Instrument 5 of 2023, Base Minerals Export Control ((Unbeneficiated Base Mineral Ores) Order, 2023);
[50] Global Witness. 2023. A new rush for Lithium in Africa risks fuelling corruption and failing citizens. Global Witness, London; Zimbabwe Environmental Law Association and Africa Institute of Environmental LAw (AIEL). 2023. Implications of the Lithium Mining Rush in Zimbabwe: Analysis of Legal Developments. Zimbabwe Environmental Law Association and Africa Institute of Environmental Law, Harare.
[51] Gulley, 2019.
[52] 'Rethinking artisanal cobalt mining in the DRC', www.swissinfo.ch/eng/business/rethinking-artisanal-cobalt-mining-in-the-drc/48260638#:~:text=Between%2015%20to%2030%25%20of,-scale%20mining%20(ASM). (Accessed 1 April 2024).

rights abuses'.[53] Doing so has reinforced perceptions in the country that ASM is 'disorderly and/or "illegal" – in contrast with orderly, "legal" LSM [large-scale mining] – and as needing to be formalised'.[54] It has also enabled some large scale mining companies to strategically position themselves in the midstream of DR Congo's cobalt supply chain, and on the back of continued demonization of artisanal operators, to legitimize their newfound role as purchasers of ore.

The fanfare surrounding 'clean cobalt' has obscured how artisanal and large-scale mining linked to the mineral's extraction in DR Congo have historically been inseparable. Specifically, aside from the thousands of people who congregate to large-scale mine sites to extract ore, it 'is virtually impossible to separate the flow of ASM cobalt from the larger supply of industrially mined cobalt' because the 'cobalt extracted at ASM sites typically enters the general supply chain when it is combined with industrially mined cobalt at mineral refineries in the DRC and China'.[55] In fact, despite companies' best efforts to distance and differentiate themselves from the country's ASM, 'The reality is that some of the largest LSM actors [in DR Congo] purchase ASM products for commercial and technical reasons and most Congolese cobalt originates from informal ASM on LSM concessions'.[56]

The reason for this is that in DR Congo, the companies that buy cobalt from artisanal operators are principally mining copper in the country. Here, cobalt is a byproduct of copper and the ore in which it is found can be easily extracted and harvested on a small scale. The country's copper mining companies have emerged as important conduits for artisanal groups that have lacked a platform for selling their cobalt since the passing of the *Dodd-Frank Act.*

There are several cases of mining companies proactively *engaging* artisanal groups for the purposes of acquiring cobalt ore, including the following:[57]

1) In Kasulo (Kolwezi), Zhejiang Huayou Cobalt, which owns Congo Dongfang Mining, paid six families to vacate the area, which was subsequently reclassified by the provincial authorities as a Zone d'Exploitation Artisanale (ZEA). It was given responsibility to regulate extraction within a perimeter of two mining squares of 84.7 ha each in exchange for complete control over production. In compliance with the Congolese mining code, artisanal operators working within the concession were required to register in the local Mining Cooperative of Maadini Kwa Kilimo (CMKK), with which Congo Dongfang Mining forged a partnership. The company, at peak levels of operation in 2017, registered 14,000 artisanal operators daily.

2) Trafigura, which entered, in 2017, into a three-year marketing agreement with Chemicals of Africa, a cobalt and copper mining company established in DR Congo in 2002. Its partnership has been shaped heavily by Congolese law, according to which companies can only engage artisanal miners if they are organized in cooperatives. With assistance from the NGO PACT, Trafigura partnered with the COMIAKOL cooperative in Kolwezi. Today, approximately 5200 artisanal miners are registered with the cooperative.

Aside from forging partnerships with mining companies, artisanal cobalt miners can sell ore to depots, such as the (approximately) 30 Chinese-run operations in in Lualaba and Katanga,.

The key takeaway here, however, is that DR Congo's artisanal cobalt miners continue to be marginalized well over a decade after being

[53] Katz-Lavigne, S. 2024. Framing spaces as (il)legitimate: "dirty" cobalt and the(mis)uses of artisanal and small-scale mining sites in south-eastern Democratic Republic of Congo. Canadian Journal of African Studies 58(1): 109-131, p. 113.
Katz-Levine, 2024, p. 119.
[55] Baumann-Pauly, D. 2023. Cobalt Mining in the Democratic Republic of the Congo: Addressing Root Causes of Human Rights Abuses. Geneva Center for Business and Human Rights, Geneva, p. 5.
[56] Katz-Levigne, 2024, p. 122.
[57] Calvao, F., McDonald, C.E.A., Bolay, M. 2021. Cobalt mining and the corporate outsourcing of responsibility in the Democratic Republic of Congo. The Extractive Industries and Society 8, Art. 100884.

delegitimized by the *Dodd-Frank Act* and *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*. Changes brought about by both have forced many to partner with the very large-scale mining companies that have been complicit in ensuring that 'clean cobalt' is unachievable in situations involving artisanal mining. But a closer examination of the situation on the ground reveals that they are involved – that the source of most cobalt produced in DR Congo is ASM sites. The government did establish, in 2019, the Entreprise Generale du Cobalt S.A (EGC) to serve as a monopolistic buyer of all cobalt originating from artisanal mining but it remains unclear how effective this approach will be and/or if it would be seen in the West as enough assurance that ores could be fully traced to their source.[58]

4. Concluding Remarks

This brief drew attention to the emerging artisanal-large-scale miner interface in Africa's emerging green and the developed world's critical minerals industry. As Western countries' critical minerals lists continue to expand, this is bound to become a major concern. It is already a serious problem in DR Congo's cobalt mining sector, and is on track to become a problem in the emerging lithium economies of Ghana, Nigeria and Zimbabwe. As demand for critical minerals escalates, the interface between artisanal and large-scale operators is bound to become more visible.

The emergence of ASM as an important source of particular critical minerals has undoubtedly put Western governments in an uncomfortable position. In the case of Africa, thus far, they have managed to maintain the status quo by imposing guidelines and regulations that marginalize ASM groups and which provide companies preferential access to mineralized-terrain. But with Chinese companies willing to make concessions for ASM groups, from ore purchasing through finance, it is unclear how long the likes of the *Dodd-Frank Act* and the *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* are going to have legitimacy in the region's green minerals space. Ironically, with so much of the obtainable production of key critical minerals in the region originating from ASM, Western governments may have little choice but to rethink how it engages the sector moving forward.

In Africa itself, there is some movement to make ASM a focal point of the region's green minerals strategy. Progress, however, remains slow. Perhaps host governments are content with the existing setup, in which, again, China has a dominant presence. This appears to be the case in the countries showcased in this brief – DR Congo, Zimbabwe, Ghana and Nigeria; in each, there is little movement to support ASM operators engaged in the extraction of critical minerals. Specifically, no attempts are being made to strengthen policies and legislation to provide the sector's operators with much-needed security of tenure, nor have considerations been made to implement special permits, in recognition of the importance of the minerals being harvested and the individuals extracting them. Perhaps even more discouragingly, overarching regional policy machinery on critical minerals extraction barely acknowledges ASM. The *African Green Minerals Strategy*, however, could prove to be a game changer on this front. Its *Approach Paper towards preparation of an African Green Minerals Strategy* [59] only makes reference to ASM once, under its section, 'Risk Analysis and Risk Mitigation'. It states that 'Cobalt use in lithium-ion batteries and the producer power this confers on the DRC is at risk if there is a major switch to low or cobalt-free battery chemistries, partly due to a perception about "blood cobalt" from some operations in the DRC, particularly from artisanal and small-scale mining producers'.[60] There is enormous

[58] Deberdt, R. 2021. The Democratic Republic of the Congo (DRC)'s response to artisanal cobalt mining: The Entreprise Generale du Cobalt (EGC). The Extractive Industries and Society 8, Art. 101013.

[59] African Development Bank Group. 2022. Approach Paper towards preparation of an African Green Minerals Strategy. African Natural Resources Management and Investment Centre, African Development Bank Group, Abidjan.

[60] Ibid, p. 65-66.

opportunity, with the *Africa Green Minerals Strategy* still being planned and operationalized, for identifying very clearly the role ASM in Africa can play in the green energy transition moving forward.

In summary, in the case of Africa, both Western and host governments seem content with continuing to position large-scale mining companies to monopolize the critical minerals sector. This has resulted in companies occupying space traditionally held by the region's ASM operators. As demand for critical minerals escalates globally, however, the interface between artisanal and large-scale operators within the region's critical minerals sector promises to become highly-contentious, the dynamics of which host governments, with inputs from Western countries, are unlikely going to be able to continue influencing.

AMDC
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THE EMERGING ARTISANAL AND LARGE-SCALE MINING INTERFACE IN AFRICA'S GREEN MINERAL SECTOR

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The African Minerals Development Centre (AMDC) is a specialized agency of the African Union, dedicated to advancing mineral resource development in Africa. Its primary mission is to provide coordination and oversight for the effective execution of the African Mining Vision (AMV) and its associated action plan.

POLICY BRIEF