

# COMPETITION FOR COBALT

- The Geopolitics of a Critical  
Mineral



## **EXECUTIVE SUMMARY**

Cobalt supply is now a strategic vulnerability for global industry. The Democratic Republic of the Congo remains the anchor of world supply while China holds dominant control over extraction, refining and transport infrastructure. This concentration exposes companies to geopolitical pressure, commercial fragility and regulatory disruption.

Operational risk is rising across the supply chain. Export volumes are constrained by limited port capacity and fragmented transport corridors that add cost and delay. Security conditions along key routes increase the likelihood of interruption and complicates insurance and logistics planning. Conflict in the east does not directly affect the cobalt belt but shapes national stability and influences government decision-making in ways that can quickly alter the operating environment.

Regulatory and policy risk is accelerating. The DRC and other producers are tightening royalty structures, imposing local processing requirements and using resource nationalism to extract greater value. Western governments are responding with new due diligence rules and subsidy frameworks that attempt to shift production away from Chinese control. Corporates face higher compliance costs and greater exposure to sudden policy shifts on both ends of the supply chain.

ESG risk has become a core business liability. Forced labor, child labor, unsafe working conditions and displacement linked to mine expansion have created sustained global scrutiny. These issues threaten brand reputation, investor confidence and access to regulated markets. Verification remains difficult as illicit mining, smuggling and weak governance blur the boundaries between compliant and non-compliant supply.

Strategic risk is embedded in the wider geopolitical contest. China's entrenched position in cobalt and refining capacity gives it leverage across entire industries. Western and Gulf attempts to diversify will take years to reshape market structure. Companies operating in cobalt-dependent sectors now face long-term exposure to geopolitical rivalry, supply concentration and the potential weaponization of mineral flows.

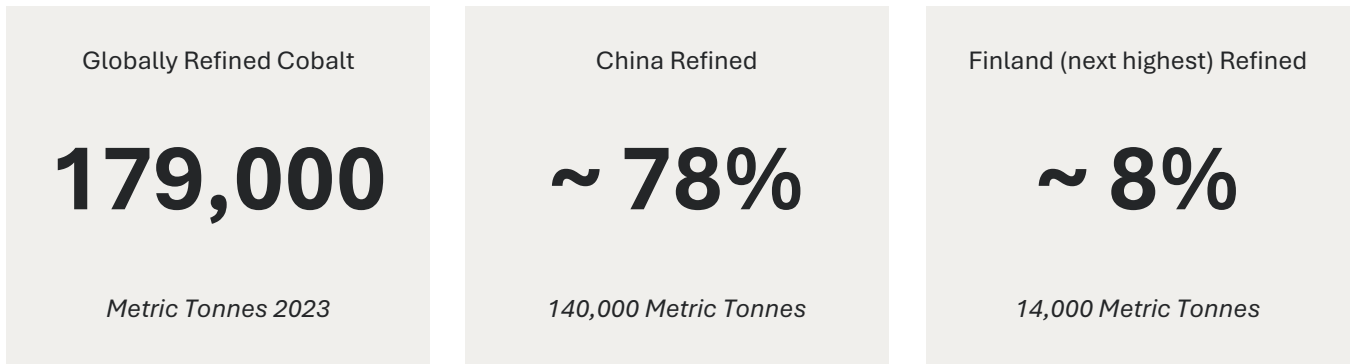
The direction is clear. Cobalt is moving from a procurement challenge to a multidimensional risk that touches operations, governance, finance and strategy. Firms that rely on cobalt need structured resilience planning, diversified sourcing, enhanced traceability and stronger geopolitical risk monitoring.

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# INTRODUCTION

Over the next 1-2 years, geopolitical competition for Cobalt in Africa, particularly in the Democratic Republic of the Congo, is set to intensify as global demand for energy transition technologies accelerates. The DRC supplies over 70% of the world's cobalt reserves and is a critical landscape for countries and corporations alike. States understand the importance of industrial sectors like EVs, electronics, aerospace, industrial machinery, and energy storage, leading to aggressive investment, global partnerships, and defense priorities. These initiatives are critical and necessary, as China controls upwards of 60% of Cobalt production and 80% of the global refining capacity.



Source: Cobalt Institute – Cobalt Market Report 2023

China’s predatory control of the critical mineral sector has exposed vulnerabilities within Western supply chains, forcing countries and companies alike to diversify their sourcing processes and supply chain avenues, as seen through the Lobito Corridor. Moreover, entities must understand and protect themselves from the various reputational and physical risks within the cobalt supply chain, including child labor, violence against truck drivers, and degrading environmental impacts to the local DRC populations. Risk also comes in the form of resilience from the DRC government and other mineral-controlling countries, which aim at capturing domestic prosperity, investment, and a fair return for their resources. The bottom line for businesses is that the global race for cobalt is evolving into a broader contest over strategic minerals, political influence, and supply chain control, ultimately impacting geopolitical power and statecraft leverage.

## Cobalt Demand by Sector



Chart: Insight Forward • Source: Cobalt Market Report 2023 • Created with Datawrapper

Corporations in sectors such as EVs, electronics, aerospace, military technology, and energy storage must operate in a highly politicized, volatile, and ethically sensitive resource environment. Ultimately, cobalt competition is a current geopolitical flashpoint and an arena with increased reputational and financial risks.

Companies must build resilience and establish contingencies now to avoid falling victim to the uncertainty and volatility of the cobalt market, supply chain, and its various risks within the sector.

## COMPETING STATE ACTORS

### CHINA

China maintains dominant control over the DRC’s cobalt reserves and critical mineral landscape through financial investment and vertical integration initiatives, primarily through its \$6 billion “Infrastructure for Minerals” [deal](#) with the DRC in 2008 that established control of five of the ten largest mines in the country. Additionally, Chinese state-backed lenders [directed](#) approximately \$13 billion to DRC mining operations between 2010 and 2023, representing 42% of China’s state-backed lending portfolio and further demonstrating that China's primary tool for acquiring active mines is to avoid hundreds of millions of dollars in investment and the decade-long development process.

China’s CMOC, and its acquisition of the Tenke Fungurume mine, financed with \$2.68 billion in loans from six Chinese state-owned banks, including the Bank of China and China Development Bank, exemplifies this strategy. Furthermore, CMOC sought a partner in the TFM mine, allowing a Hong Kong-based firm to purchase 1.14 billion worth of equity, with \$700 million coming from state-owned bank funding. State creditors continue to replicate this process as they provide ongoing support through an average of 3.6 additional loans for mines, keeping mines like Kinsenda afloat, while also ensuring long-term control of mineral resources. The 2008 Sicominer deal further exemplifies its predatory actions, as its monetary gain from the mines is valued at \$93 billion, despite the \$3 billion infrastructure investment the DRC agreed to in the Sicominer deal. Additionally, an [audit](#) revealed that Beijing has delivered only \$820 million in infrastructure investment to the DRC community. China’s predatory actions are not specific to mine accusations within the DRC; however, its recent [bans](#) on critical mineral exports and refining technologies have exposed vulnerability in Western supply chains and been a tool for its geopolitical leverage.

### Policy Interventions by China Targeting Cobalt

Year Implemented

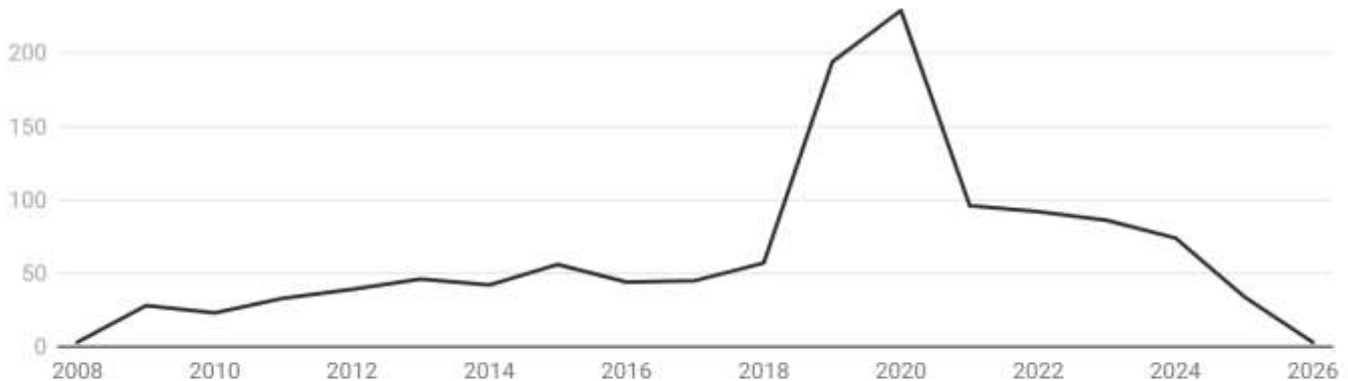


Chart: Insight Forward • Source: Global Trade Alert • Created with Datawrapper

Lastly, China has prioritized protection through physical security and a joint venture ownership model. Companies like CMOOC, China Railway Group, and Jinchuan Group hold over 68% stake in their respective mines, protecting parent companies, ensuring operational control, and securing offtake agreements without direct state involvement. China has adopted a similar strategy in its physical security objectives within the DRC and Africa. It has deployed foreign private security companies, such as the VSS Security Group and China Security and Protection Group, to protect supply chain routes, investments, and counter U.S. influence on the continent.

## UNITED STATES

The United States is pivoting away from its traditionally limited financial and diplomatic efforts in Africa and the DRC through infrastructure-centered partnerships and supply route diversification, designed to shift critical mineral supply chains away from Chinese dominance. This shift in strategy is also congruent with both political sides, as the Biden administration has released its African strategy to “leverage” the continent's critical mineral resources while diversifying and strengthening supply chains and in 2025 the Trump administration brokered a “Regional Economic Integration Framework” deal between the DRC and Rwanda, representing the U.S.’s goal of linking the countries supply chains through promised security and improved diplomatic cooperation.

The United States has also increased its economic investment, as evidenced by the \$553 million commitment to improving the 1,300-kilometer-long Lobito Corridor, aimed at creating an alternative supply line of copper and cobalt between Zambia and the DRC, reducing reliance on the Chinese supply chain. The U.S. International Development Finance Corporation also pledged \$4 billion in infrastructure development and investment for related projects, bridging a mutual gain between the two state governments. Additionally, the U.S. investment, which comprised multiple private companies, including Singapore's Trafigura, Portugal's Mota-Engil, and Belgium's Vecturis, outbid an offer from a Chinese state-owned bank.

The Defense Production Act is also pivotal in critical mineral acquisition as it links critical mineral supply and national security, allowing for direct appropriation of funds and mitigating risk for company investment through financial backing and insurance. Moreover, the United States has joined the Mineral Security Partnership, which aims to strengthen critical mineral supply chains through cooperation with other governments. This partnership facilitates wide-scale support for strategic projects, establishes a financial network, and promotes engagement across multiple agencies and departments.

Despite the United States' expansion of its critical mineral footprint within the DRC, China continues to dominate the industry. Export controls, due to Congolese frustration with decreased cobalt market prices, social instability, such as M23's insurgency on trade routes and active mines, and inferior refining capacities, make the U.S. vulnerable in critical mineral acquisition and broader technological development, as well as its future geopolitical power position. The U.S. and other Western states must continue to cooperate and invest in the DRC, aiming to provide African partners with credible, long-term mineral processing alternatives, thereby potentially resisting Chinese capital and operational dominance over the sector.

## EUROPEAN UNION

The European Union's strategy centers on regulatory frameworks, sustainable sourcing standards, and local value addition rather than large-scale investment and state-backed projects deployed by China and the United States. In 2023, the EU and Australia signed a strategic partnership, as well as Memoranda of Understanding with the DRC and Zambia, to gain access to critical mineral supply chains while also signaling their intention to be a reliable and long-term partner in the sector. This [agreement](#) is active as the EU and Zambia have established a roadmap for joint implementation, covering the integration of supply chains, infrastructure financing, research and innovation, capacity building, and sustainable and responsible sourcing.

Additionally, the EU is aggressively pursuing a strategy to decrease supply dependencies and increase source diversity through [the Critical Raw Materials Act](#). The act identifies crucial raw materials, regulates the consumption of minerals for extraction, processing, and recycling, while also focusing on labor rights, audits of companies' supply chains, and expansion of its Sustainable Investment Facilitation Agreements and Free Trade Agreements. All these measures aim to diversify sourcing avenues for critical minerals while also mitigating compliance and market volatility through regulations and government oversight. However, many of these initiatives are non-binding, meaning there are minimal consequences for failing to implement the rules and deadlines outlined in the MoU. Instead, legally sourced Cobalt, in conjunction with the CRMA, creates market incentives through ESG certification, incentivizing companies to improve their environmental and labor practices to enter higher-value EU markets, compared to less stringent Chinese markets.

The EU's Global Gateway [program](#) also aligns with this ESG and environmental compliance initiative, as it aims to create sustainable and trusted connections between states and suppliers, while supporting improved ecological and labor practices alongside infrastructure needs. Simultaneously, it improves conditions within Africa and fosters local value addition through investments in health, education, and job growth, such as the \$150 billion Africa-Europe Investment Package. Finally, strategic partnerships and the development of mines or domestic processing plants keep the material and profits internal, away from Chinese corporations, thereby enhancing mutual benefits with African countries, reducing the risk of private investments in the sector, and mitigating the effects of supply chain disruptions.

## RUSSIA

Russia's cobalt strategy focuses on leveraging military cooperation, security partnerships, and resource extraction of primarily gold and uranium. Additionally, Russia avoids the large-scale and heavy investment approaches seen through China and the United States. For comparison, Russia's trade value in Africa is \$18 billion compared to China's \$250 billion, accounting for only 1% of its foreign direct investment. This reality underscores Russia's limited financial capacity, especially under Western sanctions. It highlights the importance of its security partnerships in expanding influence in Africa and gaining access to critical mineral deposits.

Instead, Russia sponsors several private military contracts with African countries and conducts arms deals worth billions of dollars. In 2023, Russian state arms exporter Rosoboronexport signed contracts worth \$4.5 billion for air defense systems, fighter aircraft, and vehicles with African nations, thereby deploying influence



*Wagner (now Africa Corp) providing security in Bangui, Central African Republic*

and cooperation through military technological power. Russia's Wagner Group has also gained an estimated \$2.5 billion in gold from Africa, alongside other mining concessions and resource deposits, in exchange for its security services. The Kremlin also avoids human rights abuse allegations, repercussions, and direct involvement in events like the Moura Massacre. While the Kremlin is dependent on the success of Wagner and other security groups, its general protection of politically unstable areas and pivotal trade routes allows for these actions to occur without significant diplomatic or economic implications.

Lastly, while Russia's technology output, in industries like EVs, is drastically falling behind other powers, largely due to Putin's focus on Russian oil reserves and energy production compared to a longer-term critical mineral and environmentally friendly strategy, it still impacts the market and competitors. The United Nations accused Russia of being involved in illicit mineral trading from M23-seized mines through the Boss Mining Solution company. Again, while the state does not sponsor the company, it has trafficked millions of dollars' worth of critical minerals from insurgent zones, despite Russia's pledge and security cooperation.

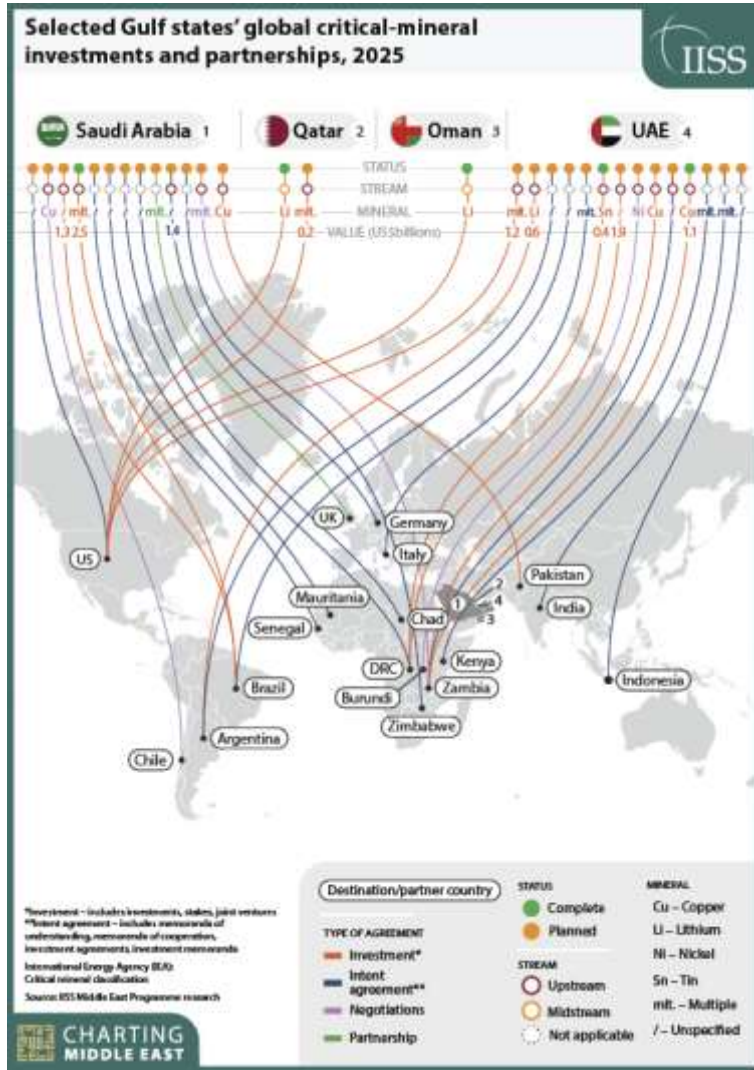
## GULF STATES

Gulf states, primarily the United Arab Emirates, Saudi Arabia, and Qatar, have entered the critical mineral competition through their sovereign wealth funds and state-owned vehicles, partaking in western diplomacy, and domestic refining and energy technology manufacturing capabilities to reduce dependence on Chinese processing and take advantage of the DRC's attempt to diversify business partners. Moreover, Gulf states are becoming increasingly attractive to Western states and investors with their energy supply track records and capital to finance business ventures, seen through the US and Saudi Arabia's MoU for energy cooperation and MoC on critical minerals. Overall, the capital potential and openness of Gulf states to joint ventures between states position them as vital partners for both African producers and Western manufacturers.

Saudi Arabia has led the region's strategic shift through a \$100 billion mining investment plan, unveiled at the Future Minerals Forum, building on earlier announcements of investment into domestic steel and EV-metals plants, which exemplify the state's goal to establish a regional hub for critical mineral and battery materials processing. Moreover, domestic initiatives have also expanded to exploration and technological advancements in battery technologies, as they aim to tap into the estimated \$2.5 trillion worth of domestic

mineral resources and establish homegrown EV brands and production, aided by numerous companies' investments like Aramco and Ma'aden in lithium processing and lithium-ion battery plants.

While the Gulf region has not focused on cobalt as much as other regions, it is very active in the mineral transition. Saudi Arabia and Ma'aden's joint venture, along with a \$2.5 billion purchase of a 10 percent stake in the mining company Vale, demonstrates its priorities and focus on defying Chinese dominance. This also opens pathways to critical minerals in Indonesia, in addition to Africa. Moreover, Abu Dhabi International Resources Holding has acquired majority stakes in Zambia mines and in the tin producer Alphamin in the DRC. States are actively targeting regions across Africa and various critical mineral reserves that are not currently under Chinese investment and control.



Source: *The Gulf States' Push for Critical Minerals*

However, Gulf states have also welcomed Chinese support and investment despite its dominance, hedging investment and support from both Western states and China. Oman's acceptance of a \$1.1 billion investment to establish a lithium-ion battery plant and Saudi Arabia's Geological Survey Project partnership with China, encouraging investors to join domestic excavation operations and not miss out on one of the state's "opportunities" that the minister of industry and mineral resources flaunted to Chinese officials.

Collectively, these initiatives spanning domestic lithium extraction, African joint ventures, and industrial investments and partnerships with Western and Chinese companies illustrate the Gulf's strategic shift to gain access to mineral flows through hedging partnerships from multiple players. While not all projects directly involve cobalt or the DRC, they shift broader negotiation power, control critical mineral supply chains, and diversify reliance on critical minerals through joint initiatives, domestic energy manufacturing technologies, and mineral processing capacity. Ultimately, the Gulf's coordinated critical minerals strategy represents a push for economic diversification, self-sufficiency, and geopolitical influence in the green energy transition.

## **GEOPOLITICAL COMPETITION CREATING CORPORATE RISK**

The various actors in the DRC's cobalt competition create a fundamentally unstable operating environment for corporate entities. Corporations must address critical mineral demand and risk across three key dimensions: host government-led regulations and policy changes, fragmentation, logistical disruptions, and the security risk of mineral corridors, as well as intensifying ESG legal and public standards, resulting in increased extraction and processing premiums and heightened reputational risk.

These dynamics render cobalt dependency a strategic liability, rather than merely a challenge in supply chain management. Corporations must understand the risks associated with resource nationalism, strained regulations, fragmented corridors resulting from aging technology, political instability, and environmental challenges. As a result, vulnerable corridors are becoming increasingly fragmented and victim to political instability, insurgency, environmental challenges, and strict compliance oversight and standards. Companies unwilling to adapt, bear the increased costs and competition within the sector, and invest in technological transitions to cobalt-reduced products will remain vulnerable.

## **INFRASTRUCTURE AND TRANSPORT CORRIDOR VULNERABILITIES AND DEVELOPMENT**

Transport corridors represent the greatest operational vulnerability within the cobalt supply chain. Disruptions trigger supply shortages, market fluctuations, and production delays that are felt across manufacturing sectors, including EVs and semiconductors. Chokepoints along the routes, such as security breaches, political instability, corruption, and labor strikes, all increase logistics costs, elevating risk for shippers, corporations, and investors alike. Not to mention, the supply strains ultimately impact consumers through price increases, despite consistent demand. Beyond logistic security, corridor investments determine whether minerals are processed domestically or exported raw to actors like China for a discounted price. Host states have leveraged major powers competing for route control through local value-added processing, industrial projects, and infrastructure development, as well as tariff revenues. The U.S. and EU-backed Lobito Corridor, as well as China's \$1.4 billion Tazara Railway reconstruction, illustrate this great power competition between states, but also present an opportunity for host states to utilize it as an economic and geopolitical instrument for local benefits.

# CORRIDOR COMPETITION, OPPORTUNITY, AND RISK

## LOBITO CORRIDOR

The Lobito Corridor presents a strategic opportunity for Western states to compete against China’s Belt and Road Initiative and supply chain dominance, while also securing the favor of the DRC and other African states in investment deals. Current supply processes involve cross-continent shipments to China for refining,



averaging nearly one month for transportation. This also does not include various disruptions and shutdowns caused by floods, strikes, social unrest, and port troubles.

The project involves over 350 miles of new railway connecting Zambia and the DRC to the Atlantic Ocean, opening access to the global market, boosting regional trade, and reducing the shipping time of cobalt and other critical minerals to an eight-day trip, a significant time decrease compared to its current route to the port of Durban. This

development has also highlighted the importance of public-private partnerships, as over 250 business and government leaders from the DRC, EU, U.S., and Zambia convened at the PGII Lobito Corridor Private Sector Investment Forum, which resulted in an additional \$250 million loan to the African Finance Corporation to help fund private investments. Additionally, MoUs connected to the project have already secured freight commitments and refinery development agreements with Kobaloni Energy and First Quantum Minerals, a top ten cobalt producer.

The corridor project is actively diversifying supply routes and developing the processing and refining industry, limiting dependence on China’s processing capacity and building infrastructure for the DRC to avoid exporting raw materials. While the effectiveness is uncertain, given that the project is set to begin in 2026 and it is not yet known if Chinese mines will utilize the corridor, the DRC’s president, Felix Tshisekedi, remains optimistic, stating, “It is a driving force for economic and social transformation for millions of our people.” Ultimately, host nations and Western competitors hope that cooperation, newfound investment, and corridor construction will encourage private investment and processing development.

However, corridors have their limits and pose various risks for suppliers, investors, and traders. While the project does expedite shipping processes and open access to Atlantic ports, it does not directly address China’s control of 15 of the DRC’s 19 largest cobalt mines. In other words, the corridor does not inherently guarantee access to critical minerals, as the Chinese state-owned companies still control the extraction mines. Moreover, Chinese involvement is inevitable as the Portuguese company Mota-Engil, which holds a 30% stake in the project, has a Chinese state-owned construction company as its majority shareholder.

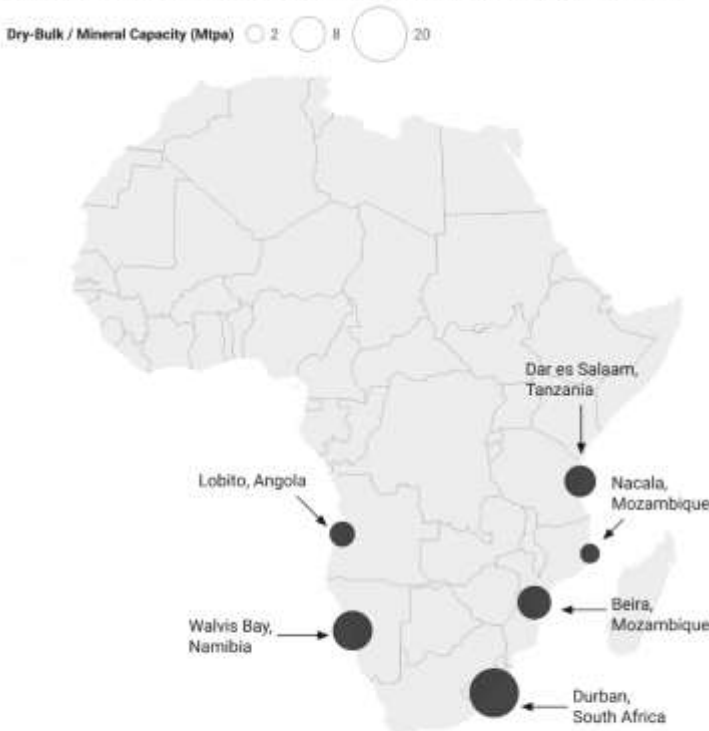
## TAZARA RAILROAD

China has also announced a \$1.4 billion investment in a rival railway project that will revitalize the Tazara railroads connecting Tanzania and Zambia. The project will connect the Zambian copper belt with Dar es Sallan and improve the original railroads that China financed initially in 1970, after Western states refused to invest in the country. This is a direct response to Western initiatives, as Beijing seeks to maintain its control over the critical mineral supply chain. According to local government releases, the project is expected to increase annual freight capacity from its current 400,000 metric tons to 1.2 million metric tons in the first year of operation. While it is an attempt to maintain control, the project’s developer believes it will improve cost efficiency, enhance logistics, and build a local workforce with the necessary skills and technological knowledge. Both the corridor’s completion should lower the burden on road networks, reduce carbon emissions, and ultimately lower transport costs.

## DURBAN CORRIDOR, WALVIS BAY, AND DAR ES SALAAM

The Durban Corridor, a trade route within the broader North–South Corridor, connects the Copperbelt and the DRC’s cobalt reserves to the Indian Ocean through South Africa’s Port of Durban. Although the route is the most commercially active in Africa and supports far more than just critical mineral exports, it suffers from

### Limited Port Capacity Across Key African Export Routes



Data are drawn from publicly available port authority planning documents, corridor/project studies and port throughput reports, combining the most recent published tonnage figures and design dry-bulk capacities for each port for illustrative comparison.  
Map: Insight Forward • Created with Datawrapper

persistent operational friction. Frequent delays, truck congestion, labor strikes, and unexpected police stops have driven exporters to consider alternative east–west routes. Additional strain is created by the port’s Navis booking platform, where haulers with secured slots often fail to collect containers within the three-day grace period due to limited slot availability and landside bottlenecks. These backlogs produce lost revenue and demurrage fees, compress profit margins, and disrupt downstream logistics.

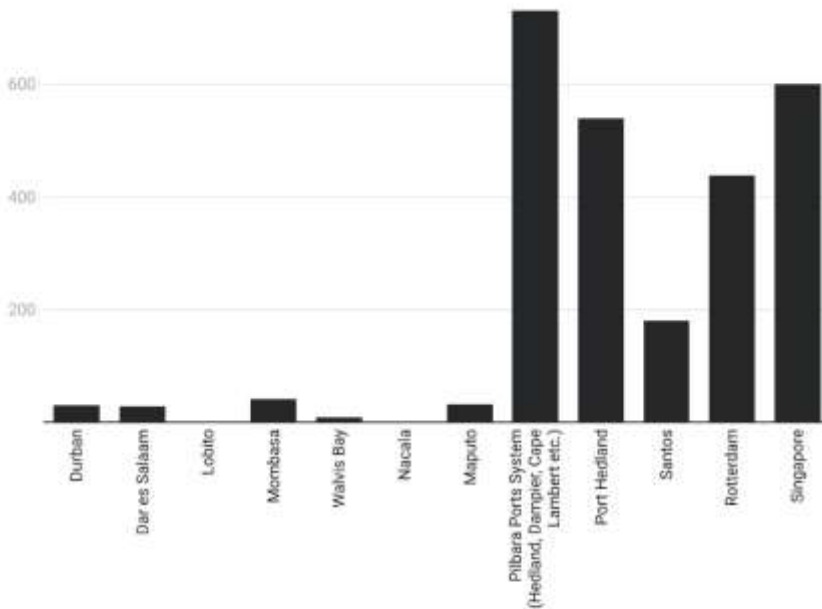
As a result, Durban now faces increasing competition from other ports and transit routes, particularly Dar es Salaam and Walvis Bay. Both offer stronger security conditions, since they avoid under-policed ports and hijack-prone routes inside South Africa, and both provide more flexible breakbulk handling for mineral consignments. Durban has attempted to address these weaknesses through

initiatives such as the Aid Trade Pilot Program, which focuses on improving port facilities, corridor maintenance, and digital systems. However, despite such interventions, the port remains vulnerable to container shortages that directly constrain its handling capacity and shipping operations.

These competitive pressures are already reshaping exporter behaviour. Corporations such as Mopani Copper Mine have re-routed significant tonnage to Walvis Bay, which offers bulk-vessel loading and greater operational predictability. Dar es Salaam has also expanded its appeal. Its operator, Cornelder, reported a 116 percent increase in copper and cobalt exports in 2020, enabled by streamlined customs procedures, digitalisation, and new roll-on/roll-off infrastructure introduced under the Dar es Salaam Maritime Gateway Project and the [Tanzania Customs Integrated System](#).

Yet even with this competition, there is a marked difference between the capacity of Africa’s primary export

**How African Ports Compare with Global Bulk Gateways**



*Throughput figures are compiled from publicly available port-authority publications, government transport reports, and reputable industry summaries. African port data reflect the most recent reported annual cargo volumes, while global comparator figures (Port Hedland, Pilbara Ports, Santos, Rotterdam and Singapore) draw on official port-authority statistics and annual performance reports. All figures are used for illustrative comparison only due to differences in reporting standards, cargo categorisation, and the distinction between total throughput and mineral-specific bulk handling.*

Chart: Insight Forward • Created with Datawrapper

corridors and the scale of the world’s dominant mineral ports. Durban, Dar es Salaam, Lobito, and other regional outlets operate within the low tens of millions of tonnes per year, and some handle far less than five million tonnes. In contrast, ports such as Port Hedland, the wider Pilbara system, Rotterdam, and Singapore manage throughput that is one or two orders of magnitude larger.

This disparity underscores the core bottleneck shaping cobalt and copper supply chains from the African interior. Production in the Copperbelt is rising and investment in new processing capacity is accelerating, yet the ports that anchor regional export routes remain comparatively small. Durban and Dar es Salaam occupy a mid-range position among African ports, but their

volumes are modest when compared with global bulk gateways. Lobito and Nacala operate at even smaller scales, and their mineral-handling capacity remains limited despite ongoing upgrades. When set against the Pilbara system, which moves more than seven hundred million tonnes per year, or Port Hedland alone, which exceeds half a billion tonnes, the structural constraint becomes clear. The challenge is not extracting cobalt ore or concentrate but moving it efficiently to global markets. Without long-term port expansion, African export routes will continue to represent a hard ceiling on growth in regional mineral output.

The emerging competition among corridors signals a broader transformation in the cobalt and critical minerals sector. Supply chain efficiency, route security, and diversification are reshaping the commercial and political landscape of mineral transport. States, ports, and companies are investing heavily in new infrastructure and process improvements, each seeking to secure a competitive position in a market where logistics capacity is becoming as decisive as resource endowment.

## PHYSICAL RISK AND SUPPLY CONSTRAINTS

Another stress point in the critical mineral and cobalt supply chain, besides port limitations causing bottlenecks, is physical security risks spanning across various ports and transport corridors, especially in regions affected by the M23 movement and other armed groups vying for territory. For example, M23’s capture of towns such as Minoa has disrupted supply routes, led to the evacuation of towns, and isolated mines within the region, not only displacing and uprooting the lives of locals but also threatening companies involved in the region and reliant on trade. Moreover, transport routes and corridors under rebel control have faced various delays due to road closures and increased violence, resulting in increased costs.

Region / Provinces	Primary Minerals & Mining Type	Share of DRC Cobalt Production	M23 Presence / Influence	Impact on Cobalt / Other Minerals
<b>Lualaba &amp; Haut-Katanga (Southeast)</b>	Industrial copper-cobalt belt (large-scale operations: KCC, Mutanda, TFM, Ruashi, etc.)	≈95–98% of national cobalt output	No M23 presence	Cobalt: Minimal direct impact. Risks relate to governance, infrastructure, taxation, and national political instability, not rebel activity.
<b>North Kivu (Rutshuru, Masisi, Walikale, Nyiragongo)</b>	Artisanal coltan, gold, cassiterite (3Ts), small-scale pits	≈0% of national cobalt output	Core M23 operational zone (control of towns, roads, taxation points)	Cobalt: No direct impact. Coltan & gold: High impact due to M23 control of mining sites, taxation, and smuggling routes. Significant for conflict-minerals dynamics but not cobalt supply.
<b>South Kivu (Bukavu, Kabare, Kalehe)</b>	Artisanal gold and 3Ts	≈0% of national cobalt output	Expanding M23/Rwanda-aligned influence (2024–25)	Cobalt: No direct impact. Gold & 3Ts: Moderate impact through insecurity, taxation, and displacement affecting artisanal mining zones.
<b>National Supply Chain (Regulation, Transport, Political Environment)</b>	Applies to all minerals	100% of cobalt subject to national political and regulatory risk	Indirect exposure (national instability, governance strain, reputational risk)	Cobalt: High indirect impact. Conflict elevates sovereign risk, ESG scrutiny, and investor perceptions even though cobalt mines are far from active front lines.

Additionally, truck drivers have experienced increased violence, robberies, and assaults along these routes. Zambia’s Transport and Logistics Minister noted that drivers are often victims of “physical attacks, random

roadblocks, and extortion” for their products and personal items. These risks have led to driver boycotts and transportation disruptions, ultimately resulting in long queues of trucks stalled at the Zambian border and making them even more vulnerable to looting and attacks. Lastly, in addition to the financial losses supply chain delays incur, companies have had to bear increased insurance costs for materials, vehicles, and drivers themselves, as they respond to the growing trend of violence encroaching on supply routes, suppliers, and transporters across corridors in the DRC and Africa.

## **REGULATORY VOLATILITY AND FINANCIAL AND REPUTATIONAL IMPLICATIONS**

### **RESOURCE NATIONALISM AND POLICY VOLATILITY**

Resource Nationalism is an increasing phenomenon where critical mineral-producing countries are tightening mining codes, raising royalties, imposing local production criteria, and restricting exports, prioritizing local addition and value for their mineral deposits. These actions create various regulatory instabilities that threaten investor confidence, increase production costs, and instigate market fluctuations, forcing companies to invest in long-term strategies and diversify suppliers, conduct processing projects, and develop alternative technologies.

### **Export Restrictions on Critical Raw Materials**

by Year - 2009-2023

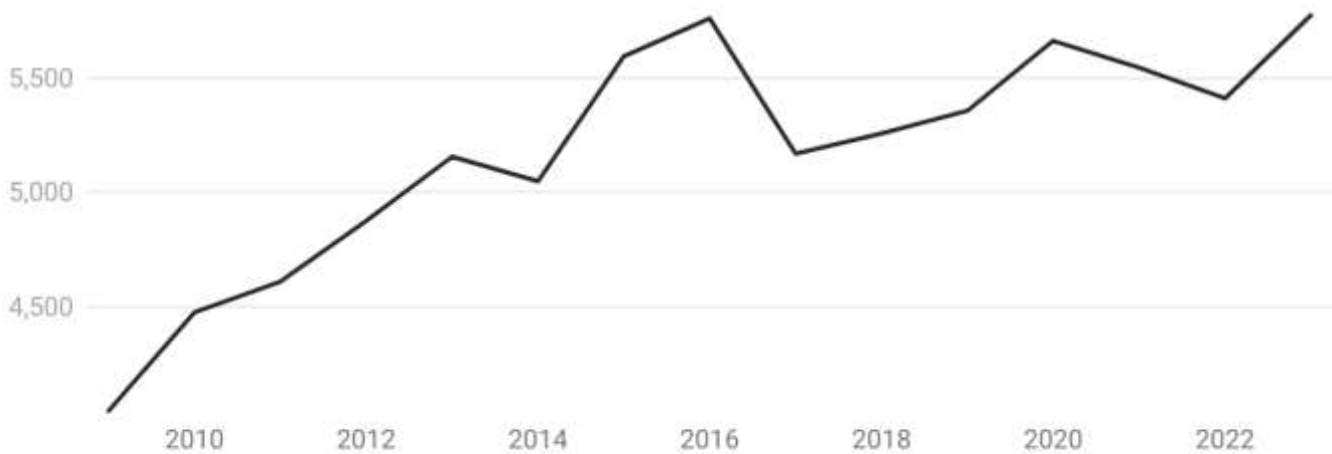


Chart: Insight Forward • Source: OECD • Created with Datawrapper

The DRC's 2018 "strategic mineral" classification for cobalt exemplifies the effects of this strategic initiative by mineral-controlled countries. The policy not only increased royalties from 2% to 10% but also served as a building block for the eventual seven-month-long export ban the country enforced this year, which has now evolved into a yearly quota model, permitting authorized miners to export only 18,000 metric tons in 2025.

These restrictions resulted in a 92% increase in cobalt's market value, benefiting the DRC government while straining state importers, mining companies, and cooperatives. Other policies, such as Zimbabwe's 2023 ban on raw lithium exports, Mexico's 2022 declaration of Lithium as a product of the "nation," and Chile's public-private partnership (PPP) initiative, all demonstrate the vastness of this approach and that increased

**Number of Export Restrictions on Cobalt**

by Type of Restriction 2009-2023

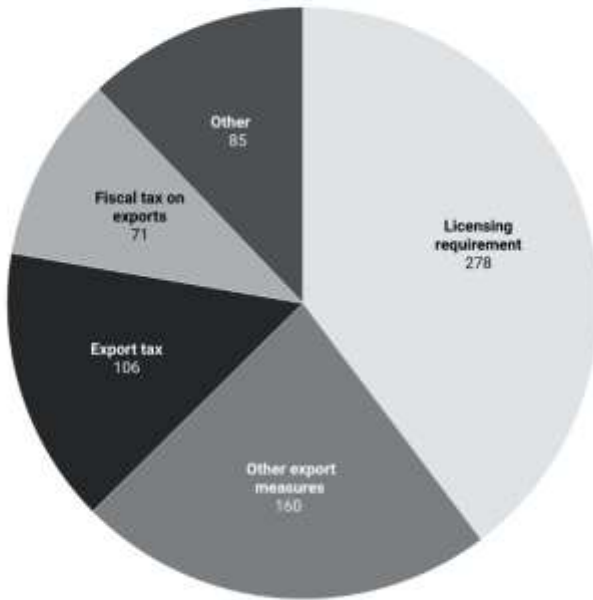


Chart: Insight Forward • Source: OECD • Created with Datalwrapper

regulatory pressure is not set to slow down in the near future.

Host states have also prioritized local investment and infrastructure requirements, at the expense of importing resources. Zambia, through the 2024 Mineral Regulation Commission Act, mandates that small-scale mines be citizen-owned and use Zambian citizen labor. The Act has also secured an increase in the 1,000-hectare limit for small-scale licenses, reserving mining grounds for local entities and excluding foreign corporations. These processes are not specific to the African region; Indonesia enforced a 2020 nickel ore export ban aimed at forcing foreign investors to invest in local processing

plants. Domestic production creates local value, but it requires costly infrastructure investments and restricts access to materials within supply chains.

These measures, on top of Jakarta's recent illicit mine "crackdown," have driven price volatility across mineral markets as they threatened nearly 80% of tin production, resulting in a tin price increase to 37,000 tons, the highest of this year. Combined, these moves heavily impacted the EV and stainless-steel industries, increasing upfront costs and straining margins, as class 1 processed nickel cost \$25,000 more per metric ton than imported raw nickel ore or concentrates. Manufacturers in the tech, automotive, and renewable energy industries have already begun diversifying their mineral suppliers and technologies, as evidenced by BMW's cobalt sourcing commitment in Morocco and Australia, GM's partnership with Glencore, and Tesla's 60% reduction in cobalt used for vehicle manufacturing through alternative battery technology. Moreover, Tesla's expansion of its battery facility in Sparks, Nevada, which enables a domestic supply chain of LFPs, and Bosch's flagging of market uncertainty and supply chain volatility for parts and batteries, demonstrate the attention and actions these realities have necessitated.

**ESG REGULATORY OVERSIGHT**

While resource nationalism drives regulatory volatility, environmental, social, and governance challenges demonstrate another systematic risk for firms operating in the critical mineral supply chain. The DRC's cobalt sector alone highlights this dilemma as artisanal and small-scale mine operations account for over 20% of

the DRC's cobalt supply. While the mines employ an estimated 200,000 Congolese, the UN's children's agency (UNICEF) claims that 40,000 of these workers are children as young as 6 years old, earning as little as \$2 a day under dangerous environments with inadequate safety equipment, toxic mining conditions, and threatened by armed conflict.

Critical mineral extraction poses equally detrimental effects on the environment and public health. Unregulated waste dumping and "acid-mine drainage" contaminate local water sources, while deforestation, road construction, and energy-intensive extraction contribute to significant greenhouse gas emissions. Additionally, public health studies cite that high-metal and air pollution exposure contribute to increased infant mortality rates, birth defects, and respiratory illnesses, which are amplified due to poor medical infrastructure, limited access to prescription drugs, and inadequate distribution of funds for payment.

In response, governments and global markets have begun tightening ESG frameworks to protect the physical laborers and bolster their reputations, projecting onto corporations as well. In Europe, the EU Corporate Sustainability Due Diligence Directive (CSDDD) and the EU Batteries Regulation require companies to ensure responsible sourcing while also managing and reporting environmental and social risks associated with critical points along the supply chain. These two directives work together as the EU regulation requires reporting and measures to prevent ESG harm and the CSDDD has the authority to punish companies for non-compliance by mandating full compensation to their victims and a minimum penalty of 5 percent of the company's net turnover for the year. In parallel, the United States has extended its Foreign Corrupt Practices Act to renewable energy minerals and battery production through various enforcement practices among agencies, illustrating how national security and geopolitical interests can dictate governance.

## **REGULATION COMPLIANCE COST: FINANCIAL AND REPUTATIONAL IMPLICATIONS**

Compliance or lack thereof with ESG standards and absorbing the impact of new regulatory policies comes at a cost, both financially and reputationally. The UK's Confederation of British Industry and the Global Reporting Initiative report that companies implementing non-financial reporting directives, enforced by the European Commission, incur costs between \$155,000 and \$604,000 to install new data systems, design and create report frameworks, provide employee training, and fund new external audit systems. While many large-scale companies have the capital and shareholder support to implement these programs and conduct adequate due diligence, the overhead costs for small businesses are significantly more impactful.

Moreover, companies must fundamentally rethink their sourcing avenues as large-scale mines (LSMs) and ASMs are deeply intertwined within the supply chain. The OECD reports that ASM-sourced materials enter global supply chains through local depots and refineries, where artisanal mined ore is mixed with industrially extracted material before exportation. This blending allows companies to market cobalt as "industrial-mined," creating the façade that its materials are regulated and safely extracted due to the heightened license and oversight of industrial mines. Reports also find that illicitly mined cobalt is often sold to refiners or Chinese-owned depots who then resell the material to LSM operators, further spreading falsification of export statistics, verification, and ASM-free labels on the sourced materials.

While this process is widespread and can save a company's bottom line upfront, the reputational, financial, and operational risks are substantial, heightened by human rights organizations and global watchdogs, including Amnesty International, which ranked 13 of the top EV [manufacturers](#) based on human rights protection, and abuses [linked](#) to Chinese mining and processing operations. Moreover, the International Rights Advocates [filed](#) a federal class lawsuit accusing several high-profile technology companies, including Apple and Microsoft, of knowingly aiding and abetting the cruel and brutal use of young children through their work in the cobalt mines. While the court ultimately dismissed the case on jurisdictional grounds, it triggered [public scrutiny](#) via social media, protests, and news articles, such as “modern-day slavery,” which framed a negative reputation for the DRC’s mining industry and the corporations involved, illustrating the various reputational risks within the sector.

### Recent Updates

- **In November 2025**, a [new lawsuit](#) was filed by the International Rights Advocates (IRAdvocates) in Washington DC against at least one major electronics company, alleging that their cobalt supply chains remain tainted by forced labor and conflict minerals from the DRC and Rwanda.
- **In August 2025**, a [report](#) released by The Rights Lab at University of Nottingham found that among surveyed artisanal and small-scale cobalt miners, 36.8% reported being in forced labor, 9.2% child labor, 6.5% debt bondage, and 4.4% trafficking.
- **In April 2025**, [demonstrators gathered outside](#) Tesla’s Fremont factory to protest Elon Musk’s political activities and Tesla’s operations and sourcing in the DRC, criticizing the company’s role in cobalt and other critical-mineral supply chains.
- **In December 2024**, the DRC filed criminal complaints in France and Belgium against Apple subsidiaries, accusing the company of using conflict minerals (3TG and related minerals from eastern DRC) laundered through Rwanda.
- **In November 2024**, [analysis](#) by Global Witness based on ACLED data shows that between 2021–2023 there were hundreds of violent incidents or protests tied to “transition mineral” mines (copper, cobalt, lithium, nickel), many in emerging economies including the DRC.

Many companies have attempted to mitigate these risks through due diligence programs, increased supplier audits, and [guides](#), such as NRGi’s Extractive Industries Transparency Initiative. They have also participated in initiatives such as the Responsible Minerals Initiative and the Global Battery Alliance, all of which aim to ensure compliance and demonstrate ethical oversight. While Apple’s extensive investments in supply chain traceability and responsible sourcing technology, leading to the [removal](#) of 14 smelters and refiners from its supply and the company maintaining a 100 percent accountability of third party assessments of its cobalt processing facilities came after the lawsuit, it exemplifies efforts companies must initiate to reduce long term cost of lawsuits, social media backlash, and reputational risk, despite the short term capital it demands.

## ILLCIT MINING, INSTABILITY, AND CORRUPTION

Interwoven between increasing regulatory volatility and ESG oversight is the challenge and presence of illicit mining within the DRC’s cobalt sector and broader critical mineral industry. Unregulated mining, corruption, conflict, and weak institutional infrastructure have exacerbated the financial, legal, and ethical risks for

companies. The 2023 United Nations Security Council highlighted numerous smuggling networks moving minerals across Rwanda and Uganda, eventually infiltrating supply chains and being exported globally under false verification. The DRC's Finance Minister estimated that nearly \$1 billion worth of minerals are smuggled in Rwanda alone. These realities extend across borders, such as those in Zambia, Burundi, and Tanzania, where officials are often bribed to forge certificates of origin, thereby leaving corporations vulnerable to various ESG and regulatory violations.

Insecurity, political instability, and social conflict further exacerbate this risk, limiting the enforcement of safety standards and operational integrity, contaminating supply chains, depriving the DRC's local



Artisanal Mining - DRC

population of economic benefits, and leaving companies vulnerable to reputational damage. For example, in the Eastern Congo, many ASMs operate under insurgent control, most notably the M23 rebels. The UN reports that the rebel group earned approximately \$800,000 from imposed Colton extraction taxes in December of 2024, alongside many other human rights violations, including systematic sexual violence against women within the mines. Additionally, mines controlled by insurgent groups pose a heightened risk to the physical harm of miners as safety regulations are not in

place, enforced, or invested in, as seen through various mine collapses, including one in Rubya, which killed 12 miners.

Furthermore, systematic corruption and weak oversight further distort revenue flows, enable regulatory violations, and degrade the corporation's supply chain integrity and reputational control. For instance, the U.S. Treasury's sanctions against businessman Dan Gertler for profiting more than \$1.36 billion through opaque mining deals facilitated by bribes and market concessions demonstrate that corruption is apparent and has drastic consequences. Likewise, the General Inspectorate of Finance's audit found that \$400 million in tax and loan payments from state-sponsored Gecamines had never reached the intended national treasury, again highlighting the various financial corruption loopholes that corporations could purposely or unknowingly exploit. Ultimately, increased regulatory oversight and audits increase the potential financial and reputational risk that ignoring compliance and regulatory measures, market manipulation, or corrupt practices pose to a company, as exemplified by Glencore's 2022 guilty plea of widespread bribery in its African operations, resulting in millions of dollars in fines imposed by the U.S. Department of Justice and the U.K. Serious Fraud Office.

Lastly, corruption is widespread in the enforcement and security sector of the supply chain. The Service d'Assistance et Encadrement de l'Exploitation Minière à Petite Échelle (SAEMAPE), created to formalize and help regulate artisanal mines, has been found to charge cooperatives technical assistance fees without

delivering the service. Moreover, the IPIS found that twenty-seven percent of miners worked in mines where the Congolese National Army (FARDC) extorted profits through illegal taxation. Both the FARDC and Russia's state-sponsored Wagner Group, accused of committing human rights violations despite their duty to protect mines and the local population surrounding them, demonstrate the power abuses present within the supply chain. Lastly, the UN's accusations against the Russian-linked Boss Mineral Mine company for trading minerals illegally extracted from insurgent-controlled regions, despite its security partnership with the DRC, underscore the deep-seated corruption and illicit mining practices ingrained in the cobalt sector, which taints supply chains, takes advantage of the DRC and its local population, and threatens states and businesses within the sector.

## OUTLOOK

Cobalt competition has emerged as a defining geopolitical flashpoint, driven by the race for mineral access, control of the supply chain, industrial positioning, and strategic influence. The DRC sits at the center of this dynamic and global energy transition, as it controls most of the world's cobalt reserves. States and corporations alike are vying for access to these resources in direct competition with China, which has disproportionate control over the critical mineral sector. This dominance, coupled with disruptions across transport corridors, supply chain chokepoints, and volatile regulatory frameworks, continues to dictate states' policy and energy capabilities, while also impacting business operations, processing ability, and profitability within the sector. In the short term, corporations will continue to face exposure to export restrictions, compliance measures, insurgent activity, and resource nationalism, all of which will amplify operational and reputational risks. Long-term solutions, such as supplier diversification, domestic refining capacity, trade route development, ESG programs, and the adoption of cobalt-free technologies, all offer resilience; however, these efforts require significant investment, infrastructure, and time. Ultimately, cobalt competition represents not only an emerging and current strategic threat but an enduring one. The ongoing decoupling between major powers, particularly the United States and China, and the rapid expansion of actors engaging in the competition, as critical mineral control has become a shared national security priority, only increases the volatility of the sector, presenting risk and challenges for all businesses involved.

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