

CASE STUDY

Enabling a just transition to electric mobility: The integration of the informal cobalt mining sector

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The integration of the informal cobalt mining sector

LEARNING OBJECTIVES

- 1. The case illustrates to students the complexities of responsible sourcing from countries where governments are unable or unwilling to protect basic human rights.
- 2. The case enables students to evaluate the practical challenges of meeting the growing global demand for critical transition minerals while establishing responsible sourcing practices.
- 3. Students will identify the critical role of commodity trading companies in global supply chains.
- 4. Students will analyze the connections between formal and informal sectors in global supply chains and understand the integral role of artisanal mining.
- 5. Students will learn how companies can create leverage for human rights issues and establish responsible sourcing standards in their indirect sourcing relationships in global supply chains.
- 6. The case advocates for developing solutions to human rights challenges in the informal mining sector and enables students to discuss practical challenges that address the most salient human rights risks in cobalt mining in the DRC.
- 7. The case explains to students the role of gender-sensitive approaches to addressing root causes of human rights challenges.
- 8. Students will derive lessons from the specific cobalt context in the DRC and apply it to other sourcing contexts that involve the informal sector.
- 9. The case discusses industry initiatives and asks students to critically assess the agenda of current initiatives in the cobalt context.
- 10. The case also highlights how geopolitical tensions and technological advancements have macroeconomic impacts on cobalt prices. Students will assess the volatility of the cobalt market and the political and socio-economic impacts in the DRC.

CASE SYNOPSIS

Cobalt is a critical mineral for the energy transition, yet human rights abuses in cobalt mining are rampant in the Democratic Republic of the Congo (DRC), where over two thirds of the world's cobalt is produced. Human rights risks are particularly high in artisanal small-scale mining (ASM), where mining accidents and child labor are common. Companies in need of cobalt must address these issues which constitute an industry challenge that affects their supply chain.

The case study outlines a practical way forward – the formalization of artisanal mining — that companies should support. Establishing this formalization model could benefit an estimated 40 million artisanal miners around the world. The case invites students to discuss the challenges of formalizing ASM in mineral and metal supply chains in the context of an energy transition that should not only be green but also just.

Cobalt Mining in Context

The Role of Artisanal Cobalt in the Global Cobalt Industry and for the Energy Transition

Cobalt is a critical mineral for the energy transition. It is an essential element in most batteries for electric vehicles, acting as a coolant and preventing them from overheating. Batteries with the greatest storing capacity and longest lifetimes use cobalt. Although car manufacturers are exploring new battery technologies, for the foreseeable future cobalt will be an essential element in meeting the energy needs of the rapidly increasing market for electric vehicles.¹

The business challenges of sourcing cobalt responsibly are not unusual, but they are tied to one country, the Democratic Republic of the Congo (DRC). The DRC produces over 70% of the world's cobalt and has the largest cobalt reserves in the world, comprising over half of the global total. Cobalt is mostly produced as a by-product of copper or nickel mining. Most of the DRC's cobalt extraction occurs in the copperbelt situated in the southern part of the country.²

Artisanal small-scale mining (ASM) is an integral part of mining in the DRC. ASM refers to informal, often manual, labor-intensive mining activities, typically carried out by individuals or small groups, often with limited technology and equipment. Besides industrial large-scale mining (LSM) with machines, the extraction of cobalt with basic tools and deep tunnel constructions is common in the DRC. LSM represents 70-80% of the DRC's cobalt production, while ASM accounts for an estimated 20-30% (representing 15-20% of global production),³ which makes ASM in the DRC the second largest cobalt producer in the world; no other country accounts for more than 6% of global cobalt production. Companies in need of cobalt need to do business in the DRC.⁴

The case study delves into cobalt mining in the DRC and its role for a just transition. Just transition, as defined by the International Labour Organization (ILO) refers to "promoting a green economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind."5 The study sheds light on the challenges the extraction of cobalt poses for the promise of a just transition due to the intricate interplay between artisanal and industrial mining sectors. Emphasizing the critical need for formalization within the ASM sphere, the case highlights persisting human rights risks and potential approaches (such as ASM formalization) for integrating sustainable practices while addressing pressing human rights concerns. Through a comprehensive analysis of industry initiatives and regulatory frameworks surrounding ASM, the case study seeks to elucidate the complexities of navigating the global supply chain and the critical role of stakeholders in fostering responsible mining practices. Furthermore, the case study highlights the socioeconomic implications of mining activities on local communities, with a particular focus on the empowerment of marginalized groups and the importance of ethical engagement within the mining sector.

The Human Rights Risks Associated with ASM

ASM is fraught with numerous dangers, stemming from the absence of strict safety regulations and the use of rudimentary tools and equipment. Miners often toil in precarious environments such as deep, unsecure mineshafts without safety measures or adequate protective gear, leading to a heightened risk of mine collapses, landslides, and other life-threatening accidents. Moreover, ASM work exposes miners to various health hazards, such as respiratory issues due to dust inhalation and skin ailments from direct contact with toxic substances, for example in the washing basins of cobalt ore.

Child labor in ASM is commonplace. An estimated 40,000 individuals under the age of 18 are reportedly engaged in cobalt mining in the DRC. Younger children are often present on ASM sites because their families do not have access to childcare. Older children also work in ASM because families need additional income. While primary schooling in the DRC is free, school attendance requires the purchase of books and a uniform. The quality of education is poor and schools are often overcrowded. As secondary schooling requires paying school fees, many minors drop out of the educational system after completing primary education to go work on ASM sites.

Despite the risks and dangers associated with ASM mining, the lack of industrial diversification and formal job prospects in the DRC render artisanal mining lucrative and often the only source of income for impoverished communities. With global cobalt demand expected to double by 2030, the DRC's cobalt supplies are indispensable.⁸ This directly affects the production of ASM mining, which can expand most flexibly to rising demands due to its informal nature, thus aggravating the human rights situation in the mines.

Confronting Cobalt Mining Realities in Global Supply Chains

The hazardous working conditions inherent in ASM cobalt mining underscore the urgent imperative for global companies to engage in sustainable sourcing practices and ethical supply chain management, ensuring the protection of both the environment and the well-being of local mining communities. Companies are increasingly under pressure to increase supply chain transparency and address human rights risks in their global supply chain, as binding due diligence laws are coming into force, especially in Europe with the Corporate Sustainability Due Diligence Directive⁹, the Corporate Sustainability Reporting Directive (CSRD)¹⁰, or the EU Forced Labour Ban¹¹. But rather than addressing the challenges posed by ASM mining, most global buyers have chosen to wish the challenges away. Many argue that they obtain cobalt only through allegedly safe industrial mines, pretending that they are able to exclude ASM from their supply chains. Some global buyers even affirm that they do not source from the DRC at all. These claims do not align with the available evidence.¹² Siddharth Kara, an expert on modern slavery, denounced the inseparability of cobalt mining, human rights abuses and environmental damages in his book, Cobalt Red: How the Blood of the Congo Powers Our Lives. He notes: "All cobalt sourced from the DRC is tainted by various degrees of abuse, including slavery, child labor, forced labor, debt bondage, human trafficking, hazardous and toxic working conditions, pathetic wages, injury and death and incalculable environmental harm."13

Industrial mining has its own human rights risks. A recent Amnesty International report (2023) highlights land right issues, forced evictions and human rights violations including sexual assault, beating, and arson as key challenges on LSM sites. ¹⁴

ASM is too essential for the local communities in the DRC to be excluded from global supply chains. LSM typically relies on heavy machinery and creates fewer jobs than ASM in a region where mining is the only source of employment. A large majority of the mining jobs are estimated to be in the artisanal mining sector. Around 250,000 people participate in the ASM sector in the Lualaba province in Katanga. Similarly, approximately two million people depend on artisanal mining for their survival. Overall, it is gauged that between 8 and 10 million Congolese depend directly or indirectly on the artisanal mining sector. Worldwide, over 40 million individuals are directly involved in ASM, while the number for LSM stands at 7 million.

Exploring how to address human rights issues in the artisanal cobalt context could be considered an incubator with potentially much larger implications for artisanal miners around the world.

ASM not only involves cobalt extraction, trade, and transport activities but it also fuels local economies, supporting small businesses in mining communities that depend on customers earning their livelihoods through artisanal mining. Therefore, efforts to exclude informal mining deny some of the poorest people on the planet their best opportunity to make a living.

Furthermore, the origin of cobalt remains untraceable. Separating artisanal cobalt production from industrial production is virtually impossible due to a lack of regulatory oversight and the proximity of informal and formal mining operations which sometimes supply the same purchasing centers. Artisanal miners flock to industrial mine sites due to their proven cobalt resources in these locations. Even if industrial mine sites are fenced off, artisanal miners

find ways to enter and work there. Thus, human rights risks related to artisanal mining often extend to industrial mining sites too. Cobalt extracted through artisanal means can enter the official cobalt supply chain at various blending stages: through open cobalt markets where artisanal miners sell their products; during transit, with instances of trucks halting to collect additional ASM material on the way to refineries in the DRC; and at refineries in both the DRC and China, where almost all Congolese cobalt is amalgamated.¹⁹

Moreover, industrial and artisanal cobalt sources yield identical rocks, and post-refinement, cobalt from all origins is exported to battery manufacturers worldwide. Assertions made by automobile and electronics corporations of sourcing exclusively from industrial cobalt mines contradict the practicalities of the business landscape in the DRC, often serving as a legal tactic to mitigate potential litigation risks. Nevertheless, regulatory bodies such as the oversight body of the German Supply Chain Act are well-informed and will most likely not accept this rationale.²⁰ Even with significant human rights due diligence and tracing mechanisms in place, it is not credible to authenticate an electric vehicle company or any other renewable energy company's cobalt supply chain as devoid of cobalt mined through ASM.

Artisanal cobalt mining and large-scale industrial cobalt mining can serve as complementary sectors, focusing on different grades of cobalt ore. Industrial machinery can extract significant quantities of cobalt ore from deeper underground locations, where ore at a grade of 0.5% is present. Conversely, the human eye can recover material with higher concentrations, ranging from 1% to 3%, typically found in shallow deposits. Therefore, the simultaneous presence of artisanal and industrial mining activities within appropriate concessions can yield a more extensive and varied cobalt output.²¹

Instead of dealing directly with the challenges posed by industrial and artisanal mining, several leading global downstream companies have joined industry initiatives that are theoretically focused on addressing human rights risks in the cobalt supply chain. These initiatives include the Global Battery Alliance (GBA), the Cobalt Action Partnership under the Responsible Mining Initiative (RMI), the Fair Cobalt Alliance (FCA), and Cobalt for Development (C4D). These initiatives have not succeeded yet in reducing child labor or improving mine safety in ASM mines. For example, the GBA's current efforts revolve around establishing a battery passport for industrially mined cobalt, while excluding ASM from its scope.

Likewise, RMI's Cobalt Action Partnership, FCA and C4D have pledged to tackle human rights challenges in ASM and have acknowledged that the formalization of ASM could represent a feasible path forward. However, while these initiatives voice apprehensions regarding child labor and mining safety, they do not mandate participating companies to directly engage in the formalization of artisanal mining, such as integrating it into their own business operations.

Overall, the industry responses to confront the human rights risks in global supply chains have, thus far, proven inadequate and ineffective in instigating tangible transformations within the ASM cobalt mining sector. Certain companies use industry initiatives as a cover for purported engagement, yet their contributions do not sufficiently challenge the *status quo* or support positive change in a manner conducive to the development of more ambitious and pragmatic agendas.

Addressing Human Rights Issues through ASM Formalization

Practical ways to address human rights risks in cobalt mining exist. Based on two field visits to the DRC, our research identified ASM formalization as a viable and scalable solution to combat human rights abuses in cobalt mining. ASM formalization was successfully tested by the Swiss trading firm Trafigura at the Mutoshi mine from 2018 until early 2020 in the Lualaba province in the south of the DRC. The Covid-19 pandemic in early 2020 interrupted this experiment. The Mutoshi formalization project started through a collaborative effort involving agencies of the national and provincial DRC government, Chemaf, a mining company based in Dubai, Trafigura, a global commodity firm that buys copper and cobalt from Chemaf, COMIAKOL, a Congolese mining cooperative operating at the Mutoshi concession, and Pact, a nonprofit organization focused on promoting the safety, formality, and increased productivity of ASM.

To counteract child labor and mining accidents, the partners of the project initiated measures to bolster the formalization of ASM and enforce basic safety standards at artisanal mine sites. Most importantly, the mining extraction method became semiautomated, meaning that machines stripped the site and created open pits so that miners would not have to dig deep tunnels to reach and extract the ore. The machinery was provided by the mine operating company, Chemaf, and the costs for creating the open pits was shared between Chemaf and Trafigura. Other efforts focused on providing capacity training for the cooperative to manage the mine site responsibly, including managing access, implementing stringent health and safety protocols for extraction processes, and mandating the use of boots, helmets, and other personal protective equipment.

The formalization initiative also led to enhanced miner safety through additional measures. The installation of a security fence around the ASM site, coupled with the use of identity cards, restricted daily access to 5,000 registered miners. Identity cards were issued to all previous Mutoshi miners prior to the formalization process. Typically, an average of 3,500 miners operated on the site concurrently. The stringent entry controls effectively prohibited access for children, pregnant women, and individuals under the influence of alcohol. ²²

In the DRC, prevailing superstitions and gender prejudices have largely inhibited the participation of women in mining sites. Traditional beliefs have propagated the notion that the involvement of women diminishes the quality of cobalt ore or causes it to vanish completely. As a result, women have traditionally been confined to peripheral roles, involving ore washing to enhance its purity and market value, as well as functioning as 'negotiants', serving as small-scale traders providing short-term financial support to mining teams. The process of formalization has empowered women by enabling them to directly engage in the extraction process. This full integration of female miners also addresses child labor: The additional income earned by women allowed families to send their children to school rather than to work, reducing child labor on the mining sites. ²³

The two key success factors for ASM formalization are the full integration of female miners, a change that will help address root causes of child labor, and the adoption of semiautomated extraction methods to create open pits and safer workplaces.

Challenges of Executing ASM Formalization

The process of implementing formalization in ASM encounters several challenges. Downstream companies sourcing cobalt have sidestepped the need to confront the profound human rights risks in the DRC's ASM sector. They prefer different approaches and tend to opt for indirect strategies within their contractual arrangements and aim to avoid potential legal liability. Companies promote discussions on emerging battery technologies aimed at reducing or eliminating the use of cobalt in batteries, along with pledges concerning the imminent rise of battery recycling, indicating a diminished dependency on cobalt mining. They also entertain the idea of deep-sea cobalt mining, disregarding the substantial environmental threats posed to a particularly fragile ecosystem.

The political landscape within the DRC, although showing positive indicators, remains a pivotal factor influencing the effective establishment of ASM formalization. The emergence of the *Entreprise Générale du Cobalt* (EGC) is an encouraging sign of the state's willingness to act. Although not fully operational, the EGC oversees the purchase, sale, and marketing of cobalt produced in the DRC. It was created as a state-owned enterprise to ensure that the country's cobalt resources were managed effectively and to increase transparency and accountability in the cobalt supply chain. If the EGC manages to regulate and supervise the cobalt sector, it would be the key partner to promote sustainable and responsible mining practices. The general elections in the DRC that took place in December 2023 confirmed President Félix Tshisekedi for a second term who supported the EGC from the beginning.

Cobalt prices are at a historical low at 28,000 USD per metric ton in May 2024, compared to 60'000 USD in early 2022, due to a range of factors, including the discovery of cobalt as a by-product of nickel mining in Indonesia.²⁴ Such volatility complicates investments in ASM formalization. Copper prices, however, have remained more stable at around 8,000 USD per ton.²⁵ As a result, artisanal miners have currently switched to copper mining at the same mine sites where they used to extract cobalt. Given the direct relationship between cobalt and copper mining, combining ASM efforts for both minerals could facilitate the execution of ASM formalization initiatives.

The implications of cobalt formalization extend beyond the scope of this study, underscoring the transferability of the insights gleaned to the supply chains of other critical minerals.

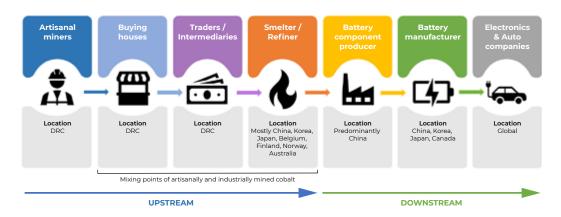
The Way Forward for a Just Transition in the Global Cobalt Industry

Despite the challenges facing the formalization of ASM mining, it is crucial to recognize that these hurdles are not insurmountable. The adage 'if there is a will, there is a way' underscores the potential for meaningful progress and effective solutions in addressing the human rights issues related to the mining sector. This case study illustrates that large traders such as Trafigura can make a difference. Also, despite reluctance from downstream companies, there are promising signs of increased political will in the DRC, such as the creation of the EGC. How emerging mandatory human rights due diligence (mHRDD) legislation affects companies' sourcing strategies remains to be seen but it could also establish new compliance incentives for companies to address human rights in their entire global supply chain, including the informal ASM sector.

The empowerment of women within the industry through formalization attests to the potential for positive change. Moreover, the willingness of stakeholders to engage in collaborative efforts and the ongoing discourse surrounding sustainable mining practices represent crucial steps toward overcoming the prevailing challenges. By fostering a collective commitment to responsible mining practices in both ASM and LSM, prioritizing human rights, and enacting comprehensive regulations, the prospects for successful ASM formalization in the DRC appear within reach.

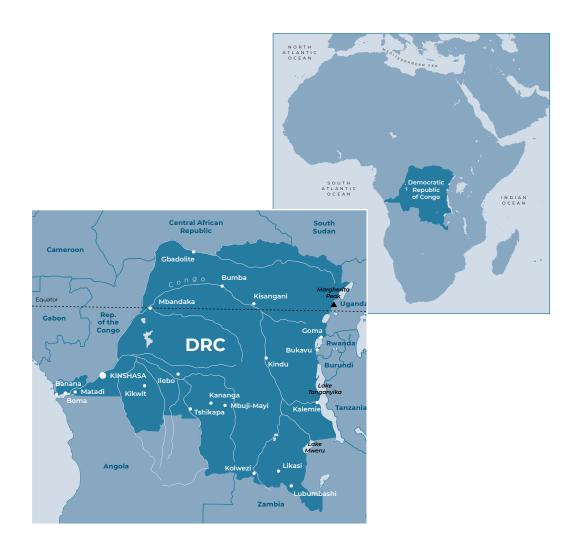
APPENDIX

1. The cobalt supply chain

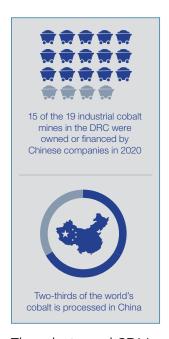


Source: Geneva Center for Business and Human Rights (GCBHR)

2. Map of the location of the Mutoshi project



3. The role of Chinese companies in the cobalt supply chain



Chinese mining companies dominate the cobalt supply chain, from extraction of the mineral at mine sites in the DRC to smelters and refiners. Fifteen of the 19 cobalt-producing industrial mines in the DRC were owned or financed by Chinese companies in 2020, according to *The New York Times*.²⁶ Two-thirds of the world's cobalt is processed in China.²⁷

Chinese entrepreneurs have set up buying stations, also known as depots, close to the 30 cobalt ASM sites in Lualaba and Katanga.²⁸ At these buying stations, the quality of the ore is assessed, and a price is determined.

Miners in the DRC often question the reliability of the instrument that determines the quality of the ore as well as the fairness of advertised prices.²⁹In 2019, ASM miners at Kamilombe revolted against buyers from the Chinese company Congo Dongfang International Mining (CDM), saying they felt cheated.

They destroyed CDM equipment, leaving burned excavation machines that are still visible today. During our visit to Kamilombe in December 2022, representatives of the local mining cooperative told us that they no longer sell their production to CDM, but new Chinese buyers have now taken over the depots. Miners said they still have no bargaining power over prices or the volumes they can sell.

At Mutoshi, miners similarly attributed lower incomes to the Chinese buyer active there. "At present, the price is imposed, you are not even able to discuss your own goods," explained Varlene Kaj, a trader at Mutoshi. "The Chinese impose the price of our products as they see fit, or as they wish. We want the situation to return as in the old days when we used to carry out our activities with Chemaf." Kaj referred favorably to the period when formalization took place at Mutoshi, during which the mining firm Chemaf oversaw an arrangement allowing miners to sell their ore at prices they considered fair.

Source: Dorothée Baumann-Pauly, 'Cobalt Mining in the Democratic Republic of the Congo: Addressing Root Causes of Human Rights Abuses', GCBHR and NYU Stern Center for Business and Human Rights, White Paper (February 2023).

ENDNOTES

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QUESTIONS

- I. Should companies avoid sourcing cobalt from the DRC?
- 2. Should cobalt be engineered out of batteries over concerns of human rights?
- What role can commodity trading companies (such as Trafigura) play to advance human rights in transition mineral supply chains?
- 4. Should companies in the cobalt supply chain, such as automakers and electronic companies, seek to address the human rights risks in artisanal cobalt mining in the DRC regardless of whether they directly or indirectly procure material from the country?
- Why do solutions to human rights issues in ASM require an explicit gender perspective?
- 6. How should companies respond to EU regulation of global labor supply chains (EU CSDDD, EU CSRD, EU Forced Labor Directive)?
- 7. What could be the legacy of the Mutoshi pilot project?
- Are industry initiatives supporting solutions to human rights issues in ASM? How should companies collaborate to develop mine safety and child labor standards at artisanal mining sites? To what extent should Chinese companies be involved?
- 9. What steps does the DRC government need to take to strengthen its regulatory framework for ASM cobalt? What can Western governments do to expedite and support its efforts?

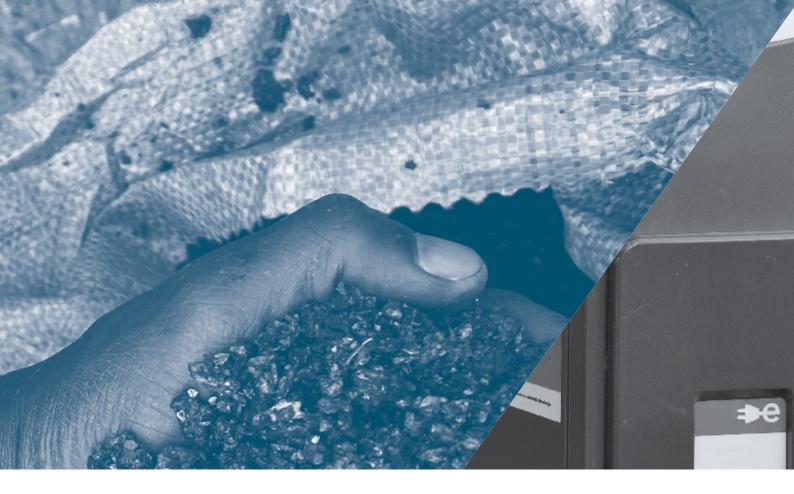
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