# Baseline Study of Artisanal and Small-Scale Cobalt Mining in the Democratic Republic of the Congo

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## Author:

Raphael Deberdt

## Affiliation:

University of British Columbia, Department of Anthropology


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## Disclaimer

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The report's lead author and research team declare that they have no competing interests, nor conflicts of interests, in the preparation and execution of this research, and have no vested interests regarding the conclusions of this study.

# Table of Contents

# Executive Summary

This baseline study is intended as informational research to orient industry actions in the artisanal cobalt sector, in particular in the complex open market. Informed by existing academic, industry, nonprofit, and government publications, as well as a series of interviews, the research describes the current state of affairs in the highly competitive cobalt market.

Going further, the research addresses the innovations being implemented in the artisanal sector, as well as the limitations of the current paradigm around responsible sourcing. Specifically, the paper points to five limitations significantly restricting positive and long-lasting impacts in the Democratic Republic of the Congo:

(1) lack of local ownership of the responsible sourcing programs;

(2) lack of training capacities, including support of educational systems;

(3) unproductive competition between responsible sourcing actors;

(4) need for more general information on the newly established *Entreprise Générale du Cobalt*;

(5) focus on reputational risks instead of adopting a holistic approach to risks.

From these limitations, the final section proposes an assessment of issue areas at the ASM level that profoundly impact the current responsible sourcing efforts. Moving from the discussion often focused on child labor at artisanal sites, we open the research to additional risks. We include seven risk categories that the research identified as critical to the sector. These issue areas include very broad socio-economic situations, such as extreme poverty, but also more specific concerns such as land rights, corruption, occupation health and safety (OHS), environmental degradation, child labor, and manipulation of production.

The report concludes that beyond the need to increase linkages between academic and industry research, including with Congolese institutions of higher education, more local ownership needs to be developed to ensure the sustainability of the responsible sourcing programs. In parallel, issues inherent to the cobalt artisanal industry should be managed at different levels of the supply chain with the financial and technical costs being shared equally among actors to avoid frustrations and tensions. Finally, we also discuss the newest developments in the field, including the inception of the *Entreprise Générale du Cobalt* (EGC), and we offer recommendations to ensure transparency and the effective management of risks in the cobalt artisanal sector.

# Introduction

This research, funded by Google through the Responsible Minerals Initiative (RMI) (Responsible Business Alliance Foundation) is the result of a collaborative effort between the University of British Columbia (UBC) Department of Anthropology and Responsible Sourcing Network (RSN). It aims to bridge an identified gap between the industry's knowledge and academic research regarding cobalt artisanal and small-scale mining (ASM) in the Democratic Republic of the Congo (DRC), and, in particular, the dynamics at the core of the open market. The open market encompasses the unformalized ASM operations[1], considered illegal in the eyes of industry actors and the legal framework in place in the country (Vogel, Musamba and Radley 2018).[2] However, in an effort to avoid a binary reading of the issue at stake, this industry brief will refer to unformalized operations (Hilson et al. 2017). Finally, as this study is a baseline desk study based on interviews and literature review, the author faced significant informational barriers. As such, on-the-ground research should be conducted to reinforce the currently almost inexistent information on the open market.

The DRC supplies around 64% of the world's cobalt (BGR 2018, 2), with around 15 to 20% originating from ASM (BGR 2021). The country's reserves near 48% globally, far exceeding the second largest reserves in Cuba at 6.9% (BGR 2018, 4). These small operations provide livelihoods to an estimated 430,000 individuals in 180 mine sites across the Congolese Copperbelt (Faber, Krauss and Sánchez De La Sierra 2017), a number increasing sharply when considering the secondary beneficiaries. Families indirectly involved in the mining process, communities benefiting from miners' spending, and all related activities (formal and informal) represent a significant part of the region's economic system. The DRC's 2018 Mining Code defines artisanal miners following a set of criteria: any natural adult person of Congolese nationality, holder of a valid artisanal exploitation card, member of a mining cooperative and who participates in mining work […] in an artisanal exploitation area" (2018, 10). Located in the Haut Katanga and Lualaba provinces in the Southeastern part of the country, cobalt mining has boomed in the past years[3] due to the growing pressure for a green transition away from fossil fuels and championing electrification of vehicles (Deberdt and LeBillon, forthcoming). Artisanal mining in the region has existed since pre-colonial times, but the disintegration of the *Gécamines*, the state-owned mining company, in the mid-1990s accelerated the process. Cobalt, in particular, was for a long time ignored by artisanal miners focusing on copper as the mineral did not have any significant economic interest (IN-R-002-04192021; Makori 2017). Since 2016 and the publication by Amnesty International and Afrewatch of a report highlighting child labor risks in artisanal operations, industry-led actions to answer to reputational and material risks have garnered support (ILO 2021). Slowly moving from an exclusively child labor perspective to a more holistic approach, responsible sourcing efforts have been reinforced by governmental policies, international non-government organizations (iNGO) initiatives, and an increasingly vocal Congolese civil society.

1. While many in the industry refer to the open market as the trading point where small traders buy and sell the production of artisanal miners, this paper embraces a larger perspective and focuses on artisanal unformalized operations and their supply chains.
2. While the DRC government released Decrees 19/15 and 19/16 at the end of 2019, these decrees reassert the illegal nature of such ASM operations.
3. Cobalt prices jumped from USD25,000/t in early 2016 to USD95,000/t in the first quarter of 2018 before decreasing back to 25,000/t in the third quarter of 2019. In February 2021, prices fluctuated again and reached USD50,000/t (Fitch Solution 2021, as quoted in Mining.com).

Cobalt, in use in the technology industry as a critical battery material for automotive, renewable energies, and electronic devices, is also central to the aerospace and healthcare industries (Cobalt Institute n.d.), hence the challenges around responsible and sustainable cobalt sourcing comprises a wide range of products and industries critical to the lives of millions and should spur increased due diligence practices and policies aligned with the needs of Congolese actors. Already considered a strategic mineral by governments[4] and corporations,[5] it is now time to reflect on the strategies put in place to tackle issues and their impacts on their intended beneficiaries: Congolese individual miners and the communities where they live and work.

The research informing this industry brief is a baseline study, necessitating more on-the-ground and collaborative work. Intended as an actionable document, the brief follows a direct structure and does not provide extensive background information accessible in other well-researched studies. These studies include but are not limited to:

- Organisation for Economic Co-operation and Development. 2019. *Interconnected supply chains: a comprehensive look at due diligence challenges and opportunities sourcing cobalt and copper from the Democratic Republic of the Congo*. Responsible Business Conduct. Accessible here.
- Bundesanstalt für Geowissenschaften und Rohstoffe (BGR). 2021. *Mining Conditions and Trading Networks in Artisanal Copper-Cobalt Supply Chains in the Democratic Republic of the Congo*. Accessible here.
- Mancini, Lucia, Nicolas A. Eslava, Marzia Traverso, and Fabrice Matthieux. 2020. *Responsible and Sustainable Sourcing of Battery Raw Materials. Insights from Hotspot Analysis, Company Disclosures and Field Research*. European Commission. Joint Research Center Technical Report. Accessible here.

This relatively short study is complemented by an extensive bibliography supporting the research, allowing interested parties to access additional information. Performed by an anthropologist based at UBC, it is informed by a thorough literature review of academic, industry, non-profit, and governmental publications on the topic of cobalt mining (including ASM and large-scale mining [LSM]) released between 2010 and the end of the first quarter of 2021. The information presented in this study also builds on more than 18 interviews with professionals located in the upstream, midstream, and downstream industrial sectors, as well as government officials, researchers, service providers, and civil society representatives. Each interview followed an unstructured model, where broad questions were addressed during an open conversation.

As previously mentioned, this publication aims to describe the current landscape of the ASM cobalt industry in the DRC, identify significant gaps in the current research, and provide avenues for critical discussions and potential additional interventions for the industry, governments, and researchers. This study explores the structure of the open market, including the different actors and their roles, and the channels

4. The United States of America's Department of the Interior released its list of critical minerals in 2018, including cobalt (U.S. Department of the Interior 2018). The European Commission (EC) published its fourth edition of critical raw materials in 2020, including cobalt. Canada's Natural Resources ministry announced its own list of critical minerals as part of the Canadian Minerals and Metals Plan (CMMP) in 2020, including cobalt (Natural Resources Canada 2020).
5. The increased interest of downstream actors in the extraction of cobalt translates the growing needs for these companies to secure raw materials, including cobalt. The examples of Tesla's involvement as technical advisor in the Goro operations in Nouvelle Calédonie (Jamasmie 2021a), or the agreements signed between the car manufacturer and upstream miners illustrate this trend (Sanderson 2020).

through which artisanal cobalt enters global supply chains. Following this part, the research assesses the socio-economic situation of ASM communities. However, because of the structure of this desk study, additional information should be gathered in-country. The paper then addresses the relationship between ASM and LSM and the potential for conflicts but also productive cooperation. Moving from an industry focus, the brief explores the political landscape surrounding the challenges of cobalt mining in the DRC and actions by international stakeholders to answer to the issues of artisanal cobalt. Finally, the study provides a risk assessment of ASM cobalt in the DRC, moving from the often-discussed child labor to lesser-known risks with acute impacts. The last part of this industry brief intends to extend the study informing it by providing avenues for future geographically and topically localized research.

As a result of an academic-industry collaboration, this short report highlights the need for more cooperation between these two actors. Going further, this collaboration should include the thriving Congolese civil society, as well as the country's government as to transform interventions from foreigner-based to fully involved local partners. In parallel, recognizing the limitations of the study, and the positionality of the author as Western, white researcher in a post-colonial context, it is important to also insist on the need for more local ownership of responsible sourcing programs and related research.

# Structure of the ASM Market

Through interviews with a series of on-the-ground actors and a literature review, the research aligns with the OECD's Interconnected Supply Chain by defining two types of ASM operations with different structures: (1) ASM with formal features; and (2) unformalized ASM,[6] with a focus on (a) ASM taking place on LSM concessions, and (b) ASM taking place outside of LSM concessions. While the structure of these markets appears singularly similar, some slight differences impact the risk level, particularly in terms of traceability, human rights, and corruption. In this section, we propose three analyses based on a review of existing literature and interviews, in particular with Congolese civil society actors and Western service providers in the sector of responsible sourcing of cobalt. Through these examples, we highlight the need to adopt context-specific measures and avoid a globalizing approach to the challenge of ASM sourcing from formalized as well as unformalized sources. Similarly, while unformalized sources present similar risks, the modality of their geographical location raises different challenges. As an anthropological work, this report argues for a reconceptualization of the current approach to cobalt ASM sourcing, away from the global discourses to embrace context specific measures of formalization. This part is exclusively focused on the structure of the market and as such assessments of the risks; benefits and challenges will be discussed in subsequent parts.

While ASM mining has been prevalent in the country in the pre-colonial and colonial times, it was officially recognized in the 1960s. It was only in 1982 that the first decree formalizing artisanal mining was released by the then-Mobutu government.[7] The fall of *Gécamines* in the mid-1990s and the unemployment that followed (Rubbers 2013) precipitated the move to ASM. Finally, the 2002 Mining Code began the

6. While this report is the result of a social science study, we use the term unformalized mining to insist on the need for a legal and political response to the issue. Other research might use the term informal, highlighting the social context around the extraction.

7. At the time, most of the ASM operations focused on diamonds and gemstones, as well as, to some extent, gold.

structuration of artisanal mining (IN-SP-004-05062021). As previously stated, artisanal mining is currently governed by the 2018 Mining Code, which stipulates that the operations must take place in a *Zone d'Exploitation Artisanale* (ZEA). BGR identified a total 67 copper and cobalt artisanal mines in 2021 (10) and visited 53 of them. Of these 53, only 3 were located on dedicated ZEAs (13), illustrating important limitations of the current legal model. ZEAs are a geographical entity defined by the Ministry of Mines and of a maximum size of two *carrés* (169.9 ha or 419.8 acres). Miners must be registered with an official card and be organized in a mining cooperative satisfying the Organization of the Harmonization of Business Law in Africa (*Organisation pour l'Harmonisation en Afrique du Droit des Affaires*, OHADA) rules. Finally, the cooperative must have received a ZEA from the Ministry of Mines and pay all the relevant taxes to the government[8] (BGR 2019, 12; DRC Mining Code 2018). Another possibility, according to article 30e of the Mining Code, is that the operator of an LSM concession cedes part of its concessions to ASM operators. It is also worth mentioning that article 97 of the 2018 Mining Code allows for a *Permis d'Exploitation de Petite Mine* (PEPM) that can be established in areas where industrial mining operation are not economically viable. While not directly related to artisanal mining, this license offers an alternative between ZEAs and industrial *Permis d'Exploitation* (PE). However, the establishment of ZEAs is currently facing some criticism regarding the ability of ASM workers to operate in them. In particular, the establishment of ZEAs in remote areas, far from cities or trading centers, is a significant barrier. Additionally, the ore is often located too deep for artisanal miners to access it, and in many cases the existence of the ore is not confirmed (IN-CS-001-02222021).

Finally, the new ministerial decrees 19/15 and 19/16 also impact the organization of the ASM cobalt sector. Decree 19/15 of November 5, 2019, explores the measures the government now takes in regard to artisanal mining of strategic resources, including cobalt. Specifically, articles 3 and 4 of the decree establish a state-owned company, EGC, as buyer of the artisanal cobalt production before its transformation for exportation. Decree 19/16 of November 5, 2019, creates the *Autorité de Régulation et du Contrôle des Marchés des Substances Minerales Stratégiques* (ARECOMS) in charge of regulating and implementing the buying of artisanal materials by the new entity.

## ASM with Active Responsible Sourcing Programs

As the OECD report states, ASM with active responsible sourcing program is the category providing the smallest proportion of cobalt. In 2019, the OECD argued that there were no more than five sites operating with full, or almost full, formal features in the country (OECD 2019, 22). Most of these have now been suspended for legal and commercial reasons, and it remains critical to recognize the fluidity of the on-the-ground situation and the fast-changing landscape of responsible sourcing programs in the DRC. Nevertheless, ASM with active responsible sourcing programs is also the category that received the most attention in the existing research. Two operations, the Mutoshi Pilot Project and Better Mining, have served as baseline for imagining future responsible sourcing projects (Mancini et al. 2020; Carter and Sturmes 2020; Mancini et al. 2021; Johansson de Silva, Strauss and Morisho 2019; Calvão, Macdonald and Bolay 2021). It is important to note that while Mutoshi is an implementation project, Better Mining is a monitoring program. In an effort to increase accessibility of these systems, this section will briefly describe the structure of each project before providing a baseline study of the supply chain between extraction to sale to processing units in-country.

8. As cobalt is considered a strategic resource, these taxes include the annual 10% flat tax rate on the turnover (article 241g). Additionally, all other mining authorities established tax rates on cooperatives.

## *Mutoshi Pilot Project*

The Mutoshi pilot project, located on the outskirts of Kolwezi in the Lualaba Province, was implemented in partnership between Chemaf, Trafigura Group, Pact, Kumi Consulting, and COMIAKOL. Established in 2018 on land leased by *Gécamines* to Chemaf,[9] and with the financial backing of Trafigura, the project focused on support for environmental and social impacts management. Mutoshi established a benchmark to Trafigura's Responsible Sourcing Artisanal and Small-Scale Mining (ASM) Expectations as well as OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (hereafter OECD Due Diligence Guidance) (Johansson de Silva, Strauss and Morisho 2019, 12). The project was intended as a capacity building and commercial venture with the objective to reduce reputational risk for the buyer, enhance cooperation between a group of actors, and prove the potential for collaboration between ASM and LSM. In particular, "technical support and on-the-job training on occupational health and safety, roles and responsibilities, specialized cooperative training, security and human rights, ASM labor transitioning and resilience, as well as data collection and monitoring of the project" (Ibid., 12) was ensured by Pact. Beyond these material benefits, a health clinic was established (IN-MC-001-02082021) and a system of price control was implemented (for more information on its success, see Part 2). Suspended in March 2020 because of the COVID-19 pandemic, the project ended in December 2020 due to a combination of factors, including the impacts of the pandemic, the redirection of priorities after the establishment of the new EGC, and tensions between partners (IN-MC-001-02082021; IN-NP-001-02222021).

## *Better Mining*

Better Mining, implemented by RCS Global Group, responds to similar challenges but adopts a different approach at lower costs. The program has a five-year operational history in the conflict minerals sector (tin, tungsten, tantalum, and gold, or 3TG) and is supported by the RMI. It is currently implemented at eight cobalt/copper ASM sites in Lualaba and Haut Katanga provinces and cooperates with cooperatives, including but not limited to the *Coopérative Minière Kupanga* (COMIKU) at Kasulo; *Coopérative Minière pour le Développement Social* (CMDS) at Kamilombe; *Exploitation Minière Artisanale du Katanga* (EMAK-C) at Karajipopo; *Coopérative Minière de Développement Intègre du Congo* (CMDIC) at Lufungu; and *Société Coopérative Minière le Peuple d'Abord* (SCOMIPA) at Midingi. Kasulo is a ZEA where the provincial government granted Congo Dongfeng International Mining (CDM), subsidiary of Huayou Cobalt exclusive off-take rights.[10] On the other side, Kamilombe also had for principal off-taker CDM on land leased by Kamoto Copper Company (KCC), subsidiary of Glencore. However, the contract with CDM was not renewed by the cooperative. The goal is to increase to 12 sites in the next two years (IN-SP-002-04222021). Better Mining is a mine monitoring mechanism using on-the-ground, permanent, and in-person monitoring, gathering information on a daily basis on the conditions of extraction of artisanal cobalt. The system provides this information to the site operator and the cooperative, recording incidents, later translated in risk categories and corrective action plans (CAPs). It is based on a standard developed by RCS Global Group, the Better Sourcing Program Standard v6 (2016), aligned with the OECD Guidance (Mancini et al. 2020, 60). The

9. Chemaf is a subsidiary of Dubai-based Shalina, a pharmaceutical company that in the early 2000s saw the potential to invest in the cobalt and copper mining industry in the DRC after the fall of the *Gécamines* (IN-SP-004-05062021).

10. While the author has not been able to confirm this information, according to some respondents, CDM holds an exclusive agreement in Kasulo while at other sites no legal purchasing agreements are in place (IN-IO-001-02242021).

operator, cooperative, and other involved stakeholders then receive CAPs from RCS Global Group to be implemented to mitigate the risks. CAPs are discussed with all stakeholders on a monthly basis and are a continuous process that includes previous months' non-implemented CAPs. These CAPs include broad categories of actions, ranging from vegetation planting for soil stabilization to trainings or increasing the presence of the *Service d'Assistance et d'Encadrement des Mines Artisanales et de Petit Echelle* (SAEMAPE) (IN-SP-002-04222021; Carter and Sturmes 2020; RCS Global 2019; Calvão, Macdonald and Bolay 2021; Mancini et al 2021). Finally, closure of CAPs is reported to national and international stakeholders monthly, and monitored on a daily basis.

## *Assessment of Artisanal Sites with Responsible Sourcing Projects*

This research is based on previous assessments performed by other researchers regarding the two main responsible sourcing programs that have been developed in the DRC Copperbelt: the Mutoshi Pilot Project and Better Mining. As a baseline study, and in the interest of transparency and the inclusion of all studies performed on these sites, we present these critiques below. It remains important to note that while the companies included below face these criticisms, similar concerns exist in other sites not subjected to the heightened attention that responsible sourcing projects receive.

1- Concerns surrounding the legality of mines sites have been raised by SARWATCH. These include the lack of alignment with article 30e of the Mining Code (Mutoshi), the imposition of a monopoly (Mutoshi, Kamilombe and Kasulo), the depth of the pits (Kamilombe and Kasulo), and accusation of price manipulation (Kamilombe and Kasulo). For more information, refer to:

> Kabemba, Claude and Georges Bokondu Mukuli. 2020. *Overexploitation and Injustice against Artisanal Miners in the Congolese Cobalt Supply Chain*. Southern Africa Resource Watch, Resource Insight, no. 18.

2- Concerns surrounding the level of monitoring (Kasulo) have been raised by Carter and Sturmes. For more information, refer to:

> Carter, Assheton Stewart and David Sturmes. 2020. *Digging for Change. Towards a Responsible Cobalt Supply Chain*. The Impact Facility.

3- For an in-depth assessment of OECD Annex II risks (Mutoshi and Kasulo), refer to the following study commissioned by the EU Commission:

> Mancini, Lucia, Nicolas A. Eslava, Marzia Traverso, and Fabrice Matthieux. 2020. *Responsible and Sustainable Sourcing of Battery Raw Materials. Insights from Hotspot Analysis, Company Disclosures and Field Research*. European Commission. Joint Research Center Technical Report.

# Unformalized ASM

## *ASM Taking Place on LSM Concessions*

Unformalized artisanal mining operations often take place on LSM concessions often leased by private companies from state-owned *Gécamines*, and sometimes are owned by the private companies themselves.

Each company adopts a specific approach to the presence of ASM on its concession (Katz-Lavigne 2019; IN-CS-001-02222021; IN-CS-002-03182021), creating a complex set of rules blurring or making it difficult to define a country-wide standard. According to the DRC's Mining Code, artisanal operation must be located on a ZEA, as defined by the Ministry of Mines (2018, 16). The code also introduces a possibility for artisanal miners to operate on industrial sites as article 30e provides that a written authorization of the title owner is necessary, and the title holder must cede the part of the concession dedicated to ASM.

According to our research and the interviews we performed, a core issue raised by artisanal miners is the lack of access to cobalt-rich areas (IN-CS-001-02222021; Katz-Lavigne 2020a; IN-SP-002-04222021; IN-UC-002-0302202; BGR 2021, 52). The displacement that the establishment of LSM operations entailed significantly impacted artisanal miners and their ability to access sites of extraction (IN-CS-002-03182021). Additionally, unformalized ASM operators on LSM concessions extract cobalt ore mostly from waste tailings already processed by the industrial miner but still holding limited amounts of cobalt ore (Friedman 2019; Nkulu et al. 2018; BGR 2019, 27). In some cases, these tailings have been historically exploited and still hold significant amounts of cobalt ore (IN-MC-002-02082021). Nevertheless, LSM miners appear to now be recognizing the significance of ASM operations on their concessions and the need to work toward responsible ASM (IN-UC-001-03012021). The development of projects such as Mutoshi provided significant learnings and, despite its termination, illustrated the possibility for ASM to be economically viable while addressing significant material and reputational risks (IN-MC-001-02082021). Nevertheless, the level of informality, the posture of the police and military forces, including the *Police des Mines et des Hydrocarbures* (PMH) (mining police), and the arrangements between artisanal miners and private security companies adds significant complexity to the access to industrial sites (Katz-Lavigne 2020b; IN-CS-001-02222021). The instability of such arrangements and the constant need to readjust their strategies pushes artisanal miners to dangerous practices often leading to conflict (ICG 2020; Ross 2019). These risks will be explored more in-depth in Part 3 of this brief, focused on the ASM/LSM relationship.

Two different logics apply to these exploitations. Artisanal miners accessing the site might be allowed to do so under an agreement tying their presence to the sale of their production to the cooperative or operator, hence introducing artisanal material in the company's supply chain. In other cases, the concession owner might look away, and usually no operator invests in the site to support the formalization or the removing of the overburden (IN-IO-001-02242021). In parallel, the ASM miners are allowed to sell their production outside of the company (IN-CS-001-02222021). These two systems of extraction and trade, and the potential introduction of artisanal materials in industrial supply chains blur even further the lines between artisanally-produced materials and industrial cobalt. Consequently, identification of a mine site is impacted and it complexifies the work of companies all along the supply chains and, to a certain extent, auditors in identifying the origin of the ore processed and sold by crude refiners in DRC.

## *ASM Taking Place on Concessions Outside of LSM Zones of Operations*

In parallel to unformalized artisanal mining performed on LSM concessions, miners also established extraction operations on land where no ZEAs have been established. These operations can be located on land covered by a PE or *Permis de Recherche* (PR) but currently not in operation or on land without any concessions. In its 2021 study, BGR notes that out of the 53 mines visited, 87% of them are located on mining concessions (PE) of industrial companies (13). It is important to note that according to the Mining Code, PR

and PE applicants need to demonstrate commencement of work in order to renew their permits. Permit holders' difficulty covering security costs for inactive assets also means they are often left unsecured and accessible for informal ASM activities. Faber, Krauss and Sánchez De La Sierra identified 180 cobalt mining sites and 426 mining communities across the Lualaba and Haut Katanga provinces (2017, 15). Most of these operate outside LSM concessions currently in operation. Despite the criticality of the risks, very limited research has been conducted on these operations. Cuvelier's analysis of the role of ASM cobalt and copper mining in the shaping of gender relationships and masculinity in the region provides some information on the structure of this market (2014). However, most of the information we gathered on these operations was provided by civil society representatives. Makori describes the Kilobe mine near Kolwezi and the existence of these exploitations from pre-colonial times (2019, 190). While more research needs to be done on these specific sites, the structure of the cobalt trade remains very similar to the operations on LSM concessions, at least at those where the license holder does not require artisanal miners to sell their production directly to them. Interviewees reported the structure of the supply chain as described in Figure 3. It is also estimated that around 180 *depots* sold the production of the artisanal market to 14 processing units (crude refiners) in the region through traders (IN-IO-001-05032021). According to the interviews we conducted, the vast majority of these *depots* are owned and operated by Chinese, Indian, and Lebanese nationals, with direct links to crude refiners established with Chinese, Middle Eastern, or Indian capital (IN-IO-001-05032021; IN-CS-001-02222021; IN-CS-002-03182021; IN-UC-002-03022021).

# Socio-economic Situation of the Artisanal Miners

Since the 2016 Amnesty International report, international attention focused on child labor. This risk seems to remain at the core of downstream companies' concerns (IN-DC-001-04082021). Based on reputational concerns, the majority of corporate communication and news outlet publication focus on the presence of underage individuals in mine sites (Posner 2020; Sanderson 2019). The 2019 lawsuit, *Doe 1 v. Apple Inc.*, No. 1:19 -cv-03737 (D.D.C. Dec. 15, 2019), targeting Alphabet, Apple, Tesla, Dell, and Microsoft also brought more pressure on companies to focus on the child labor risk. However, while corporate actors, civil society representatives and international organizations recognize the importance of this risk, the industry response should be included in a broader strategy of economic development (IN-IO-003-05032021; IN-SP-002-04142021). As some actors we interviewed argued, the issue of child labor in the cobalt industry appears now to be an "emotional risk" that does not take into consideration the economic situation of the Congolese populations (IN-UC-002-0302202).[11]

Considering the current socio-economic situation of artisanal miners and their communities, only a holistic approach can bring long-term and positive change. By holistic, the research intends to demonstrate how targeted programs on specific aspects of the cobalt ASM challenge cannot fulfill their goals without being included in broader governance and collaborative processes. This study shows the need to move

11. Nevertheless, other actors still consider the risk of worst forms of child labor (WFCL) as the main risk in the ASM cobalt sector. See for example BGR 2021, 51.

beyond the "showcase" project (IN-SP-004-05062021) to adopt long-term and holistic programs, informed by international, and most importantly, Congolese research and needs and with the participation and support of DRC government institutions.

Current studies on the socio-economic status of artisanal miners point out the economic attractivity of artisanal mining, particularly when compared to agriculture or trade jobs (Hilson and Garforth 2012). Artisanal mining is also often performed as a secondary source of income by families involved in agricultural production, frequently impacted by seasonal concerns (Faber, Krauss and Sánchez De La Sierra 2019, 26). Research also shows the complex, but not impossible, economic viability of artisanal mining and the extreme level of poverty in ASM communities despite the diversification of income sources (IN-UC-002-03022021). Faber, Krauss and Sánchez De La Sierra state that "the mean and median of monthly household income per capita are USD 22 and USD 9. These amount to USD 34.50 and USD 14 when adjusting for purchasing power parity to account for the national price level" (2019, 25). Nevertheless, while recognizing the high level of poverty, it appears that these numbers differ significantly between studies. Makori states that *creuseurs* earn around USD 16 per day, with significant fluctuations limiting their ability to stabilize their income (2019, 127). Similarly, the BGR's 2019 extensive study found that 40% of the miners surveyed had an income of less than USD 4.2 a day and 28% between USD 4.2 to USD 10 a day, meaning that most miners earn less than USD 10 a day (2019, 36). These numbers changed significantly in the 2021 updated study, with 19.6% of the miners earning less than USD 4.2 daily, 33.3% earning between USD 4.2 and USD 10 daily, 29.7% earning between USD 10 and USD 30 daily, and the remaining 17.4% earning more than USD 30 a day (BGR 2021, 42). Hence, artisanal mining provides a very attractive economic alternative.

Regarding the responsible sourcing programs/projects currently in place or developed in the past, limitations, including the complexity to scale them up (IN-IO-003-05032021), put significant constraints on their impact in the Congolese cobalt ASM communities. It should be noted, however, that significant differences exist between Mutoshi and Better Mining in terms of the ability to scale up these projects. For example, Mutoshi included a maximum of 5,000 miners[12] (Johansson de Silva, Strauss and Morisho 2019) with very high costs of operation. According to some estimates of the total number of artisanal miners in the region, this would represent between 3 and 5% of the total population (IN-IO-001-02242021). While the Mutoshi Pilot Project should be praised for establishing a strong baseline for collaboration between ASM and LSM, as well as for establishing significant benefits for the miners involved, the costs remain an important barrier to scale up. Nevertheless, future collaboration between Trafigura, Pact, Kumi and other actors might explore different avenues for scaling up these monitoring and capacity building systems. The relatively high costs of the project and the focus on one site does not allow us to estimate the replicability of the structure to other sites. Importantly, the end of the project also affects those who were registered as the Mutoshi Pilot Project site will become an industrial mine (IN-MC-002-02082021).

The absence of a mitigation plan to support the artisanal miners now facing forced relocation illustrates the need to implement long-term systems reflecting not only commercial interests but true corporate social responsibility (CSR). Still, according to the evaluation of the project, commissioned by the Swiss trader, miners received important economic benefits, including the stabilization of their incomes through a guaranteed buying price. For example, during the price drops in 2018 and 2019, the average monthly income of miners in

12. According to official figures the number of miners at Mutoshi was caped at 5,000. However, at the 2019 OECD Forum, the number of 5,200 miners was given by Trafigura Group. SARWATCH estimates the number at 5,600 miners.

the project dropped by 53% while miners outside the project reported more than 90% losses (Johansson de Silva, Strauss and Morisho 2019, 20). Additionally, increased income is spurred by the drop in operating costs, including the cost of safe transport of the ore to the buyer (here Chemaf), and the cost of extraction itself then supported by mechanized systems. In all, the impact assessment estimates that these costs to be between USD 5 and USD 8 a day, a significant portion of miners' total earnings (Ibid, 22). Due to the focus on improving working conditions, including the establishment of a clinic, the introduction of better personal protective equipment (PPE), and the building of latrines, health outcomes also improved during the implementation of the project (Ibid, 26). Finally, gender-based issues have significantly decreased with women on site reportedly feeling safer and earning more than 2.5 times what other women make outside the project. (Ibid, 27).

The Mutoshi Pilot Project assessment also evaluates the broader economic impact on neighboring communities. Particularly, impacts on business creation, and in particular female-owned businesses, appear clear. Similarly, the increased income of artisanal miners in the program led to an almost doubling of spending by these individuals in the neighboring communities, from USD 1,243 to USD 2,300 a year. These encouraging numbers should be kept in perspective, particularly given the end of the program and the future establishment of a Chemaf-owned industrial mine. In the years to come, it will be critical to evaluate the impacts of this shift on miners and their communities and learn from this experience to avoid replicating short-term responsible sourcing projects that may leave unintended negative consequences once the projects close down.

In the case of Better Mining, the Kasulo site is estimated to gather around 2,000 miners (Carter and Sturmes 2020, 32) and the Kamilombe site around 3,500 miners (Ibid., 39). Unfortunately, while studies include the Better Mining program, their data are relatively limited and do not allow us to provide a full assessment of the program's socio-economic impacts.[13] Such a study could be an important step for the future of Better Mining and fully establish the legitimacy of the program beyond any criticisms. Nevertheless, due to the objectives of the program, which are profoundly different than those of Mutoshi, costs are significantly lower, thus allowing for a better replication throughout Haut Katanga and Lualaba 2Cs (copper and cobalt) industry. Currently implemented at 43 ASM sites in different geographies and minerals, this ability to scale up the program appears clear.

# Relationships Between ASM and LSM

A long-term challenge of the cobalt artisanal market has been the cohabitation between ASM and LSM operations (IN-UC-002-03022021; Prause 2020; Sovacool 2019). In summer 2019, a spike of violence on and near the Tenke Fungurume Mining (TFM) and Glencore concessions sparked condemnation of the use of excessive force against artisanal miners (Amnesty International 2018; Reuters 2019). The region is well known for the deadly clashes between the two entities. However, as of today, a highly selective examination of the

13. While reports such as Carter and Sturmes (2020) explore the impacts of Better Mining, their findings are not as detailed as the Trafigura-commissioned study of Mutoshi.

causes and associated solutions has been undertaken, informed by international framing(s) of very specific issues at hand (Katz-Lavigne 2020b; IN-R-002-04192021).

The relationship between ASM and LSM is critical to the livelihoods of millions of people. Accessing tailings[14] or other parts of LSM concessions allows the artisanal miners to access the ore more easily. The attractiveness of this model is important, also because of the location of these industrial operations near population centers in Lubumbashi, Likasi, or Kolwezi, for example. Nevertheless, the current lack of a global framework for cohabitation between the two industries raises important questions and has led to some of the most significant human rights violations in the Congolese mining industry[15]. Industrial miners recognize these inherent risks and the need to address them (IN-UC-001-03012021; IN-UC-003-04122021). However, it seems that in many cases, the root causes often lie at the intersection between company practices, government intervention, and the legal framework in place in the DRC, making it extremely complex to tackle. Nevertheless, a response is possible with sufficient willingness to cooperate and implement an approach that will benefit all the stakeholders, especially artisanal miners.

The issue of land rights is a common concern across postcolonial settings, and the DRC faces similar challenges (Jurewicz 2013). Katz-Lavigne argues that "artisanal miners who enter LSM sites in southeastern DRC are viewed in an ambiguous, often negative light. At times they are described as clandestine, which situates miners vis-à-vis the presumed "legal" property rights of companies" (2019, 1). There is a strong need to reconceptualize this perspective to finally reach a productive cohabitation between ASM and LSM. This logic, based on a classical property rights theory, entails that only rights given by a central government to private corporations allows for a productive economic return. This is to be compared to the artisanal mining sector, considered an inefficient industry with little economic benefits (Geenen 2015). The current approach of classical property rights theory is at the core of the DRC government's legal system, inspired by Western conceptions of private property, and is supported by companies in the upstream sector and international organizations. The inefficiencies of such an approach to land rights has proved devastating in the DRC for decades and has been extensively studied not only in the country but also throughout the African continent (Geenen 2012; Mwitwa et al. 2012; Debrah, Mtegha and Cawood 2018). That negates the centrality of ASM operations for the economic survival of hundreds of thousands of miners and entire communities. Kabemba and Mukuli estimated that the ASM production at the high of cobalt prices represented around USD 2 billion, questioning the discourse around ASM's economic inefficiencies (2020, 33).

Cohabitation between ASM and LSM, as well as land access for artisanal miners, also raises concerns surrounding the relationships between individual miners and private security companies. Access to cobalt-rich areas is often negotiated between groups of miners and security agents[16] (Katz-Lavigne 2020a; IN-CS-002-

14. The extraction of cobalt from tailings by ASM miners applies to specific cases. The LSM industry has used historic tailings as a source of cobalt as well (Metalkol RTR, Chemaf), and tailings processed by modern LSM hold very limited amounts of cobalt ore. Additionally, the toxicity of the products might be an important sourcing of risk.

15. On September 29th, 2012, a complaint was lodged against TFM and Delta Protection for the death of teenager Thindwa Clovis after he entered the mine site (Centre de Ressources sur les Entreprises et les Droits de l'Homme 2012). In 2019, a woman was killed in a crackdown against illegal mining at TFM while the army expelled 10,000 miners from the concession (Yahoo! News 2019). Similarly, Afrewatch reported fires shot at artisanal miners during their eviction from Glencore's Kamoto Copper Company's site in 2019. These are only a few examples of violent interactions.

16. It is also important to remember that agents from state entities are present at informal ASM sites, which also often provides the opportunity of extortion and petty corruption due to unequal power interactions.

03182021). The current auditing system[17] in place in the cobalt sector also reflects efforts to avoid the presence of artisanal miners on LSM sites as this is perceived as a significant reputational risk for companies (IN-CS-001-02222021; IN-NP-001-02222021; IN-SP-002-04142021). Corporate actors, alongside the government and the newly established EGC, and international standard-setting organizations, such as the RMI, could work toward a reconceptualization of the ASM presence on LSM concessions. One such approach, as proposed in the recommendations, could involve the downstream sector in a support role to alleviate of this risk of conflicts with the creation of a fund dedicated to mediating such conflicts. The trend of militarization, or para-militarization of the LSM operations, as we have seen with the summer 2019 violence (see above at TFM and Gencore), not only causes one to question the application of international standards such as the OECD Due Diligence Guidance, but also the alignment of such policies with the Congolese Mining Code. The occupation of LSM sites, often at night or during the day in inaccessible areas of the concessions, is frequently supported by the corruption of PMH, as well as private security actors. However, in other circumstances, artisanal miners regroup to enter and extract minerals on viable mine sites controlled by foreign private companies (IN-UC-002-0302202). This occurs for different reason that should be explored in subsequent studies, but contestation of corporate policies seems to be a driver of such actions[18].

As a critical source of income for ASM communities, extraction on LSM concessions should be at the core of the response to the cobalt challenge and an agreement should be reached to allow such practice and decrease the risks of violence (IN-R-002-04192021). In 2020, the establishment of the EGC created a monopoly on the off-take of the artisanal production, theoretically preventing private operators from buying this production (for more information on EGC, see the next section) (IN-UC-002-0302202). Two cases can be identified here:

(1) LSM companies operating on land leased to Gécamines.

(2) LSM companies operating on land owned by the company itself.

In both cases, EGC (a *Gécamines* subsidiary) should negotiate access to the land for artisanal miners and the off-take of the artisanal production by EGC. Potential agreements could include renegotiating the lease with *Gécamines* under strict independent watchdog guidance, and a price guarantee paid to the artisanal miners by EGC that contractually cannot be matched by the LSM operator. However, due to article 30e of the Mining Code, promoting partnerships between private mining companies and EGC would necessitate amending this code. Such a change would streamline the process of off-take of the artisanal material by EGC and the superposition of ZEAs (or other artisanal operations) with industrial operation. Establishing leasehold agreements providing LSM operators with more control would also impact positively the current system. Due to Article 30e, this superposition is technically impossible because of the requirement that the operator cedes the land on which ASM operations are established.

17. This system is based on the RMAP-inspired Cobalt Refiner Supply Chain Due Diligence Standard.

18. As described in the recommendations, companies should adopt trainings based on the United Nations (UN) Voluntary Principles for Business and Human Rights and the voluntary principles on security and human rights (VPSHR). For more information about VPSHR in the DRC, see Afrewatch 2020.

# Political Landscape of the ASM Market

In the past few years, the political landscape of cobalt artisanal production has profoundly evolved at the national and international levels. The increasing interest in this strategic mineral and the growing electric vehicles (EV) market led to the development of international forums to discuss the challenges of artisanal production, as well as in-country responses. In this part we focus our attention on a handful of initiatives, with a particular interest in the newly established EGC, as well as international efforts through the auditing system currently in place to address its benefits and shortcomings.

## Domestic Initiatives

Before discussing the new EGC, it is important to address the current situation at the cooperatives' level. As we previously stated, cooperatives are conferred ZEAs by authorities at the national and/or provincial levels. A significant and recurrent criticism of these cooperatives that we identified during our interviews is the political nature of the organizations. According to our research, the vast majority of cooperatives in the ASM cobalt sector have links to political actors, often close to the former president Joseph Kabila (IN-SP-002-04142021; IN-IO-003-05032021; IN-IO-001-02242021; IN-CS-001-02222021). This situation is a significant challenge for the responsible production of artisanal cobalt in the country and questions the level of corruption in the cooperatives. As the OECD described, political affiliation constitutes important leverage to acquire control of cooperatives. They argue that "a name check of the SAEMAPE list of authorized cooperatives shows that some PEPs are themselves heads of cooperatives. These include a relative of a governor, other provincial government and mining regulatory agency leadership and their family members, national politicians, and family members of the former president" (OECD 2019, 46).

In 2018, the Congolese government announced by decree the inclusion of cobalt as a strategic mineral (DRC Government 2018). A year later, decree 19/15 and decree 19/16 established the legal landscape of the EGC, including the implementation of the *Autorité de Régulation et du Contrôle des Marchés des Substances Minérales Stratégiques* (ARECOMS) (DRC Government 2019a; DRC Government 2019b). EGC, owned at 95% by state-owned miner *Gécamines* and 5% directly by the Congolese government (IN-UC-002-03022021), was officially established at the end of 2020 and quickly entered into a trading agreement with Trafigura Group (Trafigura 2020). It is important to note that this agreement is not exclusive and that EGC is free to enter in other agreements with other international traders. Finally, the last step of the launch was made in March 2021 with the company releasing its Responsible Sourcing Standard (hereafter EGC Standard) (EGC 2021). The EGC Standard covers mining cooperatives, EGC itself, and the buyers of its products. To a certain extent, EGC can be compared to the defunct initiative of NOUCO (Nouvelle Compagnie) with *Gécamines* and the *Exploitants Miniers Artisanaux du Katanga* (Emak-C) from the 1990s to the early 2000s (IN-SP-004-05062021).

The company has the potential to be transformative for the industry. From transparency to a streamlining of ASM material access to market and the betterment of miners working conditions and livelihood, EGC could have a significant impact on the DRC's mining industry. Expectations regarding the new company are high (IN-MC-001-02012021; IN-MC-002-02082021; IN-UC-002-03022021; IN-CS-002-03182021) but currently information remains sparse[19]. During the interviews we performed, stakeholders mentioned their

limited ability to discuss the topic, due mainly to informational gaps (IN-SP-003-04222021; IN-SP-002-04142021; IN-IO-003-05032021)[20]. This issue even deepens when discussing the topic with actors positioned a bit further from the field. In their cases, the absence of knowledge of the existence of EGC raises concerns. EGC has now become the only entity able to purchase legally mined artisanal materials and will serve as the sole trader for artisanal cobalt (IN-UC-002-03022021). Under the agreement with Trafigura, the Swiss company will provide financial and technical support to define responsible artisanal sites. This engagement will include ASM formalization, traceability, due diligence conducted by all responsible actors in the supply chain, checks and controls, ongoing monitoring and risk mitigations, audits, and multi-stakeholder engagement (IN-NP-001-02222021). As for the now-closed Mutoshi pilot project, the Swiss trader, Trafigura, will be aided by Pact and Kumi Consulting (IN-SP-001-02172021; IN-NP-001-02222021).

Informational gaps should be tackled effectively by the Congolese government and EGC and its partners to avoid potential criticisms. While the engagement and outreach strategy that the company followed in the past months is encouraging, the author supports that EGC, Gécamines, and the DRC government should pursue this avenue. One pervasive issue mentioned by downstream companies and service providers in the responsible cobalt sourcing sector is the concept of a monopoly applied to the sector (IN-DC-001-04082021; IN-SP-002-04142021). While this model has been developed in other regions, it should be clarified that while EGC holds the monopoly of purchasing artisanal products, the state-owned company is free to sign agreements with any companies for the trade and marketing of the production. Hence, contrary to some belief, Trafigura does not hold a monopoly on all products sold by EGC (IN-MC-002-02082021). Nevertheless, the close cooperation between the two companies, including on the definition of the EGC Standard's requirements, is a source of concerns for other actors in the field, as well as civil society (IN-SP-003-04222021; IN-CS-002-03182021). These criticisms include the non-disclosure of the agreement between the two companies (Tsieleka 2021).

In line with the diversification of EGC's partners, the ability of the company to positively impact the artisanal sector also faces significant barriers linked to financial constraints. As BGR argues, "the state-owned company EGC […] does not currently have the financial means and the technically necessary processing capacities to purchase the entire cobalt production and to ensure responsible artisanal mining on a broad scale" (2021, 53). The German survey states that only additional partnerships with established crude refiners already operating in the country would allow the company to bring in processing abilities and capital. These issues were also raised by Mukuli and Cihunda, questioning the ability of the EGC to fund itself and the links between EGC and state-owned *Gécamines* (2020, 9). Similar concerns were raised by stakeholders during interviews (IN-IO-003-05032021; IN-R-002-04192021; IN-UC-003-04122021). Through EGC, the DRC government is taking encouraging steps toward the formalization of the sector. Finally, as we previously mentioned, Trafigura and EGC collaboration is based on the Swiss trader's experience with the Mutoshi Pilot Project. The project had clear short-term benefits but should be monitored for potential long-term unintended consequences. This experience should inspire EGC and its partners to embrace a slightly different strategy, particularly during site closure and relocation of the miners.

19. For more information, EGc's website is accessible here: https://www.egcobalt-rdc.com.

20. Interviews were conducted between February and May 2021. It appears that even after the 2021 OECD Forum on Responsible Mineral Supply Chains during which EGC, with support from Trafigura and Kumi Consulting, organized a panel increasing the information available to stakeholders, a need for more information remained. The author argues that local and global engagement is still needed to ensure that all actors are aware of EGC's role, requirements, and organization.

Finally, in light of the push by the Lualaba province to develop *comptoirs* (trading depots), the EGC appears to have developed important relationships with some of these entities. As the province is implementing a strategy to establish approximately 100 depots to buy artisanal cobalt production, the EGC, according to respondents, developed exclusive buying rights with at least 24 of them (IN-SP-004-05062021). This is an important step, and a potential game changer in the transparency of the sector, as a majority of the artisanal extraction is made on land owned or leased by private companies, on which the EGC does not have control of the production.

## International Initiatives

At the international level, a series of initiatives has been developed to explore the challenge of ASM of cobalt. In this part, we will focus on the technical approaches of standard development and auditing programs. In general, these initiatives are mostly driven by Western concerns around responsible sourcing and the management of reputational risks; as a result, they often gather criticism from on-the-ground actors for their cost repartitions and their lack of representation of Congolese actors[21] (IN-SP-004-05062021; IN-SP-002-04142021; IN-CS-002-03182021; IN-CS-001-02222021).

In this part we will focus on the Cobalt Refiner Supply Chain Due Diligence Standard (hereafter the Cobalt Standard) developed jointly between the RMI and the Responsible Cobalt Initiative (RCI) (IN-IO-002-03152021). The RCI is a project of the China Chamber of Commerce for Metals, Minerals and Chemicals (CCCMC), developed with the support of the OECD (CCCMC 2016). In addition to this standard and auditing system, second party audits, usually carried out by downstream companies, integrate requirements specific to these companies. Those can include CO2 emission for example (RCS Global Group n.d.). In other cases, standards such as the Initiative for Responsible Mining Assurance (IRMA) are used to audit cobalt industrial mine sites (Daimler n.d.). The Cobalt Standard is implemented within the Responsible Minerals Assurance Process (RMAP) framework and is inspired by RMAP 3TG Standards and implementation for smelters and refiners. It covers both crude refiners in the DRC as well as fine refiners in other countries. As of June 2021, there were 27 active cobalt refiners (cobalt refiners that are currently engaged in the RMAP, at any point from scheduling the initial assessment to implementing corrective actions but not yet recognized conformant under RMAP) and 13 conformant cobalt refiners (refiners for which critical findings have been sufficiently addressed for an initial RMPA assessment, and there were no zero-tolerance findings identified during the course of the assessment) (RMI 2021). In addition to this standard, there is significant interest in the establishment of a common set of expectations for responsible ASM cobalt across the value chain. This is a key focus of the Cobalt Action Partnership (CAP).[22] The draft Cobalt ASM Framework, inspired by a number of ASM standards including but not limited to the CRAFT standard and an initial ESG standard developed by the FCA, would address salient issues within artisanal cobalt mining (WEF 2020, 4). Similarly, this standard should also refer to and strengthen existing standards.

21. While the Ministry of Mines of the DRC joined the Cobalt Action Partnership (CAP) in 2020, civil society organizations appear united in their criticism of the lack of inclusivity of Congolese voices in high-level decisional circles.

22. The draft ASM framework was released for consultation on June 22nd, 2021. During this consultation, IMPACT and Resolve, with support from the RMI, will organize three online dialogues to discuss the content of the framework and its development. One critique raised by stakeholders was the relatively short time period of this consultation. The author also noted the absence of Congolese actors during the online dialogue (while recognizing their inclusion in the development of the standard). Recommendations are included at the end of this report.

While this effort should be encouraged and supported, the nature of audits and the long-term positive impacts for artisanal miners and their communities of assurance programs remain questionable. Academic research has for decades criticized the "culture of auditing" and the "accounting strategies" developed to tackle human rights issues (Satava, Caldwell and Richards 2006). In our research, these audits are often criticized by upstream actors and on-the-ground players. One of our respondents addressed the issue as follows, "I do think it's possible, but it's not very effective at the moment because there isn't agreement. I think frankly, there's a lot of overly high expectations of what an entry point should be from a lot of the supply chain," before adding "and then there's only one site in the whole of DRC that can do it [getting certified], well you know it's not going to change anything" (IN-UC-001-03012021). This comment underlines the intersection of standards and audits, and the need for standards to be based on actionable and realistic expectations. Others, in particular civil society members, argued that the requirements of the audits do not fit the needs of the ASM actors. Specifically, they point to cultural practices, often resulting from economic distress, that are considered red flags during audits (IN-CS-001-02222021; IN-CS-002-03182021). These are, for example, the participation of underage children in mining activities (often washing minerals or in supporting activities such as cooking) or the presence of artisanal miners on LSM concessions, as previously mentioned. Ideally, an ASM framework will address these concerns in a holistic manner, going beyond accounting strategies to address the cultural, economic and structural pressures on cobalt mining.[23] In particular, the CAP should insist on developing a direct commercial engagement with ASM to ensure that ASM products can access markets and positively impact the communities (IN-NP-001-02222021). In addition, embracing a flexible standard, able to integrate on-the-ground changes efficiently, should be considered to answer today's challenges. This would ensure a continuous move toward a responsible cobalt ASM supply chain from the DRC that is appropriate for the impacted communities. Failure to do so will likely result in expectations that cannot be matched, and a greenwashing of an extremely complex socio-economic and political situation. As proposed in the recommendations, international organizations, especially standard setting organizations, could establish independent oversight boards in charge of tackling claims by any stakeholder as to avoid leniency for greenwashing strategies.

In parallel to the auditing system in place, international initiatives have also focused on the development of traceability systems and assurance mechanisms. While we have already explored responsible sourcing programs and assurance mechanisms in the first part of this report, particularly regarding Better Mining, the industry has also targeted its efforts toward new technologies, such as blockchain. Deberdt and Le Billon describe current blockchains systems as "stor[ing] and transmit[ing] information through the Distributed Ledger Technology (DLT). The information follows the minerals through its transformation from raw material to hydroxide, sulfate, cathode, and finally batteries" (2021, 9). The Responsible Sourcing Blockchain Network (RSBN), implemented by RCS Global Group, is an example of a blockchain system in the battery minerals sector and was established in partnership with car manufacturers Ford Motor, Volvo Group, and Volkswagen Group; battery maker LG Chem; refiner Huayou Cobalt; and miner Glencore. Another initiative, spearheaded by miners Glencore, Eurasian Resources Group (ERG), China Molybdenum (CMOC), and refiner Umicore, is set to be piloted by the end of 2021 (Jamasmie 2021b). Finally, Circulor appears to be the most successful of these three blockchain specialists as it conducted the first fully traceable cobalt Oracle Blockchain. The

23. An important question raised by stakeholders is the constitution of the CAP ASM standard committee, which includes companies refusing artisanal materials. The CAP should communicate on its strategy behind this choice, as well as ensure that companies with experience in the field hold a critical role in the development of the standard.

company is working with Volvo Cars and its subsidiary, Polestar, and will expand to other commodities under a strategic agreement (Polestar 2021). However, to this day, neither RSBN nor RelSource, is effectively applied to the ASM sector.[24]

As the OECD argues, blockchain could facilitate responsible supply chains, in particular of cobalt (2019). However, its implementation faces important caveats. Only companies having already mapped their supply chains could effectively implement a successful blockchain system. Additionally, "Informal actors along a supply chain [including informal ASM operators] will be difficult to integrate in such a system, meaning that tracking RBC [responsible business conduct] risk information associated with upstream activities in the supply chain will remain a challenge" (OECD 2019, 22). The report also argues that risks of inaccuracies could limit the positive impact of blockchain technology and supports the establishment of regular checks and the automation of information provision. Finally, before developing blockchain systems, it is worth taking a step back and considering the real need for this technology. As the OECD argues, "[…] if the non-technical challenges (standard data model, value chain cooperation, governance) and technical challenges (asset digitisation, interoperability and data transparency) are solved many of the same value chain transparency benefits could be achieved with traditional database technology" (2019, 22).

Finally, a significant challenge identified through the interviews, in particular with Congolese stakeholders and cobalt mining and processing companies, is the current state of competition between service providers and responsible sourcing projects (IN-CS-003-05182021; IN-CS-002-03182021; IN-IO-003-05032021). It seems that the increased competition between a handful of service providers is shifting the focus from addressing human rights to a business-only strategy in an unhealthy way. While this report recognizes that the current economic paradigm is driven by such competition, the findings also question the efficiency of such an approach as service providers appear to be competing for very few sites, often duplicating work.

# Most Salient Risks in the ASM sector

In this part, we provide a short assessment of the risks we identified as critical in the cobalt ASM sector based on interviews we conducted with a large range of actors. Moving beyond a child labor-focused approach, we defined seven major risks that should be explored by the industry and the government to implement a truly sustainable and responsible artisanal cobalt industry. These risks are described in the order of their criticality, taking into consideration that broader risk categories will impact artisanal miners' practices and spur additional risks. For example, the first risk, extreme poverty, is at the core of the reason why artisanal mining is booming in the country and logically impacts all other risks.

## Extreme Poverty

As we discussed in part two, the socio-economic conditions and the pervasive poverty of the region force millions of people to rely on the artisanal mining industry to survive. The artisanal mining industry is a particularly economically rewarding activity considering the qualification requirements (IN-IO-001-02242021).

24. Another actor in the sector, Circulator, has been contracted by Mercedes-Benz and Volvo to trace cobalt supply flows and the track carbon emissions. However, the authors did not have the opportunity to interview these companies.

However, as one respondent mentioned, "if they had the choice, these people wouldn't work in the industry" (IN-SP-004-05062021). The DRC has the third largest poor population globally with more than 73% of its population living with less than USD 1.90 a day (World Bank 2021). With daily incomes ranging from USD 4.2 to USD 10 (BGR 2019), the industry provides a significant avenue to exit extreme poverty but with profound impacts for the individuals and the communities. While this is not a risk per say, the cobalt industry should take this factor into consideration to tailor its interventions accordingly

## Land Rights

Land rights and land use are collectively a central risk linked to the current legal framework and the lack of accessible and productive ZEAs. Land rights, and the lack of access to land for ASM miners, favor extreme practices such as the invasion of LSM concessions and the subsequent violence, as well as illegal mining operations in high-risk areas. Risks include the development of make-shift dangerous pits at high depths and in densely populated areas such as the case at Kasulo.[25] Land rights and cohabitation with the industrial sector should be a core strategy to the global approach to cobalt artisanal mining, and a framework must be developed to facilitate these relationships. Currently the patchwork of acceptance or not of artisanal miners on LSM sites provides very little stability and potentially dangerous encounters for individual miners and creates a volatile situation favoring corruption of the PMH and private security agents.

## Corruption

Corruption remains a critical risk in the ASM and LSM cobalt and copper industry. The links between many cooperatives and powerful political agents should be a red flag to all industry actors and should be tackled by the DRC Government. Responsible sourcing projects, and the EGC's future sourcing practices should explore the ownership beneficiaries of cooperatives it works with. Additionally, as many actors argued during our interviews, the CEEC and *Division des Mines* (Mine Division) should implement strong checks on traders to ensure that the Congolese law is respected and that only Congolese nationals are in trading positions in the country (as per the requirements of the Mining Code). The capture of the trading sector by Chinese, Indian, and Lebanese nationals selling their production illegally to unscrupulous crude refiners must be tackled effectively.

## Occupational Health and Safety (OHS)

During the research informing this industry brief, OHS was rightly considered one of the core risks in the industry and arguably one that can be addressed efficiently. Improving OHS conditions necessitates investment in PPE as well as miners' support to uncover the veins of cobalt ore, among other measures. Investments should include requirements to limit the depth of pits and unsafe mining practices that link ASM mining to landslides and other deadly events. OHS is currently widely considered the most prevalent risk in the industry by service providers and civil society alike. Partnership between mining companies and artisanal miners would help tackle this issue, while EGC could provide the framework for such cohabitation. Additionally, some respondents mentioned the complex economic sustainability of responsible sourcing

25. Kasulo, located in a busy neighborhood of Kolwezi, started in the 2000s after an inhabitant found cobalt on his plot. After, intervention of the provincial government the area was leased to CDM and is now monitored by Better Mining (IN-SP-004-05062021).

projects in light of their potential replicability and the issue of continual costs. For example, if heavy machinery, such as bulldozers or excavators, is continually present on site (with a critical role as overburden removal tools but timely limited active use), the cost of maintenance and use constitutes a significant burden on the programs. Hence, respondents argue that the definition of these programs must embrace the economic model of ASM mining and clearly differentiate it from the LSM model to limit continual costs at the minimum (IN-SP-004-05062021). These heavy costs can be burdensome to cooperatives, and, consequently, the end of a partnership with a mining company signifies the end of the program itself.

## Environmental

Increasingly, a focus on the impacts of cobalt mining on the health of the communities has spurred research and the attention of news outlets (Al Jazeera 2021; Ngombe et al 2016; Banza et al. 2009; Smolder et al. 2019; Squadrone et al. 2016). From air particles to the contamination of water and food resources, cobalt mining has profoundly impacted health outcomes in the wider Haut Katanga and Lualaba provinces. While the research on cobalt pollution points mainly to industrial operations, the artisanal sector is also at the core of the issue. First, artisanal miners are often forming communities in the vicinity of LSM areas, hence being subjected to this pollution. Second, cobalt artisanal mining, while on a smaller scale than its industrial counterpart, also negatively impacts the environment through the extraction and rejection of toxic waste used to separate cobalt ore out of rocks. Environmental concerns should be more prominent in the current standards and responsible sourcing projects, and resources should be made available to ASM miners to address the toxic waste (IN-R-003-05172021). Research has shown that concentration of heavy metals in urine of community members living around mine sites is exponentially higher than the general population of richer countries of the Global North. Banza et al., for example, show that "compared with background values from the US general population, subjects living very close to areas of mining or refining had 4-, 43-, 5- and 4- fold higher urinary concentrations of Cd [caldium], Co [cobalt], Pb [lead] and U [uranium], respectively" (2009, 1). Similarly, Smolder et al. find that "these values [of dust ingestion estimates near cobalt mining sites] are almost a factor 10 above currently accepted estimates for the general population in high income countries" (2019, 1).

## Child Labor

Child labor remains a critical risk (Sovacool 2021), particularly from a reputational standpoint for downstream companies. Differentiating between the worst forms of child labor (WFCL) (OECD 2017) and other forms of involvement of children on site is important and should be explored more in-depth during on-the-ground studies. However, throughout this research, all on-the-ground actors, from civil society and service providers to Congolese officials and international organization representatives, agreed on the fact that the child labor challenge has dominated conversations. While recognizing that child labor exists, they insist that it is the result of unresolved wider issues, such as endemic poverty, the lack of economic alternatives and the limited education possibilities. Nevertheless, while widely presented as the most critical issue in Western discourse, it seems that the presence of children on site is often linked to support industries such as providing services or food. Additionally, some respondents also highlight that the sight of children at the pits is extremely rare. These results necessitate more exploration of the issue from a social sciences perspective to better understand the dynamics at stake in the industry, as well as the reasons for the involvement of children, and potentially reconsider the focus of responsible sourcing actions.

## Manipulation of the Production

Finally, a recurrent issue linked to illegal trading is the manipulation of the production by buyers of artisanal material. In particular, respondents mentioned the issue of mass balance and purity of cobalt ore, often manipulated by traders to buy production at lower cost. While scales are electronically distorted, tests of the purity of the mineral are also performed by the same traders, resulting in lower grades of cobalt and lower prices. These strategies significantly impact the revenues of miners and should be tackled. Owned by the province of Lualaba, the institution of official depots, which has two independent laboratories for minerals testing, provides an avenue for change to secure miners' income. The EGC could also implement similar strategies while the CEEC and the *Office Congolais de Contrôle* (OCC) should ensure that regular unannounced checks on testing and scales are performed, with repercussions (fines) for tampering with the equipment.

# Recommendations and Future Research

This study highlights avenues for collaboration to improve the situation of ASM, in particular unformalized operations, in the DRC. The limitations and challenges inherent to the industry, spurred by political, legal, social, and economic pressures, remain significant in the Lualaba and Haut-Katanga provinces despite years of investments in responsible sourcing programs by downstream, midstream, and upstream companies. While this research needs to be expanded to include on-the-ground perspectives, and crucially the voices of the miners themselves that for logistical reasons in the time of COVID-19 were not accessible, this section provides actionable recommendations and future research perspectives. As a study geared toward an increased collaboration between the industry and academic worlds, these recommendations focus on the productive relationship between them, in Western but also Congolese contexts.

## Targeting Risks at Different Supply Chain Levels

The downstream sector should **significantly increase its investments in upstream programs (assurance mechanisms, on-the-ground monitoring, responsible sourcing programs) and ensure proper fund disbursement**. Today, only a limited number of companies is involved in funding programs in the DRC. Significant investments are needed from all actors in the technology, EV, renewable energy, and aerospace sectors. Importantly, critics focused on fund disbursement in top-heavy programs.

The downstream sector should **consider the creation of a mediator fund to support third-party negotiations** in conflicts between ASM, local communities, and LSM. This fund could be integrated in the RMI or an independent international organization and should ensure that mediation is performed by people with intimate knowledge of the issues at stake in the DRC.

The downstream sector should **recognize the potential of ASM mining and commit to sourcing from ASM** to provide a market opportunity for these products.

The downstream sector should **clarify its expectations toward smelters and refiners and strengthen their due diligence processes**. Our research uncovers an underlying trend of frustrations around both the

level of expectations of downstream purchasers on midstream companies, especially Chinese refiners, and the clarity of these expectations (IN-IO-002-03152021). These tensions need to be explored more in-depth in subsequent research geared toward the midstream sector. They should be tackled to ensure a productive collaboration between supply chain actors, and the downstream actors should ensure expectations are clear and actionable.

The midstream sector should **avoid establishing illegal buying centers and implement increased due diligence on those entities**. Beyond establishing due diligence systems aligned with international best practices, including the OECD Guidance and the RMAP standard, midstream companies should better control their intake of materials. This is particularly true for companies with subsidiaries in the DRC that have established depots to buy materials from the open market.

The upstream sector should **establish a baseline for cohabitation with artisanal miners, in particular to allow them access to LSM concessions**. This process should be done in coordination with downstream companies, the RMI/RCI, and the OECD to tailor the international standards to the reality on the ground.

The upstream sector should **ensure that private security companies contracted by the companies are appropriately trained**. Internal training by the mining companies themselves should be implemented, following the United Nations (UN) Voluntary Principles for Business and Human Rights and the voluntary principles on security and human rights (VPSHR).

Service providers in the cobalt responsible sourcing sphere should **create a more productive environment** in which competition does not trump the needs of the communities these programs are expected to support. Critical to this point is a streamlined communication and collaboration between these service providers to ensure that best practices are learned and risks are effectively tackled. The Congolese government, in partnership with CAP, could be a potential avenue for such a productive collaboration.

## Congolese Government

The Congolese government should **support transparency in EGC's contracts, practices, and expectations**. A robust communication campaign should be put in place to inform the wider national and international community of the goals of the company and the avenues to engage with it.

The Congolese government should **establish a price control mechanism** to avoid fluctuations in global prices impacting artisanal miners too negatively.

The Congolese government should **implement the existing strict regulations on *comptoirs* and other buying offices** and ensure that the Mine Division and CEEC have the means to effectively tackle illegal practices and the presence of foreign agents. The agencies should also **establish spot checks on all scales and chemical ore determination** to ensure that artisanal miners are properly compensated. Capacity building and anti-corruption efforts should be geared toward the OCC, which is currently in charge of calibrating the scales.

The Congolese government should **establish viable ZEAs located in accessible areas and with ore deposits aligning with the requirements of the Mining Code** toward artisanal miners.

## Nonprofits and International Organizations

International non-profits should **partner with Congolese non-profits to ensure that Congolese voices inform their programs in an effective manner**. Decision-making processes should be reconsidered to increase local ownership and relocated in-country with strict oversight of critical issues.

International organizations should help **bridge the gap between Congolese and international academic institutions** and develop collaboration programs between the two. This strategy is already being implemented by some actors (IN-IO-003-05032021), but more needs to be done in this sense.

International organizations, especially standard setting organizations, should **ensure that the requirements of their programs are aligned with on-the-ground realities and do not provide room for greenwashing strategies**. While very complex to establish, an independent oversight board in charge of tackling claims by any stakeholder might be an avenue to ensure that companies, governments, non-profits, service providers, and any other actors align with the standard. While audits provide a snapshot of the situation at specific mine sites, this grievance mechanism governed by an independent and representative board could provide significant benefits.

## Increasing Academic Research and Implementing Collaborative Processes

Responsible sourcing programs should **adopt a holistic approach informed by social sciences**. Whether developed by private corporate actors, governments, or international organizations, programs intended to address the many challenges of cobalt artisanal mining should embrace the learnings of social sciences. While many rely, logically, on economic incentives, going beyond the pure economic quantitative analysis to actually understand the dynamics at stake on the ground, and for specific areas, should be a priority. After decades of humanitarian interventions, it is clear now that programs without such components are destined to fail in the long run.

To answer this limitation, companies, governments, and international organizations should **forge strong partnerships with institutions of higher learning**. Still widely dominated by Global North institutions, **the study of the impacts of artisanal cobalt mining should be supported in the DRC, by Congolese institutions and researchers**. These institutions could support the establishment, measurement, and evaluation of programs, as well as the sharing of data across industries, governments, and nonprofits. The University of Lubumbashi, the University of Kinshasa, and the Center for Mining Governance (CEGEMI) of the University of Bukavu all produce significant research and would strongly benefit from support of their programs.

# Annex I: Interviews

Interview 1 – IN-MC-001-02012021

Interview 2 – IN-MC-002-02082021

Interview 3 – IN-SP-001-02172021

Interview 4 – IN-CS-001-02222021

Interview 5 – IN-NP-001-02222021

Interview 6 – IN-IO-001-02242021

Interview 7 – IN-UC-001-03012021

Interview 8 – IN-UC-002-03022021

Interview 9 – IN-IO-002-03152021

Interview 10 – IN-CS-002-03182021

Interview 11 – IN-DC-001-04082021

Interview 12 – IN-R-001-04092021

Interview 13 – IN-UC-003-04122021

Interview 14 – IN-SP-002-04142021

Interview 15 – IN-R-002-04192021

Interview 16 – IN-SP-003-04222021

Interview 17 – IN-IO-003-05032021

Interview 18 – IN-SP-004-05062021

Interview 19 – IN-IO-004-05122021

Interview 20– IN-R-003-05172021

Interview 21 – IN-CS-003-05182021

### INTERVIEW KEY

**MC** – Midstream company

**UC** – Upstream company

**DC** – Downstream company

**R** – Researcher

**IO** – International organization

**SP** – Service provider

**CS** – Civil society

**NP** – Nonprofit

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Responsible Sourcing Network,
University of British Columbia, 2021
info@sourcingnetwork.org