



Sustainable Economic Development and Responsible Supply Chains in the Mining Sector of the Democratic Republic of the Congo (II)

Artisanal and Small-scale Mining of Copper and Cobalt in 2025

Mapping of Artisanal Mine Sites in the Provinces of Haut-Katanga and Lualaba, DR Congo

March 2026



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Artisanal and Small-scale Mining of Copper and Cobalt in 2025

**Mapping of Artisanal Mine Sites in the Provinces of
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Abstract

Artisanal and small-scale mining (ASM) of copper and cobalt in the Democratic Republic of the Congo (DRC) is a substantial source of income for communities living near mining sites and supplies significant quantities of these metals to the global market. However, the difficult working conditions and problematic practices applied at certain mine sites, including child labor, health and safety issues, and others have for many years raised serious international concerns regarding the associated mineral supply chains. This situation is further complicated by governance issues, as most of these ASM activities take place in areas that are legally non-compliant or even entirely illegal. This creates challenges for the DRC's mining authorities, who must balance the impact on local employment and social stability with the need to enforce national regulations and protect the international reputation of the Congolese mining sector. To overcome these difficulties and make appropriate decisions regarding copper and cobalt supply, credible information on the ASM sector in the copper and cobalt supply chain is essential.

The Federal Institute for Geosciences and Natural Resources (BGR), in collaboration with the DRC Ministry of Mines, as part of German-Congolese cooperation and in partnership with the Extractive Industries Transparency Initiative (EITI) of the DRC, conducted mapping of copper-cobalt ASM sites in 2025 to verify the current dynamics of the sector. As part of this study, the Ministry of Mines was represented by its technical offices in the provinces of Haut-Katanga and Lualaba, notably the Service for Assistance and Supervision of Artisanal and Small-Scale Mining (SAEMAPE), the Mining Divisions (Mining Administration), as well as by the provincial Ministries of Mines; the EITI through its secretariat; and the BGR/DRC project was represented by its team of experts based in Lubumbashi and Kinshasa. All work was subject to supervision and quality control provided by BGR's technical support team in Germany. This report presents the results of field missions carried out by the aforementioned teams of experts during April–May 2025 in the DRC Copperbelt; selected data are presented in an online dashboard available at <https://cartomines.cd>

Scoping for the field missions identified 90 ASM sites, 75 of which were accessible while access to 15 sites was denied to the field teams. ASM-related copper-cobalt activities provide a livelihood for approximately 112,000 artisanal miners organized into 71 mining cooperatives. The majority of this workforce (approximately 80%) is concentrated in just 7 mining sites each employing thousands of miners. Due to fluctuating metal prices and local export restrictions, the number of artisanal miners targeting cobalt has significantly decreased in the mining and trade; the majority has shifted its focus to mining and selling copper-rich ore. As an indication, the share of ASM copper production, estimated with a high degree of uncertainty, currently stands at over 300,000 metric tons of copper per year, which corresponds to approximately 8 to 9% of the DRC's total national copper mining production. These high production levels are primarily driven by increasing semi-mechanization at several mining sites. The majority of miners indicate in their statements that they earn well above the international poverty line

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(US\$3/day) or the DRC's minimum wage at the time of research (US\$5/day), thereby reinforcing the idea that this sector is a major source of livelihood for the population living around ASM mining sites.

Field teams conducted observations and surveys at the various sites visited and identified several risks associated with the sector. Regarding legality, it was noted that the majority (88 out of 90 sites) of ASM mining activities in the copper-cobalt sector take place on concession areas belonging to private operators, with only two sites located in Artisanal Mining Zones (ZEA). It should be noted that certain mining activities are tolerated locally, in the interest of preserving peace and social stability. Working conditions and environmental management remain poor and require extensive support and improvement. One of the major governance challenges concerns the role and presence of state security forces, which are often present at most ASM sites without official authorization. This creates risks of illegal taxation of mining activities, although it is important to note that no non-state armed groups are involved in this practice. Children were observed at 17 mining sites, representing 23% of the sites mapped during this study. Field teams observed approximately 3,300 children, though this figure is subject to a high degree of uncertainty. Due to the close ties between certain mining sites and local communities, some children are present at the sites without participating in mining activities, while others, aged between 10 and 15, do participate, particularly in collecting, washing, and sorting ore and handling products. In addition, between 100 and 200 children (aged 10 to 15) are directly involved in mining activities. It is evident that child labor (including the worst forms of child labor) is still observed at certain copper-cobalt ASM sites, and production from these sites may be integrated into supply chains leading to local processing facilities.

Overall, the risk assessment shows that the copper-cobalt ASM sector has not changed significantly between 2020 and 2025. This underscores the importance for policymakers and other stakeholders to take concrete measures to improve the situation by mitigating or eradicating the risks identified. All actors involved in the copper-cobalt ASM sector, at both the local and international levels, are advised to work together to make this mineral supply chain attractive through responsible and sustainable practices in relation to the above-mentioned risks, but also to establish systems for constructive engagement through multi-stakeholder dialogue frameworks and to evaluate them through periodic monitoring and control mechanisms.

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List of Acronyms

Acronym	Full name
ASM	Artisanal and Small-scale Mining
BGR	Bundesanstalt für Geowissenschaften und Rohstoffe (Federal Institute for Geosciences and Natural Resources)
CDF	Congolese Franc
CTC	Certified Trading Chains
CTCPM	Cellule Technique de Coordination et de Planification Minière
DRC	Democratic Republic of the Congo
EGC	Entreprise Générale du Cobalt
ITIE	Initiative pour la Transparence dans les Industrie Extractives (Extractive Industries Transparency Initiative)
OCDE	Organisation pour la Coopération et le Développement Economique (Organisation for Economic Cooperation and Development)
PE	Permis d'Exploitation (Mining Permit)
PEPM	Permis d'Exploitation de la Petite Mine (Small-scale Mining Permit)
PER	Permis d'Exploitation des Rejets (Tailings Re-Mining Permit)
PPE	Personal Protective Equipment
PR	Permis de Recherche (Exploration Permit)
SAEMAPE	Service d'Assistance et d'Encadrement de l'Exploitation Minière Artisanale et à Petite Echelle
SMIG	Salaire Minimum Interprofessionnel Garanti (national minimum wage in the DRC)
ZEA	Zone d'Exploitation Artisanale (Artisanal Mining Zone)
3T	Tin, tantalum and tungsten (minerals)

1 Introduction

1.1 Cooperation Context and Objectives

The Federal Institute for Geosciences and Natural Resources (BGR) has been commissioned by the Federal Ministry for Economic Cooperation and Development (BMZ) to implement the project “Economic Development and Responsible Supply Chains in the Mining Sector of the DRC (II)”. This project is part of the bilateral cooperation program between the Democratic Republic of the Congo (DRC) and the Federal Republic of Germany. Since 2009, the BGR has been supporting partners in the DRC in improving oversight of the mining sector within the framework of technical development cooperation; the current project runs from 2024 to 2027.

In collaboration with the DRC Ministry of Mines, the BGR, together with its partners, conducted two studies on supply chains and artisanal mining conditions in the copper-cobalt sector between 2018 and 2020 (BGR 2019, BGR 2021). Analysis of the data and results revealed that the artisanal and small-scale mining (ASM) sector for copper and cobalt was associated with high risks regarding due diligence and sustainable development. These risks included human rights violations due to the unauthorized presence of certain actors at mining sites; the absence of relevant government services at some sites; precarious occupational safety conditions; the formalization of the sector, which struggles to be enforced and often operates illegally; and child labor, with the worst forms occurring in only a few cases. It is important to note that these risks did not manifest systematically at all artisanal mining sites; some sites were relatively well-managed and transparent, as demonstrated, for example, by the independent CTC (“Certified Trading Chains”) audits conducted with the support of BGR (BGR 2023), but no mining site has yet been ready for certification.

Five years after the last study conducted by BGR and its partners in this sector, this report presents a systematic update of that analysis within the current context of the ASM sector associated with copper-cobalt supply chains in the DRC. The objective of this study is to present a set of validated data on this sector, covering a wide range of relevant topics. The information presented in this report may be useful to political and administrative decision-makers in the DRC, as well as to international organizations and the industry in the downstream supply chain. The value of this data lies in the fact that it was collected through in-depth fieldwork conducted by a joint team of geologists and engineers from the BGR/DRC project, officials from the Ministry of Mines, notably the Mining Administration and the Assistance and Supervision Service for Artisanal and Small-Scale Mining (SAEMAPE), and representatives of the national Extractive Industries Transparency Initiative (EITI) process. The study and the online presentation of the data also benefited from the support of the Technical Unit for Mining Coordination and Planning (CTCPM), the Provincial Ministries of Mines of Haut-Katanga and Lualaba, and the Ministry of Mines at the national level. An interactive map of the study's results is available via the following link: <https://www.cartomines.cd/>

1.2 The Copper-Cobalt Sector and Artisanal Mining

Over the past decade, international attention has generally focused on artisanal cobalt mining in the DRC. This is due to the fact that the DRC is the largest supplier of cobalt, a metal essential for energy storage in electric vehicles and the electronics sector (Schütte 2021). Artisanal cobalt production in the DRC has been known for 25 years, with alternating periods of increased and decreased artisanal mining

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activity (Schütte 2021, Gulley 2023). Between 2015 and 2018, driven by high cobalt prices, there was an increase in artisanal production, motivated by an anticipated rise in demand, followed by the migration of artisanal miners and other mining actors to cobalt-producing sites in the DRC. During this period, several civil society reports warning of child labor and other risks in the country's artisanal mining sector were published (e.g., Amnesty International 2016), although these risks had already been publicly raised as early as 2006 (Global Witness 2006).

More recently, with the exception of 2022, cobalt prices have been lower (Fig. 1) and thus less attractive for encouraging artisanal mining activities. However, copper prices have reached attractive levels, alongside the massive expansion of national copper production in the DRC, which has become the world's second-largest producer. In this context, at many mining sites, artisanal miners have increasingly focused on copper-rich areas, and this metal has now become their primary sales product in the Copperbelt (Schütte et al. 2025). In addition, the Congolese government recently implemented measures banning cobalt exports to stabilize the cobalt market in the face of oversupply, strengthen traceability, and promote local processing (ARECOMS 2025). This measure has negatively impacted artisanal and small-scale cobalt mining, which has nearly ceased; some mining cooperatives and other intermediaries are stockpiling cobalt-rich ores and selling only copper-rich ores, for which exports are not restricted, while others have ceased mining altogether.

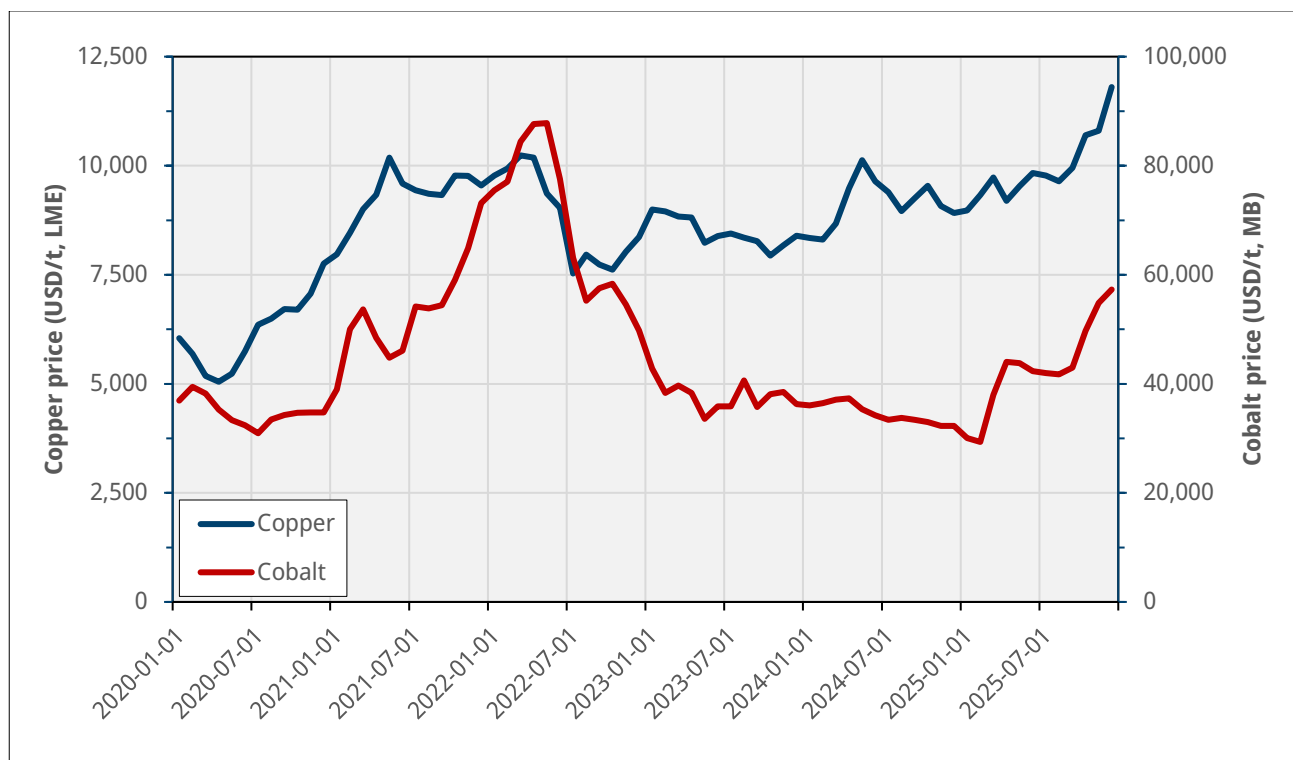


Figure 1. Copper and cobalt price trends (2020–2025; source: BGR raw materials price database)

To this day, artisanal mining of copper and cobalt in the DRC continues to be the subject of particular international attention due to diligence risks in the supply chain. Many actors in Western supply chains emphasize that they do not want to treat artisanal cobalt in their supply chains because of these risks. Compared to the cobalt industry, the copper industry has been less vocal about the role of artisanal copper in its supply chains, despite the local significance of this production. This is likely because the global copper market is much larger than the cobalt market, such that artisanal production in the DRC,

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even though it accounts for a significant share of total production, remains a relatively small portion on a global scale (~1% for copper vs. 6–12% for cobalt through 2023; Schütte et al. 2025).

It is important to note that in the context of a poorly diversified economy and high unemployment, the ASM sector (copper-cobalt, gold, 3T, diamonds, and precious stones) constitutes an important source of income for a portion of the population (several hundred thousand artisanal miners and their families) across the entire Congolese territory, especially since the artisanal sector provides more direct jobs than the industrial sector. However, with the exception of a few Artisanal Mining Zones (ZEA), the fact that artisanal copper-cobalt mining takes place within the boundaries of industrial concessions, mostly without prior authorization, inevitably leads to its classification as an illegal activity. This is one of the reasons why the BGR, alongside efforts to enhance transparency in the artisanal and small-scale mining sector, also supports its partners in the DRC with geological assessments to increase the number of viable ZEA (Ait-Ichou et al. 2025).

To conduct a thorough supply chain risk assessment or evaluate potential engagement opportunities, access to credible data is essential, which is generally difficult to obtain in the ASM sector. Despite these general data-related challenges, recent publications (e.g., BGR 2021, Fair Cobalt Alliance 2022, EITI 2023) have described sector conditions based on a broader and more objective dataset; as a result, recommendations regarding the formalization and adherence to supply chain due diligence have been formulated. Unlike the supply chains for 3T minerals (tin, tantalum, and tungsten), artisanal copper-cobalt supply chains are not tracked on a large scale; sometimes, minerals supplied from artisanal mining are mixed with those from industrial mining, and the proportion of these mixtures is not documented at the time of export. Concerns regarding the government's limited practical impact to formalize the artisanal copper and cobalt sector remain a major challenge to be addressed.

Although the majority of mining production in the DRC comes from industrial operations, the contributions of the ASM sector can be estimated using several methods (Gulley 2023, Schütte et al. 2025). Application of these estimation methods shows that the share of national copper production linked to ASM activities since 2017 amounts to approximately 6–9%, supported by increasing levels of semi-mechanization (discussed later in this report). In contrast, the share of cobalt production from the ASM sector has declined sharply, from a peak of over 20% to approximately 5% or less between 2024 and 2025 (Fig. 2), reflecting the socio-economic and regulatory changes described earlier. The contribution of ASM production to national output is dynamic and varies through time according to several factors, including increased demand for metals on the global market, which often influences prices and the motivation of artisanal miners, and consequently affects ASM production.

Artisanal mining of copper and cobalt continues largely to take place informally or even illegally, as described in this report, due to these activities taking place within industrial concession areas. Improving the sector requires an understanding of local dynamics that would enable technical and financial partners to support the efforts of the Congolese government, mining companies, mining cooperatives, and civil society in formalizing the sector so that it can modestly contribute to local development.

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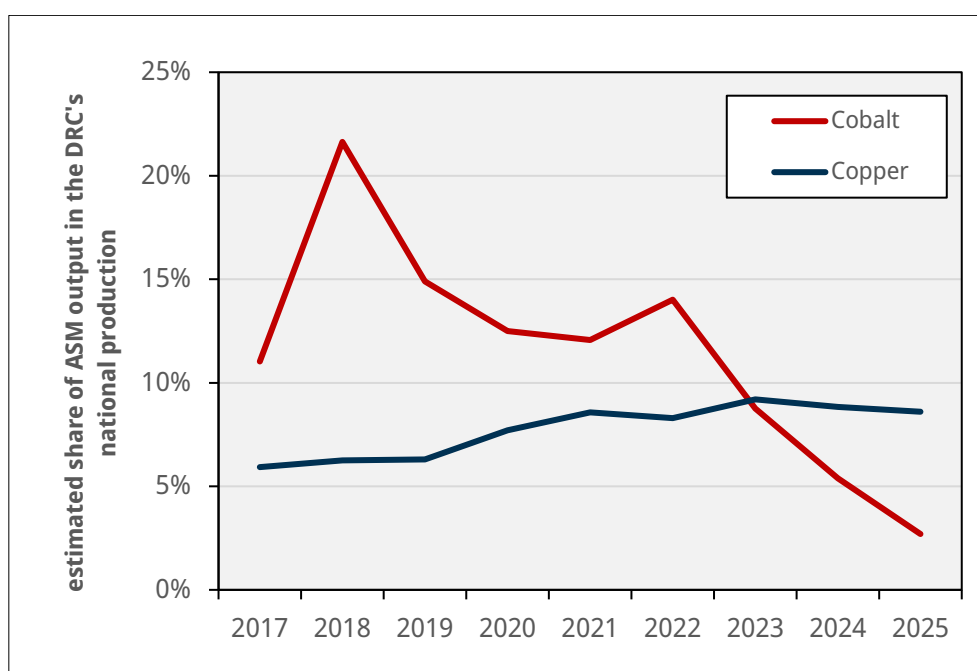


Figure 2. Evolution of the estimated share of the ASM sector in the DRC's national mining production, calculated using the method published by Schütte et al. (2025)

2 Scope and Methods

2.1 Study Area

The mapping activity focused on ASM sites in the copper-cobalt sector. The researchers identified 90 mine sites and were able to visit 75 of these sites, while site access was denied for 15 sites (Fig. 3; Table 1). Compared to the last mapping work conducted in 2020 (BGR 2021), this indicates an increase in the number of ASM sites despite limited access for field teams to certain sites and the abandonment of other sites (replaced by industrial activities or due to a lack of economic resources for their development), which still provides a significant representation of the sector, without claiming to cover all sites. The study does not allow for an assessment of illicit artisanal mining activities taking place on certain industrial mining concessions, particularly at night. It should be noted that the copper-cobalt ASM site operators reportedly transport their mineral production to storage facilities or processing facilities, most of which are based in major urban centers such as Likasi and Kolwezi.

After analyzing the information collected in the field, the research team notes that 26 sites active in 2020 (BGR 2021) are no longer included in this recent mapping because operations have either been abandoned or replaced by industrial mining activities. Compared to the 2020 mapping work, about ten active mine sites were added; even though some sites did not grant access to the teams, the teams were able to collect their geographic locations. During the preliminary data collection, government agencies had indicated that there were slightly more artisanal mining sites than the number mentioned in this report; however, during field visits (excluding certain unvisited sites) the teams found that other previously mentioned sites no longer existed as most had been replaced by industrial activities while others were satellite (small) sites surrounding certain large sites.

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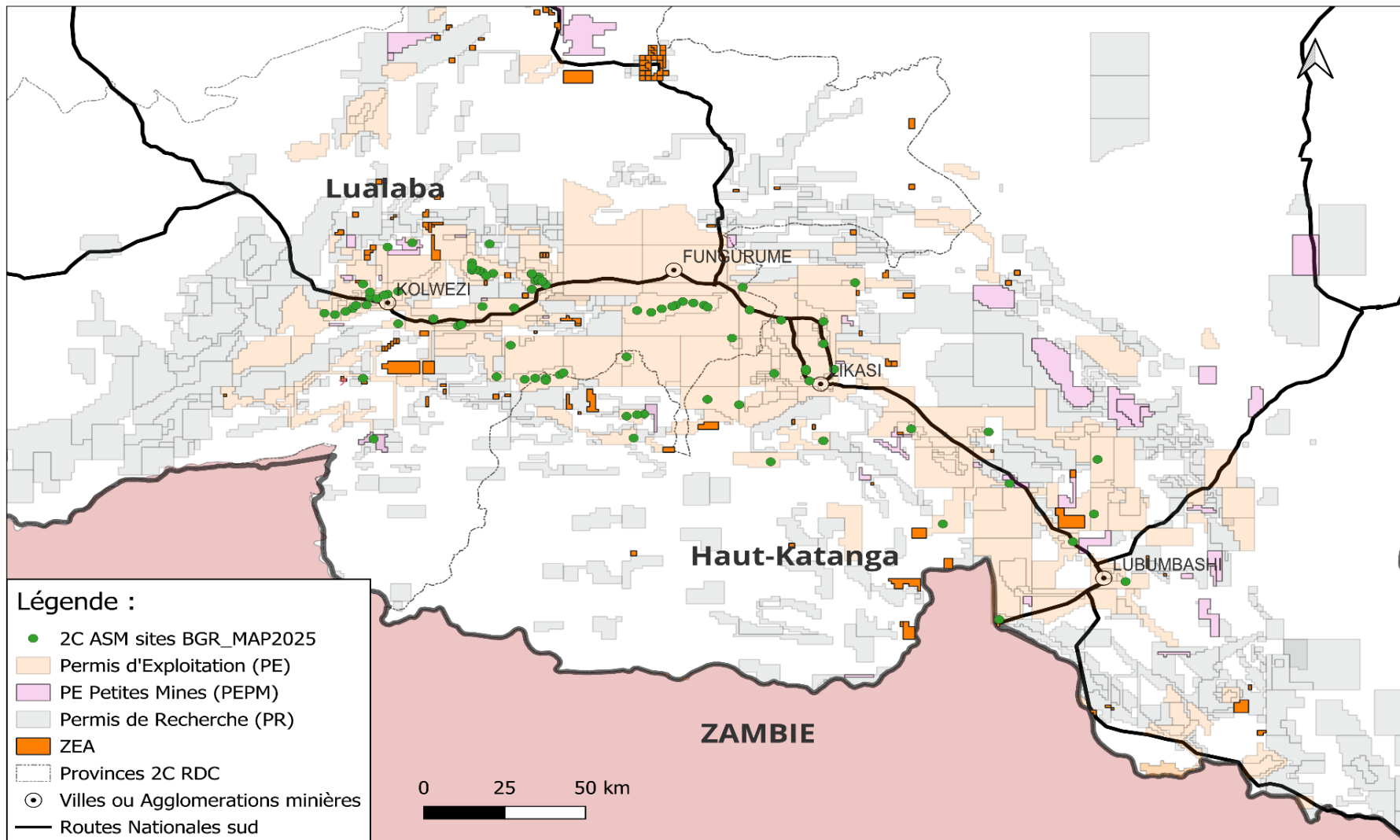


Figure 3. Map of artisanal and small-scale mining sites visited and assessed by the joint team (BGR, SAEMAPE, EITI, Ministry of Mines) in 2025

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Table 1. Representation of the ASM copper-cobalt sector in the 2020 and 2025 studies by BGR and partners

Mine site status	Mine sites mapped in 2020 (BGR 2021)	Mine sites mapped in 2025 (this report)
Total number of ASM sites	67	90
ASM sites visited and evaluated	50 (75%)	62 (69%)
ASM sites visited but site access was refused (no data collection possible)	5 (7%)	15 (17%)
ASM sites under development / exploration	3 (4%)	3 (3%)
Inactive or abandoned ASM sites (without sites transformed to industrial mining)	9 (13%)	10 (11%)

2.2 Preparation and Implementation

The implementation of this 2025 mining site mapping phase involved several steps aimed at achieving the objectives set by all parties involved in the project:

- The planning phase: This phase primarily consisted of coordination meetings, administrative procedures, and study planning;
- The implementation phase: this phase included a training workshop and validation of the field methodology to enable experts from each partner organization to better understand the methodology to be adopted, discuss the types of information to be collected, and the resources needed for successful implementation. Finally, fieldwork was conducted to collect the information;
- The report writing and dashboard development phase: This phase focused primarily on desk-based work for data processing, report writing, and the design and finalization of the dashboard.

ASM sites in the copper-cobalt sector were surveyed according to several themes, covering a wide range of necessary information regarding their organization, environment, and operations, with the aim of achieving the objectives set for this study. The field team focused on gathering information related to the following aspects:

- General Information (Administration)
- Geographic Location
- Production
- Economy
- Social Aspects
- Environment
- Safety

Finally, the field team had a section reserved for team comments to gather additional information for a thorough understanding of the on-the-ground reality at each site.

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Since this study is a joint effort supported by national partners participating in the BGR/DRC project, the lead partner was informed of the field mission timeframe. Once authorization was granted to the teams by the Ministry of Mines in the form of a collective mission order for the various experts from the involved partners, the field missions were carried out in Haut-Katanga province in April 2025 (14 working days) and in Lualaba province in May 2025 (21 working days).

The field teams were composed of experts from:

- Service for Assistance and Supervision of Artisanal and Small-Scale Mining (SAEMAPE) of Haut-Katanga and Lualaba
- Mining Administration of Haut-Katanga and Lualaba
- Provincial Ministry of Mines of Haut-Katanga and Lualaba
- Extractive Industries Transparency Initiative (EITI)
- BGR/DRC Project

The objectives and methodology of this study were defined and validated in advance during a workshop, as noted above; the field team adapted the methodology further based on the realities encountered in the field, with agreement by all involved partners. The researchers deployed in the field aimed to gather all necessary information as comprehensively as possible to enable an in-depth analysis of mining and commercial practices in the copper-cobalt sector, as well as the actors involved at all levels of this mineral supply chain. The target actors interviewed during this field phase were as follows:

- Mining cooperatives (presidents, site managers, or local representatives)
- Artisanal miners
- Traders
- SAEMAPE mine site supervisors (optional)

All these stakeholders were interviewed to gather as much information as possible, not only to identify the stakeholders involved but also to understand the complexity and interconnections within the copper-cobalt mineral supply chain.

Following the field missions, the teams of experts came together to evaluate and examine inconsistencies or the reliability of the information collected in the field, add missing or updated information regarding certain mining sites, and then “clean up” (validate and correct) the information to enable an in-depth interpretation of the field data. The information to be added or updated primarily relates to categories such as: legality (mining title), production, cooperatives, location verification, and others. This was verified using information sources such as:

- Recent Shapefiles from the DRC Mining Cadaster (CAMI)
- Production statistics from the SAEMAPE period
- Geolocation data collected in the field (Google Earth, QGIS)

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This step was followed, after data harmonization, by a technical discussion among field experts regarding the data to be visualized, which the field experts shared with the IT experts for the development of the dashboard and the interactive map.

2.3 Data Plausibility and Interpretation

Since this study is not intended to serve as an audit of mining sites or a government inspection, the information gathered was primarily based on verbal statements from artisanal miners and observations by researchers in the field; therefore, the degree of uncertainty is elevated.

It was often difficult to access or view credible documents in the field; on the one hand, because these were not available or unknown to the artisanal miners, and on the other hand, the artisanal miners encountered could not present them because they had not received approval from their supervisor, or due to a total refusal to cooperate, or even mistrust toward the research teams, despite the directives issued by the DRC Ministry of Mines.

Given the above, the research teams critically evaluated the reliability of certain information and the representativeness of the sites to be visited. Regarding the reliability of information, verbal statements during interviews are more influenced by the interviewee's motivations (ignorance or a misunderstanding of the study or even the role to be played), such as the withholding of accurate information or outright refusal to disclose it in order to protect the profits of certain involved parties (illegal activities, fraud, or mining smuggling, the presence of ineligible services, and others), as well as the reporting of information without supporting evidence. Some information is more reliable because expert teams have verified it through observations and also through an investigator's tactical questioning to elicit hidden information.

The authors placed particular emphasis on verifying the plausibility of data related to mining production and the number of miners. To do so, they critically examined the relationships between the data (e.g., the area of the mining site, the number of miners, the number of pits, shafts and adits, the tonnage produced) and cross-checked all production data with independent data maintained by SAEMAPE agents. Furthermore, the data (and the report) were reviewed and discussed with BGR's international staff to assess their plausibility and additional verifications were conducted, where necessary.

In addition, during the course of this study, discussions were held with other partners developing mapping projects in the copper-cobalt ASM sector, namely IPIS, to establish a shared understanding of this sector and direct all our efforts toward producing results that can assist the DRC government through its technical services, with whom the work was carried out in taking steps to formalize the copper-cobalt ASM sector.

Regarding the representativeness of the sites to be mapped, field missions to all mining sites in the two provinces, Haut-Katanga and Lualaba (number of planned sites: 147 sites vs. number of sites visited: 90 sites), were influenced by several factors pertaining at the time of research, notably copper and cobalt prices on the global and local markets (impact on artisanal mining), changes in local regulations, logistics, and the duration of the mission, on the one hand, and on the other hand, the disappearance of certain sites due to industrial development, the abandonment of activities for various reasons, and the receipt of lists of mining sites to visit from various sources. The existence of other mining sites not identified during this mapping exercise remains possible, but we estimate that the majority of currently active artisanal mining sites have nevertheless been identified by this study.

Therefore, the various aspects mentioned above must be taken into account when analyzing the information to ensure proper understanding and consistency, and the results presented in this report should be considered an up-to-date representation of artisanal and small-scale copper and cobalt mining in the DRC during the field mission period, although it is likely that the situation has undergone possible changes since the end of the field mission in mid-2025.

3 Regulatory Framework and Formalization of the Artisanal Copper-Cobalt Sector

3.1 Location of ASM Sites vs. Mining Concessions

The distribution of the 90 ASM sites (75 of which authorized access to field teams and 15 sites denying access) in relation to formal mining titles of the area is as follows (Fig. 4):

- 88 sites, or 98% of all ASM sites, are located within other concession areas, comprising:
 - 81 ASM sites, or 90%, located within the mining permits (PE) of private companies;
 - 4 sites, or approximately 4%, are located within the exploration permits (PR);
 - 1 site on the Small-Scale Mining permits (PEPM);
 - 2 others, or 2%, are located on the Tailings Exploitation Permit;
- 2 ASM sites, or 2%, are in the ZEA, the area designated by law as suitable for artisanal mining.

According to the Congolese Mining Code (Mining Code of 2018), artisanal mining is considered legal when it is carried out under the following conditions:

- Mining takes place in an artisanal mining zone (Article 109 of the Mining Code)
- The artisanal miners working there hold artisanal mining permits (cards) and are recognized as members of a cooperative (Article 5 of the Mining Code)

This list shows that the vast majority of artisanal mining sites operate within areas designated for industrial mining (Table 2). Most of these industrial companies have no connection to the artisanal mining activities taking place on their sites and continue to pay their royalties and surface rights even for the portions encroached upon by artisanal miners. Nevertheless, Article 30 of the current Congolese Mining Code stipulates that the perimeter of an artisanal mining zone may overlap with the concession of a mining permit (PR, PER, PE) and/or quarry with the express written authorization of the holder. The holder must file a request to relinquish the encroached portion of the concession so that it may be designated as an artisanal mining zone.

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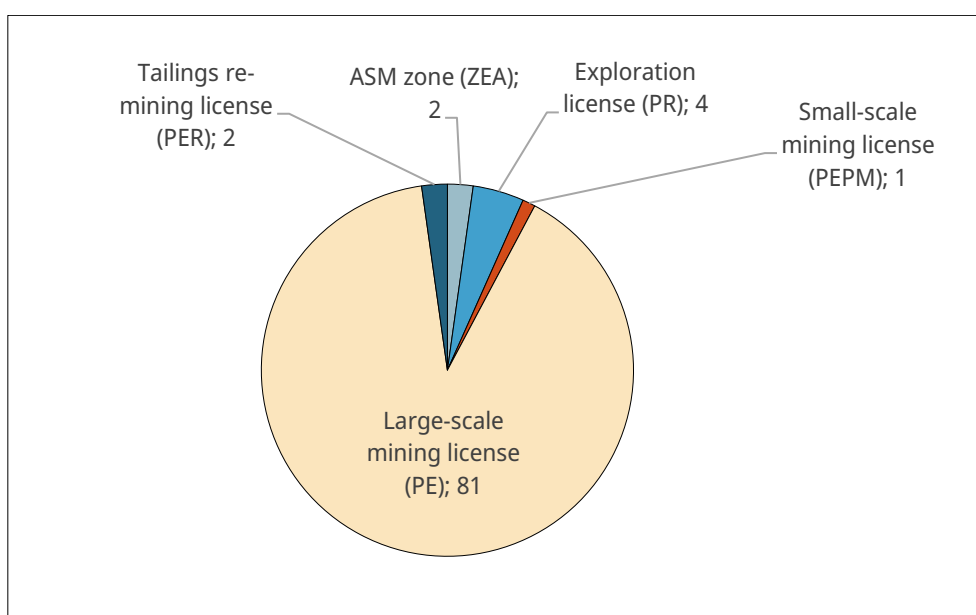


Figure 4. Distribution of artisanal mining sites within associated mining concessions

According to the intent of this article, there are legal gray areas where mining rights holders tolerate artisanal mining within their boundaries without having submitted an official waiver request; artisanal miners have the tacit and verbal consent of the mining rights holder without a written request, which would otherwise formalize and legalize this artisanal mining activity within the encroached area. In most cases, industrial operators tolerate the presence of artisanal miners to avoid conflict and to prevent jeopardizing their own (industrial) projects. There is no open conflict between these industrial companies and the mining cooperatives; for the sake of maintaining social peace and the security of their operations, industrial companies prefer not to exert pressure to expel artisanal miners.

Table 2. Holders of mining titles and artisanal mining sites within their concession boundaries

Title holder	Number of ASM sites (Haut-Katanga)	Number of ASM sites (Lualaba)
Permis d'exploitation (PE) - Mining Permit		
Gécamines	13	16
Boss Mining	4	15
COMIDE		10
SEGK		8
Mutanda Mining		2
Chemaf		2
CCC	1	1
Suryamines	2	
Astir Mining	1	
Regal Exploration		1
Kansonga Mining	1	

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Title holder	Number of ASM sites (Haut-Katanga)	Number of ASM sites (Lualaba)
Kamoto Copper Company		1
Sase Mining	1	
Soc. d'Exploitation de Shamitumba	1	
Comp. Min. de Tondo		1
Permis d'exploitation des rejets (PER) – Tailings Re-Mining Permit		
Gécamines		1
Kipushi Corp.	1	
Permis d'exploitation petite échelle (PEPM) – Small-scale Mining Permit		
Kengere Mining		1
Permis de recherche (PR) – Exploration Permit		
ACCN Mining		1
Stanvic Mining		1
Mcwayi Mining DRC	1	
Muya Resources	1	
Zone d'exploitation artisanale (ZEA) – Artisanal Mining Zone		
Congolese State	1	1

Following the fieldwork period for this study, at the end of 2025, the Entreprise Générale du Cobalt (EGC) launched its first sale of 1,000 tons of cobalt (hydroxide) sourced from artisanal mining. EGC is a parastatal enterprise, associated with Gécamines, that currently holds the monopoly to structure and formalize the artisanal cobalt mining sector by ensuring responsible purchasing, processing, and sales. Gécamines has made several mining sites (mining blocks) located within its concession areas available to the EGC to facilitate exploration and artisanal mining.

This represents a step toward formalizing artisanal (copper-) cobalt mining. However, it remains to be seen how other license holders whose areas are partially encroached upon by artisanal mining will follow the formalization path established by EGC by signing memoranda of understanding to regulate artisanal production from sites within their areas (an example was recently presented in the memorandum of understanding between EGC and ERG in February 2026). Furthermore, although EGC is responsible for the sale of artisanal cobalt ore, the regulations governing the sale of artisanal copper ore (the current main product for sale) are unclear at this time¹.

¹ This question is equally pertinent with regard to Decree No. 25/05 of 21 February 2025 which, only for strategic mineral substances (that is, including cobalt but not copper in the DRC) adds important details regarding the partnership between

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Most artisanal mining activities continue to operate illegally and/or in a tolerated legal gray area. This informal nature makes it difficult, if not impossible, for international organizations and donors to provide direct support to these artisanal sites, given that the cooperatives operating at these artisanal mining sites face uncertainty in developing their business plans to ensure the development of their mines, and also because such intervention could risk promoting illegal mining to the detriment of mining rights holders. This remains a major obstacle for Western companies wishing to officially purchase copper and cobalt from artisanal and small-scale mining, even though these metals are clearly processed internationally, for example in China.

It is noted that only two ASM sites, one of which is currently in production, are actually located within the government-designated areas for artisanal mining, the ZEAs. This constitutes a major problem for the artisanal copper-cobalt sector and its legal framework, since most of the activity takes place within the concession areas. This situation prevents cooperatives and artisanal miners from planning long-term investment and mine infrastructure development or even developing a business plan, out of fear of being evicted at any moment by the mining rights holder from the sites they occupy. This continues to fuel conflicts between artisanal miners and mining rights holders, who are forced to tolerate this encroachment for the sake of social peace. Several ZEAs that have been established are located in regions with underdeveloped infrastructure and are largely economically unviable (e.g., Ducellier et al. 2024), while the cooperatives lack the means to explore these areas to develop them and identify a deposit, thereby justifying their refusal to abandon the industrial concessions.

Currently, 138 ZEAs have been established in the two provinces, including 86 in Lualaba (one of which is a ZEA for construction materials) and 52 in Haut-Katanga (four of which are in the 3T sector). Despite this high number, operators are active in only two ZEAs one currently in production in Haut-Katanga and the other in Lualaba, which is currently abandoned during the fieldwork for this mapping project. Furthermore, another ZEA (ZEA 686) located in Lualaba on the edge of the Mutanda Mining concession remains non-viable but is often presented by certain actors as viable and active to justify their sourcing of minerals from the Mutanda Mining concession in Kawama.

The other ZEAs have not been demonstrated to be economically viable and do not host active ASM activities, although artisanal mining trials have been conducted at some of these sites (e.g., Ducellier et al. 2024). To address, at least in part, the need to test the viability of ZEAs, the BGR/DRC project, in collaboration with partners, conducted a geological assessment of a ZEA in Lualaba (Ait-Ichou et al. 2025). The "Country Window DRC" project component, funded by the European Union and set to begin in 2026, may also involve geological assessments of additional ZEAs. As we will see later in this report, the majority of copper-cobalt production in the ASM sector is concentrated in a few large sites located within industrial concessions. Consequently, more effective sector formalization might be brought about by developing legal solutions pertaining to the ASM activities at these few major sites.

Exporters continue to source minerals from artisanal mining while knowing that these come from third-party concessions without declaring them as such; this creates confusion in the copper and cobalt supply chain because it is impossible to distinguish during exports the quantities from artisanal mining from

mining title holder and ASM activities: the title holder has the option to cede part of its concession to ASM activities without being obliged to renounce their underlying mining rights to that area.

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those from industrial mining. Unlike the 3T sector (tin, tantalum, tungsten) in the DRC, national production of copper and cobalt from artisanal and small-scale mining (ASM) is not published, although technical estimates of these quantities have still been made (Gulley 2023; Schütte et al. 2025), and SAEMAPE collects some statistics based on declarations at mining sites (see Chapter 4.2).

3.2 Organization of Artisanal Miners

Out of the 75 ASM sites visited, 68% of the sites featured at least one cooperative overseeing the mining activities (Fig. 5); this represents a slight decline in relative proportion compared to 2020 (BGR 2021), which was 77%, if the presence of a cooperative at a site is taken as the criterion for formalization. At 12% of the sites, miners were organized into unofficial committees, some of which were seeking documentation to formalize their status; and at 20% of the sites, artisanal miners work without the oversight of a mining cooperative or any other group and/or organization (Fig. 5).

Despite the presence of some sites with no organization whatsoever – sites where miners still work in an uncontrolled manner without being grouped into a cooperative as required by the mining regulations in force in the DRC (Article 5 of the Mining Code and Article 233 of the Mining Regulations) – it should thus be noted that at the majority of ASM sites follow an organized structure, either enforced through a cooperative or through a not yet formalized workers' committee arrangement.

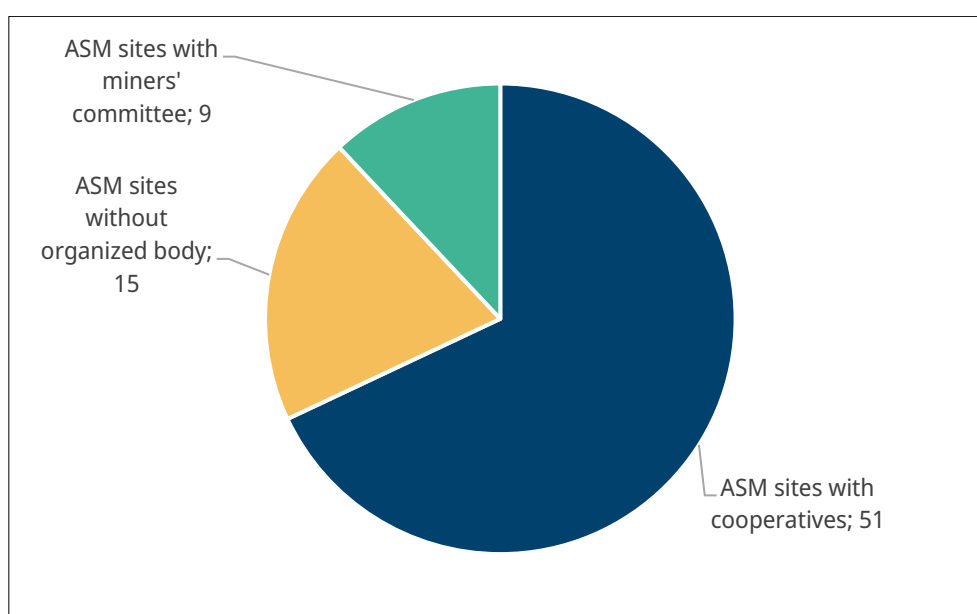


Figure 5. Organization of artisanal miners at the various ASM sites covered by this study

The study identified a total of 71 cooperatives active at the visited ASM sites, compared to 38 cooperatives encountered in 2020. Among these identified cooperatives, 39 are active at a single site each, accounting for 76% of the sites; two cooperatives are active at 8% of the sites, and 3 to 6 cooperatives are active at 16% of the mining sites (Fig. 6). Some cooperatives were found to be operating at more than one site. While the total number of cooperatives is higher than in 2020, the relative proportion of cooperatives at each site is slightly lower compared to 2020; this could be due to the occupation of certain sites by informal groups, thereby displacing formal cooperatives, and/or perhaps to the suspension of cobalt ore exports, or to the migration of certain sites toward small-scale mining while being displaced by mining title holders and artisanal miners who were working there.

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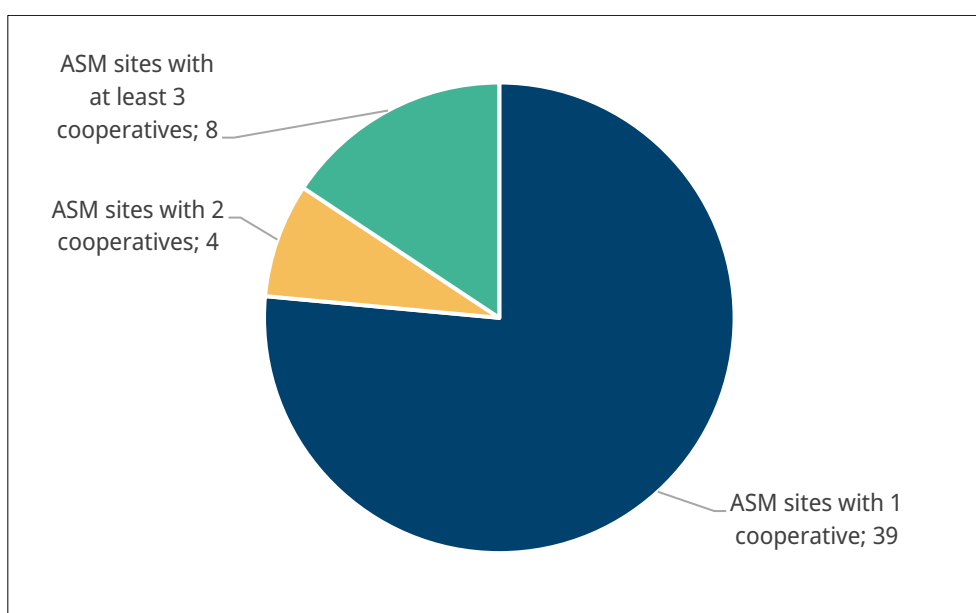


Figure 6. Distribution of the number of mining cooperatives by ASM site

Table 3. Cooperatives and the so-called Memoranda of Understanding (MOU) between them and mining title holders

Cooperative (anonymized)	ASM sites	Mining title	MoU
Gécamines			
Coop. 1	1	PE 11599	No data
Coop. 2	1	PE 537	Yes
Coop. 3	2	PE 11599	Yes
Coop. 4	2	PE 2809	No
Coop. 5-7	1	PE 11600	Yes
Coop. 8	1	PE 4958	No data
Coop. 9-11	1	PE 2604	Yes
Coop. 12	1	PE 4958	Yes
Coop. 13	1	PE 2359	Yes
Boss Mining			
Coop. 1	3	PE 463, PE 468	Yes
Coop. 2-4	1	PE 468	Yes
Coop. 5	2	PE 469	Yes
Coop. 6	1	PE 469	No
Coop. 7-10	1	PE 467	No
Coop. 11-15	1	PE 463	-

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Cooperative (anonymized)	ASM sites	Mining title	MoU
Coop. 16	1	PE 46	No
Informal miners' committee	3	PE 469	No
ACCN Mining			
Coop. 1	1	PR 15717	Yes
Astir Mining			
Coop. 1	1	PE 527	No
Chemaf			
Coop. 1	1	PE 11557	Yes
Coop. 2-5	1	PE 2116	No
COMIDE			
Coop. 1	1	PE 2608	No
Coop. 2	2	PE 2608	Yes
Coop. 3-4	1	PE 2608	No

Most of these cooperatives operate at sites located within mining concession areas held by third parties. Of the 51 sites operated by at least one cooperative, cooperatives report having an agreement with the title holder at only 21 sites, an agreement that is, moreover, entirely verbal (Table 3). The majority of concession holders tolerate the presence of artisanal mining cooperatives within their concession areas without granting them an official agreement, which complicates the formalization of artisanal mining activities.

At the ASM site level, operators organize themselves into unofficial and informal committees; some committees have stated they are seeking the necessary documents to transition into formal mining cooperatives, while others are merely sporadic organizations benefiting from political or even military support, with no intention of transforming into formal mining cooperatives. The cooperatives that oversee artisanal miners at mining sites receive a certain percentage of their production; this varies between 10 and 40% depending on the cooperative, and details will be described in the following sections.

3.3 Presence and Role of State Officials at Artisanal Mining Sites

The Mining Code (Article 16) and the Congolese Mining Regulations designate the state agencies authorized to intervene in the mining sector in general and specifically in the ASM sector; these are:

- The Service for Assistance and Supervision of Artisanal and Small-Scale Mining (SAEMAPE)
- The Mining Division
- The Mining and Hydrocarbons Police (PMH)

The involvement of these aforementioned agencies was specifically assessed during this study, as was that of other agencies not authorized but which operate in this sector. Compared to 2020 (BGR 2021),

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there has been an increase, both relative and absolute, in the number of ASM sites covered by the required state agencies (Fig. 7): 60 ASM sites, or 80% of all sites (including 55 on a permanent basis and 5 sites on an irregular basis) in 2025, compared to 34 sites, or 64%, in 2020. It should be noted that despite this increase in site coverage by agents of the relevant state services as required by law, this presence does not guarantee strict enforcement of the mining law, nor compliance with mining regulations, much less standards of due diligence. Despite their presence at the ASM sites, accidents continue to occur, discrimination against women persists at the majority of sites, and there is a resurgence of unauthorized officials wielding significant power at artisanal mining sites. These aforementioned cases call for support and capacity-building for local authorities, which are necessary for them to fulfill their mission in a sector that is predominantly informal by nature.

There is a slight stability in proportion, and an increase in absolute terms, regarding the interference of unauthorized state services in artisanal mining activities compared to 2020: 52 mining sites, or 69% of all sites (48 sites with a regular presence and 4 sites sporadically) in 2025, compared to 35 mining sites, or 66% of the total, in 2020. Of the 15 sites where access was denied (not shown in Fig. 7), unauthorized agencies are also present: eight sites are under the control of the FARDC, three sites are controlled by the Republican Guard, and one site by the Territorial Police (regarding the remaining sites: at one site, the site manager refused access to the field teams, and the other site was reclaimed by the concessionaire, Mutanda Mining).

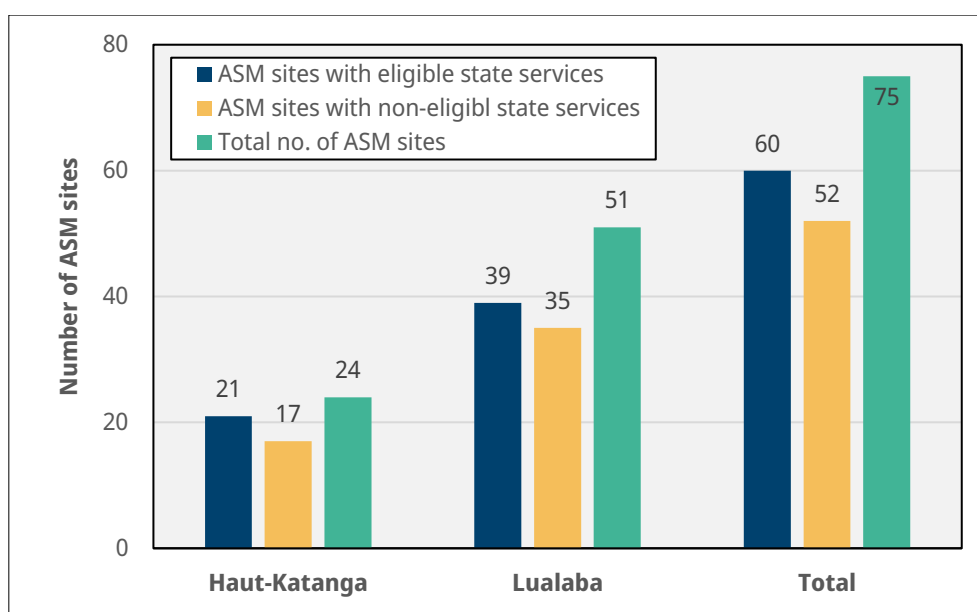


Figure 7. Presence of authorized and unauthorized state agencies in the ASM sector across all copper-cobalt ASM sites

Regarding the total control of ASM sites by authorized state services without interference from unauthorized state services, the number of sites has remained relatively stable: there is a slight increase in absolute terms, but proportionally this remains stable at seven ASM sites (9%) in 2025 versus five ASM sites (also 9%) in 2020. At 12 ASM sites (16%), no government agency was represented, neither authorized nor unauthorized.

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Table 4. Eligible and ineligible services operating at ASM mining sites and/or along copper-cobalt ore haulage routes

Eligible authorities		Non-eligible authorities			
Ministry of Mines	Ministry of Interior	Ministry of Interior		Ministry of Defence	Ministry of Justice
SAEMAPE	Police des Mines et des Hydrocarbures (PMH)	Police Nationale Congolaise (PNC)	Service de renseignement (ANR)	Forces Armées de la RD Congo (FARDC)	Parquet
Division des Mines		Police judiciaire	Service de renseignement de la police (BUREAU2)	Garde Républicaine	
		Police territorial	Direction Générale de Migration (DGM)	Détection Militaire des Activités Anti-Patrie (DEMIAP)	
		Chef coutumier		Auditorat Militaire	
		Entité Territoriale Décentralisée (ETD)			

Ineligible state services are those not recognized by the DRC's Mining Code and Mining Regulations as authorized to operate in the ASM sector (Table 4). Field teams observed that these services are sometimes involved in securing certain sites by setting up barriers at their entrances, or in illegal taxation along transport routes or around mining sites; others are even involved in mining operations by controlling some pits, even though such practices are prohibited by law in the artisanal mining sector.

It is worth noting that, in certain contexts, armed forces are sometimes called upon by private concession holders to reinforce the security of their mining facilities or equipment following encroachment by artisanal miners. This issue was not addressed in this study; it thus does not allow for an assessment of whether the presence of the PMH alone is sufficient to guarantee the security of the mines and the miners working there, nor to what extent it requires support from other security forces.

4 Technical Conditions for Artisanal and Small-Scale Mining

4.1 Semi-Mechanization of ASM Sites

According to the Mining Code, artisanal and small-scale mining is defined, on the one hand, as an activity carried out in an ZEA where mining operations are conducted using tools, non-industrial methods and metal concentration processes, and, on the other hand, as an activity carried out on a permanent basis with a minimum of fixed installations and using semi-industrial or industrial processes after the discovery of a deposit. From the above, the distinction between the two concepts is based more on the tools and methods employed than on the legal context.

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For the mapping of copper-cobalt ASM sites in 2025, field expert teams noted that some sites are still being exploited using artisanal methods, meaning that miners use rudimentary equipment or manual tools such as shovels, hammers, or crowbars. This is due to selective mining practices (searching for high-grade copper or cobalt concentrations) aimed at maximizing financial gains for operators, but it poses occupational health and safety risks, especially at deep sites (e.g., cave-ins, drowning, asphyxiation, slips, and falls). Other sites are semi-mechanized or semi-industrial, utilizing extraction and transport machinery (e.g., hydraulic excavators and trucks), particularly for stripping overburden and transporting ore (Fig. 8). This is due to demand from processing entities that have started blending low- and high-grade ASM (or industrial) ore to meet the specific needs of their hydrometallurgical plants. It is worth noting that this indicates significant investment taking place at certain ASM sites, even though it is generally acknowledged that the ASM sector faces difficulties in accessing financing.



Figure 8. Semi-mechanized mining at several ASM copper-cobalt mining sites: A – Kakanda; B – Kamyangafela; C – Midingi; D – Swambo

It should also be noted that the mining structures found at a copper-cobalt ASM mining site during field missions are linked to past and/or current contextual realities: A site previously operated industrially may become the subject of artisanal mining following the abandonment of the mine by industrial

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operators, or an ASM mining site may undergo operational development changes over time due to various technical factors encountered in mineral extraction.

4.2 Copper-Cobalt Production Reported in the ASM Sector

As noted above, teams of field experts were deployed to 75 ASM mining sites in the copper-cobalt sector and collected data based on reports from ASM mining operators found at the various sites. Despite a reassessment of monthly production data (official production statistics) covering the period from the second half of 2024 to the first half of 2025, based on data recorded by the SAEMAPE provincial offices in Haut-Katanga and Lualaba, these production estimates have a high degree of uncertainty.

To estimate approximate ASM production levels at the mining sites (rather than at the point of export), analyses of ore production are based on statements and observations from stakeholders during the field phase and on official reports, namely SAEMAPE production statistics. During discussions with ASM mining operators, the units or baseline for calculating production tonnages are HOWO trucks (a Chinese brand) with an estimated nominal freight capacity of 40 or 60 tons.

Monthly or daily reports of copper-cobalt production may be interpolated over an annual range. However, this interpolation introduces a further level of uncertainty due to variations in ore grades depending on the specific conditions of each site and the types of ores mined (specific paragenesis), seasonal impacts (rainy vs. dry season), metal price fluctuations, and the reliability of methods for analyzing sold mineral products (visual inspection and quantitative or qualitative analytical tools).

Given the multiple factors influencing the estimation of mineral production at ASM copper-cobalt mining sites, the monthly production figures listed in Table 5 below remain an approximate minimum estimate for current copper and cobalt production in the DRC's ASM sector. It is important to note that the fieldwork did not include any sampling and analysis activities, so that the metal content of ASM bulk ore was not determined. However, in order to illustrate a realistic production scenario, Table 5 shows examples for typical copper and cobalt grades of DRC ASM ore and the resulting metal content. The applied ore grades should be regarded as conservative low-grade estimates for this ore type.

Table 5. Reported monthly ASM production of bulk ore sold and examples for its copper and cobalt content

	Bulk tonnage, copper ore (t)	Cu content @3% (t)	Cu content @5% (t)	Bulk tonnage, cobalt ore (t)	Co content @1% (t)	Co content @2% (t)
Haut-Katanga	299 855	8 996	14 993	160	2	3
Lualaba	306 167	9 185	15 308	2974	30	59
Total	606 022	18 181	30 301	3134	31	63

Compared to the artisanal production estimates presented by Gulley (2023) and Schütte (2025) for previous years, which were based on export or import data rather than mine-site-level data, these estimates indicate a continued expansion of artisanal copper production and a sharp decline in artisanal cobalt production in the DRC. These general trends are consistent with field observations and demonstrate the high production flexibility of the ASM sector.

The low ASM production of cobalt is due to falling cobalt prices following the ban on its export, and artisanal miners are readily shifting their focus to copper ore production. Minor amounts of cobalt

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production are registered for a few ASM sites where operators hope that the situation will change in the near future and thus stockpile cobalt-rich ore, while elsewhere cobalt-rich ore may currently be discarded.

4.3 Number of Artisanal Miners

During the mapping phase from April to June 2025, the field teams focused exclusively on the number of miners found at those sites that granted access and provided the teams with approximate information on the site's specific conditions. Hence, the estimates provided below do not represent the whole ASM sector, but the major part of it. The group of artisanal miners was subdivided into several categories based on the type of work or operations carried out in the raw mineral extraction chain, namely: artisanal miners (performing the actual mining activities), helpers, and persons involved in ore transportation and loading.

In most cases, the figures were provided on a self-reported basis by mining cooperative leaders or site managers; in other cases, the figures were recorded by the mining cooperatives for proper identification. Mining cooperatives register these figures as part of emergency procedures in case of mining-related accidents (death, illness) to ensure appropriate care for artisanal miners affiliated with the mining cooperative.

Under Congolese law, every artisanal miner must hold a specific professional card for proper identification. Unfortunately, there are still difficulties in obtaining such cards: on the one hand, the costs for obtaining the miner's card are high and miners lack of awareness on the need to carry a card. On the other hand, the government agencies responsible for issuing these cards have been slow to establish a robust distribution mechanism. In practice, some ASM sites have organized themselves to identify artisanal miners and issue membership cards for the mining cooperative.

The research team also notes a discrepancy in numbers and applied definitions between active miners (members known and registered by the mining cooperative), non-active or occasional miners (migrant or itinerant miners), and miners engaged in related work such as ore transport, washing, or sorting. Furthermore, there are seasonal impacts with large influxes of artisanal miners recorded during the dry season (from early April through October or November each year). The factors listed above influence the number of artisanal miners and increase their uncertainty. Furthermore, records may include erroneous information or miners may refuse to provide complete information.

ASM activities in the copper-cobalt sector attract large numbers of miners based on various factors, including production (accessible and attractive ore deposits), technical conditions (relatively shallow depth of mineralization or tailings), climatic conditions (the dry season is the most favorable), nearby sales points, site accessibility, safety conditions, and others. The factors mentioned above determine the importance of the mining site in the eyes of ASM operators. However, the market dynamics of the copper-cobalt sector driven by the semi-mechanization of artisanal mining activities, the decline in local cobalt prices, and the presence of state-backed security forces has led to a significant decrease in the number of miners at certain mining sites, potentially leading to site closure.

Table 6 below and Figure 9 illustrate the categorization or importance of mining sites based on the number of miners reported during the field phase. This table shows that a small number of just 7 major mining sites account for 77% of artisanal miners in the copper-cobalt sector; these sites also represent a

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significant share of copper-cobalt production from artisanal mining. This has important implications for the effective governance of the sector.

It should be noted that these estimates are based solely on the ASM mining sites visited; ASM sites where access was denied, other unknown mining sites, and a potential resumption of activities in cobalt-rich ASM sites would be expected to increase the estimated total number of artisanal miners.

Table 6. Distribution of copper-cobalt ASM sites by number of artisanal miners

Artisanal miners per ASM site	Share of miners	Share of sites	Total number of artisanal miners	Total number of ASM sites
Less than 100	1%	37%	720	28
Less than 1000	10%	43%	11 600	32
Less than 5000	12%	11%	13 280	8
More than 5000	77%	9%	86 751	7
Total ASM sites			112 351	75

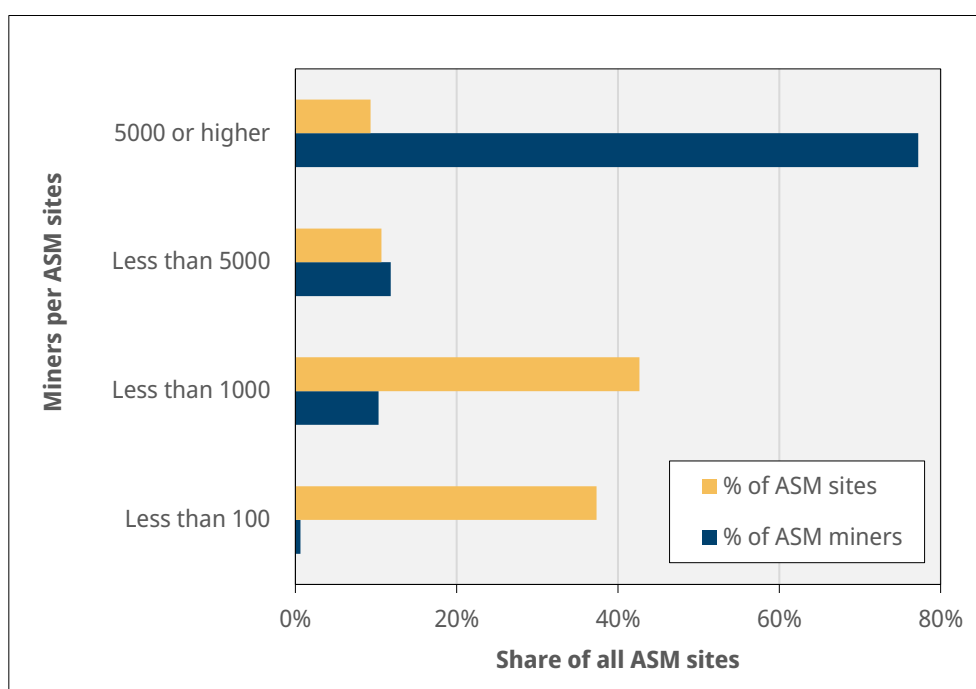


Figure 9. Distribution of ASM sites (copper-cobalt) classified by number of miners

4.4 Type of Mining: Underground vs. Open-pit

In the ASM copper-cobalt sector, the type of mining refers to the method used to extract marketable mineral products, that is, raw ores intended for direct sale or for processing operations. ASM mining operators may either mine in open pits (commonly referred to as a 'basin'), in tailings and waste dumps,

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or in underground operations using shafts and adits. In some cases, these mining types coexist at the same site (Fig. 10). For underground mining, health and safety risks tend to increase with depth. It should be noted that DRC mining regulations require that shaft depths not exceed 30 meters, and most underground ASM sites visited already exceeded this regulatory limit.

The field teams observed that 47% of all ASM sites were underground operations only while 73% of all sites where either underground or combined underground and open-pit mining operations (Fig. 10). Mining sites without underground operations account for only 27% of all sites. It should be noted that underground mines may also benefit from semi-mechanization, as operators may still use heavy equipment to facilitate access to the deposits. However, this process is only cost-effective for a certain stripping ratio.

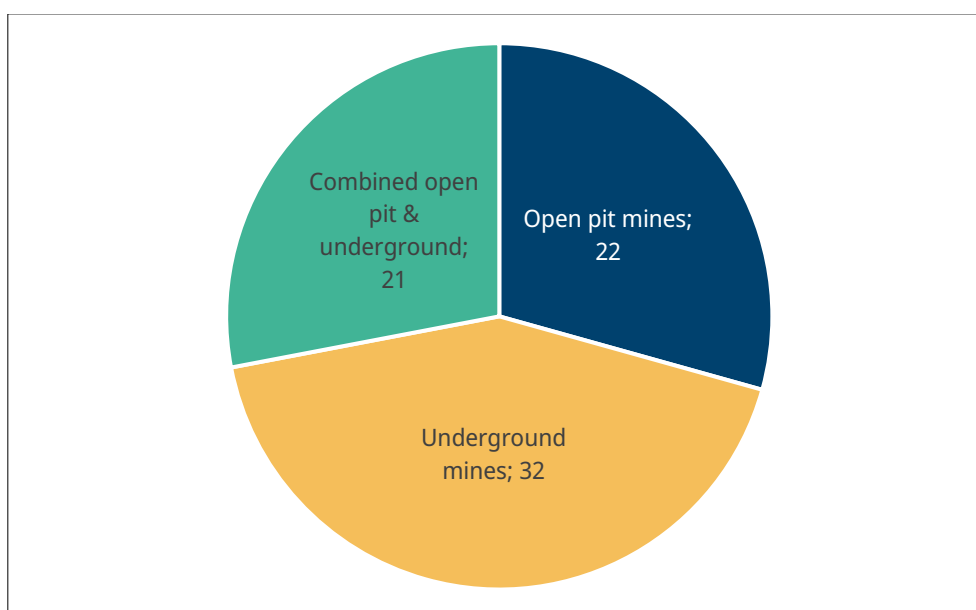


Figure 10. Type of operations in the copper-cobalt ASM sector

Open-pit mining is carried out by artisanal miners on in-situ mineral resources and on (artificial) mine tailings or waste dumps; underground mining is generally carried out on in-situ mineral resources. There are situations where the spatial configuration indicates the presence of both types of mining on the same type of mineral resource (“cohabitation” in Figure 10). This refers to industrial open pit mines where the operator has abandoned the mine and artisanal miners have moved in for the reasons mentioned above (e.g., the mining sites at Mulondo, Kisanfu, Tulwizembe, and others). This demonstrates that the copper-cobalt ASM sector is partially transitioning from rudimentary artisanal mining to small-scale and medium-scale mining due to mechanization and the use of excavation equipment, partly driven by the current demand for low-grade ore at local processing facilities, the rising price of copper, and ASM operators’ efforts to reduce health and safety risks at their respective mine sites.

4.5 Ore Processing and Determination of Copper-Cobalt Grade

At some ASM sites, operators rely on rudimentary processing methods including crushing and grinding, washing, and sorting of ores (including re-mining of tailings) prior to the transport and sale of concentrate to trading houses (‘depots’) located near the processing areas. At other sites, ores do not undergo on-site processing but are directly sold as run-of-mine ore to depots or processing entities.

During this study, more than half of the ASM copper-cobalt mining sites were found not to process ores on site. At ASM sites where local processing of ore takes place, women tend to be employed more frequently, since they focus on such processing activities.

The copper and cobalt content of the ores and concentrates is typically determined at the trading posts (depots) using portable X-ray fluorescence spectrometers, which usually provide semi-quantitative results. Applying this form of grade control is subject to uncertainties and requires proper preparation (grinding) of the sample to be analyzed in order to homogenize it; there is also a risk of manipulating results. For ASM operators transporting ores to processing facilities, the copper (or cobalt) content is assessed in the facility's own geochemical analysis laboratory. There is therefore no independent, standardized analysis of copper and cobalt grades in the sector, despite its significant economic value.

5 Socio-Economic Aspects of the Copper-Cobalt ASM Sector

5.1 Income Levels of Artisanal Miners

During this study, field teams queried miners about their mining-related income. A total of 320 artisanal miners, spread across 64 mining sites (out of the 75 sites included in the study) were surveyed about their daily earnings. Several daily wage brackets were established to categorize the data (Fig. 11); the lowest threshold being the interprofessional daily minimum wage (SMIG2) guaranteed in the DRC: 14,500 CDF, or US\$5 at the exchange rate at the time of data collection (2,800 CDF:1 US\$), as well as the World Bank's poverty limit, which is currently set at US\$3 or 8,400 CDF per day

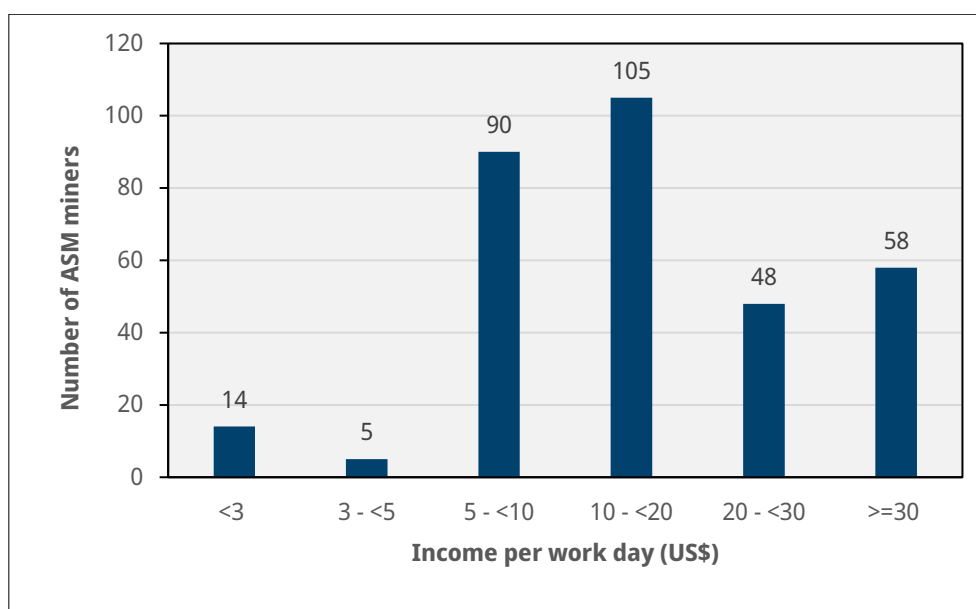


Figure 11. Distribution of average daily income (in US\$) for a sample of 320 artisanal miners in the copper-cobalt sector

Given that a total ASM population of 112,351 artisanal miners were estimated for the 75 sites covered in this study, it is clear that income information based on 320 miners does not constitute a representative

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sample. However, their feedback provides a general indicative overview of the living conditions of miners in artisanal copper-cobalt mining. Only 19 artisanal miners, or 6% of those surveyed, report earnings less than the Congolese daily minimum wage (SMIG), including 4% earning below the current global poverty limit. The vast majority of artisanal miners (301 in the sample), or 94%, reportedly earn more than the SMIG, which is well above the global poverty line. Compared to the latest sector mapping conducted in the BGR/DRC project (BGR 2021), the proportion of miners earning below the SMIG level (which was 7,075 CDF, or US\$3.50, in 2019–2020) has decreased: 6% (2025) vs. 40% (2020). This demonstrates the economic attractiveness of the ASM copper-cobalt sector, likely due to high copper prices and increased productivity resulting from the semi-mechanization of sites. Nevertheless, the distribution of revenues between miners and cooperatives, assessed in Section 5.2 below, must be taken into account.

5.2 Distribution of Revenues Between Miners and Cooperatives

The miners interviewed reported paying a share ranging from 10% to 40% of their production to the cooperatives that oversee them at the various sites visited (Fig. 12): at 36% of mining sites, cooperatives collect a fee of 10% to 20% on the production of their members, i.e., artisanal miners; at 19% of sites, the fee rises to 40%. At four other sites (5%), there is no fixed percentage set by the cooperatives; the fee is instead collected based on the cooperative leaders' assessment of the load: either US\$100 per truck at the time of loading or 5,000 CDF per package (bag) of ore. At the majority of sites (40%), there is no distribution formula for various reasons: either there is no cooperative present or the artisanal mine has transitioned to an industrial mine where miners have been driven off the site. The site may also have become inactive and/or there is a cooperative present but it does not levy any direct fees on the miners – in the latter case, it may collect a share from the mineral buyers instead.

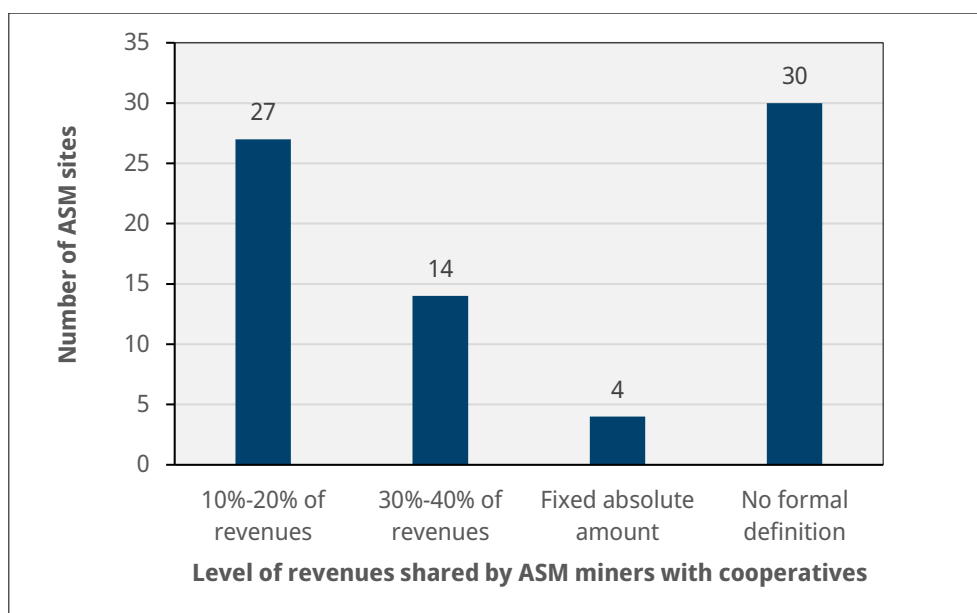


Figure 12. Distribution of artisanal miners' contributions to mining cooperatives in the copper-cobalt sector

At most of the ASM sites, the miners reported receiving no assistance in return for the fees they pay to the cooperatives, even though a very significant portion of their production is collected by the cooperatives. It is therefore recommended that regulatory authorities investigate this situation in order to standardize reasonable shares that cooperatives should normally collect, so that this does not overly

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burden the efforts by artisanal miners, while also raising awareness among cooperatives regarding their own obligations toward the artisanal miners.

In addition to this share of artisanal miners' revenues paid to cooperatives, and beyond the mandatory levies defined by mining law and collected by the relevant authorities (notably the "fees for services rendered," mandatory levies for transport operations), operators must also pay an amount to other unspecified state agencies present on-site or along ore and concentrate transport routes. These include the security, intelligence, and traditional authorities mentioned above (Table 4).

Information on tax and fee payments were collected from 46 sites. These data show that direct taxes or fees were not paid on-site at 22 mining sites. In contrast, at 24 sites, taxes and fees were paid; these taxes were calculated based on a fixed amount per truck, motorcycle, or bicycle transporting the ore or concentrate. The amount collected varied from one site to another; in some cases, it was based on the collector's discretion, ranging from US\$130 to US\$500 per truck depending on the truck's size, and from 2,000 CDF to 15,000 CDF per bag at various checkpoints set up around mine sites and along evacuation routes by security and intelligence services (FARDC, Republican Guard, Police, ANR).

Mining regulations provide no legal basis for the collection of taxes on ASM operations by the army, intelligence services, and police, though it is unclear to what extent these services collect taxes from the sector. However, given that this practice appears virtually systematic, even though the amounts vary from one mine to another, it is worth reiterating the need for regulatory agencies to step up awareness-raising efforts and take concrete actions toward the demilitarization of ASM sites.

5.3 Women's Presence and Discrimination

Women have unrestricted access to only 12% of the ASM sites covered by this study (Fig. 13), and one of those sites is currently inactive. At the eight active sites, women were involved in mineral processing activities; their direct involvement in mining operations was observed at only six sites. They were commonly involved in ore processing, primarily in washing, collecting, and crushing ore, as well as in small-scale commerce and food services. Women were also observed in the mineral trade as traders at two sites and as pit managers at one site; they were further involved in prostitution around certain mining sites, but it is difficult to assess how many were involved, given that questions regarding this work were not readily answered by the operators. At three sites, women organized themselves into committees, and at five sites they were members of mining cooperatives.

Women were not permitted to access the direct site of mineral extraction, that is, open pits (commonly called "grand bassin" by artisanal miners) or underground, at the majority of mining sites visited by the field teams. In contrast, they were permitted to access other areas of the mining site and in the surrounding areas, such as cooperative offices, ore washing stations, trading depots, as well as small shops and restaurants on-site and in the vicinity.

The exclusion of women from extraction sites at the majority (88%) of artisanal mining sites is primarily due to traditional customs and superstitions held by many artisanal miners, according to which the presence of a woman at an artisanal mining site would reduce the ore grade or even cause the mineralized vein to disappear. Regulatory authorities and DRC partners working in this sector should increase awareness campaigns targeting miners and mining cooperatives to prevent these discriminatory practices, as they are due to the miners' and cooperatives' limited knowledge. This report

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cannot confirm whether actions have already been taken in this regard, much less identify the actors who have undertaken them.

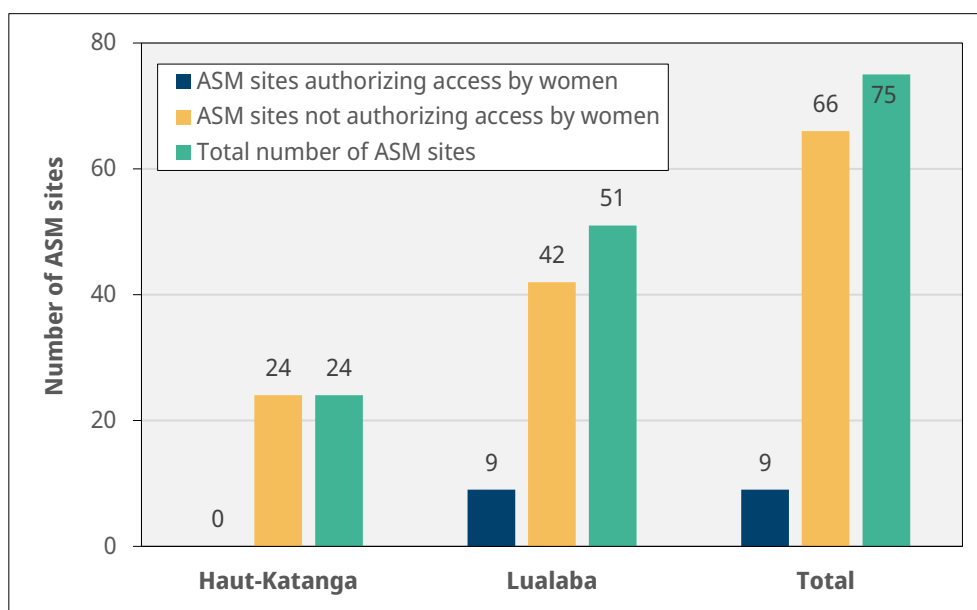


Figure 13. Distribution of authorization and denial of access to women at ASM sites in the copper-cobalt sector

5.4 Presence and Types of Child Labor

Despite 20 years of reports from civil society on this issue, the presence of children remains a reality at certain ASM sites in the DRC. Children were observed at a total of 17 copper-cobalt mining sites, representing 23% of the sites fully covered by this study (Fig. 14). Based on their observations, field teams estimated 3,282 children at the visited ASM sites. Of these, 903 were estimated to be under 10 years old while 2,379 were between 10 and 15 years old; 1,926 children were observed at mining sites in Lualaba and 1,356 children in Haut-Katanga.

Children aged 10 to 15 are harder to identify than younger children, who often accompany their mothers or older sisters. As a result, field teams could not confirm with certainty that no children in this former age group were employed at certain of the visited ASM sites. Mining cooperatives or site operators may have implemented policies against the presence of children at ASM sites, but given the scale of operations at many sites, it was not possible to verify their strict enforcement. At most ASM sites, field teams did not directly observe children in this age group, but cannot rule out their presence. Consequently, the total number of children mentioned above should be considered a minimum estimate.

Figure 14 shows that, at most sites where children were present, there are some children involved in mining activities, either directly in mining and/or in mining-related activities, notably washing and transporting of ores and concentrate as well as trading. At the same time, some of the children present at certain ASM sites are not involved in mining activities at all. Rather, their presence reflects the fact that, among these 17 sites, three are located in residential areas and two in mining camps that are in the immediate vicinity of the mining sites, making it difficult to distinguish between residential areas and the mine.

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At 14 sites, children aged between 10 and 15 performed work related to artisanal mining: they were primarily involved in collecting, washing, sorting, trading, and handling minerals. Furthermore, at six mining sites representing 8% of the total, there were between 100 and 200 children (aged 10 to 15) directly involved in mining (extraction) activities which is considered one of the worst forms of child labor.

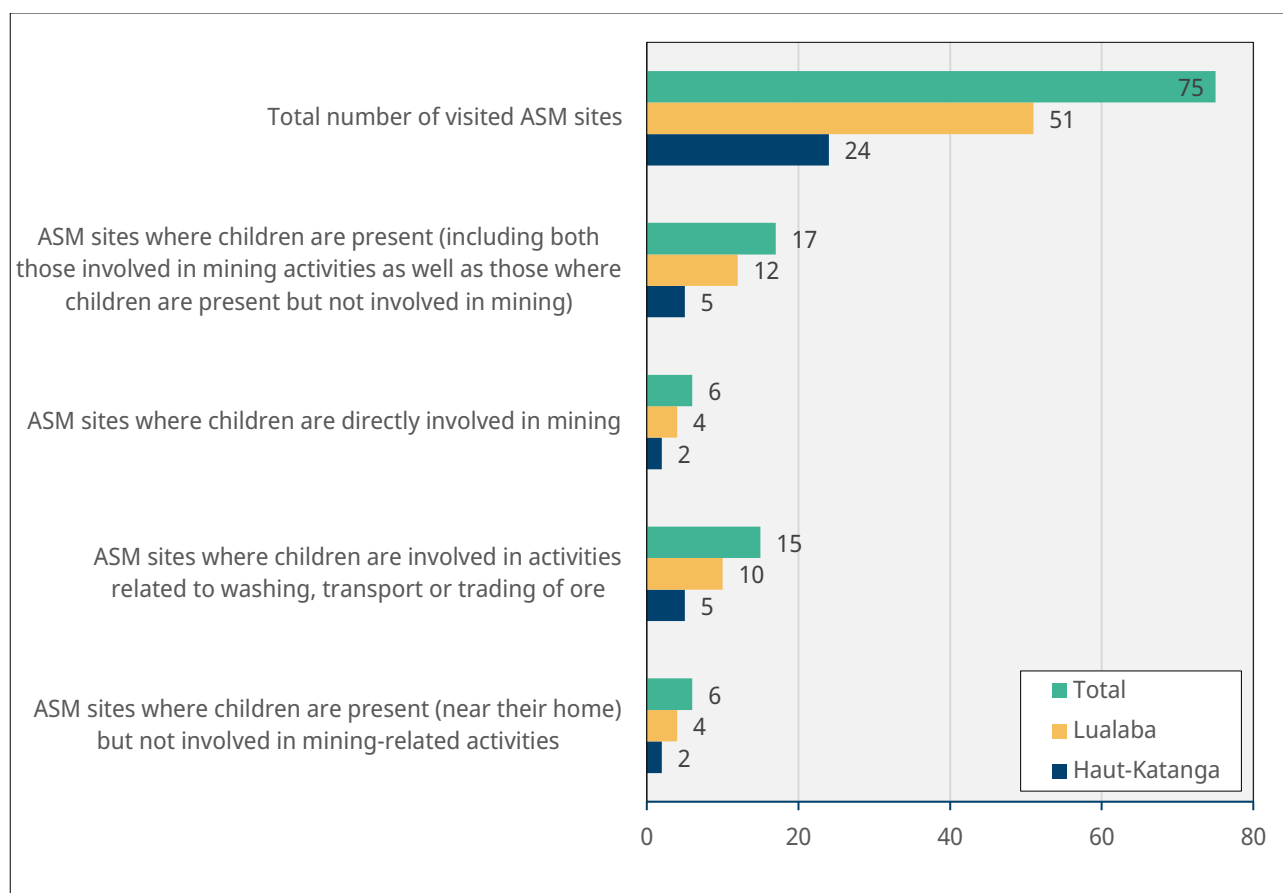


Figure 14. Presence of children at copper-cobalt ASM sites

It is therefore crucial to note that these worst forms of child labor still exist at certain artisanal copper and cobalt mining sites, and their production remains integrated into the supply chains of some processing entities. The primary responsibility for addressing this issue lies with the Congolese government. It should be noted, however, that the policies implemented by downstream companies to avoid sourcing cobalt and copper from the ASM sector appear to have had little impact on the risks of child labor in the Copperbelt.

5.5 Social Impact of Artisanal Mining

The majority of artisanal miners interviewed at 54 sites stated that the income earned was used primarily to cover basic family needs, including: feeding their families, medical care, rent, and their children's schooling. Other miners, at 14 of the 54 mining sites, even reported setting aside some savings that were then used to purchase land and motorcycles. There are other miners, at 10 mining sites, who had mining-related income but were unable to provide details to the field teams regarding how they used it; the field team considers that they also use it to meet basic family needs.

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This confirms the hypothesis that ASM activities in general and copper-cobalt mining in particular provides a significant portion of direct and indirect livelihoods in the DRC, where the unemployment rate is particularly high: while recent and reliable statistical data are not available, approximately 80% of the working-age population does not have formal employment, according to data from 2021 attributed to the Ministry of Planning by media sources and a UNICEF survey from the same year. It is important to note that a large portion of the Congolese population, including artisanal miners, works in the informal sector; ASM constitutes one of the main sources of income for communities in Haut-Katanga and Lualaba provinces.

Some cooperatives have also carried out social projects in affected areas using revenue from ASM activities; notable examples include the Mining Cooperative for Development and Social Welfare (CMDS) in Kamilombe, which built a hospital and renovated a school, as well as the Mining Cooperative for Artisanal Miners of Katanga (COMAKAT), which built a vocational training center in Kawama. There are several other social initiatives by mining cooperatives not mentioned in this report.

6 Risk Assessment

This chapter provides a general description of the risks identified at all visited mining sites based on the criteria shown in Table 7. This qualitative description serves as a general guide but does not replace a detailed assessment of the risks specific to each site, such as that conducted, for example, as part of the CTC audits (BGR 2023). Figure 15 below summarizes the risks identified across all mining sites in the provinces of Haut-Katanga and Lualaba; more detailed information is provided in the following subsections.

Table 7. Definition of risk categories as applied in this study

Risk category	Information / indicators gathered in the field
Governance	Mineral fraud and smuggling, unreliable production data, lack of proof of taxes paid, withholding of ASM identification cards, lack of mineral traceability
Environment	Poor management of tailings and mine as well as general waste, washing of ore in natural rivers or lakes, poor management of diesel (contamination risks)
Health and safety	Miners using personal protective equipment, working conditions
Social	Presence of children on site, situation of women (discrimination, pregnant and elderly women), resettlement, relationships between artisanal miners and local population
Security	ASM site control by armed groups and non-armed groups (state or non-state, control by parties with political affiliation)
Serious harm	Torture, cruel, inhuman and degrading treatment, forced labor, the worst forms of child labor, sexual violence, war crimes (annex 2 of OECD Guidelines)
Legality	ASM activities taking place on third party mining concessions, without considering informal agreements where the latter accept the presence of artisanal miners (legal gray area). Evaluation of this risk category was applied to all 90 ASM sites rather than just the 75 ASM sites visited during the field campaign of this study.

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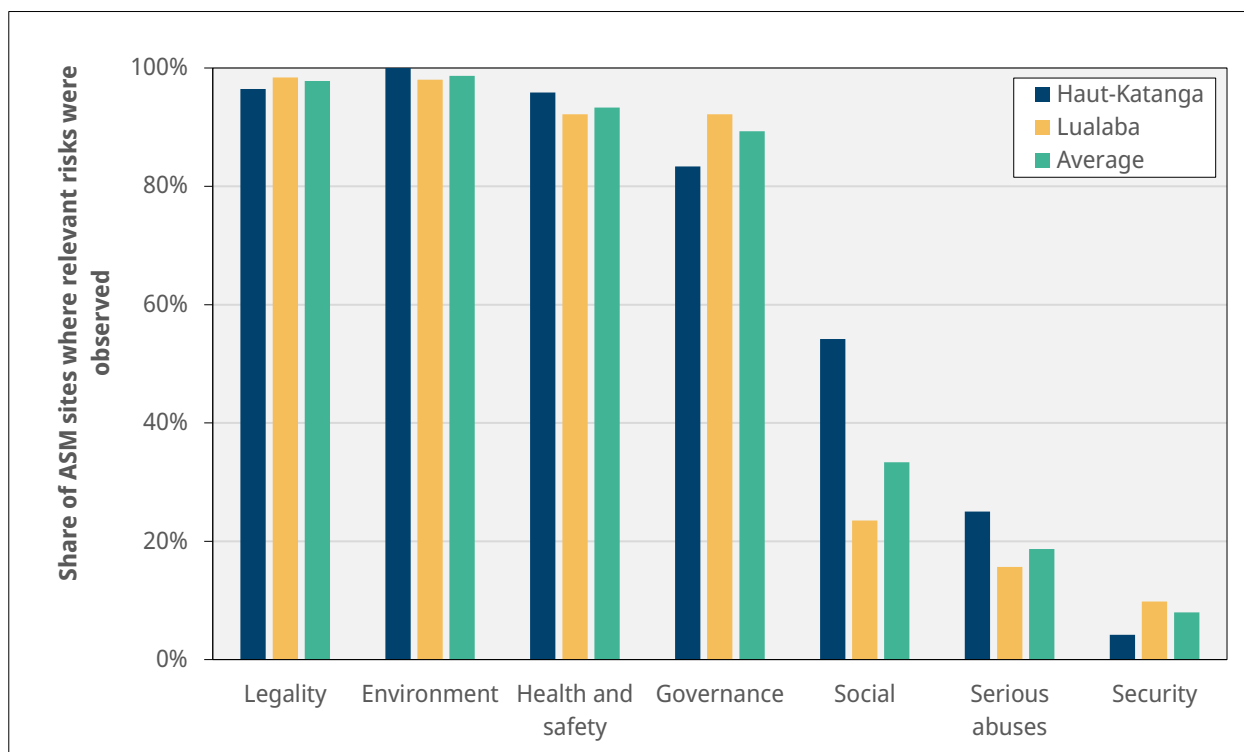


Figure 15. Summary of relevant risk categories observed at ASM sites in the copper-cobalt sector

6.1 Legality risks

Most ASM activities in the copper-cobalt sector are located within private concessions. According to the law, ASM activities should be located within an Artisanal Mining Zone (ZEA) or may be located on a mining rights permit after obtaining express agreement or authorization from the concession holder. After analyzing the data collected in the field, it was found that two mining sites are located within legal ZEAs; a few operators claimed to have received authorizations from the concession holder but without providing evidence; and the rest were located on granted permits without such authorization. This information highlights a major compliance risk in the mineral supply chain, as this situation can lead to conflicts between artisanal miners and private concession holders and does not comply with national legislation. This results in a problem regarding the legality of ASM activities across the entire sector, but it can be resolved through other legal and technical mechanisms or strategies as discussed below.

6.2 Governance Risks, Including Mineral Traceability

Multiple governance and traceability-related aspects are generally relevant to consider; for the purposes of this mapping study of ASM sites in the copper-cobalt sector, field teams focused on identifying information related to governance risks such as corruption, smuggling, and mining fraud, as well as a lack of production data for most copper-cobalt ASM sites. Such risks are relevant in cases where taxes or fees are collected directly by officials assigned to a mining site, minerals from one mining site may be transported to another site or even another province without the relevant documentation, and some sites do not report their production statistics or even maintain production records. Mining cooperatives may also fail to file or pay certain legally mandated taxes and fees. The information gathered regarding

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this issue indicates a certain laxity on the part of relevant government agencies due to the strong presence of other non-authorized actors; this is attributed to a lack of awareness and insufficient staffing among government officials in the agencies and calls for improved coordination.

As noted above, most ASM sites are located within private mining concessions where the majority of concession holders have not officially accepted the presence of ASM operators. Compared to the two previous mapping studies conducted by BGR and its partners (BGR 2019, 2021), the copper-cobalt ASM sector has not seen significant development in this regard to date. However, a regulatory advancement is worth noting with Decree No. 25/05 of February 21, 2025 (amending and supplementing Decree No. 19/15 of November 5, 2019) regarding the safeguarding of activities related to strategic mineral substances in artisanal mining. This is a prerequisite for better tracing minerals from the mining site to the point of export and for applying the traceability manuals for commercial minerals in the copper-cobalt sector.

According to the information received, there is a documentary traceability system that quantifies raw material flows at the level of trading facilities (depots) and processing entities, as reported by the mining cooperatives. However, the major challenge remains the application of the mineral traceability manual² at the ASM sites for extraction where the artisanal production report (the product purchase order) must be issued. After declaring their production by submitting a transport authorization request with payment at the one-stop shop through their depots, and after having obtained the transport certificate, mining cooperatives can transport their production to processing facilities; similarly, mining cooperatives with contracts with processing facilities can use the same procedure. This traceability system remains fragile and subject to several risks, including under-reporting, fraud, and product contamination, which leads to data falsification.

6.3 Occupational Health and Safety Risks

ASM copper-cobalt operators also face occupational health and safety (OHS) risks while carrying out their activities. These risks can lead to incidents ranging up to fatal accidents. Accidents recorded during the field phase were categorized by cause, including: rockfalls and landslides, drowning, falls, asphyxiation, lack of personal protective equipment (PPE), and others. The information collected in the field remained largely anecdotal, and no records were found at the mining cooperatives to enable corrective or mitigation measures.

SAEMAPE is the body responsible for inspecting and making decisions regarding mining facilities and raising awareness among operators regarding OSH. Some mining cooperatives also organize morning meetings to raise awareness about risks and how to effectively mitigate them. The use of PPE by ASM copper-cobalt operators remains a difficult issue to resolve. On the one hand, operators complain that they are not provided with PPE by the mining cooperatives and that the cost of purchasing is high; on the other hand, some say that wearing PPE makes work uncomfortable, leading to a refusal or neglect to wear it. Some mining cooperatives do provide PPE to their members or miners, but the latter do not use it or may use it for other purposes while some point out that artisanal copper-cobalt miners are nomadic and may move from one site to another or even to another province, which poses an investment risk for the mining cooperatives (since they might lose any issued PPE). Based on the above, there is no formal requirement for operators to wear PPE at most copper-cobalt ASM sites, and operators are responsible for procuring it themselves.

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During the field missions, information on fatal accidents was based solely on operator reports, as operators were reluctant to disclose details, and especially since such incidents were not documented; identified causes were generally rockfalls or landslides. As for injuries, which were also not documented, the causes included lack of PPE, improper tool handling, falls and others. Alcohol and intoxicating beverages are strictly prohibited, but there are no effective control mechanisms in place to prevent incidents or accidents related to these products.

6.4 Security Risks and Serious Harm

Issues regarding human rights violations and the illegal control of copper-cobalt mining sites remain relevant due to the presence of the army and its detached or special units. Despite the general ban on armed presence in the ASM sector, field teams encountered significant difficulties accessing certain mining sites due to public security forces (the military) and certain non-state, unarmed security groups, despite the mission order issued by the Ministry of Mines. In these cases, field teams were forced to refrain from entering but managed to record the geographic coordinates of the mining site where possible and speak with operators who had easy access; in other cases, security forces set up access barriers to control the flow of mining products and the operators entering the area.

This illegal presence and the establishment of control measures that do not comply with current mining regulations exacerbate or facilitate the risks of corruption, the collection of access fees, and daily extortion of operators under threat at some mining sites. From the above, we realize that these practices confirm that the risk of human rights violations still exists at certain ASM copper-cobalt sites. According to the OECD Due Diligence Guidance for Mineral Supply Chains, this constitutes a risk of negative impacts leading to serious harm during the extraction, transport, and trade of minerals, with support from public and private security forces.

However, the DRC's Copperbelt region is free of non-state armed groups compared to the eastern part of the country. The two copper-cobalt-producing provinces, Haut-Katanga and Lualaba, are primarily patrolled by public security forces, and no instances of support for non-state armed groups have ever been documented in the area.

6.5 Environmental Risks

Field surveys revealed that the majority of sites visited face environmental management issues, including:

- Plastic waste management;
- Risks associated with washing ore in waterways, including the risk of water pollution, harm to aquatic life, and other impacts;
- Artisanal mining activities also cause landslides and vegetation destruction, resulting in significant environmental damage, as rehabilitation by cooperatives does not follow mining operations;
- The use of hydrocarbons without taking adequate precautions for machinery and motor pumps, with the risk of spills into waterways during rainfall;
- Wells and tunnels that are not closed (covered) once these structures are no longer in use, leaving holes that pose an environmental hazard and a risk to animals;

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- Dust generated by artisanal mining activities pollutes the air and poses a health hazard to the population (including artisanal miners) who lack adequate protective measures.

Current mining regulations in the DRC do not require cooperatives to conduct ESIA (Environmental and Social Impact Assessments), let alone EMSPs (Environmental and Social Management Plans), which would allow for the assessment of the impact of their activities on the environment. Nevertheless, Article 417 of the mining regulations stipulates that:

“The cooperative shall contribute to the rehabilitation funds established to finance the implementation of mitigation and rehabilitation measures for artisanal mining zones (ZEA) in the amount of 5% of its annual revenue. It undertakes to rehabilitate each portion of the artisanal mining zone as soon as work ceases there, and not only when all of its mining activities have been completed. The cooperative restores the contours of the terrain and landscape to prevent accidents and minimize erosion, loosens the soil where it is too compact, and returns topsoil to the surface of sites where operations have been completed.”

Given that the large majority of copper-cobalt ASM activities take place primarily outside ZEA areas, this requirement of Article 417 is not directly applicable in practice, despite its relevance. Further details on the topic of environmental management in the ASM sector in the DRC are included in the report by Le Grand de Mercey & Irung (2024).

7 Recommendations

There has been little on-the-ground change in the copper-cobalt ASM sector in recent years. Key observations made in 2018 and 2020 (BGR 2019, 2021) remain valid in 2025, with the exception of the shift from cobalt to copper as the primary artisanal product sold and the increasing level of mechanization at certain sites.

Copper-cobalt ASM mining activities still face several challenges regarding formalization, given that these activities are generally carried out within concession areas rather than in ZEAs. The involvement of relevant government agencies, including security forces, in artisanal mining activities continues to be observed. With the exception of two active ZEAs, other viable ZEAs have still not been established, and the existing ones have not yet been made viable.

In the BGR (2019) and BGR (2021) reports, recommendations were made to help advance the formalization of artisanal copper and cobalt mining; the majority of these recommendations remain relevant and can be found in the two aforementioned reports.

In light of the above, and aside from the reiteration of certain recommendations from 2019 and 2020, the following recommendations have been formulated based on the analysis of the results from this study; when taken together with those formulated in past studies, they would contribute to the formalization of artisanal copper and cobalt mining as well as to the promotion of good mining practices in this sector:

- The results of this study show that 7 major ASM sites, representing about 10% of the mining sites visited, account for about 80% of artisanal miners; consequently, a large portion of the copper-

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cobalt production from artisanal mining comes from these sites. Focusing priority actions on these few sites would therefore create significant leverage to address the problems of the entire sector. It is recommended that the Government of the DRC, through its technical services and partners, concentrate greater efforts on formalizing these sites, given that once the challenges and risks facing the copper-cobalt ASM sector were mitigated and/or reduced at these sites, they would impact approximately 80% of miners.

- A significant shift from artisanal mining toward semi-mechanization or even full mechanization has been observed in the field. While this certainly has a positive impact on production levels, it causes negative impacts on the direct employment of artisanal miners, some of whom find themselves losing their livelihoods. This mechanization also has a greater environmental impact than artisanal mining, notably: deforestation, dust emissions, the production of mining waste, and the use of hydrocarbons, to name just a few. This is why the authors suggest coordination between the ACE (Congolese Environment Agency), the DPEM (Directorate of Mining Environmental Protection), and the SAEMAPE in managing the environmental impacts of this (semi-)mechanization.
- The development of ZEAs is crucial for the legalization of new copper-cobalt mining sites. Several ZEAs have already been established in the provinces of Haut-Katanga and Lualaba, but most of them remain undeveloped and are therefore less attractive to artisanal miners. However, it is important to note that mineral exploration always involves geological risks and that there is no guarantee regarding the number of ZEA areas that are rich in exploitable deposits, and are therefore viable, for the ASM sector. In addition to managing ZEA areas for future mining sites, it is therefore equally important to examine the legal framework of existing ASM mining sites.
- Following the previous recommendation, and given that almost all activities take place within the concession areas, it is suggested that cooperatives establish a framework for dialogue with the license holder to resolve this issue of overlapping ASM activities with concessions granted under the supervision and direction of the Congolese government, by either applying Article 30(e) of the Mining Code and/or signing a memorandum of understanding with the concessionaires.
- Some efforts are being made by the DRC government, including the launch of EGC activities. We suggest that international value chain actors, in coordination with organizations such as the OECD, review their sourcing standards for copper-cobalt minerals from ASM in order to actively support the government's and cooperatives' efforts to ensure responsible mining. This would entail the need to consider progressive rather than absolute compliance standards.
- The authors recommend that mining cooperatives in the copper-cobalt ASM sector make proactive efforts to improve transparency by disclosing taxes paid and fees collected from artisanal miners, as well as information on their production levels, in order to demonstrate good governance and attract financing or investment in mineral sourcing. Indeed, some mining cooperatives operate on a larger scale than small-scale industrial mining companies; internationally, the latter are aware of the benefits they derive from promoting their activities to external stakeholders. Mining cooperatives could also apply the standards of the national CTC system (Ministry of Mines 2019) to learn and demonstrate their good mining practices.
- To promote the establishment of responsible supply chains and good governance in the artisanal and small-scale copper-cobalt sector, it is important for the Congolese Government to clarify the role of non-essential (eligible) authorities in ASM activities.

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