

How New Business Models Can Address Human Rights Risks in the Cobalt Supply Chain

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Introduction

In July 2019, 43 miners were killed in a landslide in a cobalt mine in southeastern Katanga Province of the Democratic Republic of the Congo (DRC). A subsidiary of Switzerland-based commodity trading and mining company Glencore operated the mine. The accident occurred in a concession designated exclusively for industrial mining.¹ Investigations of the Glencore accident revealed that the miners who died were not authorized to enter the concession but were among the estimated 2,000 artisanal miners who trespass on the concession on a daily basis to extract high-value metals with basic means.²

The accident showed that unauthorized, informal mining is a business reality in the DRC, which has about half of the world's cobalt reserves.³ Cobalt is vital for making rechargeable batteries, and its consumption is expected to multiply eightfold by 2026 and 14 times its current levels in the next decade.⁴ With no alternatives to the DRC's production capacity, companies that manufacture batteries are dependent on Congolese cobalt.

¹ 'Dozens killed in DRC Glencore copper mine accident', *The Guardian*, (27 June 2019),

² Ibid.

³ Thomas R. Yager, *The Mineral Industry of Congo (Kinshasa)*, (US Geological Survey (USGS), 2015).

⁴ 'Ford Motor Company, Huayou Cobalt, IBM, LG Chem and RCS Global Launch Blockchain Pilot to Address Concerns in Strategic Mineral Supply Chains', *IBM News Room*, 16 January 2019, <https://newsroom.ibm.com/2019-01-16-Ford-Motor-Company-Huayou-Cobalt-IBM-LG-Chem-and-RCS-Global-Launch-Blockchain-Pilot-to-Address-Concerns-in-Strategic-Mineral-Supply-Chains> (accessed 8 August 2019); World Economic Forum, *Global Battery Alliance Value Chain Roadmap*, (5 August 2019).

The so-called artisanal small-scale mining (ASM), a term that refers to mining without heavy machinery, accounts for 20% to 30% of the country's total cobalt production.⁵ ASM is common in the DRC, as mining provides the only livelihood other than farming for many communities. While there are several conflicting estimates as to the total number of artisanal miners in the country, the DRC Chamber of Mines and the International Institute for Sustainable Development estimate that in 2015 about 2 million Congolese were involved in ASM, while the global union IndustriALL puts the number at more than 12 million.⁶ Amnesty International estimates that there are 200,000 artisanal miners in the cobalt-rich Katanga region, with around 1.2 million people dependent on income from this activity.⁷ In 2012, UNICEF reported that there were 40,000 children working in artisanal mines in southern Katanga, while the U.S. Department of State reported in 2019 that 40% of Katanga's miners were children who worked under the same dangerous conditions as adults.⁸ The U.S. Department of Labor 2017 findings on the Worst Forms of Child Labor stated that 36% of Congolese children between the ages of 5 and 14 were employed, often in mining activities.⁹ Due to the seasonal and price-sensitive nature of ASM, and the lack of oversight at ASM sites, it is very difficult to ascertain the exact number of artisanal miners and child workers and therefore the true extent of ASM-related human rights issues in the DRC.

⁵ RCS Global, 'The Emerging Cobalt Challenge', (October 2016), <https://www.rcsglobal.com/wp-content/uploads/rcs/pdfs/RCS-Global-The-Emerging-Cobalt-Challenge.pdf> (accessed 30 July 2019); 'DRC: Miners on hold while government stalls', *The Africa Report*, (2 August 2019) <https://www.theafricareport.com/15892/drc-miners-on-hold-while-government-stalls/> (accessed 6 August 2019).

⁶ Chambre des Mines, Federation des Entreprises du Congo, '2015 DRC Mining Industry Annual Report', (February 2016); Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (IGF), 'Global Trends in Artisanal and Small-Scale Mining (ASM): A review of key numbers and issues', (Winnipeg: IISD, 2017); 'Calls for sustainable mining after 43 artisanal miners killed in DRC landslide', *IndstriALL*, 4 July 2019, <http://www.industrialunion.org/calls-for-sustainable-mining-after-43-artisanal-miners-killed-in-drc-landslide> (accessed 7 August 2019).

⁷ Amnesty International, 'This is What We Die For: Human Rights Abuses in the Democratic Republic of Congo Power the Global Trade in Cobalt', (London, 2016).

⁸ UNICEF, 'In DR Congo, UNICEF supports efforts to help child labourers return to school', 13 June 2012, https://www.unicef.org/childsurvival/drcongo_62627.html (accessed 13 August 2019); US Department of State, '2018 Country Reports on Human Rights Practices: Democratic Republic of the Congo', 13 March 2019.

⁹ U.S. Department of Labor, Bureau of International Labor Affairs, Child Labor and Forced Labor Reports, '2017 Findings on the Worst Forms of Child Labor', <https://www.dol.gov/agencies/ilab/resources/reports/child-labor/congo-democratic-republic-drc> (accessed 19 August 2019).

What is evident is that working in the Congolese mining sector is dangerous, with particularly high risks related to legal yet largely unregulated ASM. Although the country's newly amended Mining Code sets age and area limitations for ASM and requires miners to obtain an artisanal miner card,¹⁰ human rights issues have been documented in many artisanal mines in the country, including child labor, serious health and safety risks, and fatal accidents.¹¹ Considering the projected rise in cobalt demand, finding collective and permanent solutions to human rights issues in ASM is a timely and urgent quest.

Companies sourcing from the DRC are under increasing pressure to address these human rights challenges. Media reports have been highlighting the role of consumer-facing brands in the cobalt supply chain. Apple, for example, designated cobalt as a 'conflict mineral' in 2014 and requires its suppliers to adhere to stringent audit requirements. It completed its cobalt supply chain mapping in 2016 and publishes an annual supplier responsibility report, which includes a list of refiners and smelters from which Apple sources its cobalt. Since 2016, Apple has achieved 100% participation by its cobalt suppliers in Apple's independent third-party audits, which verify the accuracy of data provided by suppliers.¹² It has removed two of its cobalt suppliers from its supply chain in 2018. Apple also collaborates with the OECD, several NGOs, and trade chambers on various programs to address the social and environmental risks associated with obtaining cobalt from the DRC.¹³ Similarly, a multi-industry consortium that

¹⁰ The Revised Mining Code of the DRC, art. 26, 27, 109, 'Loi n°18/001 du 09 mars 2018 modifiant et complétant la Loi n° 007/2002 du 11 juillet 2002 portant Code minier', Journal Officiel de la République Démocratique du Congo, 28 March 2018.

¹¹ "Between September 2014 and December 2015 alone, the DRC's UN-run radio station, Radio Okapi, carried reports of fatal accidents involving more than 80 artisanal miners in the former province of Katanga." *This is What We Die For*, note 6, page 6, 28-33. See Annex 2 for a list of mining accidents that took place in the DRC between 2014 and 2019.

¹² Apple, 'Supplier responsibility 2019 Progress Report', https://www.apple.com/supplier-responsibility/pdf/Apple_SR_2019_Progress_Report.pdf (accessed 19 August 2019).

¹³ Apple, 'Supplier responsibility 2018 Progress Report', https://www.apple.com/supplier-responsibility/pdf/Apple_SR_2018_Progress_Report.pdf (accessed 7 August 2019); Apple, 'Smelter and Refiner List 2018', <https://www.apple.com/supplier-responsibility/pdf/Apple-Smelter-and-Refiner-List.pdf> (accessed 8 August 2019).

consists of BASF, BMW, and Samsung in partnership with the German development agency GIZ, launched a pilot project in late 2018 to identify and address systematic problems at artisanal mines.¹⁴ A third example of a project that seeks to ameliorate human rights abuses in cobalt mining is the blockchain project introduced by a consortium that consists of Ford, IBM, Huayou Cobalt, LG Chem, and RCS Global. This pilot seeks to increase transparency in ASM by creating an audit trail from mine to manufacturer, which will enable mine operators to sell their responsibly sourced and validated raw materials in the global market.¹⁵

Our paper analyzes the business solutions that Western companies are currently exploring to formalize ASM. Addressing human rights issues in ASM requires companies to reorganize core business processes in a way that systematically integrates respect for human rights in all supply chain links upstream. In our initial case study we are focusing on a Swiss commodity trading company that is driving an innovative project to regulate ASM at a mining site at Kolwezi, in Katanga, DRC. We see this case study as a preliminary research phase into a comparative project of business models of companies sourcing precious metals from the DRC. The goal is to distill the business factors that have a systemic positive impact on the workers and communities involved in ASM.

This paper is structured in four parts. The current draft outlines the research focus of this project but it does not yet provide empirical insights. These will be added after a field trip to the DRC in September 2019. In the first part of the paper, we provide data to underpin the relevance of the DRC for the global cobalt supply chain. We also highlight the role of ASM in this supply chain and the impact that cobalt price fluctuations have on ASM. In the second part, we outline the pilot project that the commodity firm Trafigura has set up at the Mutoshi mine in the

¹⁴ 'BMW, BASF and Samsung launch a project for sustainable cobalt mining', *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH*, 29 November 2018, <https://www.giz.de/en/press/72347.html> (accessed 7 August 2019).

¹⁵ 'Blockchain Pilot', note 4.

DRC to control for the human rights risks related to ASM. The case is considered as a model example for formalizing ASM. We describe our research plans to assess this project in the field in order to identify the business factors that need to be in place for such a project to be scalable and replicable by other companies, including companies in other sectors. The third part outlines other companies' projects that attempt to control for human rights risks related to ASM. We hope to eventually to study them in greater detail in a comparative setting. Finally, in part four, we look at the specific role that commodity-trading companies play in the cobalt supply chain and the current drivers for the described pilot projects. We will also consider how multi-stakeholder initiatives in this industry can facilitate the development of standards for responsible ASM.

Part I - The Cobalt Supply Chain and ASM's Swing Capacity in the DRC

Cobalt is an essential component of the lithium-ion batteries that power our phones, laptops, and other portable consumer electronics. The biggest demand for battery metals, however, comes from a growing global interest in switching from petrol and diesel to electric vehicles that can help reduce air pollution and meet climate change targets. Some projections forecast that in 20 years, one-third of cars will be electric and more than 140 million electric vehicles will hit the road by 2030, requiring 260,000 tons of cobalt per year, almost double the global production in 2018.¹⁶

Governments are key drivers for this transition to so-called green energy. India, for example, plans to replace 30% of all vehicles in the country with electric

¹⁶ 'The Top Miners Are Split on How to Chase the EV Battery Boom', *Bloomberg*, (5 August 2019), <https://www.bloomberg.com/news/articles/2019-08-05/the-top-miners-are-split-on-how-to-chase-the-ev-battery-boom> (accessed 5 August 2019). See Annex 1 for a list of countries contributing to the global mined cobalt production in 2018.

models by 2030.¹⁷ China also created incentive systems for manufacturers and subsidies for consumers to use electric vehicles.¹⁸ In 2010, the U.S. federal government introduced a tax credit for plug-in electric vehicle purchases,¹⁹ while California has set an official target of reaching 5 million zero-emission electric vehicles on its roads by 2030.²⁰ In Europe, the UK announced in July 2017 it would phase out sales of new petrol- and diesel-run cars by 2040.²¹ The EU has already tightened its limits for carbon dioxide to incentivize the use of electric vehicles.²²

Currently, 64% of the global mined cobalt is produced in the DRC, mainly as a by-product of copper mining.²³ Other cobalt-exporting countries are Russia, Cuba, Canada, Australia, the Philippines, and Madagascar, but none of these other nations contributes as much as 5% of the global cobalt production.²⁴

The projected green revolution thus depends on the DRC, a country of 84 million people known for poverty, armed conflict and high levels of corruption. According to Transparency International's corruption index, the DRC is 161st out of 180 countries in the world. The UN Human Development Index ranks the DRC 176th out of 189 countries, and the UNDP estimates that 90.5% of those employed

¹⁷ 'India Races Forward in Electric Cars', Bloomberg, (21 December 2018) <https://www.bloomberg.com/opinion/articles/2018-12-22/india-gets-policies-on-electric-car-infrastructure-right> (accessed 5 August 2019).

¹⁸ Jack Perkowski, 'What China's Shifting Subsidies Could Mean For Its Electric Vehicle Industry', *Forbes*, (13 July 2018), <https://www.forbes.com/sites/jackperkowski/2018/07/13/china-shifts-subsidies-for-electric-vehicles/#63b71c155703> (accessed 5 August 2019).

¹⁹ Office of Energy Efficiency & Renewable Energy, 'Electric Vehicles: Tax Credits and Other Incentives', <https://www.energy.gov/eere/electricvehicles/electric-vehicles-tax-credits-and-other-incentives> (accessed 19 August 2019).

²⁰ California Public Utilities Commission, 'Zero-Emission Vehicles', <https://www.cpuc.ca.gov/zev/> (accessed 5 August 2019).

²¹ 'New diesel and petrol vehicles to be banned from 2040 in UK', *BBC*, <https://www.bbc.com/news/uk-40723581> (accessed 5 August 2019).

²² 'Carmakers Get a Road Map for Tougher EU Limits on Carbon Dioxide', *Bloomberg*, (17 December 2018), <https://www.bloomberg.com/news/articles/2018-12-17/carmakers-get-road-map-for-tougher-eu-limits-on-carbon-dioxide> (accessed 7 August 2019).

²³ 'Congo, child labour and your electric car', *Financial Times*, (7 July 2019), <https://www.ft.com/content/c6909812-9ce4-11e9-9c06-a4640c9feebb> (accessed 5 August 2019).

²⁴ US Geological Survey, National Minerals Information Center, 'Cobalt Statistics and Information', <https://www.usgs.gov/centers/nmic/cobalt-statistics-and-information> (accessed 7 August 2019). See Annex 1 below for exact figures and share of production.

make less than \$3.10 per day.²⁵ In February 2019, the DRC made headlines when militia groups attacked international aid stations established to fight an Ebola outbreak in the Northern provinces.²⁶ Health workers were forced to close these facilities, exacerbating the deadly epidemic.²⁷

Clearly there is a governance gap in the enforcement of the Congolese Mining Code, which by its terms would ensure health and safety standards in all mining activities. Given the poverty levels in the DRC, companies sourcing from this country need to acknowledge that ASM is one of the very few options Congolese have for earning a livelihood and hence a business reality in the cobalt supply chain.

It's worth noting that the DRC is not the only country where ASM is a common practice in the extractive sector. Worldwide, ASM produces approximately 80% of all sapphires, 25% of all tin, 20% of all gold, and up to 20% of all diamonds. ASM provides an income to estimated 100 million people globally.²⁸ Understanding how businesses can help to mitigate human rights risks related to ASM in the DRC can thus serve as a model to develop standards for ASM generally that also apply to other commodities and countries.

The number of people involved in ASM in the DRC and global cobalt prices are closely connected because of the “swing capacity” of the activity. This term refers to local communities switching back and forth between farming and mining,

²⁵ UNDP, Human Development Reports, 'Table 1. Human Development Index and its components', <http://hdr.undp.org/en/composite/HDI> (accessed 7 August 2019) and 'Congo: Human Development Indicators', <http://hdr.undp.org/en/countries/profiles/COD> (accessed 7 August 2019).

²⁶ “‘Crippling’ Attacks Force Doctors Without Borders to Close Ebola Centers in Congo”, *The New York Times*, 28 February 2019, <https://www.nytimes.com/2019/02/28/world/africa/congo-ebola-doctors-without-borders.html> (accessed 7 August 2019).

²⁷ ‘How do you reform a country where gunmen torch Ebola clinics?’, *The Economist*, 3 August 2019, <https://www.economist.com/middle-east-and-africa/2019/08/03/how-do-you-reform-a-country-where-gunmen-torch-ebola-clinics> (accessed 7 August 2019).

²⁸ ‘What is Artisanal & Small-Scale Mining (ASM)?’, *Fair Congo Foundation*, (23 August 2017), <http://faircongo.com/2017/08/23/artisanal-small-scale-mining-asm/> (accessed 8 August 2019).

depending on which activity produces more income at a given moment.²⁹ The price of cobalt has fluctuated significantly over the past decade. The number of artisanal miners increases with rising cobalt prices and declines with falling prices, as witnessed in the period between 2010 and 2016, when ASM cobalt production was low due to depressed prices. This activity picked up quickly when prices rose dramatically in 2017 and early 2018.³⁰

Despite forecasts of an increase in demand for battery metals, the price of cobalt is currently very low. After quadrupling from \$22,000/metric ton in February 2016 to \$95,000/metric ton in March 2018, the price of cobalt decreased by 52.7% since the beginning of 2019, and the current price is roughly \$28,000/metric ton.³¹ This sharp decline in the second half of 2018 was caused by a surge in cobalt supply from the DRC, especially from artisanal miners who reacted swiftly to increasing prices in late 2016 and 2017 and entered the supply chain.³² It is estimated that ASM cobalt production in the DRC jumped from 6,500 tons in 2016 to 24,000 tons in 2018,³³ which was higher than the combined cobalt production of Russia, Cuba, Australia, the Philippines, and Canada in 2018, making the Congolese swing artisanal supply the second largest source of cobalt globally, after industrial mining in the DRC that year.³⁴ With the ongoing reduction in cobalt prices this year, seasonal artisanal miners are not expected to return to cobalt mines and it is estimated that ASM cobalt production has fallen 70% from last year, to well below 5,000 tons.³⁵

²⁹ Andy Home, 'Why the cobalt market needs Congo's 'illegal' miners', *Reuters*, (12 July 2019), <https://www.reuters.com/article/us-congo-cobalt-ahome/why-the-cobalt-market-needs-congos-illegal-miners-andy-home-idUSKCN1U71VS> (accessed 8 August 2019).

³⁰ *Ibid.*

³¹ London Metal Exchange, 'LME Cobalt, Historical Prices Graph', <https://www.lme.com/en-GB/Metals/Minor-metals/Cobalt#tabIndex=2> (accessed 8 August 2019).

³² 'Plummeting cobalt prices takes toll on Democratic Republic of Congo', *Financial Times*, 23 June 2019, <https://www.ft.com/content/3317dc52-933a-11e9-aea1-2b1d33ac3271> (accessed 8 August 2019).

³³ Roskill, 'Cobalt: Dramatic Price Fall Comes To An End', (15 April 2019), <https://roskill.com/news/cobalt-dramatic-price-fall-comes-to-an-end/> (accessed 8 August 2019).

³⁴ See Table 1 below for exact production figures and share of production of each country.

³⁵ 'Plummeting cobalt prices', note 28.

This price decline was further exacerbated by stockpiling, particularly by Chinese buyers who play a pivotal role in the global cobalt market. While China accounts for only 1% of cobalt mine production, it is the world's leading cobalt refiner and consumer, producing 50% of the world's refined cobalt.³⁶ In order to produce at this level, China sources 70% of its mined cobalt from the DRC.³⁷ Roughly 80% of the mineral-processing plants in Katanga are operated by Chinese companies, and almost all of their output is exported to China for production of electronic devices and vehicles.³⁸

This close and volatile export relationship between the DRC and China renders the Congolese economy vulnerable to changes in Chinese buying behavior, often directed by government policies such as the 2000 "Going Out Strategy," which incentivized Chinese companies to expand overseas for mineral resources. As a result of this policy, the Chinese government is able to stockpile natural resources it does not produce domestically, such as cobalt, at the Chinese State Reserve Bureau and reduces the country's supply risks and dependency on global markets.³⁹ As a consequence, a collective decision by Chinese buyers in the DRC to stockpile cobalt put a strain on the Congolese economy, which heavily depends on exports. In 2017, cobalt accounted for 42.9% of the DRC's total exports; China is the destination for 45% of all Congolese exports.⁴⁰

According to Citibank's cobalt price forecasts, the market will remain in surplus until 2022, following which supply growth is expected to slow and the projected increases in cobalt demand to kick in.⁴¹ Cobalt Investing News' 2019 mid-year

³⁶ Gulley, McCullough, Shedd, 'China's domestic and foreign influence in the global cobalt supply chain', (2019) Resources Policy 62, 317-323, p.320

³⁷ The Centre for Research on Multinational Corporations (SOMO) and PremiCongo, "Go ahead, try to accuse us...": Human rights violations by Chinese mining companies in the Democratic Republic of Congo', (Lubumbashi, November 2018).

³⁸ KPMG Global Mining Institute, 'Democratic Republic of Congo: Country mining guide', (2014).

³⁹ 'China's domestic and foreign influence', note 31, p.318.

⁴⁰ The Observatory of Economic Complexity, 'Democratic Republic of the Congo', <https://oec.world/en/profile/country/cod/> (accessed 8 August 2019).

⁴¹ Citi, 'Cobalt 2019-2025 Outlook', (4 December 2018).

cobalt market update estimated that excess supplies would continue for the next 12 to 18 months.⁴² Most recently, Glencore announced its decision to close the world's largest cobalt mine, the Mutanda mine in Katanga, which will reduce by about 20% of the global cobalt supply, foreshadowing a likely rise in cobalt prices.

In light of these projections, the timing of our research project is critical. Developing business models that can effectively address the human rights risks involved in ASM should be an urgent priority before local farmers swing back to ASM. Trafigura's Mutoshi project in Katanga is one example of a business model that seeks to formalize ASM as a way of sourcing cobalt responsibly.

Part II – The Mutoshi ASM Pilot Project

Trafigura Group Pte. Ltd., a Swiss-based commodity trading firm, runs a pilot ASM project at the Mutoshi mine, a copper and cobalt mining site at Kolwezi in Katanga. Kolwezi has 450,000 inhabitants and is a four-hour drive from Lubumbashi, the second-largest city in the DRC.

The Mutoshi mine is operated by Chemaf SPRL (Chemaf), a local mining company headquartered in Lubumbashi, which is a subsidiary of Dubai-based Shalina Resources Ltd. Last year, the total production at Mutoshi accounted for 5% of the global mined cobalt supply, all of which is purchased by Chemaf and then sold to Trafigura under an off-take agreement executed in 2018.⁴³ Trafigura has agreed to purchase all cobalt sourced at Mutoshi for three years, until the end of 2020.

⁴² 'Cobalt Market Update: Q2 2019 in Review', *Cobalt Investing News*, (17 July 2019), <https://investingnews.com/daily/resource-investing/battery-metals-investing/cobalt-investing/cobalt-market-update/> (accessed 8 August 2019).

⁴³ 'Trafigura accelerates battery push with Congo cobalt deal', *Financial Times*, (4 April 2018), <https://www.ft.com/content/0d7fab08-3816-11e8-8b98-2f31af407cc8> (accessed 13 August 2019).

To develop the Mutoshi mine, Trafigura also entered into a marketing agreement with Chemaf for the pilot project that aims to mitigate the social and environmental risks of ASM.⁴⁴ The extraction and processing activities at Mutoshi are carried out by Comiakol, a local cooperative representing more than 5,000 artisanal miners.⁴⁵ The appointment of a single authorized labor contractor enables the proper identification and training of each miner, standardization of working conditions, and uniformity in mining operations. These steps are supposed to minimize the risk of illegal entries, accidents, and human rights violations. Trafigura also engaged PACT, a U.S.-based non-profit organization with operations in the DRC, to ensure the implementation of responsible sourcing policies. PACT also provides training to artisanal miners on workplace safety and to local communities on eradicating child labor.⁴⁶

The mining conditions at Mutoshi differ significantly from the unmonitored, unfenced mining concessions in Katanga. In place of shafts and tunnels that miners dig by hand with primitive tools, small teams of artisanal miners in Mutoshi enter shallow pits of 10 square meters each, which are prepared in advance by heavy machinery, and dig only in a straight vertical line, maximum 10 meters deep and no horizontal tunnels.⁴⁷ According to Trafigura, this method of extraction increases the productivity and thus the income of each miner while ensuring that safety controls are in place. In stark contrast to the pictures of barefoot, miners working with their bare hands and trespassing on industrial mining zones, the project requires miners at Mutoshi to enter the site from a single entry point, present their artisanal miners' card (as required by the Congolese Mining Code) to verify identity and wear protective equipment: boots, gloves, blue uniforms, and yellow helmets.⁴⁸ There are also limitations on the age and number of miners that can be present on the site at one time. Mutoshi standards prohibit children and

⁴⁴ 'Responsible Sourcing: The Chemaf Case Study', Trafigura, <https://www.trafigura.com/responsibility/responsible-sourcing/> (accessed 9 August 2019)

⁴⁵ Comiakol, <http://comiakol.org/> (accessed 13 August 2019).

⁴⁶ 'Chemaf Case Study', note 41

⁴⁷ Ibid.

⁴⁸ Ibid.

pregnant women from entering the premises. Trafigura reports that security at the concession is provided by the armed DRC mining police and an unarmed third-party private security company.⁴⁹

Following extraction and washing, cobalt is brought to Chemaf's buying station outside of Mutoshi and analyzed in labs. The pilot project requires that a separate and detailed log of cobalt from Mutoshi be kept to ensure that each mining group working in a specific pit is paid according to the purity and volume of its production.⁵⁰ All of the cobalt production from Mutoshi is purchased by Chemaf and payments are made to Comiakol representatives, not to the workers directly. Chemaf is prohibited from selling its production outside of Mutoshi or to other buyers. The project requires cobalt from Mutoshi to be kept separate from industrially mined cobalt and is processed in a different facility dedicated to ASM production.⁵¹

At the end of the first six months of the Mutoshi ASM pilot project, Trafigura reported that there had been no instances of child labor or gross human rights abuses associated with ASM, although smaller accidents remain common.⁵² The company believes that this innovative multi-stakeholder project will serve as best practice for other players in Katanga, illustrating how companies in the mining industry can integrate human rights responsibilities into their policies and help formalize ASM, thereby transforming artisanal miners' working and living conditions.

Our research project will serve as the first case study in a series of case studies examining innovative business models to formalize ASM. Research into the Mutoshi project so far has been conducted exclusively through sources not independent from Trafigura. Our aim is to provide an independent and 360-degree

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Ibid.

⁵² Ibid.

assessment of the project's scalability. To accomplish this, we will have to understand the business factors that companies need to have in place to implement responsible sourcing policies. We plan to conduct on-site interviews with key representatives of the businesses involved in the cobalt supply chain in the DRC. This will include carrying out in-depth conversations with the Trafigura project lead at its headquarters in Geneva, international and local PACT staff, Chemaf senior management in Lubumbashi and Kolwezi, Comiakol representatives at Mutoshi, government agents from the state regulator of artisanal mining, SAEMAPE⁵³, officials from mining companies that exclude ASM from their supply chains, and consultancy firms that advise various multinational auto and electronics companies sourcing from the DRC. In addition, we hope to consult other key implementers in the region, such as Impact or GIZ and local NGOs to achieve a balanced overview of the contribution of the Mutoshi project towards the improvement of socioeconomic conditions in mining communities as well as the challenges linked with the project.

Part III – Other Projects to Formalize ASM

Trafigura is not the only company that has set up a project to address the human rights risks involved in ASM in the DRC. Several companies have established similar pilots, yet neither the business elements of these various projects nor their impact on workers and local communities have ever been systematically compared.

Three projects that stand out in this context are the pilots of Huayou, BMW and a blockchain project that involves Ford, Huayou, IBM, LG Chem, Volkswagen and Volvo.

⁵³ SAEMAPE stands for Service d'Assistance et d'Encadrement de l'exploitation artisanal à Petit Echelle or in English, the Service for Assistance and Supervision of Artisanal and Small-Scale Mining.

Huayou Cobalt

China's largest cobalt producer and a former supplier to Apple and LG Chem, Huayou has a history of highly problematic mining and buying practices that failed to respect human rights. However, starting in 2016, the company publicly acknowledged its insufficient awareness of responsible supply chain management and engaged a consultant to help map its supply chain back to artisanal mines. Following the mapping, Huayou adopted a supplier due diligence policy that consisted of training and other steps, including requiring Huayou's suppliers to sign documents that set standards in line with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals (OECD Guidance) and the Chinese Chamber of Commerce for Metals, Minerals and Chemicals (CCCMC) Guidelines.⁵⁴ Given Chinese dominance in the cobalt market in the DRC, its largest cobalt producer Huayou's steps suggest that all actors acknowledge the need to look into the ASM human rights risk systematically. Yet, the effectiveness of signing requirements is questionable, considering that a year after the implementation of such new policies, only three out of 54 Huayou suppliers had agreed to comply with requirements set forth in the documents.⁵⁵

In 2017, Huayou announced its Responsible ASM Sourcing system, under which it groups mines into two types. "Type 1" mines, also called "model ASM mines", are located outside of residential neighborhoods and reportedly have strong measures in place to prevent child labor and protect the health and safety of artisanal miners. Similar to Trafigura's pilot project, the output at these sites are sold to a single trader, enabling a closed loop system that reduces the number of players upstream.⁵⁶ The success of these "Type 1" mines came under question when Huayou's consultant, RCS Global, reported the presence of both private and public security on the site, a practice that has been frequently linked to human rights violations in the form of physical abuse and extortion of child and

⁵⁴ Amnesty International, *'Time to Recharge, Corporate Action and Inaction to Tackle Abuses in the Cobalt Supply Chain'*, (London, 2017).

⁵⁵ Ibid.

⁵⁶ Ibid.

adult miners on ASM sites.⁵⁷ Unlike the Mutoshi project, which houses two clinics and provides uniforms, helmets, and boots for miners, Huayou's Kawama concession fails to provide adequate protective equipment and first-aid kits.

The second type of mines covered under Huayou's Responsible ASM Sourcing system are those located inside residential areas, where it is more difficult to monitor entries and therefore, human rights risks. Huayou's solution to the challenges posed by "Type 2" mines was to relocate residents with the help of the provincial government in Lualaba.⁵⁸ In 2017, the *Financial Times* reported that Huayou had partially financed the relocation of 600 households in Kasulo, Lualaba, in exchange for the right to purchase all copper and cobalt production of the area. This was reminiscent of the off-take agreement Trafigura signed at Mutoshi.⁵⁹ Following the relocation of residents, a wall was built around the mine, requiring miners to enter via a security gate into a concession where pits have been dug in advance for miners.⁶⁰ This year, due to the fall in cobalt prices, Huayou's Lualaba site has had only a fraction of last year's 5,000 miners, reaffirming the "swing capacity" of ASM.

BMW Group

Last year, GIZ, the German development agency, announced a partnership with BMW, BASF, and Samsung in a cobalt pilot project in Katanga that aims to study the impact of ASM on the living conditions of locals.⁶¹ However, early this year, BMW announced that it would stop sourcing cobalt from the DRC starting in 2020, sending mixed signals about its intention to address challenges of cobalt ASM.⁶² In 2014, GIZ also collaborated with the CCCMC in the drafting of 'Guidelines for

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ 'Congo, child labour', note 20.

⁶⁰ Ibid.

⁶¹ 'BMW, BASF, and Samsung launch a project for sustainable cobalt mining', *GIZ Press Release*, (29 November 2018), <https://www.giz.de/en/press/72347.html> (accessed 15 August 2019).

⁶² 'BMW to Source Cobalt Directly From Australia, Morocco Mines', *Bloomberg*, (24 April 2019), <https://www.bloomberg.com/news/articles/2019-04-24/bmw-to-source-cobalt-directly-from-mines-in-morocco-australia> (accessed 15 August 2019).

Social Responsibility in Outbound Mining Investments’, which set forth rules on, among other things, supply chain management, labor practices, and human rights for Chinese investors with outbound mining investments.⁶³

Besides company-driven initiatives, several multi-stakeholder initiatives have emerged in the past years.

Due to China’s influence over Congolese cobalt production, many of the multi-stakeholder initiatives addressing ASM challenges in the DRC involve Chinese organizations. The Responsible Cobalt Initiative (RCI), launched in 2016 by the CCCMC and supported by the OECD, is one example.⁶⁴ Apple, HP, Huayou Cobalt, Huawei, Samsung, and Sony are some of the companies involved in the RCI. The initiative aims to collaborate with the DRC government to increase transparency in the downstream and upstream cobalt supply chain and align company policies with the OECD Guidance and the Chinese Due Diligence Guidelines for Responsible Mineral Supply Chains (CCCMC Guidelines).⁶⁵

In January 2019, IBM announced that it would be partnering with Ford Motor Company (Ford), Huayou, the largest South Korean chemical company LG Chem and the responsible supply chain advisor RCS Global to launch the Responsible Sourcing Blockchain Network.⁶⁶ The consortium was joined by Volkswagen in April 2019 and Volvo in August 2019.⁶⁷ Built on the IBM Blockchain Platform, the blockchain pilot is based on a simulated scenario in which cobalt is produced at Huayou’s mines in the DRC and is traced as it moves from the mining site to

⁶³ Guideline for Social Responsibility in Outbound Mining Investments, (6 March 2014), https://www.eic.cat/promocio/normativa/new_xina/Draft_Guidance_PublicConsultation_ENG_20140310.pdf (accessed 15 August 2019).

⁶⁴ ‘Responsible Cobalt Initiative (RCI), CCCMC, (14 November 2016), <http://www.cccmc.org.cn/docs/2016-11/20161121141502674021.pdf> (accessed 15 August 2019).

⁶⁵ *Ibid.*

⁶⁶ ‘Blockchain Pilot’, note 4; RCS Global, ‘Blockchain & Traceability’, <https://www.rcsglobal.com/blockchain-traceability/> (accessed 19 August 2019).

⁶⁷ ‘Volkswagen Joins IBM-Backed Blockchain Platform for Cobalt Supply Chains’, *Yahoo! Finance*, (18 April 2019), <https://finance.yahoo.com/news/volkswagen-joins-ibm-backed-blockchain-193000075.html> (19 August 2019); ‘Volvo Cars, China in first blockchain project for recycled cobalt’, *Reuters*, (2 August 2019), <https://www.reuters.com/article/us-volvo-cars-blockchain/volvo-cars-china-in-first-blockchain-project-for-recycled-cobalt-idUSKCN1US1T2> (accessed 19 August 2019).

smelter, then to LG Chem's battery manufacturing plant in South Korea and last to Ford's auto manufacturing factory in the U.S.⁶⁸ Each actor in the supply chain is validated against the OECD Guidance standards. While the Responsible Sourcing Blockchain Network is currently focused on traceability in industrial cobalt mines, its end objective is to increase transparency also of ASM. The program aims to open the network to ASM operators in the DRC and enable Congolese artisanal miners to sell their production to validated network participants in the global market.⁶⁹ There are also plans to study the use and effectiveness of incentives provided to artisanal miners and local communities impacted by mining activities.⁷⁰ Ultimately, the consortium hopes that the pilot can set a precedent for an industry-wide, open network to trace minerals and validate players in a supply chain and can be extended to other industries and other raw materials.⁷¹

The latest participant of the network, Volvo, is also working on its own recycled cobalt blockchain pilot in China.⁷² Acquired by the Chinese automaker Geely Holding Group in 2010, Volvo sources cobalt from the DRC, manufactures its vehicles in China, and exports them worldwide, including to the U.S.⁷³ Under the pressure from customers and investors, Volvo began exploring alternative methods to ensure the cobalt in its supply chain is responsibly sourced. Between April and June 2019, it successfully tracked cobalt from a Chinese recycling plant to Volvo's auto plant in China by using Oracle's blockchain platform and it manufactured its first electric vehicle from recycled cobalt in August 2019.⁷⁴

⁶⁸ 'Blockchain Pilot', note 4;

⁶⁹ 'Ford Motor Company Launches Blockchain Pilot on IBM Platform to Ensure Ethical Sourcing of Cobalt' *Forbes*, 16 January 2019, <https://www.forbes.com/sites/rachelwolfson/2019/01/16/ford-motor-company-launches-blockchain-pilot-on-ibm-platform-to-ensure-ethical-sourcing-of-cobalt/#220204f25a1d> (accessed 19 August 2019).

⁷⁰ 'Blockchain Pilot', note 4;

⁷¹ 'Blockchain Pilot on IBM Platform', note 69.

⁷² 'Volvo Cars', note 67.

⁷³ 'Chinese-owned Volvo to open first U.S. car plant', *CNN Business*, (31 March 2015), <https://money.cnn.com/2015/03/30/news/companies/volvo-new-factory-u-s-/index.html> (accessed 19 August 2019).

⁷⁴ 'Volvo Cars', note 67.

These examples show that companies are increasingly aware of the pressing human rights issues involved in sourcing battery components from the DRC. Some companies like BMW and Volvo now seem to try to avoid sourcing from the DRC altogether. Yet, from both an economic and a human rights perspective this is a questionable decision. Economically it is clear that the rising global demand of Cobalt can only be covered involving the DRC and global brands have the resources and the leverage to identify solutions to ASM related human rights challenges. From a human rights perspective cutting out the DRC as a sourcing destination also does not leave communities in the DRC better off. It may even force miners into unregulated and therefore more precarious work situations. Identifying business solutions to effectively address these human rights challenges is therefore a joint interest of human rights advocates, western governments, companies sourcing battery components, and the local communities that, if done well, could benefit from decent jobs.

Part IV – Drivers for Responsible ASM in the Cobalt Supply Chain and Research Implications

This case study of the Mutoshi pilot project highlights a supply chain actor that has never been included in supply chain analysis before, namely a commodity trading firm. Trafigura works through the mining operating firm, Chemaf, to establish standards for ASM. The influence of intermediaries like commodity trading firms has been overlooked or underestimated in scholarly supply chain research. In the cobalt supply chain, commodity trading firms have outsized leverage over foreign mining operations, and they are also under particular business pressure to show progress on the social and environmental impact of their sourcing practices.

For Swiss commodity trading firms in particular, tighter government regulation has been a threat on the horizon for several years. The Responsible Business

Initiative (Initiative), submitted by a coalition of Swiss NGOs to the Federal Chancellery of Switzerland in October 2016, requires companies and subsidiaries of companies registered or headquartered in Switzerland to carry out human rights and environmental audits on their business activities worldwide.⁷⁵ If enacted following a popular vote in 2020, the Initiative will amend the Swiss constitution to hold companies (and subsidiaries) that are in violation of human rights or environmental standards liable under Swiss laws and before Swiss courts.⁷⁶

In response to the initiative and anticipating legislative measures following the adoption of the UN Guiding Principles for Business and Human Rights, the Swiss trading industry worked on developing human rights industry guidelines.⁷⁷ The guideline was published in 2018 but the document remains high-level and does not fully clarify how the actual implementation of corporate human rights commitments could be tracked and progress could be measured.

In the meantime, banks have already tightened their rules on capital and liquidity while demanding greater transparency into the deals that commodity trading firms make in controversial countries like the DRC.⁷⁸ This has led to some banks completely suspending financing in commodity trading, a gap that was quickly filled by Asian banks. However, large Swiss banks remain preferred finance partners of trading firms and their transparency requirements remain influential benchmarks.

Earlier in 2019, the London Metal Exchange (LME) proposed new trading requirements in an effort to introduce responsible sourcing standards to the

⁷⁵ Schweizerische Eidgenossenschaft, Federal Council Report, '*The Swiss commodities sector: current situation and outlook*', (Bern, 2018).

⁷⁶ 'Swiss firms could be held to account for actions abroad', *Swissinfo*, 10 October 2016, https://www.swissinfo.ch/eng/corporate-responsibility_swiss-firms-could-be-held-to-account-for-actions-abroad/42506080 (accessed 19 August 2019).

⁷⁷ The commodity sector guidance on implementing the UN Guiding Principles on Business and Human Rights:

https://www.seco.admin.ch/seco/en/home/Publikationen_Dienstleistungen/Publikationen_und_Formulare/Ausserwirtschafts/broschueren/Guidance_on_Implementing_the_UN_Guiding_Principles_on_Business_and_Human_Rights.html

(Accessed on Aug. 26, 2019)

⁷⁸ 'Swiss Federal Council Report', note 75.

exchange. According to a recent announcement, the LME will as of 2022 only allow the trading of metals compliant with the OECD Guidance. The LME has two cobalt contracts, one introduced in 2010 and another one launched recently in March 2019.⁷⁹ It is worth noting that in July 2019, the LME added cobalt produced by Huayou to its list of approved brands for delivery against the exchange's cobalt contract.⁸⁰

With these developments, the operating environment for commodity trading firms, particularly in Switzerland where many commodity trading firms including two of the biggest (Glencore and Trafigura) are based, is becoming increasingly sensitive to the human rights risks involved in the trading business. Governments, as well as civil society organizations, require greater transparency over what companies do to address these human rights challenges. Beyond greater transparency however, it is most important to understand what companies can do through their core business processes in order to systematically address human rights risks that are particularly high and unmanageable if there are informal parts of the supply chain. Bringing ASM into the formal economy is therefore a better approach to establish human rights standards.

The Global Battery Alliance⁸¹, a multi-stakeholder initiative hosted by the World Economic Forum, therefore supports the development of human rights standards for ASM. A code of conduct for ASM is currently in the process of development with a draft version publically available (CRAFT).⁸² The CRAFT code, however, requires further insights how businesses can support the formalization of ASM.

⁷⁹ 'LME to ban metal tainted by child labor or corruption' *Reuters*, 23 April 2019, <https://www.reuters.com/article/us-lme-cobalt-responsible-sourcing/lme-to-ban-metal-tainted-by-child-labor-or-corruption-idUSKCN1RZ0YY> (accessed 19 August 2019); 'London Metal Exchange, LME Cobalt', note 31.

⁸⁰ 'London Metal Exchange adds Huayou's cobalt to its approved list', *Reuters*, (16 July 2019), <https://www.reuters.com/article/uk-lme-huayou-cobalt-idUKKCN1UB1VH> (accessed 19 August 2019).

⁸¹ Global Battery Alliance: <https://www.weforum.org/projects/global-battery-alliance> (accessed Aug. 26, 2019)

⁸² CRAFT Code: <http://www.responsiblemines.org/en/our-work/standards-and-certification/craft/> (accessed Aug. 26, 2019)

Business practices that can enable responsible sourcing as they are currently explored through corporate pilot projects in the context of Cobalt in the DRC have yet to be systematically analyzed. The research project proposed here sets out to do so.

ANNEX 1

Table 1: Global mined cobalt production (2018)

Country	Total mine production (in metric tons)	Share of Global Production
DRC	90,000	64.3%
Russia	5,900	4.2%
Cuba	4,900	3.5%
Australia	4,700	3.4%
Philippines	4,600	3.3%
Canada	3,800	2.7%
Madagascar	3,500	2.5%
Papua New Guinea	3,200	2.3%
China	3,100	2.2%
Morocco	2,300	1.6%
South Africa	2,200	1.6%
U.S.	500	0.4%
Other	7,000	5%

Source: US Geological Survey, National Minerals Information Center

ANNEX 2

Mining accidents reported by the DRC's UN-run radio station, Radio Okapi (not limited to cobalt mines):

1. 43 miners died in a landslide that took place in June 2019 at KCC's concession in Kolwezi.
2. 12 miners died in Mambasa in Ituri Province when they ran out of oxygen in June 2019.
3. 10 miners died and 11 were critically wounded in a landslide in the Lualaba province. All of the miners were between the ages 16 and 23.
4. In October 2018, a 15-year old student was killed by a police officer stationed at the Kawama mines operated by CDM. It was reported that the policeman fired point-blank at the 15-year old during clashes with artisanal miners in the village of Kawama. CDM issued an announcement stating it regretted what happened.
5. At least 37 miners died in an artisanal gold mine in October 2018 when the mine collapsed after a heavy rain that caused flooding in the city of Misisi in the province of Fizi.
6. One miner killed by a police officer during a demonstration by artisanal miners who were fighting over funds to allow volunteers to continue the search for possible survivors after the recent landslide that claimed the lives of at least three miners.
7. At least 3 miners died in a landslide in January 2018 in the gold mining center of Kpangba, in the Ituri region.
8. Three miners died and five were wounded in June 2018. 17 others survived the landslide in the Kpangba gold mine in Ituri province.

9. Eight miners died in the northeast of Kisangani in a gold mine in September 2017 when a lightning struck the site. 20 others were seriously injured.
10. Six miners were killed in a landslide at the GH mining site in Kolwezi in August 2017. The first death toll was 28 but only six bodies were found. Witnesses claim there are other bodies buried under the rubble.
11. 13 miners died in the Tenke Fungurume Mining site in November 2016. Following this incident, nearly 10,000 miners invaded the concession in Lualaba for a week.
12. A gold miner died in August 2016 at the Kpangba mining site in the Ituri province. Hundreds of artisanal miners stormed the streets in protest and attacked the police station, where a police officer claimed to have led to the death of the miner was stationed. It was said that the miner had fallen into a pit while being chased by the police officer for a \$5 debt.
13. Four miners died and 6 were injured in July 2016 in the Kpangba gold mining site.
14. Seven miners died in a landslide in March 2016 at the KCC's mines in Kolwezi.
15. One miner died in January 2016 following a landslide that occurred in Fizi. 16 other miners were rescued from under the ground.
16. At least 13 miners died when their tunnel collapsed in Mabaya, an artisanal cobalt mining area on 8 September 2015. The previous week, 17 miners died in four separate accidents in the same locality, according to a local NGO.
17. Five miners died and 13 others were injured following an underground fire at a cobalt mine in Kasulo, Kolwezi, on 5 September 2015. The miners had lit a tyre underground to try to break the rock.
18. Seven miners died in three separate tunnel collapses at cobalt mines in Kasumbalesa, in August 2015.

19. 15 miners died following a fire in a cobalt mine in Kasulo on 26 December 2014.
20. At least nine died in a pit collapse caused by rain at Mashamba, outside Kolwezi, in December 2014.
21. 16 men died in three separate incidents while mining at sites in the Kawama area of Kolwezi, either in pit collapses or through suffocation, in September 2014.