



Investigative Journalism Reportika

THE CHINESE CRUEL COBALT CONUNDRUM



A ground report from Congo

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Cobalt : The mineral for future

Cobalt is a hard, lustrous, and versatile metal that is widely used in various industries. Its exceptional properties, such as its high temperature resistance, magnetic properties, and biocompatibility, make it an essential component in the aerospace, medical, electronics, and chemical production industries.

Following are some of the most important uses of Cobalt:

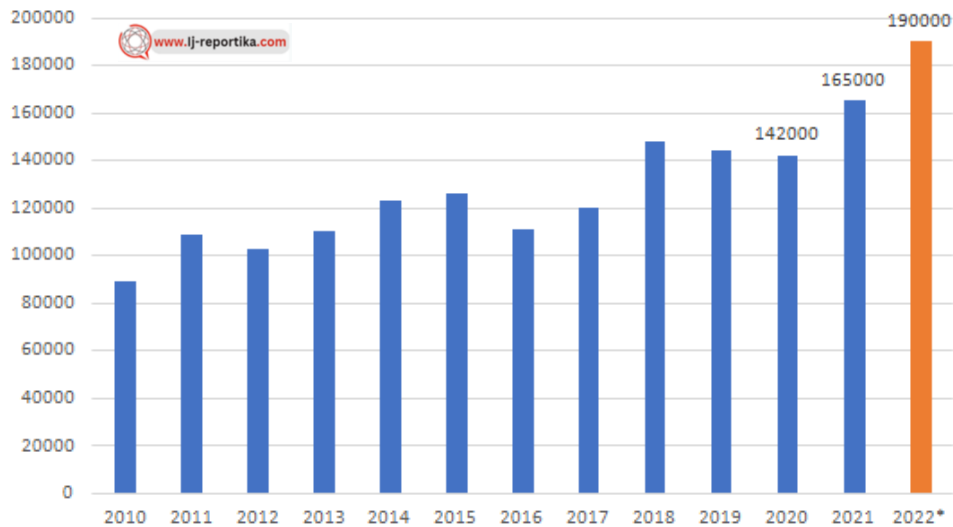
1. **Aerospace and defence:** Cobalt is used in the production of high-strength alloys for aircraft engines and gas turbine generators.
2. **Medical:** Cobalt is used in the production of medical implants, such as hip replacements, dental implants, and pacemakers.
3. **Electronics:** Cobalt is used in the production of rechargeable batteries, including those used in laptops, smartphones, and electric vehicles.
4. **Catalysts:** Cobalt is used as a catalyst in the production of plastics and other chemicals.
5. **Industrial:** Cobalt is used in the production of superalloys, which are used in industrial machinery and tools, as well as in the production of magnets and cutting tools.

China and Cobalt

China has invested heavily in the cobalt industry in recent years, as **cobalt** is a key material used in the production of **lithium-ion batteries** for **electric vehicles and other electronics**. The exact total investment of China in cobalt is difficult to quantify as China keeps such data **highly censored** yet **Ij-Reportika** has estimated that China leads the world in **refined cobalt production at 70% of total global supply**;

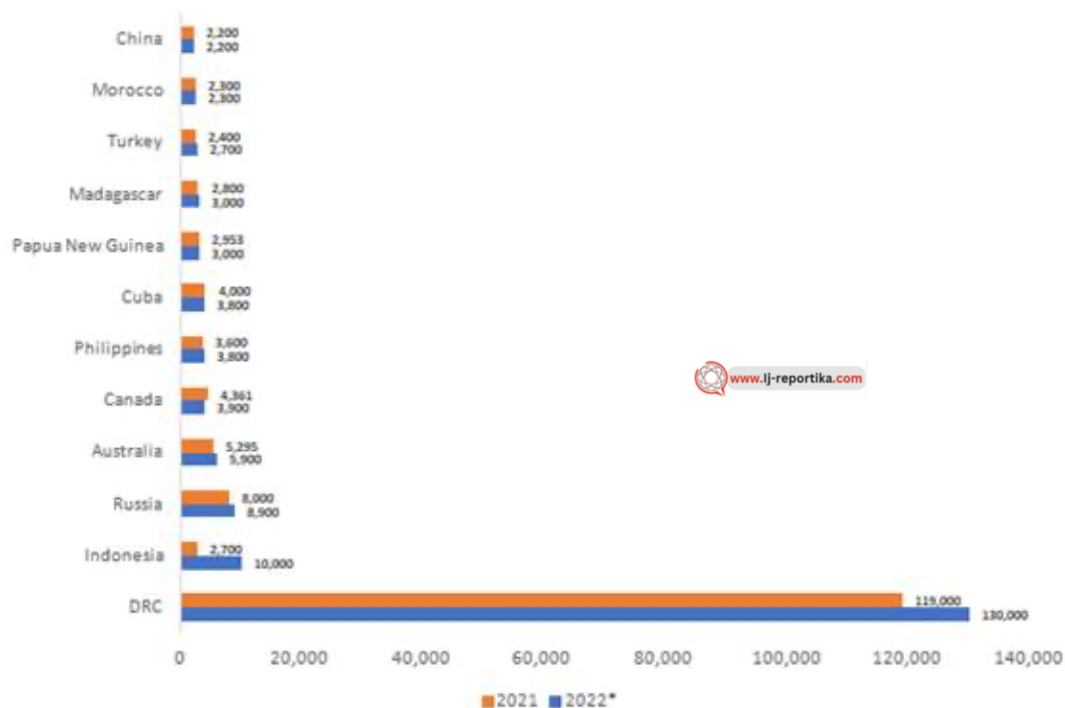
According to a report by the **United States Geological Survey (USGS) in 2022**, China was the largest producer of refined cobalt and the largest importer of cobalt-containing intermediate products in the world.

In 2022, there was a boom in the production of Cobalt. With 130,000 tonnes of cobalt produced in 2022, the **Democratic Republic of the Congo(DRC)** was the world's largest source of **mined cobalt**, accounting for about **68% of the global cobalt mine production**.



Global cobalt mine production, 2010-2022, tonnes. (Credits: USGS)

Chinese cobalt mining practices, particularly in the Democratic Republic of Congo (DRC), have come under fire in recent years due to concerns over human rights abuses, environmental damage, and lack of transparency.



Largest cobalt mine producing countries, tonnes. (Credits: USGS. 2022)

Some of the prominent mines in DRC are:

1. **Dezwia Mine:** In 2015, **CNMC** announced their intention to develop the site in the wake of China's **Made in China 2025** policy. Negotiations to develop the mine at **Deziwa** were taking place in 2016. Construction started in May 2018, and the mine officially opened in January 2020. [This document](#) provides insight into how CNMC was able to win the Dezwia mines.



The Chairman of the Board of Directors Mr. Tao Xinghu is Making a Speech

The Chairman of the Board of Directors Mr. Tao Xinghu conveyed the warm congratulations of CNML for the commencement of the project. In his speech, the Chairman Tao Xinghu recalled the experience in visiting President Joseph Kabila together with the General Manager of CNML Zhang Keli and the President of China Copper Group Wu Jianqiang. He pointed out that, CNML would implement the strategic cooperation agreement signed with the National Mining Company of Democratic Republic of the Congo on June 21, 2015, adhere to the principle of achieving shared growth through discussion and collaboration promoted by the "Belt and Road" Initiative, advance the construction and operation of Kambove, Mabende, Likashi and Deziwa as well as LCS, work together with Democratic Republic of the Congo to complement each other's advantages and cooperate for mutual benefits, thus making contributions to socio-economic development of Democratic Republic of the Congo.

2. **Kamfundwa Mine:** It is a huge mine owned by Gecamines (a state owned corporation of DRC). The primary mineral of the mine is Copper and the secondary mineral is Cobalt.
3. **Tenke Fungurume Mine (TFM):** Freeport-McMoRan Inc. and BHR's 56% and 24% equity in the TFM copper-cobalt company in the Democratic Republic of the Congo (DRC) were successfully acquired by China Molybdenum Co., Ltd. in 2016 and 2019, respectively.

80% of the total equity in TFM is presently held by the China Molybdenum Co., Ltd. (CMOC) Through its directly controlled wholly-owned subsidiary in Hong Kong, CMOC DRC Limited, the China Molybdenum Co., Ltd. gained influence over the TFM copper-cobalt business in the Democratic Republic of the Congo (DRC). The mine is expected to operate until 2052.

This mine has been the centre of controversies since CMOC took over the majority shares of TFM. The mine has long been an important stop for Tenke residents, who believe it to be part of their land. The Congolese military was sent to monitor the mine for several months by the CMOC to stop this from happening.

Recently, one of these natives was struck dead by the patrolling army. Another individual died as a result of the protests that erupted after the terrible killing. Security at the mine is

supplemented by the private security company Frontier Services Group or 先丰服务集团 (Chinese Africa-focused security, aviation, and logistics company).

Our ground reporter visited the mine and observed that most of the native workers were not equipped with the security gear to mine cobalt.



Tenke Fungurume Deposit (Credits : Environmental Justice Atlas)



Picture of the Tenke Fungurume Deposit area

4. **Sicomines Copper-Cobalt Mine**: The **Sicomines Copper-Cobalt Mine** is a surface mine located in Katanga, DRC. It is owned by China Railway Group. Our reporter visited the site and observed the prevalence of Child labour in the mines.
5. **Kolwezi Mines** : Zijin Mining Group Co., Ltd, through its subsidiary La Compagnie Minière de Musonoie Global Société par Actions Simplifiée, has 72 % of Kolwezi Copper Mine. Zijin Mining Group Co., Limited is a multi-national mining company headquartered in Mainland

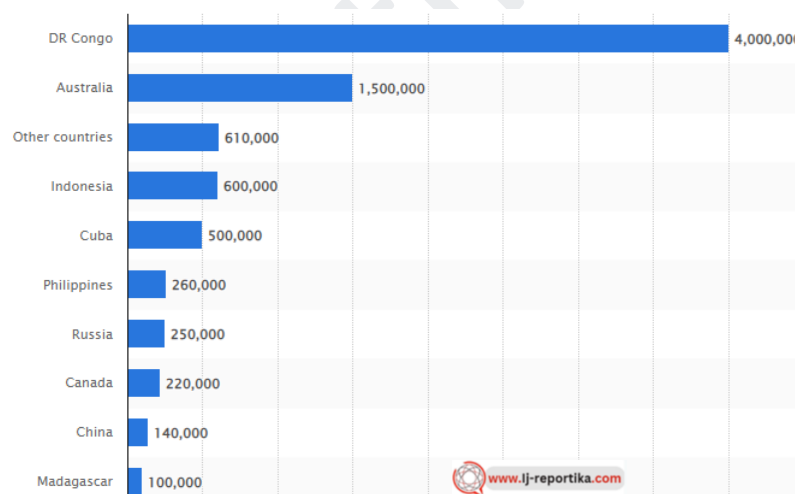
China. The remaining 28% of equity interest is held by La Générale des Carrières et des Mines in DRC.

6. **Kamoya Mine** : Located in Katanga, DRC, the Kamoya Mine is owned by Wanbao Mining. Wanbao Mining is a Chinese mining company engaged in the exploration and production of mineral resources as well as the processing and smelting of mineral ores.
7. **Ruashi Mine** : The Ruashi Mine is a surface mine situated in Katanga, DRC. It is owned by Jinchuan Group (A Chinese company based in Gansu. It produces the metals nickel, copper, cobalt, platinum, palladium, gold, silver and selenium) and is expected to operate until 2029.

There are worries about **China's dominance in the global cobalt market**, which could potentially give the country control over **supply chains and prices, affecting the development of new technologies like electric vehicles**.

Cobalt mining in other countries

In terms of cobalt mining in other countries, China has investments in several African countries where cobalt is mined, including **Zambia, and Madagascar**.



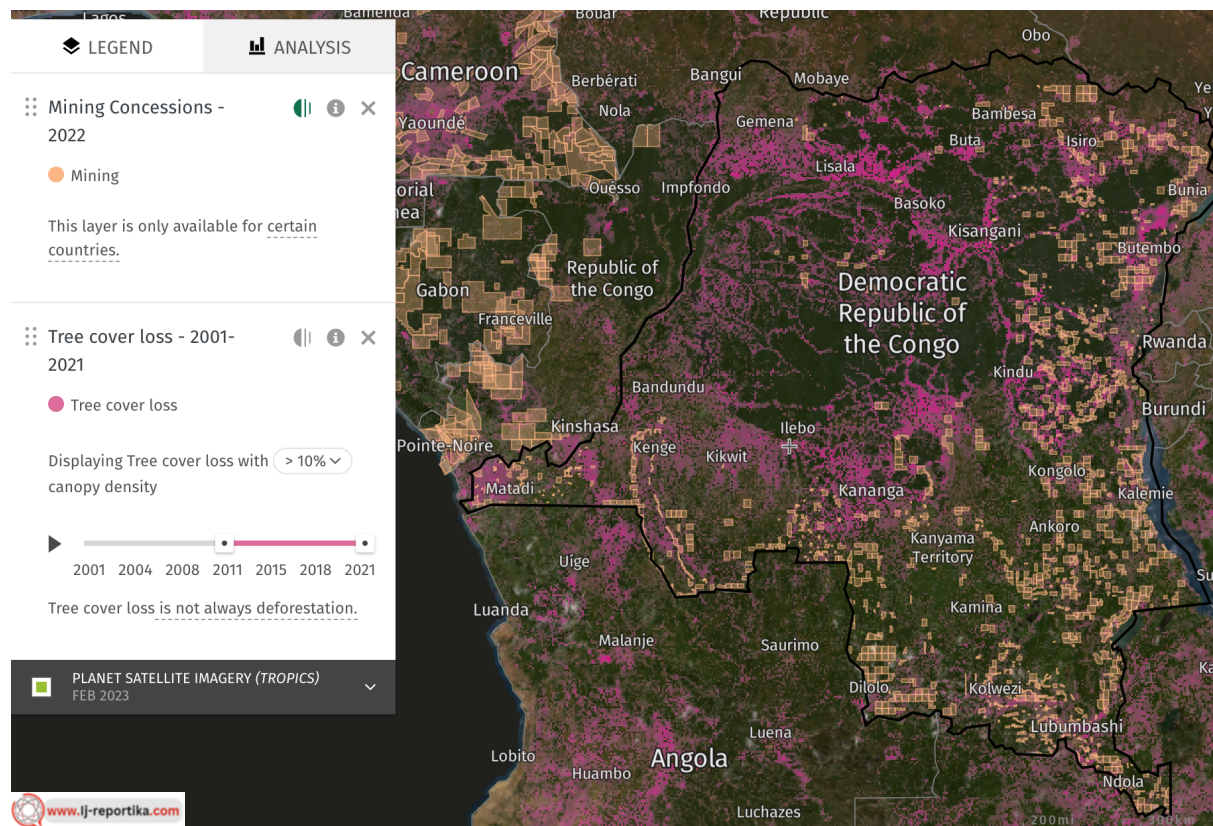
Reserves of cobalt worldwide in 2022, by country (Credits: Statista)

There are many other countries in the world where there is a presence of Cobalt mines. But due to stricter environmental regulations for mining operations, political stability in countries like **Australia, Russia** and **Canada** and unlike **Africa**, lack of cheap local labour China refrain from investing in these countries.

The Causes of Concern

Chinese mining of cobalt in the Democratic Republic of Congo (DRC) has caused several problems, including:

1. **Environmental degradation:** Cobalt mining in the DRC involves the use of **heavy machinery**, which damages the environment and destroys habitats for plants and animals. The mining process also **releases toxic chemicals and heavy metals into the soil and water**, causing **pollution and health risks**.



Deforested land in DRC from 2011 to 2021 corresponding with the primary mining areas (credits : Global Forest Watch)

The **land under Trees, Shrubs and Cultivation** has **reduced** and **exposed rocks** have increased in the mining areas of DRC **since 2011**. As depicted in the map, the mining areas have a **high degree of deforestation** degrading the overall environment.

Cobalt mining in the DRC has resulted in **the loss of biodiversity**, as mining activities have **destroyed habitats for plants and animals**. This had long-term **ecological impacts**, affecting **the health of local ecosystems and contributing to the loss of species**.

2. **The Tunnels to Hell** : The official limit of tunnel length is 30 metres, however, this is frequently exceeded. Tunnels can reach heights of up to 90 metres because of poor administration and a lack of incentives to follow rules, which puts people in danger of landslides, collapse, and death. In the course of compiling this report, we discovered many such tunnels. They were extremely **hot** from the inside and had a lack of **Oxygen**. We found that, in the DRC alone, artisanal miners have dug approximately 20,000 tunnels by hand. Without a **PPE kit, safety helmet, safety (hard) shoes, or gloves**, the miners get into the structure. Instead of using modern, complex, and advanced technologies to dig the tunnel, they used simple instruments like **hammers, gardening hoes, shafts and even sticks and bare hands**.

These tunnels frequently collapse, crushing everyone within, including minors, alive. It's a death that's almost impossible to fathom being so horrible. These tales never transcend Congo as the world simply ignores their stories.



A Congolese man digging a tunnel for mining cobalt

3. **Political instability:** The mining industry in the DRC has been linked to political instability and conflict, as armed groups and militias have used the profits from the **sale of minerals to finance their activities**. This has contributed to a cycle of violence and displacement, as well as the displacement of local communities.

Cobalt mining in the DRC is linked to the **trade in conflict minerals**, which are minerals that are **mined in conflict zones** and **sold to finance armed groups and militias**. The trade in conflict minerals have contributed to violence and instability in the region.

4. **Social and economic inequality:** The benefits of cobalt mining in the DRC have not been evenly distributed, **leading to social and economic inequality**. Many of the profits from mining have gone to **Chinese companies and corrupt government officials**, rather than the local communities who live near the mines. **This has contributed to extreme poverty and underdevelopment in the region.**

Corruption is a significant problem in the DRC's mining industry, with many companies and government officials accused of taking bribes or engaging in other forms of corruption. This

has led to a lack of transparency and accountability in the sector, and has undermined efforts to address the social and environmental impacts of cobalt mining.

As a result of all this, DRC is one of the world's five poorest countries. **Around 60 million Congolese, or 64% of the population, survived on less than \$2.15 per day in 2021. About one out of six people** living in extreme poverty in Sub-Saharan Africa lives in DRC.

5. **Land conflicts:** Cobalt mining in the DRC has often resulted in **land conflicts between local communities, mining companies, and government authorities**. The government has granted **mining concessions to Chinese companies** without **consulting local communities**, leading to the **displacement of people and the destruction of their livelihoods**.

One such case study is unfolding these days in the city of Kolwezi. Victor Fwamba, seeing an open-cast cobalt mine in Kolwezi, in the southeast of the DRC, remarked, "We're doomed".



Cobalt Mines in Kolwezi and the direction of their expansion (Credits : Environmental Justice Atlas)

Kolwezi, which is home to more than **5,00,000 people**, is situated atop some of the greatest mineral reserves in the world, a gold, copper, and cobalt treasure trove that powers the economies of many countries mining from them.

A moat of industrial mines, a sand moonscape with gigantic open pits, access roads, and pylons already encircle the city.

Yet, mining operations are encroaching farther and deeper into the city proper, uprooting thousands of residents who frequently complain about the unjust treatment

Another Case study is from the **TFM that we discussed before. Tenke Fungurume** is one of the largest copper and cobalt deposits in the world. As a result of this mine, local communities are left with nothing, and compensations do not equate to their livelihood loss.

6. **Health risks:** The mining process involves exposure to toxic chemicals and heavy metals, which leads to health problems for workers and local communities. IJ-Reportika talked to

many health experts and got to know that exposure to **cobalt dust** can cause **lung and heart diseases, and skin rashes**. Local communities have also reported health problems related to contaminated water sources.

The **Congolese Labour Code** stipulates that when an injury occurs at the workplace, an employer is responsible for **all associated healthcare costs**. Yet, workers' rights are frequently ignored, and Congolese workers rarely take legal action against their employers out of fear of losing their jobs and/or because they lack the funds to hire a lawyer.

However, in May, 2022 The **High Court in Kolwezi**, DRC, issued a landmark decision ordering **Panda International Congo Engineering** to pay full healthcare costs and lost wages to a Congolese worker injured at **China Molybdenum's Kisanfu cobalt and copper mine**. Panda is a subcontracting company providing engineering, mechanical and other services. The legal victory was one of the first instances a Congolese worker at an industrial mine site has successfully sued an employer for injuries sustained at work. It set an important precedent for workers' rights in Chinese Cobalt Mines.

Workers in **cobalt mines** in the DRC often work **long hours in dangerous and unhealthy conditions**, with little or **no access to protective gear or safety equipment**. Many of these workers are migrant labourers who are **paid low wages and have no job security**. Thus **improvement of the working conditions especially considering the health of the workers is quintessential for these mines to operate ethically**.

Ground reporter of IJ-Reportika talked to 7400 Congolese miners in **Sicomines Copper-Cobalt Mine, Tenke Fungurume Mine and Kolwezi Mines**. Around **6077 i.e. 82% reported skin problems, 6317 i.e. 85.4% reported breathing issues and 3899 i.e 52.7% reported that they suffered major injuries in the past 1 year**.

To the amaze of our ground reporters, **937 miners even said someone close to them died in the past 2 years due to the disease/ injuries/mines collapse** caused by the Cobalt Mining operations.

7. **Human rights abuses**: There have been reports of human rights abuses in cobalt mines in the **DRC**, including **child labour, forced labour, and unsafe working conditions**. Many of the workers are **poorly paid and work in dangerous conditions** without proper safety equipment or training.

We found out that **children as young as six years old are working** in cobalt mines in the DRC. These children work **long hours in dangerous conditions**, without proper safety equipment or training. Child labour is illegal in the DRC, but it remains a widespread problem in the mining industry.

Despite this being a much talked about issue in the past 6 years, **IJ-Reportika** found out that there are still over **30,000 children below 14 years and over 70,000 children below 18 years** of age who are directly or indirectly employed by the **mining companies in Congo**.



Girl sorting rocks to find cobalt

Children are employed for these operations because they can mine cobalt with their bare hands or primitive tools in little earthen pits and can do so without being paid or receiving compensation.



A child digs for cobalt in a mine in the Katanga region of the DRC



Children below 14 are employed in cobalt mining

They toil for more than **10-14 hours a day, seven days a week**, in hazardous environments, and many of them even pass away from illnesses, tunnel collapses and injuries that go untreated.

Researchers link exposure to mining pollutants to a greatly increased risk of conditions such as **spina bifida and limb abnormalities**. Thousands of people in DRC are being exposed to dangerous levels of toxic pollution that is causing birth defects in their children as they mine for cobalt.

8. **Water scarcity:** The cobalt mining industry in the DRC requires large amounts of water for processing and dust suppression, which has contributed to water scarcity in the region. Local communities have reported a decline in water quality and availability, which affected their health and livelihoods.

DRC has over 50% of the African continent's water reserves but despite this tremendous potential, **33 million people in rural areas still lack access to quality water**. A startling **48% of the population** of DRC has no access to **clean water**.

9. **Lack of local beneficiation:** Cobalt mining in the DRC has been criticized for its lack of local beneficiation, which refers to the process of adding value to raw materials within the country. Most of the cobalt mined in the DRC is exported in raw form, with little or no processing taking place within the country. This has led to a loss of potential jobs and economic opportunities for local communities.

Vicious Infrastructure for Minerals Agreements

In 2008, the DRC signed a deal with a consortium of Chinese companies, including China Railway Engineering Corporation (CREC) and Sinohydro, to develop **infrastructure in exchange for mining**

concessions in the country. The deal was worth an **estimated \$9 billion** and included the construction of roads, railways, hospitals, and other infrastructure projects, as well as the development of mining projects in the country.

Under the terms of the agreement, the Chinese companies would invest in infrastructure projects, while the DRC government would provide access to mining concessions for copper and cobalt. The deal was intended to help the DRC develop its infrastructure and attract foreign investment, while also providing China with access to valuable mineral resources.

Version 2: Main agreement (<i>Convention de Collaboration</i>), April 2008 (Subsequently renegotiated)	
Congolese party to the agreement	Unchanged from the MOU. Gécamines, 32%.
Chinese parties to the agreement	Unchanged from the MOU. CREC and Sinohydro, 68%. ^c
Mining concessions	Copper: 10.6 million tonnes, Cobalt: 626 619 tonnes
Infrastructure worth	No amounts mentioned. Article 9 on p. 11 only mentions that it will take place in two tranches and that the amount will be determined by the productivity of the mining venture. The amount has, however, been widely reported to be \$6 billion, probably quoted from the MOU
Mining investment worth	Not mentioned but widely reported to be \$3 billion
DRC government guarantee for the commercial mining investment	Yes (article 13.3.4)

Version 3: Third and final contract amendment, October 2009 (Currently under implementation)	
Congolese party	Unchanged from the MOU. Gécamines, 32%.
Chinese parties	CREC, Sinohydro and Zhejiang Huayou Cobalt, 68%. ^d
Mining concessions	Unchanged from the Convention. Copper: 10.6 million tonnes; Cobalt: 626 619 tonnes.
Infrastructure worth	A maximum of \$3 billion (article 6, p. 6). Article 12 stipulates that the second tranche of infrastructure investments is cancelled
Mining investment worth	Not mentioned but still widely reported to be \$3 billion
DRC government guarantee for the commercial mining investment	Removed (article 8)

However, the deal for its **lack of transparency** and **potential for corruption** has caused a lot of scams and political instability in DRC. Ij-Reportika found out that the deal favoured the Chinese companies at the expense of the DRC, and it failed to provide adequate protection for local communities and the environment.



Congo's **state auditor** has recently demanded an **additional \$17 billion** of investments from the 2008 infrastructure-for-minerals deal with Chinese investors that is currently being renegotiated. China's embassy in Congo in February 2023 said it was shocked by the state auditor's report, calling it "**full of prejudice**" and not corresponding to reality.

"The partnership between DRC and China ... my country did not get anything out of the Sino Congolaise des Mines (Sicomines) agreement" Muzito said of the above deal (Between 2008 to 2012, Muzito was the prime minister of the DRC under the president Joseph Kabila's rule, and it was at this time that the nation signed massive infrastructure-for-minerals agreements)

Again in 2019, the **DRC** signed a **\$6 billion deal** with **China Molybdenum Co Ltd (CMOC)** to develop **copper and cobalt mines** in the country's southeastern province of **Lualaba**. As part of the deal, CMOC agreed to **invest \$4 billion in a joint venture with the state-owned mining company, Gécamines**, to develop new mining projects, while the remaining \$2 billion would be used to improve infrastructure in the country.

The **infrastructure component** of the agreement includes the **construction of roads, railways, and power plants to support the mining industry**, as well as the development of social infrastructure such as schools and hospitals. The Chinese government has also committed to providing funding for other **infrastructure projects** in the country, such as the **construction of a new airport in Kinshasa**.

However, there have been concerns about the potential impact of the deal on the **DRC's economy and sovereignty** just like the Infrastructure for minerals deal of 2008. The **infrastructure investments** could lead to a **debt trap**, where the DRC becomes heavily indebted to China and loses control over its resources.

Meanwhile, **Chinese companies are buying the Cobalt Mines aggressively in DRC**. Following is one such agreement:

CMOC Announces Acquisition of Kisanfu Copper-cobalt Deposit in DRC

2020-12-13 21:01:57



China Molybdenum Co., Ltd. (the "Company" or "CMOC") is pleased to announce that it signed a share purchase agreement and completed a transaction with Freeport-McMoRan Inc. ("Freeport") to acquire Freeport's indirect 95% interest in the **Kisanfu copper-cobalt deposit** ("Kisanfu") in the Democratic Republic of Congo ("DRC") for a total consideration of **USD550 million** (the "Transaction").

Kisanfu, located in **Lualaba Province** in the DRC, is one of the world's largest, highest-grade undeveloped cobalt and copper projects with a resource inventory of 365Mt grading 1.72% Cu and 0.85% Co and containing approximately 6.3Mt copper and 3.1Mt cobalt. Mineralisation continues at depth beyond current drilling, highlighting the potential to expand the resource and develop it into another long-life world class asset for CMOC's portfolio. Kisanfu is located 33km southwest of CMOC's copper-cobalt operations at **Tenke-Fungurume Mine (TFM)**. CMOC expects significant synergies from its two operations in the DRC, Kisanfu and TFM.

China Molybdenum announcement of the acquisition of Kisanfu Copper-Cobalt deposit

The double standards of the tech-giants

While officially claiming they only do business with cobalt suppliers, smelters, and refiners that uphold strict labour standards, Technology behemoths like **Apple, Qualcomm, Microsoft, and Samsung** have come under fire for turning a blind eye to the exploitation of employees.

Several Giant corporations rely on the fact that they **don't conduct business with the miners directly**. Instead, they claim to hold **those middlemen accountable to their codes of conduct and standards by purchasing the cobalt from refiners or smelters**.

In the course of our research work, we found out that many companies release an annual report with the title "Conflict Minerals Report" claiming that they only buy cobalt that is ethically mined and sourced but most of them rely on the word of the smelters which are mostly Chinese.

Following are the lists of the smelters of cobalt of some prominent tech giants.

NOKIA CONFLICT MINERALS REPORT FOR 2020

May 24, 2021

Introduction

Based on our reasonable country of origin inquiry, Nokia has reason to believe that certain of the Conflict Minerals¹ necessary to the functionality or production of our products may have originated in the Democratic Republic of the Congo or an adjoining country (the "Covered Countries") and may not have come from recycled or scrap sources. Accordingly, Nokia undertook due diligence measures on the source and chain of custody of these Conflict Minerals. In the design of our due diligence processes we have conformed to the internationally recognized due diligence framework provided by OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD 2016) (the "OECD Due Diligence Guidance"). The details of this alignment of our conflict minerals due diligence process with the OECD Due Diligence Guidance are provided in Table 1 below.

RMI publishes a conflict-free smelter list, which is composed of mineral processing facilities that have been reviewed by an independent third-party audit to assess whether the facility employs policies, practices, and procedures to provide assurance that the material sourced is DRC conflict-free. RMI also provides country of origin data for members, which has been aggregated due to confidential business information concerns (which conforms to the OECD Guidance specified in Step 5). This is reasonable because the country of the material's origin is thoroughly examined in the audit process, even if the origin's more specific location is not published. Therefore, reliance on the aggregated country list constitutes a reasonable inquiry into the material's country of origin. The data on which we rely for certain statements in this conflict minerals report is obtained through our membership in the RMI. In addition to RMI sources Nokia also conducts independent research into country of origin information for the smelters that are not yet part of RMI RMAP audit process.

To help to address risks beyond those associated with conflict, such as social, environmental and human rights risks, smelters are also requested to participate and update Risk Readiness Assessment of the RMI.



Nokia Conflict Mineral Report (Source : [https://www.nokia.com/sites/default/files/2021-05/Nokia-Conflict Minerals Report for%202020.pdf](https://www.nokia.com/sites/default/files/2021-05/Nokia-Conflict%20Minerals%20Report%20for%202020.pdf))



Cobalt

Smelter or Refiner Name	Country or Region
Gangzhou Yi Hao Umicore Industry Co. (Umicore)	China mainland
Ganzhou Highpower Technology Co., Ltd.	China mainland
Ganzhou Tengyuan Cobalt New Material Co., Ltd.	China mainland
GEM (JIANGSU) Cobalt Industry Co., Ltd.	China mainland
Guangdong Jiana Energy Technology Co., Ltd.	China mainland
Hunan Jinxin New Material Holding Co., Ltd.	China mainland
Hunan Shiji Yintian New Material Co., Ltd.	China mainland
Hunan Yacheng New Materials Co., Ltd.	China mainland
Hunan CNGR New Energy Science & Technology Co., Ltd.	China mainland
Jiangsu Xiongfeng Science & Technology Co., LTD	China mainland
Jiangxi Jiangwu Cobalt Industry Co., Ltd.	China mainland
Jingmen GEM Co., Ltd.	China mainland
Lanzhou Jinchuan Advanced Materials Technology Co., Ltd.	China mainland
Nantong Xinwei Nickel & Cobalt Hightech Development Co., Ltd.	China mainland
New Era Group Zhenjiang Zhongneng Cycle Technology Co., Ltd.	China mainland
Ningbo Hubang New Material Co., Ltd.	China mainland
NORILSK NICKEL HARJAVALTA OY	Finland
Quzhou Huayou Cobalt New Material Co., Ltd.	China mainland
Tianjin Maolian Science & Technology Co., Ltd.	China mainland

Apple list of smelters

Smelter ID	Metal	Smelter or Refiner Name	Country
CID003481	Cobalt	Chizhou Xi'en New Material Technology Co., Ltd.	China
CID003280	Cobalt	Compagnie de Tifnout Tiranimine	Morocco
CID003473	Cobalt	CoreMax Corporation	Taiwan
CID003415	Cobalt	Cosmo EcoChem Co., Ltd.	Korea, Republic of
CID003232	Cobalt	Dynatec Madagascar Company	Madagascar
CID003242	Cobalt	Fort Saskatchewan Metals Facility	Canada
CID003227	Cobalt	Gangzhou Yi Hao Umicore Industry Co.	China
CID003384	Cobalt	Ganzhou Highpower Technology Co., Ltd.	China
CID003212	Cobalt	Ganzhou Tengyuan Cobalt New Material Co., Ltd.	China
CID003209	Cobalt	Gem (Jiangsu) Cobalt Industry Co., Ltd.	China
CID003403	Cobalt	Glencore Nikkelverk Refinery	Norway
CID003291	Cobalt	Guangdong Jiana Energy Technology Co., Ltd.	China
CID003213	Cobalt	Guangxi Yinyi Advanced Material Co., Ltd.	China
CID003219	Cobalt	Hunan Brunp Recycling Technology Co., Ltd.	China
CID003404	Cobalt	Hunan Yacheng New Materials Co., Ltd.	China
CID003411	Cobalt	Hunan Zoomwe New Energy Science & Technology Co., Ltd.	China
CID003491	Cobalt	ICoNiChem	United Kingdom
CID003293	Cobalt	Jiangsu Xiongfeng Technology Co., Ltd.	China
CID003377	Cobalt	Jiangxi Jiangwu Cobalt industrial Co., Ltd.	China
CID003447	Cobalt	Jiangxi Rui da Xinnengyuan Technology Co., Ltd.	China
CID003378	Cobalt	Jingmen GEM Co., Ltd.	China
CID003233	Cobalt	JSC Kolskaya Mining and Metallurgical Company (Kola MMC)	Russian Federation
CID003210	Cobalt	Lanzhou Jinchuan Advanced Materials Technology Co., Ltd.	China
CID003279	Cobalt	Mine de Bou-Azzer	Morocco
CID003406	Cobalt	Murrin Murrin Nickel Cobalt Plant	Australia
CID003252	Cobalt	Nanjing Hanrui Cobalt	China
CID003221	Cobalt	Nantong Xinwei Nickel Cobalt Technology Development Co., Ltd.	China
CID003376	Cobalt	XTC New Energy Materials (Xiamen) LTD.	China
CID003225	Cobalt	Zhejiang Huayou Cobalt Company Limited	China
CID003211	Cobalt	Zhuhai Kelixin Metal Materials Co., Ltd.	China

Microsoft list of smelters



Cobalt Smelter List

No	ID	Smelter Name	Location
1	CID003209	Gem (Jiangsu) Cobalt Industry Co., Ltd.	China
2	CID003210	Lanzhou Jinchuan Advanced Materials Technology Co., Ltd.	China
3	CID003212	Ganzhou Tengyuan Cobalt New Material Co., Ltd.	China
4	CID003215	Tianjin Maolian Science & Technology Co., Ltd.	China
5	CID003219	Hunan Brunp Recycling Technology Co., Ltd.	China
6	CID003221	Nantong Xinwei Nickel Cobalt Technology Development Co., Ltd.	China
7	CID003225	Zhejiang Huayou Cobalt Company Limited	China
8	CID003226	Umicore Finland Oy	Finland
9	CID003227	Gangzhou Yi Hao Umicore Industry Co.	China
10	CID003228	Umicore Olen	Belgium
11	CID003255	Quzhou Huayou Cobalt New Material Co., Ltd.	China
12	CID003261	Kamoto Copper Company	Congo, Democratic Republic of the
13	CID003264	Chemaf Etoile	Congo, Democratic Republic of the
14	CID003278	Sumitomo Metal Mining	Japan
15	CID003279	Mine de Bou-Azzer	Morocco
16	CID003280	Compagnie de Tifnout Tiranimine	Morocco
17	CID003291	Guangdong Jiana Energy Technology Co., Ltd.	China
18	CID003293	Jiangsu Xiongfeng Technology Co., Ltd.	China
19	CID003338	SungEel HiTech Co.,Ltd.	Korea
20	CID003376	XTC New Energy Materials (Xiamen) LTD.	China
21	CID003377	Jiangxi Jiangwu Cobalt industrial Co., Ltd.	China
22	CID003378	Jingmen GEM Co., Ltd.	China
23	CID003384	Ganzhou Highpower Technology Co., Ltd.	China
24	CID003390	NORILSK NICKEL HARJAVALTA OY	Finland
25	CID003398	New Era Group Zhejiang Zhongneng Cycle Technology Co., Ltd.	China
26	CID003404	Hunan Yacheng New Materials Co., Ltd.	China
27	CID003406	Murrin Murrin Nickel Cobalt Plant	Australia
28	CID003411	Hunan Zoomwe New Energy Science & Technology Co., Ltd.	China
29	CID003415	Cosmo EcoChem Co., Ltd.	Korea
30	CID003423	Chemaf Usoke	Congo, Democratic Republic of the
31	CID003465	Ningbo Hubang New Material Co., Ltd.	China
32	CID003467	Hunan Shiji Yintian New Material Co., Ltd.	China
33	CID003470	Hunan Jinxin New Material Holding Co., Ltd.	China
34	CID003473	CoreMax Corporation	Taiwan
35	CID003526	Zhejiang Zhongjin Greatpower Lithium-Battery Industrial Corporation Co., Ltd.	China

Samsung list of smelters

Cobalt	Port Colborne Refinery	CANADA
Cobalt	Vale ? Long Harbour Processing Plant (LHPP)	CANADA
Cobalt	Ganzhou Highpower Technology Co., Ltd.**	CHINA
Cobalt	Lanzhou Jinchuan Advanced Materials Technology Co., Ltd.**	CHINA
Cobalt	Zhejiang Huayou Cobalt Company Limited**	CHINA
Cobalt	Quzhou Huayou Cobalt New Material Co., Ltd.**	CHINA
Cobalt	Guangdong Jiana Energy Technology Co., Ltd.**	CHINA
Cobalt	Ganzhou Tengyuan Cobalt New Material Co., Ltd.**	CHINA
Cobalt	Hunan CNGR New Energy Science & Technology Co., Ltd.**	CHINA
Cobalt	Jingmen GEM Co., Ltd.**	CHINA
Cobalt	New Era Group Zhejiang Zhongneng Cycle Technology Co., Ltd.**	CHINA
Cobalt	Hunan Yacheng New Materials Co., Ltd.**	CHINA
Cobalt	Zhejiang Greatpower Cobalt Materials Co., Ltd.**	CHINA
Cobalt	Ningbo Hubang New Material Co., Ltd.**	CHINA
Cobalt	Guangxi Yinyi Advanced Material Co., Ltd.*	CHINA
Cobalt	Gem (Jiangsu) Cobalt Industry Co., Ltd.*	CHINA
Cobalt	Jiangsu Xiongfeng Technology Co., Ltd.*	CHINA
Cobalt	Tianjin Maolian Science & Technology Co., Ltd.*	CHINA
Cobalt	Nantong Xinwei Nickel Cobalt Technology Development Co., Ltd.*	CHINA
Cobalt	Zhuhai Kelixin Metal Materials Co., Ltd.*	CHINA
Cobalt	Jiangxi Jiangwu Cobalt industrial Co., Ltd.*	CHINA
Cobalt	Hunan Shiji Yintian New Material Co., Ltd.*	CHINA
Cobalt	Chizhou CN New Materials and Technology Co., Ltd.*	CHINA
Cobalt	Gangzhou Yi Hao Umicore Industry Co.	CHINA
Cobalt	Hunan Brunp Recycling Technology Co., Ltd.	CHINA
Cobalt	Nanjing Hanrui Cobalt	CHINA
Cobalt	Ningbo Yanmen Chemical Co., Ltd.	CHINA
Cobalt	Jiangxi Rui da Xinnengyuan Technology Co., Ltd.	CHINA
Cobalt	Fairsky Industrial Co., Limited	CHINA
Cobalt	Hunan Jinxin New Material Holding Co., Ltd.	CHINA
Cobalt	Mechema Chemicals shang-yu	CHINA
Cobalt	XTC New Energy Materials (Xiamen) LTD.	CHINA
Cobalt	Xiangtan Huacheng Nickel Cobalt New Material Co., Ltd.	CHINA
Cobalt	Kamoto Copper Company**	DEMOCRATIC REPUBLIC OF THE CONGO
Cobalt	Chemaf Etoile**	DEMOCRATIC REPUBLIC OF THE CONGO
Cobalt	Chemaf Usoke**	DEMOCRATIC REPUBLIC OF THE CONGO
Cobalt	Societe pour le Traitement du Terril de Lubumbashi (STL)*	DEMOCRATIC REPUBLIC OF THE CONGO
Cobalt	La Compagnie de Traitement des Rejets de Kingamyambo S.A.*	DEMOCRATIC REPUBLIC OF THE CONGO
Cobalt	METAL MINES SARL	DEMOCRATIC REPUBLIC OF THE CONGO

Intel list of smelters

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