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Enhancing Africa's response to transnational organised crime

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RESEARCH PAPER

Mining and illicit trading of coltan in the Democratic Republic of Congo

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Summary

Mining and the illicit trade in minerals have long been the source of social and environmental upheaval in the Democratic Republic of Congo (DRC) and coltan, a mineral essential to modern electronics, has become a particular focus of criminal networks. This study reveals a network of organised crime involved in the production and supply chain of coltan, and its connections to legitimate businesses in advanced economies. It raises awareness of the implications of this illicit trade and suggests multi-stakeholder interventions to prevent criminal networks from operating in the Great Lakes Region.

Key findings

- As 5G technology grows, the demand for coltan increases.
- Much of the coltan produced by artisanal mining remains unaccounted for due to the government's inability to access and regulate mines in remote territories.
- Coltan smuggling is enabled by state collusion and corrupted networks of social relations.
- Coltan smuggling flourishes because of the differences between the prices set in mining areas and those on the black market.
- Environmental impact assessments are seldom carried out before exploration for coltan begins.
- Sites of historical heritage and indigenous norms are violated by artisanal miners and foreign companies.
- Exploitation of children, rape and gender-based violence are common at coltan mining sites.

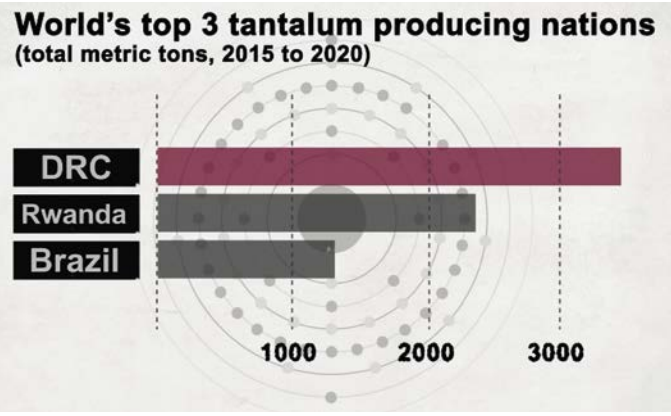
Introduction

The Democratic Republic of Congo (DRC) is widely considered to have the richest store of natural resources in the world, with its untapped deposits of raw minerals estimated to be worth more than US$24 trillion.[1] The country is also at the centre of the instability in the Great Lakes Region that gives rise to what is often described as a transnational war economy. It is a situation in which wealth-seeking government officials collude with rebel leaders and international businesses to perpetuate illicit resource trading schemes.

These actors have a common interest in expanding and preserving the war economy.[2] The lingering instability has crippled the capacity of the state to enforce law and order. Non-state armed groups have occupied vast territories that remain largely inaccessible to established governing authorities. Most of these ungoverned spaces are naturally endowed with strategic minerals. Warlords created by the Congolese civil wars and former Rwandan genocide rebels have unfettered access to coltan deposits. They continue to mine the mineral and trade it in the legitimate commodity market through corrupt middlemen.

Struggle for control over coltan mines is central to the conflict in eastern DRC, which has claimed more than four million lives in the past decade.[3] The FDLR, various militias and the Congolese army all have stakes in the lucrative coltan trade. State agents and warlords have taxed[4] the miners for access to the mines, making control of the mines and surrounding land violently competitive.[5]

World's leading Tantalum producers in metric tons



Source: Uzi Media for ISS

Strategic minerals mined in the DRC include gold, diamonds, cobalt, zinc and coltan – a term derived from the word 'columbite-tantalite' that belongs to a group of geochemical products internationally known as tantalum. Scholars, journalists and activists who have sought to understand and publicise the relationship between the tantalum supply chain and the violent conflict popularised the term 'coltan' because it is the name used in the DRC, which, in 2019, produced 40% of the world's supply.[6]

Coltan passes through many intermediaries and forms a significant part of the billion-dollar tantalum industry

The term is now widely used beyond the industrial and scientific spheres.[7] The demand is increasing as 5G technology grows, owing to the requirement for low-voltage capacitors in the fast-growing telecommunications sector.[8] With about 80% of the global reserve, according to a modest estimate, lying in the DRC, the mineral has become the new 'black gold'. Coltan contains a unique set of properties that make it useful for a number of applications. The ability of the metal to store and release electrical energy means it is ideally suited for use in certain types of capacitors commonly used in modern electronics (about 60% of global coltan consumption is traceable to the electronics industry)[9] [10] and it is an important component of super alloys used in surgical implants, gas turbines, jet engines, ballistic missiles and nuclear reactors.[11]

Industrialised nations like the United States and countries in the Asia Pacific region such as China, Japan and South Korea are the world's leading consumers of coltan, which is used by major companies such as Apple, Samsung, Sony and other high-end personal computer producers.[12] Global coltan production was estimated at about 2.3 kilotons in 2020 and is expected to grow at a compound annual rate of about 6% between 2021 and 2026.[13] Questions have been raised about the willingness and ability of the state to respond to challenges associated with the mining and illicit trading of coltan, both locally and transnationally. Networks of organised crime involved in the production and supply chain have connections to legitimate businesses in advanced economies. This study highlights the

implications of this illicit trading for people, profits and the planet and suggests multi-stakeholder interventions to prevent these criminal networks from operating in the Great Lakes Region.

Corruption in the extractive sector in the DRC spans the entire value chain and includes the management of revenue from mining. Coltan passes through many intermediaries and forms a significant part of the billion-dollar tantalum industry. It is mined in small, manual operations and transferred through intermediaries in the country who consolidate the ore and negotiate the sales. Small teams of diggers (*creuseurs*) supply middlemen (*négociants*), who, in turn, supply trading houses (*comptoirs*). *Négociants*, who are often connected to various mineral racketeers, underground agents and rebel forces, pre-finance mining operations, supplying miners with food, tools and other necessities in return for a share of production and/or the first right to buy the coltan.

Most *comptoirs* have official licences but *négociants*, particularly those buying at the mines, often do not. Some *comptoirs* have processing facilities (*fondeurs*), others export unprocessed ore to international processing companies. In order to reduce tax payments *comptoirs* often undervalue exported volumes on documentation with the complicity of customs officials and some are involved in outright smuggling.[14] A UN investigation found that many *comptoirs* knowingly purchase coltan from areas controlled by armed groups and exploit the distinction between themselves and the *negociants* to claim ignorance of the mineral's origins.[15] International companies then transport the ore directly to the destination country or re-export it via Uganda and Rwanda to overseas processing facilities.

Research objectives

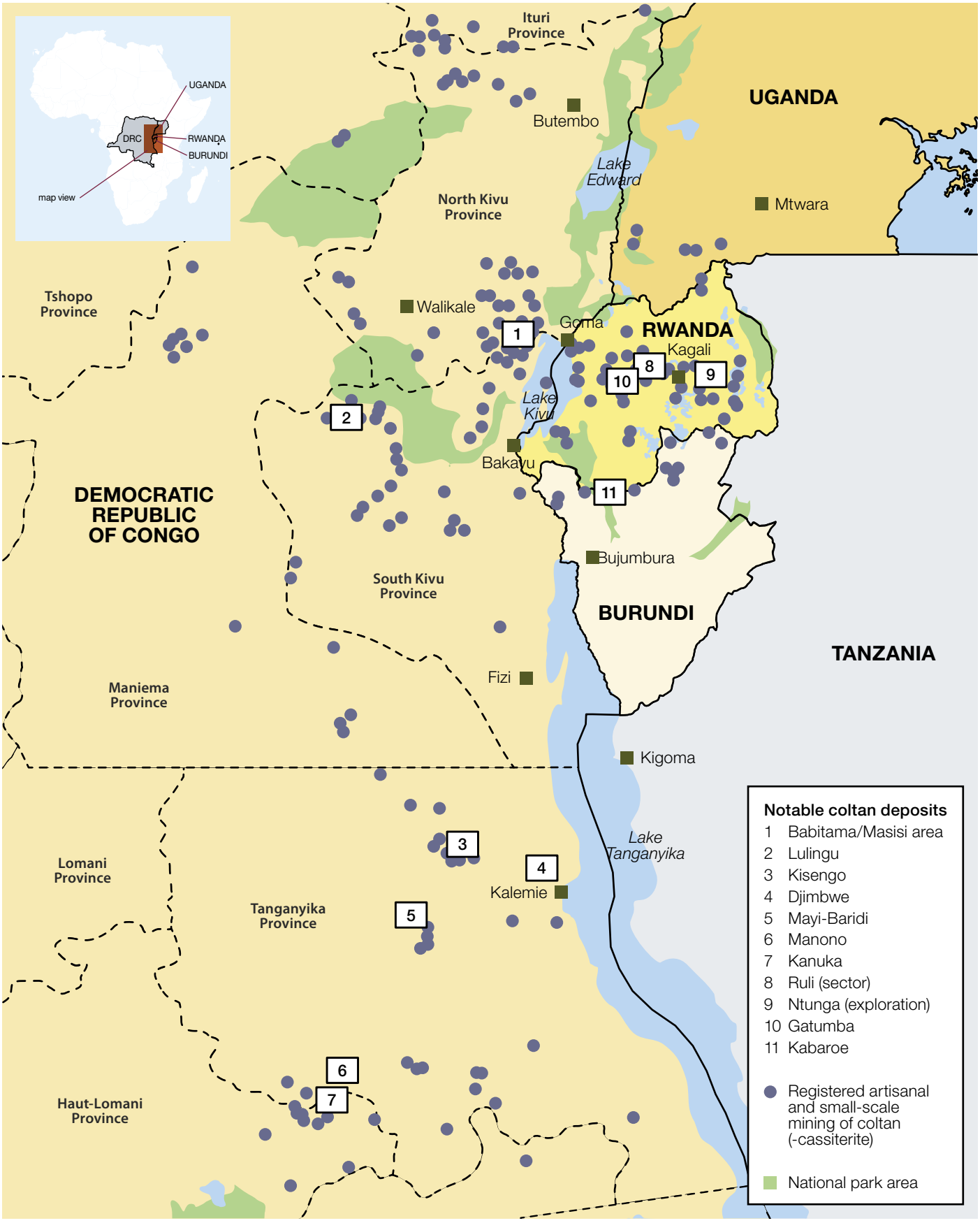
The broad objective of this study is to assess the complex relationships within the political economy of coltan mining and trading in the DRC. Specifically, it seeks to:

- Examine the scope and dimensions of organised crime in the mining and trading of coltan;
- Identify those involved;
- Identify the trade routes, regional and international links associated with the illicit trading of coltan;
- Examine the multidimensional harm caused by organised crime; and
- Recommend ways of strengthening responses.

Coltan mining supply and value chain

Source: Uzi Media for ISS

Chart 1: Map of coltan deposits in the Great Lakes Region



Source: Schütte and Näher, 2020[16]

Methodology

The study combines an extensive literature review, primary and secondary data sources and a field survey. The literature review explores theoretical explanations to contextualise the analyses within current policy and academic discourse. The secondary sources of information are scholarly publications, legislation, official statements, United Nations reports on extractive conflicts in the DRC and other relevant policy documents.

The field survey employed a qualitative method of gathering and analysing data through a semi-structured questionnaire. The data-gathering method also included interviews and focus group discussions with officials of the Certification, Expertise and Evaluation Centre (CEEC), the Ministry of Mines, civil society coalitions, the Congolese Environment Agency and non-governmental organisations in North and South Kivu. A Geographic Information System (GIS) was used to map coltan deposits and the illicit trading routes from DRC to neighbouring countries.

Dimensions of organised crime in the coltan supply chain

Seven dimensions of transnational organised crime are discernible within the coltan supply chain from the DRC to various destinations in Africa, Asia, Europe and North America. They are illegal mining, corruption, counterfeiting, fronting and collusion perpetrated locally by Congolese, smuggling and resource predation, which are cross-border illicit activities. Those that have the most impact on organised crime are illegal mining and smuggling.

Illegal mining

It is estimated that 90% of minerals produced in the DRC are produced by artisanal miners, most of them operating without permits,[17] and that artisanal mining has accounted for about 60% of global production in recent years.[18]

The DRC's Mining Code empowers artisanal and small-scale miners to purchase government mining cards and join cooperatives, which allows them to work in areas known as *zones d'exploitation artisanal* (ZEA). A civil society activist in Goma, North Kivu province, likened the activities of most of the artisanal coltan miners to those of hunter gatherers. They carry out mining activities on sites devoid of state control and authority and mine the quantity of coltan they want without any regulation.[19]

In order to regulate production, in 2003 the DRC government created SAEMAPE (*Service d'assistance et d'encadrement des mines artisanales et de petit echelle*), a department devoted to supporting Artisanal and Small-scale Miners (ASM). The body's mandate is to formalise the ASM sector through a dual strategy of regulating and monitoring its operations and supporting its professional development.

Broadly, its core mandate is to provide training, technical and financial assistance to ASM cooperatives and operators, improve safety standards and develop a credit fund for the small-scale miners through their cooperatives.[20] SAEMAPE is also expected to supervise the activities of the artisanal miners across the coltan supply chain, from mining to point of sale.

> Between January and December 2013 law enforcement officials intercepted 965.3kg of smuggled coltan

SAEMAPE has underperformed in at least three ways. Firstly, the agency's preoccupation with the task of ensuring that state taxes are paid entrenches a rent-seeking culture and promotes corruption, with state officials continually harassing miners for payment.[21]

Secondly, officials are often unpaid and visit mining sites irregularly. As a result, the capacity of state institutions to fulfil their task of assisting, monitoring and recording statistics and regulating the natural resource sector remains limited.[22]

Lastly, the inability of the state to access and supervise all the coltan deposit sites means that many artisanal miners occupy sites in remote territories illegally. The quantity of coltan mined from these sites is often unaccounted for, uncertified and untraceable. It is traded in the underground economy and then funnelled into the global supply chain through smuggling and counterfeiting.

In addition, the profits of artisanal mining fund the activities of armed groups operating in the eastern DRC and smuggling the minerals to Rwanda.[23]

Counterfeiting

The DRC Mining Code of 2017 stipulates that artisanal mining may not be conducted in areas where coltan-mining companies operate. However, instead of installing machines such as alluvial coltan mining separation jig machines and alluvial coltan ore rotary trommels for industrial exploitation some of the companies engage artisanal miners, who mine and sell coltan to them and other middlemen.

Even when companies with mining licences have installed the requisite machines they continue to buy coltan from artisanal miners. This practice contaminates the legal supply chain as coltan mined from unauthorised sites, mostly at night, is brought to the authorised mining sites and presented fraudulently to SAEMAPE for certification.

Coltan mined from unauthorised sites is presented fraudulently to SAEMAPE for certification

The International Tin Association (ITA), based in London, and the international development organisation Pact run the ITSCI Programme for Responsible Mineral Supply Chains.[24] This programme aims to trace each sack of coltan back to the mine from which it came, with a view to preventing illicit coltan from entering the global supply chain. ITSCI staff are trained to ascertain the prevalence of child miners and the presence of armed groups and whether they are involved in coltan mining and trading. They do so by conducting routine visits to mining sites. If a mine is considered safe and conflict free, SAEMAPE agents at the site tag the coltan sacks accordingly.

Even here, however, there is a way around the regulations. Unscrupulous agents sell tags on the black market to put on coltan sacks that originate from conflict-ridden mines in isolated regions that are hard to police due to poor road infrastructure.[25] This, combined with the inadequate official tracing systems mentioned above, enables the smuggling of coltan. As a result, consumers and end users cannot be certain about the origins of the tantalum elements in their electronic devices.

Smuggling

Coltan smuggling is a perennial challenge in the extractive sector in the DRC, with multiple actors and underground networks, ranging from the mines to electronics companies. The increase in smuggling of coltan and other minerals is enabled by several conditions: porous borders, large swathes of ungoverned spaces, the onerous demands of the traceability and certification schemes and the entrenched involvement of armed groups in coltan mining and trading.[26]

Coltan smugglers devise ingenious means of taking the precious metal out of the Congo, sometimes presenting forged traceability and certification documents to customs officials at the borders. The metal has also been hidden in the petrol tanks of motorbikes or in secret compartments under lorries.[27]

In other instances, coltan is smuggled at night to Rwanda through the waterways along Lake Kivu's long frontier, which is fraught with patrol difficulties.[28] The border police often collude in this clandestine transfer, allowing smugglers to cross the border in exchange for a bribe.[29] In order to export their coltan legally miners had to do so through ITSCI, which was the only conduit to the international market. However, the 5% commission charged by ITSCI was considered to be excessive, prompting many miners to trade their ore in the underground economy through smuggling.

The following incidents have been recorded in the past eight years:

- Between January and December 2013 law enforcement officials intercepted 965.3kg of smuggled coltan.
- Five cases of smuggling were reported in Kahendwa between February and September 2013.[30]
- A total of 6 400kg of smuggled coltan reportedly reached Uvira via Misisi in 2013.[31]
- In 2015 the provincial office of the National Commission against Mineral Contraband (*Commission Nationale de Lutte contre la Fraude Minière*) reported that 60 tons of smuggled tin, tungsten and coltan had been intercepted in Bukavu, South Kivu.[32]
- Theft and smuggling by miners resulted in the Société Minière de Bisunzu (SMB), a coltan mining company

at Rubaya, losing about 50 tons of coltan per month in 2019.[33]

- In February 2020 Rwandan authorities seized 155kg of coltan they claimed to have been smuggled from Congo.[34]

State security connivance, corrupted networks of social relations and predatory state practices that enable smuggling raise questions about the capacity and willingness of the Congolese authorities and joint task forces comprising the United Nations Mission in DRC to provide adequate policing to stem the tide.

Resource predation across borders

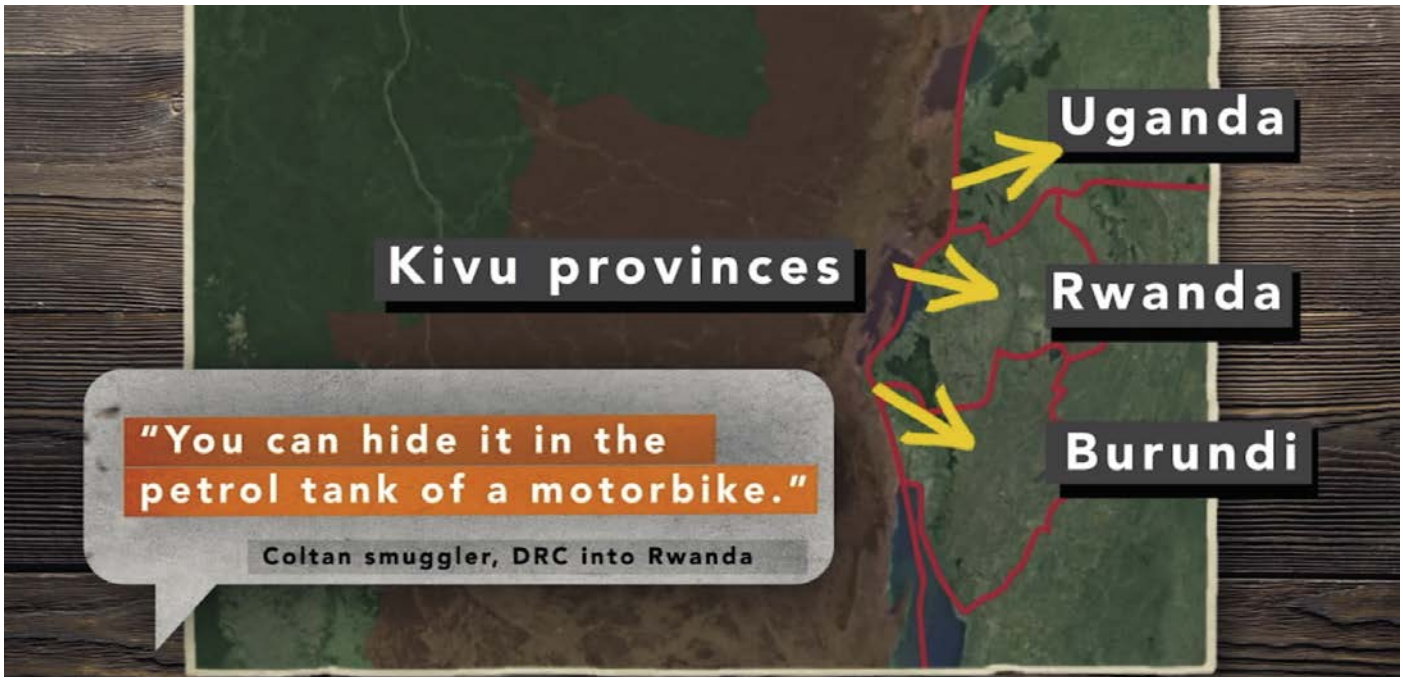
Burundi, Uganda and Rwanda profit greatly from the trade in Congolese minerals, which constitute a major source of national income for all three countries. Congolese coltan is exported through official trading networks that transit through these countries.[35] The mineral is also smuggled across the eastern borders. The origin of the exported coltan is concealed by traders and the shipments are undertaxed by state officials.[36] Coltan shipments follow the same commercial routes as other merchandise and are part of the cross-border trade, with the Uvira-Bujumbura and Bukavu-Cyangugu routes most frequently used for trafficking.[37]

Minerals smuggled from the DRC to neighbouring states that produce their own minerals are reflected in the exports of these states and sometimes exceed the quantities of minerals produced by the host countries.[38] Rwanda has emerged as the preferred transit country of choice for illicitly sourced and traded coltan. Economic networks, together with coltan processing plants, are pivotal to the illicit trading. This is due to a relaxed taxation regime coupled with the cross-border price differential.

Rwanda has been pivotal in the illicit trading of coltan from the DRC to international markets

In 2013 Rwanda exported 2 466 025kg of coltan – 28% of the amount produced globally.[39] In 2014 it was reported to be the world's single-largest exporter of the mineral.[40] In 2015 the country earned US$66 200 323 for exports of 1 652 tons and in 2016, US$39.7 million for 1 270 tons.[41] The country earned US$71 million in 2018 and US$44 million in 2019.[42] Civil society observers in the Kivu region and authoritative media reports suggest that this indicates that Rwanda is complicit in mineral

Major coltan trafficking routes into Uganda, Rwanda and Burundi



Source: Uzi Media for ISS

smuggling, as coltan is rarely mined there.[43] The revenue from coltan exports has decreased considerably in recent years, largely because the Covid-19 pandemic has affected the global mineral supply chain.

Collusion

In the DRC, collusion and low-level corruption in coltan mining and trading is perpetrated by state officials, the security forces and community chieftaincy officials. Even at coltan mining sites where responsible sourcing initiatives have been introduced, there is evidence of interference by corrupt state officials,[44] largely by collecting illegal taxes without issuing receipts and demanding 'motivations' to tag mineral bags [45] The state mining division in the Kivu provinces and SAEMAPE are mandated to visit mining sites to support miners and document production.

Other officials implicated in collusion include the mining police, the intelligence service and the anti-fraud unit, which play no role in mining activities.[46] The mining police in Rubaya, for instance, reportedly require 'small sums' from artisanal miners at the SMB concession, allowing miners to work at night, when the mine is officially closed.[47] Customary chiefs are considered the guardians of morality and protectors of cultural identity in local communities.[48] Together with the *Agence Nationale de Renseignements* (ANR), established to conduct both internal and external surveillance and security, they have, however abandoned their role, engaging in the unauthorised taxation of minerals at illegal roadblocks.[49]

Fronting

Another dimension of organised crime in the coltan supply chain is fronting – a form of disguised ownership of mining businesses that undermines the local framework that aims to empower registered artisanal miners and indigenous businesses to participate in other aspects, such as processing, in the extractive sector.

Here foreign investors and senior military officials collude with locals to establish clandestine business operations within the coltan supply chain.[50] Fronting manifests mainly in two ways: collaboration between Congolese and foreigners (especially Chinese)[51] and between state security officials and community members. In some instances, army commanders appoint a *commissionaire* (a civilian with no overt connection to the commander) to [52] manage their interests covertly at mining sites. This is the case at sites in Mutiku and Walikale. Coltan mines are scattered across these territories, with the most productive mines located in Walikale and under the control of the Armed Forces of the Democratic Republic of the Congo's (FARDC) non-integrated 85th Brigade.[53]

In addition to collecting levies, all ranks of civil officials and armed members are known to conduct and invest in mining and trading activities. They either mimic the legal operations of private businesses or operate in partnership with them, offering means of production and transport as well as a degree of protection. Although these military and administrative actors do not always need to maintain territorial control over the mines, soldiers often coerce or persuade teams of diggers to work for them. At times they act as *petits négociants* (small-scale intermediary traders), providing tools, supplies and other necessities in return for most of the coltan produced.[54]

Officials implicated in collusion include state officials, anti-fraud intelligence security, chieftan officials and the police

The 2002 Mining Code, as amended by Law No 18-001 of 9 March 2018, reinforces local content requirements, conferring certain advantages on Congolese citizens carrying out business activities in the extractive sector.[55] The purpose of the regulation is to ensure that a foreign company is hiring local labour and procuring local goods and services from the host country. It is also intended to encourage indigenous businesses within the mineral processing value chain.

However, the regulatory frameworks, jointly administered by the Ministry of Mines and the Ministry of Finance, remain very weak in ensuring that any underground activities of foreign investors who engage in fronting are identified and sanctioned. Strengthening those aspects of the legislative framework to check the illicit activities of foreigners and their local collaborators requires constant and unwavering political will – an area in which the government falls short.

Corporate corruption by middlemen and multinationals

The DRC, which has had its own anti-corruption law since 2004, signed the United Nations Convention against Corruption in 2010. The domestic anti-corruption legislation prohibits all forms of corruption and provides that abuse of public office for personal gain can be punished by up to 15 years in prison. Other anti-corruption-related legal provisions are included in the Constitution, the Code of Ethics and the Procurement Code, which was promulgated and adopted in 2010. However, these provisions have been poorly implemented because there is no access to government data on mining operations and, perhaps, limited political will to combat corruption in the extractive sector.[56]

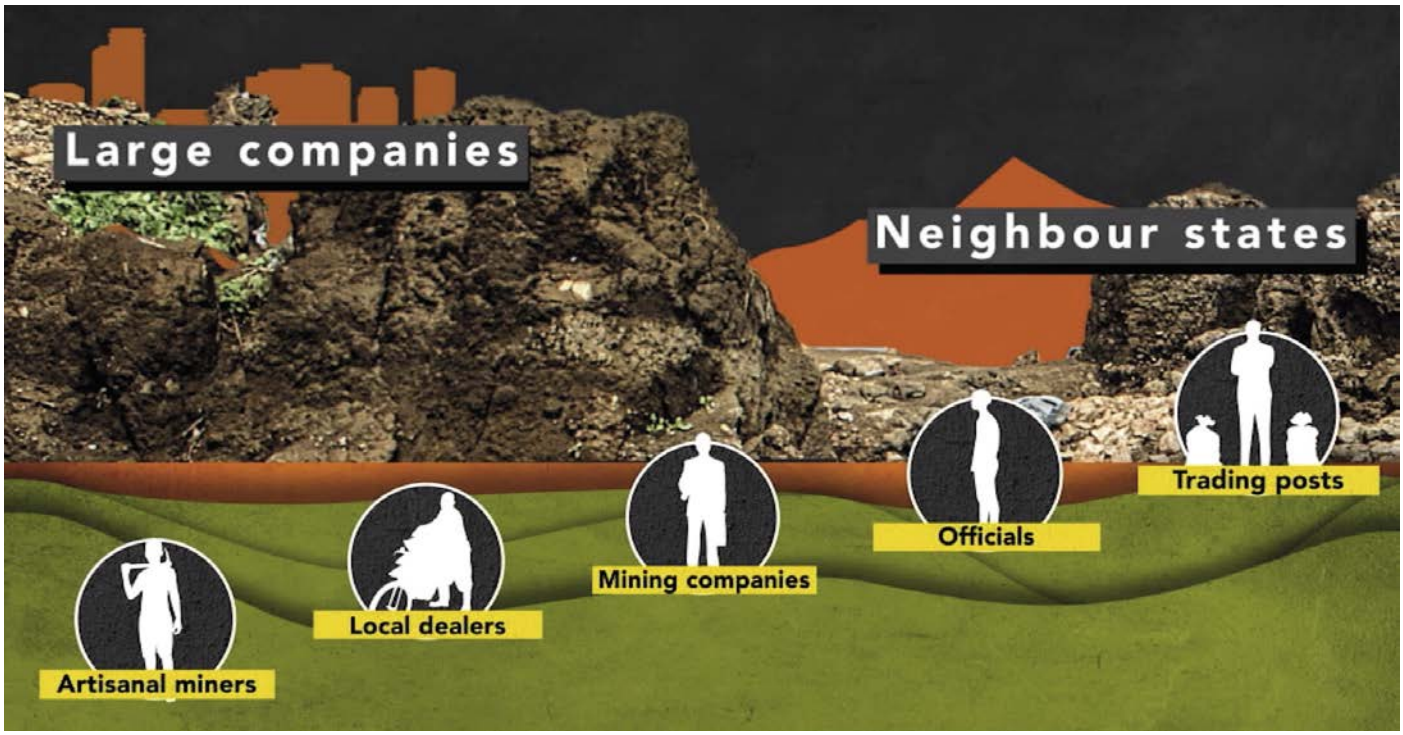
The DRC's mining sector is notoriously opaque. In 2012 the International Monetary Fund (IMF) suspended its $532 million three-year loan after the government failed to publish details of the sale of a mine in 2011 to a British Virgin Islands-based company. Despite the fact that the IMF reinstated the loan in 2019, contingent on transparency, the DRC has fallen from 160th to 170th place in Transparency International's Global Corruption Perceptions Index since 2012.

In 2007 the DRC joined the Extractive Industries Transparency Initiative (EITI), which insists that member countries publish new and amended contracts, licences and agreements with extractive companies.[57] NGOs in the region have called on the government to investigate allegations of corruption in resource management but until now the only case that has been brought was against a senior official. President Felix Tshisekedi's chief of staff, Vital Kamerhe and a Lebanese businessman, Jammal Samih, were convicted of 'diverting public funds worth 48.8m dollars'. Both were sentenced to 20 years in imprisonment.[58]

The players

In addition to the *creuseurs* who risk their lives to mine the ore, participants in the coltan supply chain and associated illicit activities fall into six distinct groups: informal businesses, state officials, security agents, foreign and local investors, vulnerable groups and non-state armed groups.

Actors facilitating and enabling coltan smuggling from the DRC



Source: Uzi Media for ISS

Informal businesses

The informal businesses described above represent the starting point of corruption in the coltan supply chain in eastern DRC and have been overtly implicated in many investigative reports.[59]

State officials

A number of state agencies have mandates to carry out duties in the coltan supply chain. They are the Ministry of Mines, the Technical Coordination and Mining Planning Unit (TCMPU), SAEMAPE, CEEC and the Small-Scale Mining Technical Assistance and Training Service (*Service d'Assistance et d'Encadrement du Small-Scale Mining* – SAESSCAM), *Cadastre Minier* (CAMI), the mining registry office, the *Commission de Certification* (COCERTI) and *Cellule Technique de Coordination et de Planification Minière* (CTCPM). Corrupt officials from these agencies collude with other players within the coltan supply chain to enable or facilitate illegal mining and trading. There is evidence of officials circumventing the Mining Code and regulations governing state-owned enterprises to divert revenue accruing from commodity exports.[60]

They also subvert the existing legal framework aimed at addressing smuggling. According to Congolese mining law smugglers must be arrested, their goods sold and the amount earned deposited in a national treasury bank account.[61] Despite this, in numerous cases in Nyunzu and Kalemie rather than arrest smugglers public prosecutors have seized parcels of coltan and sold them to trading houses, which 'tagged and bagged them according to the iTSCi mineral certification system' and then kept the profits.[62] SAESSCAM is mandated to register miners, allocate pits and give guidance on safety measures, while the state mining service registers and taxes mineral production generally. The presence of state mining authorities is regarded as a form of official state recognition of artisanal mining activities.

Instead of preventing illegal mining activities, provincial and local mining authorities are often fixated on enforcing order with a view to avoiding social unrest and generating official taxes from the largely informal activities on the mining sites. In many areas, mining authorities are resisted and challenged by local players. They also face competition from unauthorised state and non-state bodies at the mines, including other state security services, as well as military and customary authorities, all of which extort a share of the production of and trade in coltan.

Security agents

Since the 1970s artisanal mining has grown considerably in the eastern DRC, with the volume and value of artisanal production exceeding those of industrial production. Nevertheless, the artisanal mining sector is mostly informal. Very few of the huge number of artisanal miners and mineral traders are formally registered. The capacity of state services to administer the artisanal mining sector is limited by a number of dynamics including corruption, an inability to cover the territory within their mandate and lack of means, personnel, resources and technical knowledge.[63]

The capacity of state services to administer the artisanal mining sector is limited by widespread corruption

The central government's lack of control in remote areas enables armed groups to profit from the country's mineral wealth and the extent of the informality makes it hard for the government to exert authority over the artisanal miners. This hampers efforts by the state and international development partners to address effectively the conflict mineral and organised crime phenomenon prevalent in eastern DRC, depriving local communities of the many potential benefits that could accrue from the area's mineral wealth.[64]

The roles of both licensed and unlicensed economic actors in the coltan supply chain are unclear. They reportedly collaborate actively with state security officials for various transactional benefits. The traders and mining communities have little choice but to put up with the extortion rackets of the state and the armed actors.

The fact that mining and trading activities associated with coltan are largely informal or illegal makes them attractive to security agents who are also actively engaged in the illicit business.

> The presence of soldiers, armed groups and the police in mining areas is not legal … They intervene in an informal way. That's why the governor of South Kivu province has closed the Luhihi mining site

because of the presence of the above categories. But soldiers and policemen come during the night to get minerals even when the mining site is closed at Luhihi.[65]

Thus, security forces tasked with mine protection and law enforcement are benefitting from the illicit business they are mandated to curb. For instance, artisanal miners routinely pay for protection from an armed group to defend their interests in the face of other state authorities that want to formalise and tax their activities.[66]

There are also instances of armed actors acquiring mineral trading licences, a practice forbidden under the national Mining Code.[67] To make the illegal exportation of coltan easy soldiers collaborate with local magistrates, customs officials, the immigration service, the provincial chief in charge of security, army commanders and the police. They, in turn, collaborate with armed groups and soldiers. Sometimes security agents travel in trucks that carry minerals illicitly across the borders. They cannot be stopped at checkpoints and thrive with impunity because they are backed by higher authorities.

Non-state armed groups

Non-state armed groups, including rebel forces in the DRC, also leverage coltan mining as a primary source of earnings. One example is the extensive exploitation of coltan by various armed groups under the protection of Uganda People's Defence Force (UPDF).

A United Nations Report notes that a number of coltan operations under the control of UPDF colonels Muzora and Burundi have been managed by the front company Trinity Investment, in which UPDF Major General Kazini plays a major role.

More than 100 armed groups operate in the mineral-rich provinces of the DRC.[68] The groups, which include the Democratic Forces for the Liberation of Rwanda (FDLR), the Congress of Resistance for Democracy (CNRD), Allied Democratic Forces (ADF), Nyatura, Raia Mutomboki, Ndarumanga and foreign armed groups from neighbouring Burundi, make it difficult to access the mining areas.[69] The presence of soldiers on mining sites also facilitates the trading of weapons. Soldiers reportedly sometimes sell guns to the armed groups and collude with mineral traders and local communities to facilitate illegal mining and trading.[70]

Foreign and local companies

Business activities linked to coltan are dominated by foreign companies, local businesses and a few state-backed public enterprises. Notable among them are SMB, *Société Aurifère du Kivu et du Maniema* (SAKIMA), Banro, Haxiom, Sojecom, Cotecha, Congojaxin and the Federation of Congolese Enterprises (FEC), which is a private- sector association.

The FEC has a chamber of mines whose present chairperson has long been involved in the coltan trade. This presents a clear conflict of interests and potentially hampers any genuine effort to reform the coltan supply chain. The involvement of mineral companies in the illegal mining and trading of coltan manifests in diverse ways. Often they enlist affiliates who launder illegally mined coltan from the hinterlands by mixing it with legally produced coltan in their *comptoir*.

The illicit trade is bolstered by networks headed by powerful business people

The illicit trade is bolstered by networks headed by powerful business people. Other contributing factors include the roles played by some entities and institutions and the opportunistic tendencies of some private companies and influential individuals, including decision makers and politicians occupying powerful office.[71] Armed groups, often identified with militias under the control of UPDF officers, manage sites in isolated areas where diggers pay a daily fee to mine.[72] The company's coltan was transferred by road across the border between Congo and Uganda at Kasindi to Entebbe International Airport, where it was then conveyed for processing via Sharjah, United Arab Emirates, at a cost of $140 000 per flight, to Ulba, Kazakhstan.[73]

This elite network organises the entire value chain of the illicit trading of coltan in close connivance with local buying houses, foreign exporters, army protection from UPDF and individual militias, tax relief from the public sector and Lebanese connections in Antwerp, under the guidance of the

Chart 2: Actors and organised crime in the mining and trading of coltan in the DRC

Source: Oluwole Ojewale

front company, the Victoria Group.[74] In recent years notorious mineral barons exposed by the UN Group of Experts panel of inquiry have been indicted for the illicit trading of coltan in the Kivu region. They obtained a monopoly over the export of the mineral and forged customs declarations, declaring the coltan to be cassiterite, a browny-black tin oxide mineral.

Vulnerable groups

The informality of the extractive sector provides alluring employment opportunities for poor women and children, who serve as a pool of cheap labour. Coltan extraction is linked to child labour and sexual abuse. According to one estimate, about 40 000 miners, mostly children and teenagers who

have dropped out of school or have never had the opportunity to attend, toil day and night searching for minerals.[75] Most child miners, who have very limited ways of earning a living, resort to this dangerous occupation, selling the coltan for a pittance. In the process, they also fall prey to child traffickers and recruitment by armed groups.[76] This has become a routine at coltan mining sites in places such as Mukungwe in South Kivu.[77]

Traceability and certification

The Congolese government has implemented some reform initiatives in the mining and trading of strategic minerals, including the certification of conflict minerals. These are driven by legislation and becoming signatories to some of the certification standards in the extractive sector. One such initiative was reform of the country's Mining Code in 2017 to introduce penalties for engaging children in mines or selling ore mined by children.[78] In addition, based on national legislation and the need to meet supply chain standards, traceability and certification schemes have been adopted to address the problems associated with conflict minerals.

Conflict Minerals refer to raw materials or minerals that come from a particular part of the world where conflict is occurring and affects the mining and trading of those materials.These conflict minerals are tin, tantalum, tungsten (the "3 T's") and gold which are mined in eastern Congo and are in all consumer electronics products, as well as products from the jewelry, automotive, aerospace, medical equipment, and many other industries.[79]

The CEEC of precious and semi-precious mineral substances, established by the Congolese Ministry of Mines, is responsible for tracing and certifying coltan. It is mandated to collaborate with international regulatory agencies across the value chain, from the mining sites to the commodity markets in Asia, Europe and North America.[80]

Notable international certification protocols on minerals processing to which the DRC is a signatory include the Regional Certification Mechanism of the International Conference of the Great Lakes Region, the Kimberley Process Certification Scheme and the Dodd-Frank Act. The DRC is also a signatory to the Organisation for Economic Co-operation and Development Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas and the Conflict Minerals Regulation.[81]

However, major gaps remain a challenge in implementing the mineral certification schemes and enforcing the law regarding child labour in the mines and associated hazardous working conditions. While the schemes are complementary, they face serious feasibility challenges in the eastern DRC.[82] There is insufficient administrative capacity to ensure compliance and there is insufficient funding and too few staff in the provincial mining departments responsible for carrying out timely monitoring exercises at mining sites.[83]

Miners and extractive companies have also found a way to circumvent the mineral certification protocols. Occasional inspections of the mining sites by government agents and civil society organisations to ascertain conformity with certification standards are often undermined by state actors and embedded informants, who warn about upcoming visits, giving miners and extractive companies the opportunity to hide child miners.[84]

Mandatory inspections of mining sites are often undermined by state actors and embedded informants

The weak implementation of the certification schemes, repeated attempts to circumvent the regulatory frameworks and inadequate law enforcement are evidence of the opacity of the illicit economy of coltan mining and trading, casting doubt on the usefulness of these certification schemes.

Enablers of illegal mining and coltan trafficking

Porous borders

The vast expanse of ungoverned spaces on Congo's borders, which stretch from Burundi and Rwanda to Uganda, makes them ideal for illicit trading of strategic minerals. Even where state security agents are deployed to secure the frontiers they often look the other way when coltan is smuggled, and corrupt Congolese

border protection and customs officers collude with the smugglers.[85] This explains the limited progress that has been made in countering mineral trafficking and highlights the consequences of the uncoordinated and lacklustre responses from the state.

Negociants who transport minerals by road obviously avoid controls at airports and are able to bypass the main border crossings to Rwanda near Goma and Bukavu. Coltan is also diverted to Uganda via Bunagana, in Rutshuru territory, North Kivu. Likewise, a portion of the trade directed to Bukavu is diverted to Burundi via Uvira, in Uvira territory, South Kivu, using the Gatumba and Kavinvira border crossings.[86]

In one incident a truck crossing the border from the DRC to Rwanda was found to be carrying 24 sacks of smuggled coltan. Evidence contained in a UN report shows that 10kg and 20kg bags of the mineral from the eastern DRC are sold by unregistered traders to Rwandan buyers through smuggling routes.[87]

Cross-border tax regime

Rwanda, as stated above, is the preferred route for the illicit trade in coltan. Unlike the Congolese government it does not tax exports of the mineral and the country's legislation allows imported goods to be acknowledged as Rwandan commodities if they undergo further processing in the country with at least 30% value added. Thus, it is likely that most of the exported ore from Rwanda is of Congolese origin.[88]

The illicit trading of coltan causes direct revenue losses, with severe multiplier effects on the state

Coltan smuggling into Rwanda and other neighbouring countries also flourishes because of variations between the prices set in mining areas and those obtained in the black markets of northern Katanga, Goma, South Kivu in DRC and Gisenyi in Rwanda. In 2014, 1kg cost US$37.50 in Bukavu, US$44 in Uvira and US$34 in Kalemie. Each of these prices exceeded those set by the mines, which ranged from US$28.80 to US$40 in Kisengo and Mai-Baridi.[89] In 2015 1kg sold for US$40-50.[90]

Price fluctuations within and across borders have played a major role in coltan mining and trading. In 2016, 1kg traded at a peak price of US$100 in the DRC.[91] In 2017, however, the price plummeted to $20-24, while mineral traders from Kisengo in Congo reportedly crossed the border and sold the ore in the Rwandan capital, Kigali, for more than $50 a kilo.[92]

In 2018 and 2019 the average prices were US$23.85/kg in the DRC and US$36/kg in Rwanda.[93] Depending on the percentage of tantalum concentrate in the coltan the mineral traded in the DRC at between US$35 and US$52.5/kg in 2021,[94] while in Rwanda the price was between US$52 and US$65/lb (0.5kg) in the same year.[95] Thus, price variations contribute to flourishing black markets, feed into broader patterns of cross-border smuggling and sustain shadowy commercial networks.

Tracing and certifying minerals

As the government department devoted to supporting artisanal and small-scale miners, SAEMAPE maintains a key partnership with ITSCI. Together with ITSCI staff its agents tag coltan at the mining sites. Accurate tools are necessary for certification and traceability but ITSCI has noted on many occasions that the unavailability of modern tools limits the efficiency and effectiveness of the monitors.

For instance, in Pangi territory of Maniema province various data inaccuracies or conflicting mineral weights were reported at the mine and at processor level. A follow-up exercise by the ITSCI field team to ensure that the companies involved fulfilled their due diligence obligations by accounting for weight discrepancies revealed that a lack of scales was the primary cause of conflicting mineral weights. As a result of the limited availability of equipment, SAEMAPE's agents resorted to using scales belonging to local *negociants*, which were not calibrated according to government standards.[96]

The Pangi case shows the opacity that characterises the illicit economy and casts doubt on the traceability and certification initiatives. The use of manipulated scales allows large quantities of valuable minerals to leave the DRC undeclared. This deprives the state of considerable export revenue and represents a huge loss for the country's economy and a missed opportunity to enrich the state treasury, alleviate poverty and enhance development.[97] The illicit activities linked to the mining and trading of coltan continue to have a negative impact on both the local and the national economy,

affecting human and environmental development and impinging on human rights.

Human vulnerability and the environment

Environmental harm

The illegal exploitation and trafficking of coltan has had a dramatic effect on environmental biodiversity and has precipitated the disruption of the ecosystem around mining sites. Observers note that environmental impact assessments are hardly ever carried out prior to mining operations starting.[98] On 29 June 2021, the Congolese Catholic Bishops Conference and environmental experts noted that minerals such as copper, cobalt, lithium and coltan were being irresponsibly exploited, leaving the land fragile as a result of deforestation, air and water pollution and dumping of toxic waste.[99]

The land has been left fragile as a result of deforestation, air and water pollution and dumping of toxic waste

Artisanal miners and foreign companies violate sites of historical heritage and indigenous norms, causing large-scale destruction. The first impact of coltan mining is evident in the soil layers, as miners excavate indiscriminately. Environmental observers in Bukavu confirm that coltan exploitation is destroying ecosystems, decreasing the carbon stock, disrupting the photosynthesis process and having a negative impact on air quality.[100] It is also affecting wildlife habitats, as birds, reptiles and animals are displaced and dispersed from the forest.

Kahuzi Biega National Park (KBNP), one of the last sanctuaries for the critically endangered eastern lowland gorilla, spans both North and South Kivu provinces, which contain the DRC's greatest deposit of coltan. Mining has destroyed much of the gorillas' natural habitat, leaving them vulnerable to poachers. The population of eastern lowland gorillas in KBNP plummeted from 8 000 in 1991 to about 40 in 2005.[101] The present population is now estimated at 250,[102] an abysmally low number compared to the teeming population before the encroachment.

The miners separate minerals, sieving and sorting manually by washing them in streams and rivers. The chemicals used are polluting water bodies and are harmful to aquatic creatures. They are also known to produce radioactive substances that are detrimental to human health and cause sterility and mental deformity.[103] Finally, the reforestation requirement is not respected and the holes dug by the miners are rarely covered after mining activities have ceased, causing landslides and leading to frequent loss of lives.[104]

Economic losses

The Congolese economy is driven by mining, which contributes 98% of exports, 18% of GDP, 18% of government revenue and 11% of employment.[105] Although the extractive sector has shown strong growth in recent years, widespread corruption – manifesting in smuggling – coupled with governance failure prevents resource wealth from benefitting other sectors of the economy. The illicit trading of coltan causes direct revenue losses, with severe multiplier effects on the state. The country struggles to attract the foreign direct investment needed to exploit mineral reserves sustainably, as potential investors shy away from being tarnished by negative public perceptions. Although there are no disaggregated data on the illicit trading of coltan, an estimate of revenue loss in the extractive sector shows that the wider economic impact of the illegal mining and trading of minerals is enormous.[106] Overall, it is estimated that the state loses about US$4 billion annually from revenue leakages due to corruption, fraud and illicit trading of strategic minerals. A large amount of this wealth flows to a narrow group of elites, including politicians, government officials, security force commanders, community leaders, multinationals and middlemen within the coltan supply chain.[107]

Communities level harms

The activities of the coltan miners and the associated businesses are exploitative and continue to impoverish coltan-bearing communities. Observers note that coltan mining businesses rarely compensate affected communities by implementing development programmes, which is a statutory requirement in terms of the mining laws.[108] The quality of life is poor in coltan-bearing communities, while the mineral that causes

such misery enriches the treasury of other countries and is being used to drive development in Rwanda.

Human rights activists who participated in FGDs conducted in Bukavu believe the Congolese should be the first beneficiaries of the proceeds from coltan extraction, as they bear the brunt of environmental degradation, ill health and even death. While the Ministry of Mining recommends that miners should dig a maximum of 30 metres below the surface, they sometimes dig up to 200 metres and many of them die in landslides, from asphyxiation while trapped underground or as a result of the failure of machinery.[109]

Much of the country's coltan is extracted by children, who work in dangerous conditions as washers and diggers. Doing adults' work in a hazardous environment, many coltan mining sites are rife with prostitution, sexually transmitted diseases, rape and gender-based violence that affect vulnerable children and women.[110]

Conflicts on coltan mining sites between members of the artisanal miners' cooperative and the coltan mining company SMB have also led to violence, which has claimed lives at Rubaya in North Kivu.[111] Against the backdrop of human and environmental harm associated with the illicit mining and trading of coltan, the approach to extractive reform in the country is currently inadequate to deal with the current situation or to change the trajectory to increased stability and care of people and planet.

Conclusion

This study provides empirical evidence of the mining and illicit trading of coltan in the DRC. It identifies the seven elements of transnational organised crime and the networks of actors engaged in underground activities. The challenges inherent in the mining and trading of coltan as a strategic resource require short-, medium- and long-term reform initiatives. These include a raft of actions and responses from the state, civil society organisations, business communities and bilateral and multilateral development partners.

Many of the coltan mining sites are in peripheral spaces with very limited or no state presence. Leaving these spaces ungoverned poses challenges for development and accentuates organised crime within the extractive sector. Without significant initiatives to counter and control the current security situation, there is little impetus for change. The provision of security is fundamental in this regard to guarantee a functional state. Despite the complexities, there are opportunities to shift towards a more stable and economically sustainable situation.

The dimensions of organised crime that have the greatest impact are illegal mining and smuggling in the eastern DRC. Weak implementation of certification schemes, repeated attempts to circumvent the regulatory frameworks and inadequate law enforcement cast doubt on the usefulness of change to the certification schemes. The human and environmental harm associated with the illicit mining and trading of coltan demands a fresh approach to extractive reform in the country. It has thus become imperative to address the lingering problems.

Recommendations

National government

- Address the gaps in development programmes for vulnerable communities.
- Review current procedures to identify weaknesses.
- Analyse the Congolese Environment Agency's ability to enforce environmental impact assessments and management plans.
- Partner with global coalitions of non-profits to develop and support a national due diligence method of tracing coltan shipments back to their source.
- Work with civil society groups to spur international consensus over the adoption of a globally binding certification system.

Civil society

- Leverage the support of the Extractive Industries Transparency Initiative to catalyse investigations into the management of the environmental restoration tax and the distribution of mining royalties.
- Drive campaigns to align the Congolese government with the Open Government Partnership.
- Develop action plans to document and investigate corruption and demand accountability from the extractive sector.
- Train and equip local observer groups to monitor mining sites.
- Pressure the African Union to establish a special rapporteur on criminal trading of strategic minerals.

Multilateral response

- The International Conference on the Great Lakes Region should review its engagement in Congo, Burundi, Rwanda and Uganda to foster civil society partnerships to trace and certify coltan.

Business community

- Regularly report on the mining, smelting and refining of coltan to provide evidence of adherence to the 3Ps – people, planet and profit.
- Report to key CSO coalitions about traceability.
- Collaborate with trained local observer groups.
- Downstream companies should implement traceability schemes by auditing their coltan supply chain.
- Partner with non-profit organisations dedicated to improving social, environmental and ethical conditions in global supply chains.

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About ENACT

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