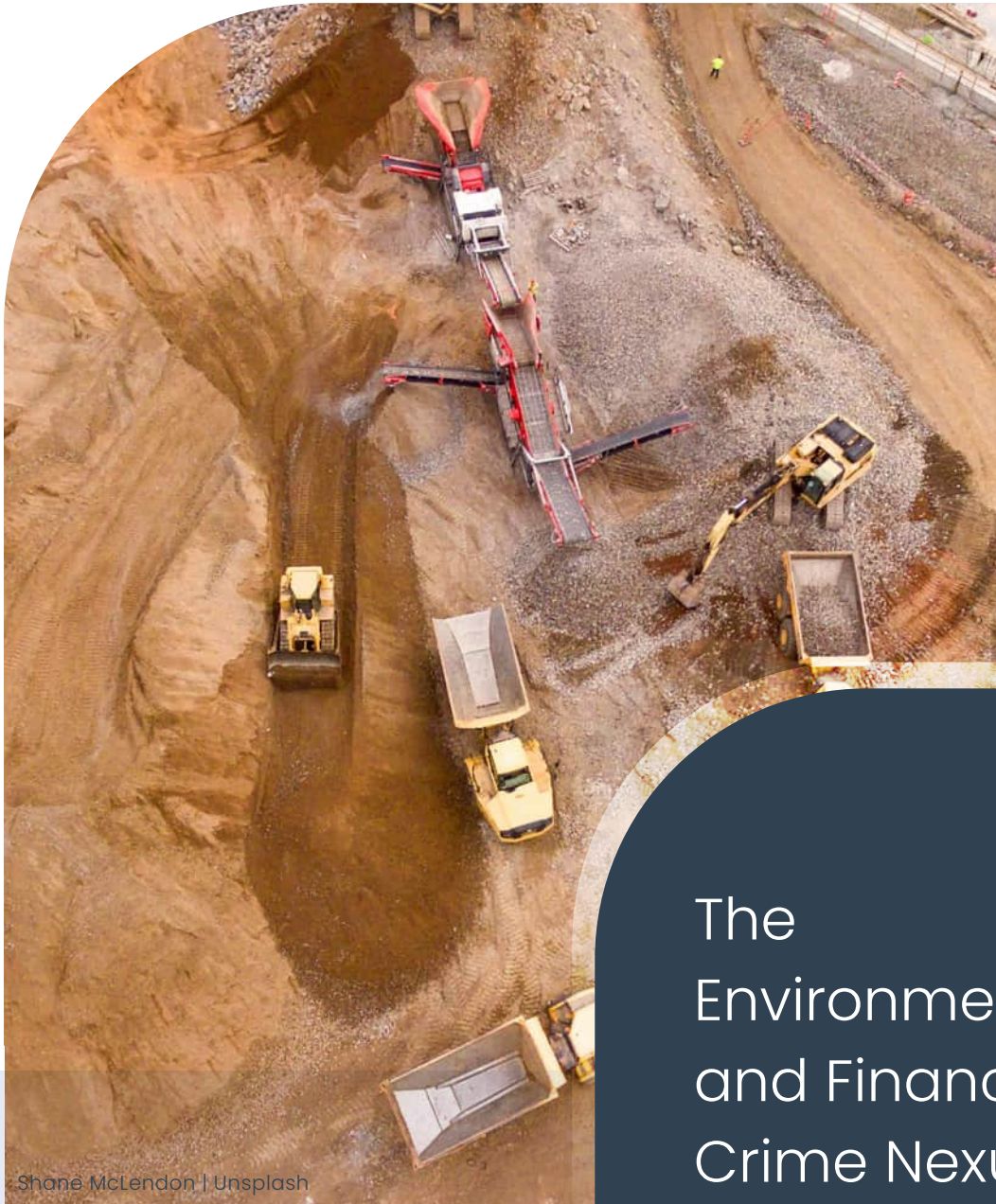


# Beneath the Surface



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The  
Environmental  
and Financial  
Crime Nexus  
in Illegal  
Mining  
Operations

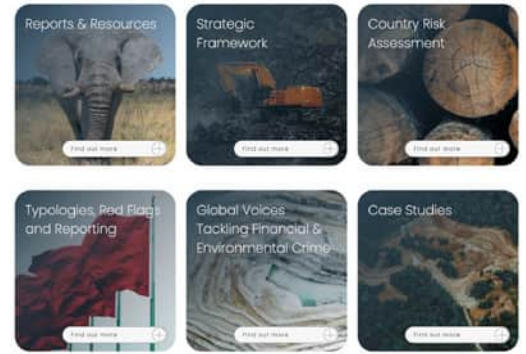
  
THEMIS



This report contributes to the [Environmental Crimes Financial Toolkit](#), developed by WWF and Themis, supported by the Climate Solutions Partnership (2020–2025), a collaboration between WWF, HSBC, and the World Resources Institute.

The Environmental Crimes Financial Toolkit is an online platform that assists financial institutions (FIs) in monitoring risks related to environmental crimes – including land conversion and deforestation, the illegal wildlife trade, and illegal mining – that could be linked to financial operations. By highlighting red flags and risks associated with various types of environmental and financial crimes, the Toolkit helps FIs strengthen their screening processes when reviewing existing clients, onboarding new ones, and assessing sectoral risks.

This report marks a further expansion of the scope of the Environmental Crimes Financial Toolkit, in an effort to cover the many faces of environmental crime at the nexus with financial crimes and human rights abuses. After deforestation and land conversion and the illegal wildlife trade, we are now turning our attention to illegal mining.



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Introduces the many facets of mining, from illegal to legal, and provides an overview of key issues => for those who wish to better understand the issue at hand.



## 02 Illegal Mining – Mapping Risk, Exposure and Opportunities For FIs

Presents findings from a survey of FIs across the globe, investigating their exposure to illegal mining, key risks, and opportunities => for those who wish to access novel research on FI exposure to illegal mining.



## 03 Illegal Mining and Financial Crime

Delves deeper into the specifics of FI exposure to mining, including consideration for reputational, regulatory, and physical risks, in both direct and indirect ways => for those who wish to explore in-depth how mining intersects with financial crime.



## 04 Conclusions and Recommendations

Concludes the report, providing a summary of key issues and recommendations => for those who wish to quickly access action items.



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Provides a collection of in-depth case studies from expert contributors on illegal mining => for those who wish to learn more about the diverse issues associated with the mining sector.

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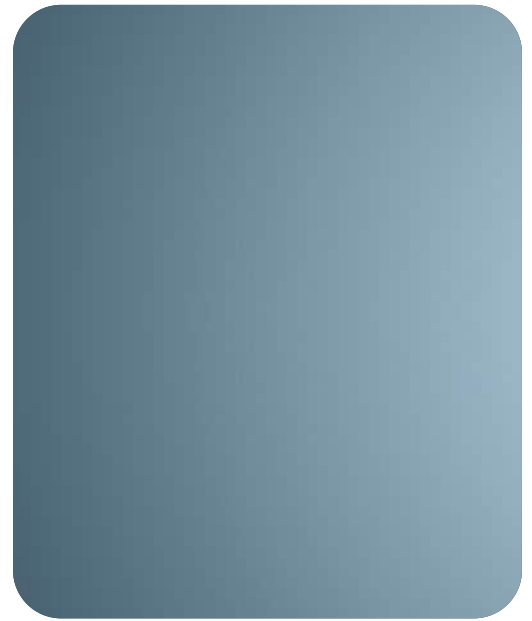
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# Executive Summary

When done responsibly, mining can be an important engine for growth and development. However, the ever-rising demand for metals and minerals is also raising serious risks linked to illegal mining and organised crime penetration along the supply chain (UNODC, 2025), with significant implications for the environment, human rights, and the financial system.

Mining activities – from extraction to processing and trade – represent a trillion-dollar venture that generates value added, employment and government revenue across the globe (ICMM, 2022). While the contribution of this sector can vary according to different estimates and across different countries, mineral rents are equal to 10.5% of the GDP in Australia, 16.2% in Chile and 28.8% in DRC (World Bank, 2021). The latest projections indicate that the sector will continue to grow supported by – among other factors – the growing demand for energy transition minerals and the rising price of gold (IEA, 2025).

Mining operations range from informal artisanal extraction to large-scale industrial operations. While many mining activities are legal according to national and international law, some operations are illegal, and some practices carry serious environmental, social, and financial risks. **This report adopts the Financial Action Task Force’s (FATF) risk-based approach, which recognises that exposure to harm or criminality can occur throughout the whole mining value chain – particularly in countries with low income and weak governance in high-risk jurisdictions and in endangered ecosystems.**

**Illegal mining is recognised as an environmental crime** due to its frequent breach of environmental regulations and its contribution to deforestation, pollution, biodiversity loss, and harm to local communities (FATF, 2021a; Transnational Alliance to Combat Illicit Trade, 2022). **According to INTERPOL, illegal mining alone generates up to \$48 billion USD annually in criminal proceeds** (INTERPOL, 2016). **Yet the costs to society, nature and the economy are significant, as these crimes frequently converge with other serious financial crimes and human rights abuses.** When accounting

for associated offences like tax evasion, fraud, money laundering and terrorist financing, the actual economic losses from illegal mining are likely much higher – and this does not include the broader costs from loss of livelihoods, degraded ecosystems, weakened governance, or sustained criminal enterprise.

In 2016, the United Nations Environment Programme (UNEP) reported that 84% of countries observed links between environmental and other serious crimes – a convergence that significantly heightens the risk landscape for financial institutions (FIs). The scale and severity of environmental crime have prompted increased attention from international bodies. The EU’s Environmental Crime Directive, which entered into force in 2024, requires Member States to publish a national strategy on combating environmental criminal offences by 2027 (EU, 2024). In May 2025, the State Parties at the 34th Session of the Commission on Crime Prevention and Criminal Justice (CCPCJ) adopted a new resolution on crimes that impact the environment to be transmitted to the Economic and Social Council for adoption by the UN General Assembly (CCPCJ, 2025). **Governments are also increasingly introducing mining-specific legislation.** For example, the EU’s 2017 Conflict Minerals Regulation aims to curb the trade of conflict minerals – specifically tin, tungsten, tantalum, and gold – that finance armed conflict and human rights abuses in conflict zones (EU, 2017). When importing the specified minerals, EU companies must undertake due diligence procedures, and in certain cases, third-party audits and consultations.



Nada Bascarevic from Getty Images

FIs can be exposed to illegal mining directly and indirectly through a variety of business activities and third-party relationships along the value chain, rendering the global financial system vulnerable to the proceeds of this damaging environmental crime. An original survey of financial sector professionals commissioned for this report shows that 84% of FIs surveyed operate in at least one potentially high-risk market for exposure to illegal mining, but 2 in 5 of these FIs do not specifically screen for illegal mining risks.

The financial sector – alongside law enforcement and Financial Intelligence Units (FIUs) – bears a regulatory obligation to investigate illegal financial flows behind environmental crime. FIs, with their access to data like transaction records and client profiles, are in a unique position to contribute to and play a more active role in combating environmental and related financial crimes.

In Peru, for example, suspicious transaction reports (STRs) submitted by FIs were a crucial source of information that authorities used to identify criminals and quantify the illegal financial flows generated by illegal mining (FATF, 2021a). As the Basel Institute has noted, financial investigations are key to find “the high-level actors behind [...] illegal mining and other activities – illuminating who finances those crimes and who profits from them” (Basel Institute, 2022). Despite this potential, a 2024 report from the US-based Financial Accountability and Corporate Transparency (FACT) Coalition revealed that only 43% of illegal mining cases analysed were accompanied by a parallel financial investigation (FACT Coalition, 2024a).

When FIs better understand the convergence between environmental and financial crimes and are encouraged to flag relevant suspicious transactions, law enforcement can gain an advantage over criminals exploiting the financial system. Additionally, firms can protect themselves from the material, legal, reputational, and other risks associated with links to environmental crime activities such as illegal mining. **In order to develop effective responses, it is crucial for FIs to map key areas of risk exposure and to understand the drivers, trends and impacts of illegal mining, as well as its significant convergence with other financial and predicate crimes.**

This report – part of the [Environmental Crimes Financial Toolkit](#) (ECFT) project by WWF and Themis – is an important step in this direction, as it helps financial institutions (FIs) identify and mitigate risks related to illegal mining and associated financial crimes. Building on previous reports addressing illegal wildlife trade (WWF & Themis, 2025) and deforestation (Ibid., 2024), it expands the Toolkit’s scope to include mining-related crime convergence. **The report explores various forms of illegality across the mining supply chain – including legal grey areas and wider ESG risks – offering FIs a comprehensive understanding and practical resources to reduce exposure to illicit financial flows and support global sustainability efforts.**

<sup>1</sup> Noting the different sample for deforestation risks

# Illegal Mining At A Glance: Risks, Red Flags and Opportunities For Financial Institutions

For FIs, illegal mining is not just a peripheral ESG issue – it is a material risk with implications for financial crime compliance, reputational integrity, portfolio stability, and alignment with regulatory and sustainability frameworks.

However, mapping this exposure is complex. Mining operations – legal, illegal, and illicit – are often interwoven through informal actors, layered ownership structures, complex supply chains, and overlapping jurisdictions. These features create multiple entry points for criminal exploitation and financial system exposure, many of which are indirect, obscured, or underestimated by traditional risk assessments. Below we summarise and categorise these risks, the related impacts, the potential sources of exposure, the main red flags, the existing gaps, as well as the key opportunities for FIs to address the convergence between environmental and financial crimes in illegal mining operations.

## Key risks:



### Legal risk

from failure to adequately screen for predicate crimes such as money laundering, corruption, tax evasion, and sanctions evasion, or by financing companies that violate environmental and financial regulations. Potential consequences for FIs include exposure to lawsuits, fines, sanctions or criminal charges for enabling or financing illegal mining activities – even indirectly.



### Reputational risk

arises from alleged or perceived links to illegal mining, human rights abuses, or ecologically destructive practices, and can harm public trust, brand and stock market value, as well as stakeholder and partner confidence. Notably, between 2016 and 2022, banks provided \$37.7 billion USD to mining companies at risk of causing illegal forest destruction, water contamination, and human rights abuses (Forests & Finance, 2022). Reputational damage can also result from **indirect and third-party risks**, which may include correspondent banking activities, investment chains, trade finance, USD clearing, exposure to indirect suppliers of illegally sourced minerals, as well as exposure to clients or assets that are seized, stranded, impaired or non-performing because of environmental degradation or due to criminal investigations.



### Regulatory risk

can lead to FI exposure due to failure to comply with ESG schemes and commitments, AML protocols, frameworks such as the OECD Due Diligence Guidance for Mineral Supply Chains, and environmental disclosure frameworks. While not always leading directly to legal disputes or fines, these risks may erode public and stakeholder trust and induce downgrading in ESG ratings and sustainability indexes.



### Transition and physical risk

are emerging through the combined pressure of the energy transition and climate shocks, which can lead to shifts in natural resource governance frameworks, pricing, and availability – and ultimately to uncertainty and financial loss.

## Exposure

Findings from an original survey of 647 FI professionals across 22 countries show:

84

84% of FIs surveyed operate in at least one business area or market segment considered high-risk for exposure to illegal mining.

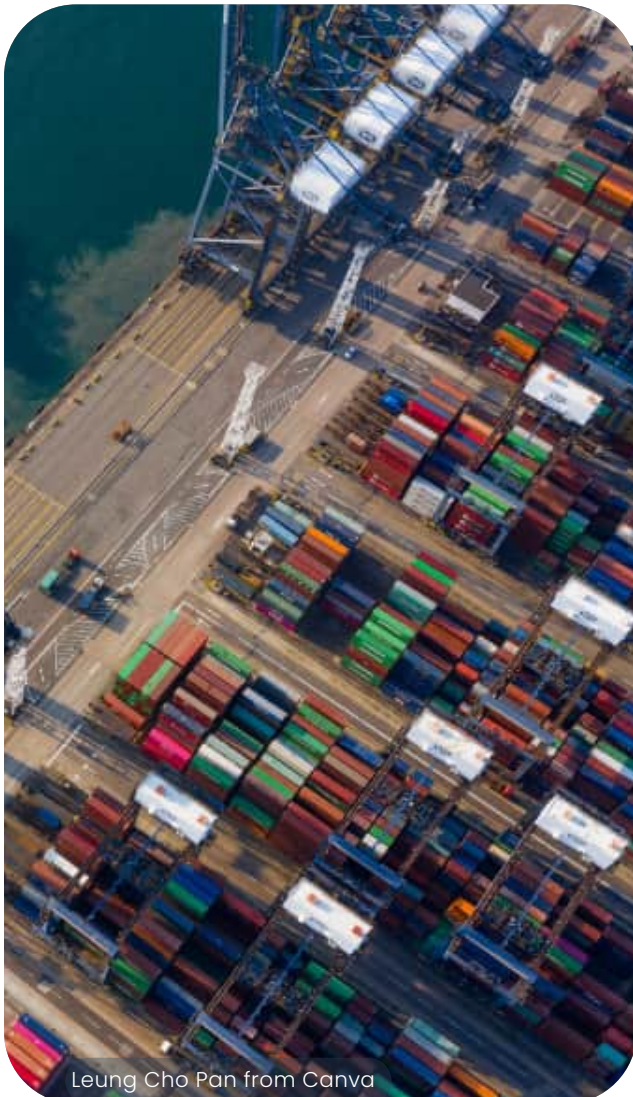
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40% of FIs exposed to high-risk sectors do not specifically screen for illegal mining.

>40

Over 40% of respondents lack internal policies or training on environmental crime.

- Exposure is spread across the whole mining value chain, from commodity extraction to transportation, processing and end-use industries. Particularly high-risk business areas include transport and transit, mining equipment provision, and manufacturing.
- While source regions such as Sub-Saharan Africa, the Amazon basin, and Southeast Asia tend to attract more attention, FIs' risks are not contained to these areas and respondents across the whole world indicated some exposure to illegal mining risks.



Leung Cho Pan from Canva

### Key red flags and risk indicators

FIs that had raised suspicious activity reports (SARs) or ceased client relationships due to illegal mining risks cited the following behaviours:

- Unusual wire transfers or cash movement patterns.
- Use of shell companies and opaque corporate structures.
- Clients declaring high-value commodities (like gold) as "apparel" or other low-risk goods.
- Transactions involving jurisdictions with known conflicts over mineral resources.
- Dealings with securities distributors (Distribuidoras de Títulos e Valores Mobiliários -DTVMS), refineries, or brokers with limited due diligence on gold sourcing.
- Overlapping involvement in extractives, trade, and other high-risk commodity sectors.
- For more red flags and risk indicators related to illegal mining activity, please see the [Environmental Crimes Financial Toolkit](#).

## Opportunities

The FI survey reveals a **gap between relatively high levels of awareness around risk and exposure to illegal mining and a relatively low implementation of actions and responses**. While this gap shows the vulnerability of the sectors, when triangulated with key findings from the survey and with results from our desk-based research, it **also highlights a set of clear opportunities for FIs**:

- FIs with policies and training on illegal mining are twice as likely to take action, such as filing SARs and STRs, or exiting risky relationships with clients.
- FIs hold unique data – including client records, transaction trails, and payment patterns – that can help tracking actors and mechanisms behind illegal mining.
- Strengthen and maintain up-to-date internal controls and governance frameworks.
- Integrate environmental crime risks into existing anti-money laundering (AML) and counter terrorist financing (CTF) programmes.
- Train frontline and compliance teams on sector-specific and emerging red flags.
- In countries with enforceable traceability and transparent governance, leverage certification schemes to reduce exposure to environmental and human rights risks in mining supply chains, encouraging or requiring certification from clients in high-risk mining sectors, incorporating certifications into internal due diligence frameworks, and engaging with and supporting credible certification initiatives.
- Support nature-positive mining by integrating crime, environmental, and human rights risks into responsible finance strategies and operations.
- Encourage formalisation of artisanal and small-scale mining (ASM) operations and financial inclusion in high-risk regions to reduce informality and criminal vulnerability.
- Use transition finance as a lever to address not just emissions but also mining's impacts on nature, people, and crime convergence.



Kiasmagatra from Getty images

\*\* In contexts of weak governance, formalisation processes may be manipulated by organized crime, limiting their effectiveness, and should therefore be accompanied by efforts to improve health policies, environmental controls, institutional strengthening, and the respect for the rights of indigenous communities (UNGA-HRC 2022; WWF and AARIMO 2025).

# 1 Introduction to mining

Mining is a complex and multifaceted global industry, spanning a spectrum of activity – from large-scale legal operations to informal artisanal practices, and from mineral prospecting and extraction to processing and trade. While all these forms differ in legality, formality, and scale, all can pose environmental, social, and financial crime risks.

## This chapter:

### Section 1.1

Defines **key categories of mining**, from legal to illicit and informal

### Section 1.2

Explores the global **scale and scope** of legal and illegal mining

### Section 1.3

Outlines **key governance frameworks** managing mining risks

### Section 1.4

Examines key **drivers and enablers** of illegal mining, including poverty, corruption, and the energy transition

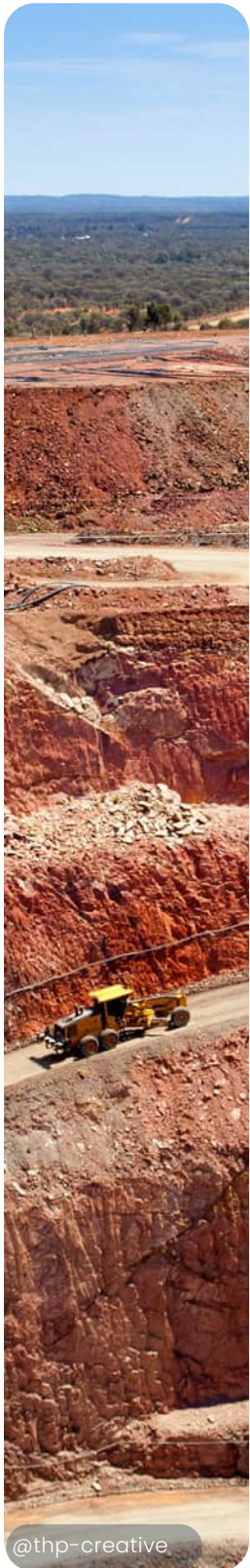
### Section 1.5

Assesses the **negative impacts** – environmental, social, health-related, and economic – that result from these practices



## 1.1. The many faces of mining

Mining takes place in many different forms across the globe and, correspondingly, there are a number of terms, definitions, and nuances used to describe the wide range of mining activities. These include:



- **Legal mining** – Mining activities conducted with appropriate governmental permits and in compliance with all relevant laws, regulations, and industry standards, ensuring proper environmental protection, worker safety, and tax contributions.
- **Illegal mining** – The extraction of minerals without legal rights, permits, or adherence to regulatory standards; where the exercise of such activities is prohibited by the law; or when the mining activities use illegal equipment or chemicals. It may include invasive mining, trespassing on active or decommissioned mining sites, and mining in protected areas (including by legitimate companies operating beyond the parameters of their license). Illegal mining typically disregards environmental, labour, and safety laws, frequently leading to ecological harm and exploitation. It is widely linked to human rights abuses, transnational criminal activity, and conflict financing (UNODC, 2023b).
- **Illicit mining** – Mining activities that, while not strictly illegal, contravene customs or societal norms, and lack popular support or legitimacy. This may include, for example, mining on the lands of Indigenous Peoples and Local Communities (IPLCs) that do not consent to mining activities, despite the activity being in adherence with national laws (Bose, 2023). Not all countries officially recognise IPLCs in their constitutions nor their customary land rights; others have weak administrative systems and a relative lack of legal protection for these communities, compounding the issue and creating chaotic land tenure systems (Human Rights Watch, 2012, 2014). In Peru, for example, where illegal mining is rife, members of the Unipacuyacu community can wait for up to 30 years for legal recognition of the rights to their ancestral lands (Mongabay, 2021). There are also issues with consent: mining projects are often approved and carried out without sufficient consultation with affected communities on issues such as employment, benefit sharing, property rights, and potential impacts of the project (Human Rights Watch, 2014). Attempts to consult with local populations also often fall short of the international standard of Free, Prior, and Informed Consent (FPIC), which seeks to specifically protect the right of IPLCs to give or withhold their consent for actions that would affect their rights – including in relation to mining projects (United Nations, 2007; Owen & Kemp, 2014; De Maria, Robinson & Zanello, 2023).
- **Informal mining** – Often unregulated or semi-regulated mining activities that may operate without formal legal recognition or oversight (Nhlengetwa, 2016). In some contexts, it may also refer to mining that, whilst illegal, is not an indictable offence. Informal mining is often conducted by artisanal and small-scale miners.

@thp-creative

- Artisanal and small-scale mining (ASM)**
  - Informal or formal mining activity that predominantly uses basic tools and traditional forms of extraction and processing, which can be classed as legal or illegal on a case-by-case basis. ASM is often community or family based and encompasses individual informal subsistence miners as well as formal and regulated small-scale entities producing minerals commercially (IGF, 2017). It is particularly common in countries with rich mineral reserves and large disadvantaged groups, with around 45 million people working directly in ASM worldwide (World Bank, 2024a). Whether legal or illegal, ASM can be associated with conflicts, environmental damage, health risks and child labour (O’Driscoll, 2017). However, it also contributes heavily to the resource sector and social development, and is an important livelihood source for many people (IGF, 2017). While efforts to formalise the sector continue, ongoing difficulties in doing so mean that informal mining will continue to play a pivotal economic

role, particularly in poverty-stricken areas (World Bank, 2024a). It is important to note that informal mining and ASM are also far from monolithic, with diverse experiences and contexts across the world. FIs exposed to informal mining and ASM should exercise awareness of the inherent ESG and financial crime risks and ensure sufficient measures – such as enhanced human rights due diligence, risk assessments and transactional monitoring – are in place to mitigate against them.

**While this report predominantly utilises the term ‘illegal mining’, which focuses on strict illegality at the extraction phase, its discussion ranges beyond this scope to discuss illegality at other parts of the supply chain, legal grey areas, the convergence of illegal mining with financial crimes, and the illicit – but not strictly illegal – elements of mining.** In doing so, it aims to construct a more comprehensive portrait of the many ways in which FIs can be exposed to risk in relation to mining and assist them to better understand how to identify and mitigate such risks.

## I N F O C U S

### Legal grey areas

Different mining operations often intersect with legal grey areas, loopholes in regulations and weak enforcement, all of which can act as an incentive towards illegality and can be exploited by criminal groups. Some examples include:

**Jurisdictional variation and ambiguities** – In some regions, overlapping jurisdictions between local, regional, and national authorities can lead to confusion over which laws apply. This can be exploited by miners to operate without proper oversight or permits (Pew, 2024).

**Environmental regulations** – Loopholes in environmental protection laws allow mining companies to exploit resources with minimal oversight or weaker standards, especially in regions where enforcement is lax (Zulu et al., 2022). For example, companies may avoid environmental impact assessments (EIAs) by breaking projects into smaller segments to avoid regulatory thresholds (Mongabay, 2020).

**Lack of enforcement in protected areas** – While mining in protected or ecologically sensitive areas, such as national parks or wildlife reserves, may be legally prohibited, a lack of enforcement or unclear boundaries between protected and non-protected lands can allow illegal mining to continue with limited intervention (Bergseth & Day, 2023).



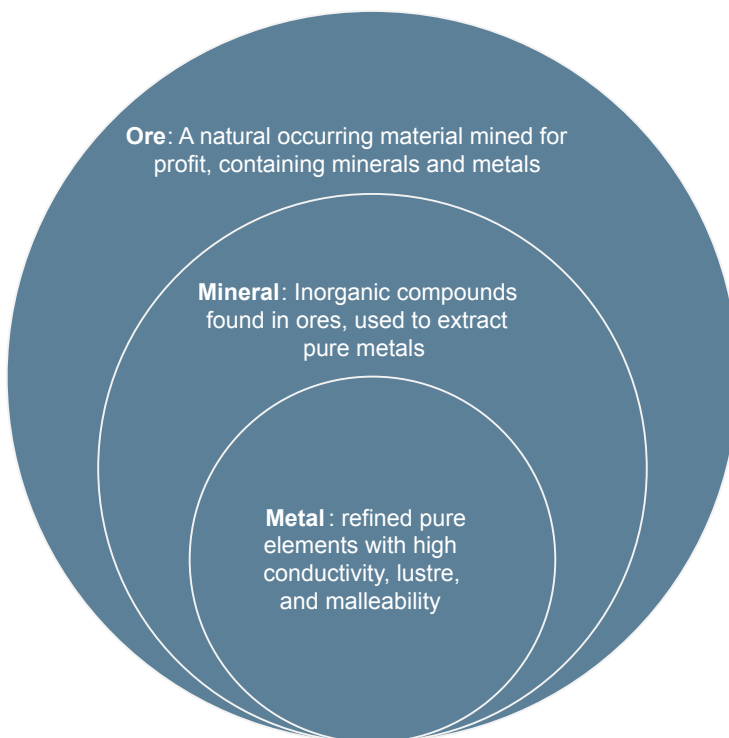
tzahiv from Getty Images

## 1.2. Scale and scope

Legal mining activity takes place in at least 168 countries worldwide, producing both vital and luxury items for society, from jet engines to jewellery, generating trillions of dollars every year (Federal Ministry of Finance Austria, 2024).

Below the surface, however, there is also a substantial illegal mining industry (British Geological Survey, 2016). Whilst it is difficult to precisely identify the prevalence of illegal mining worldwide, the presence of illegal mining has been reported (for gold, coltan, cobalt and rare earth metals) in at least 99 countries across Asia, Africa, Australia, Europe, North and South America – that is, every continent but Antarctica (British Geological Survey, 2016).

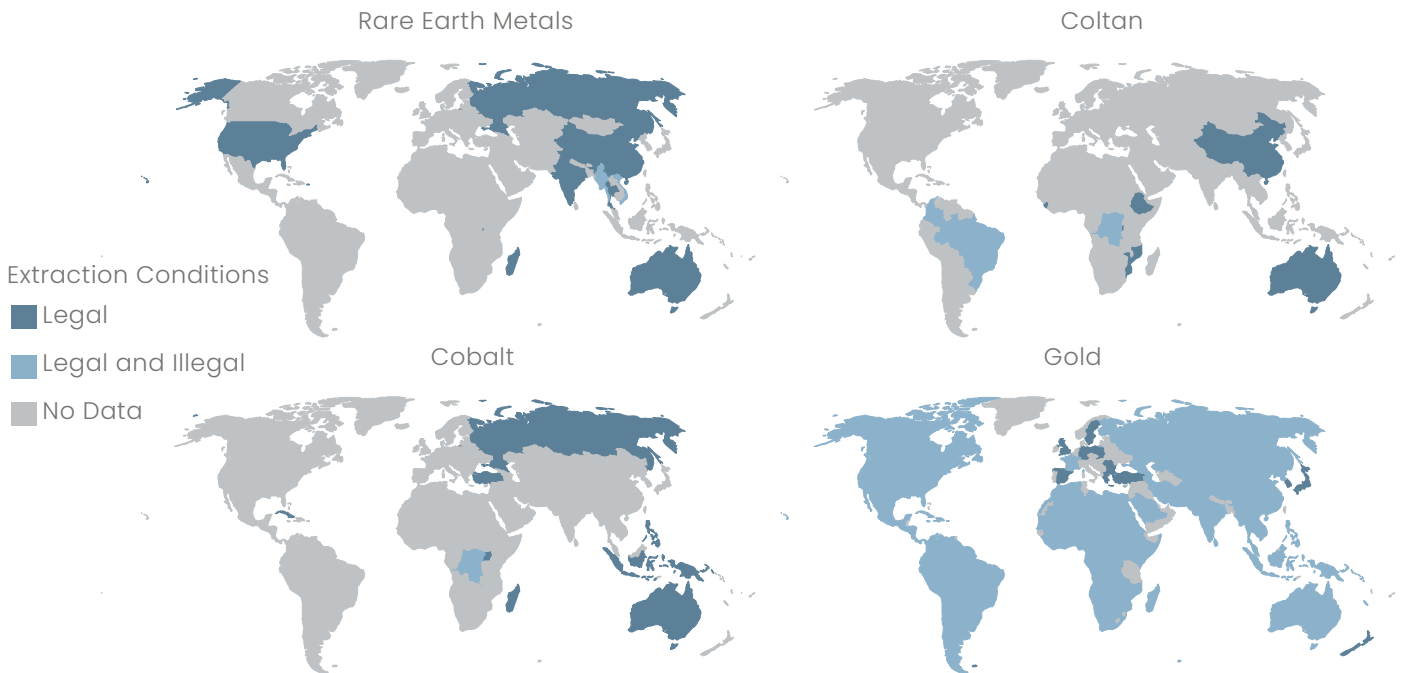
Figure 1: Ores, minerals, and metals



The issue of illegal mining is geographically widespread and of large economic proportions. According to INTERPOL, illegal mining generates up to \$48 billion USD a year in criminal proceeds globally (INTERPOL, 2016). In South America, for example, illegal mining accounts for up to 90% of Venezuela's gold production (Global Initiative Against Transnational Organized Crime, 2016). It also leaches revenue; the DRC, which holds significant amounts of the world's cobalt reserves, was estimated to have lost approximately \$1 billion USD in 2023 in minerals illegally smuggled into Rwanda alone (Institute for Security Studies, 2024).



Figure 2: Illegal mineral extraction worldwide, including cobalt, coltan, the rare earth metals, and gold (artisanalmining.org, 2025) (British Geological Survey, 2016)



I N F O C U S

High-risk minerals

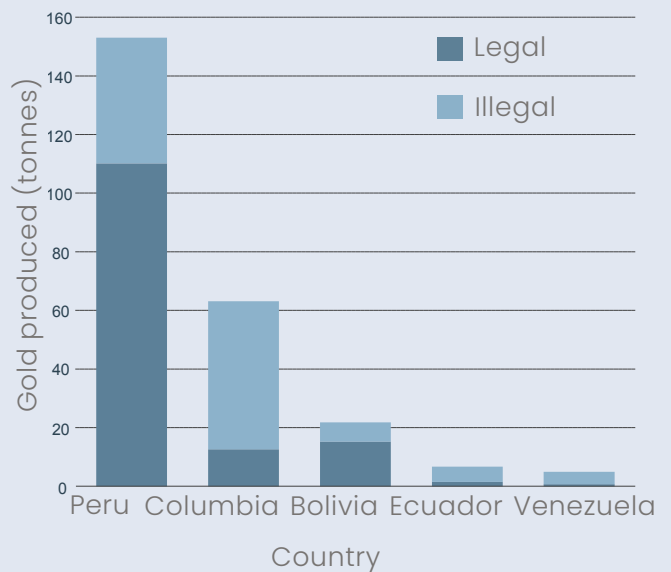
While any mineral can be legally or illegally mined, certain commodities pose elevated environmental and financial crime risks due to their demand, value, and supply chain opacity.



Gold is highly liquid, widely traded, and difficult to trace – making it a prime vehicle for money laundering. While gold has been a desirable commodity for centuries, the recent spike in prices combined with relatively low barriers to entry means that gold mining is attracting growing interest from both legal and illegal actors all over the world (Reuters, 2025a).

Over 20 million people work in ASM, yet the sector is often informal and linked to child labour, environmental harm, and organised crime, especially in the Amazon and West Africa (UNEP, 2023b). “Dirty” gold is commonly laundered into legal markets through misinvoicing, smelting, and false documentation, with potential direct and indirect exposure for FIs.

Figure 3: Legal and illegal gold production in South America (artisanalmining.org, 2025; British Geological Survey, 2016)



For in-depth case studies on illegal gold mining in the Amazon, see sections 5.1, 5.2, 5.3, and 5.5.  
 For in-depth case studies on illegal gold supply chains, see sections 5.7 and 5.8.



As a key ingredient in lithium-ion batteries crucial to transport and decarbonisation, demand for cobalt is expected to multiply eightfold by 2040 (Maisel et al., 2023). Approximately 150,000 to 200,000 artisanal miners are involved in cobalt mining worldwide, with another million people dependent on this income (Institute for Security Studies, 2024b). Cobalt is also widely desired for use in magnets, jet and gas turbine parts, and for colour (e.g. in paint) (Royal Society of Chemistry, 2025).

However, cobalt mining, especially in the DRC (currently responsible for 65-70% of global production and embroiled in conflict for the last 25 years), has been accompanied by environmental destruction, organised crime, toxicity, child labour exploitation, hazardous working conditions, sexual violence, and conflict. Mine collapses are also frequent and the toxicity of cobalt dust impacts both those who work in the mines and those who live around them (e360, 2023; Van Brusselen et al., 2020)

Furthermore, cobalt mining has been linked to deforestation in the Congo Basin, with some estimates suggesting that mining has led to the loss of 13,000 hectares of forests from 2001 to 2020 (World Resources Institute, 2024a). The intersection of conflict, forced labour, and violence in the DRC's cobalt industry led commentators to coin the term 'blood cobalt' (ABC News, 2022). Accountability for these issues is further complicated by complex and opaque supply chains, which can produce risks for actors upstream and downstream (Dormakaba, 2022).



Mr. Pugo from Pexels



**Coltan** (short for columbite-tantalum) is a crucial ingredient in modern technological devices such as mobile phones, laptops, and cars, with a steadily-growing industry (The Conversation, 2022). However, coltan mining has also been associated with rampant environmental degradation and human rights abuses, as well as with land clearing, deforestation, soil erosion, water pollution and contamination from illegal dumping of toxic waste and byproducts (ENACT, 2022a). Most notably in the DRC, which holds an estimated 80% of global reserves, coltan mining has destroyed much of the remaining habitat for the endangered eastern lowland gorilla (The Conversation, 2022). In this country, due to a combination of the state's inability to access and supervise all deposits and the high price of coltan on foreign markets, armed and criminal groups have been reported to extract coltan illegally, utilising corrupt middlemen to trade in, launder and profit from this market (ENACT, 2022a). There are also growing reports of illegal extraction in other parts of the world, such as in the Amazon (Sanchez, 2021).



The 17 **rare earth metals** are extremely versatile and in high demand, as they are increasingly used in high-tech products – particularly for green technologies such as electric vehicles and wind turbines (BBC, 2012). Rare earth metals are also found in glass, lights, magnets, cameras, aircraft engines, X-ray and MRI scanning systems, TV screens, batteries, mobile phones, and car parts, among others. Despite their name, rare earth metals exist in relative abundance; However, these metals, in order to be used, must be extracted and refined using difficult and intrusive processes that – if not managed properly – can lead to environmental destruction, water contamination, deforestation, erosion, and even radioactive pollution (e360, 2019).<sup>1</sup>

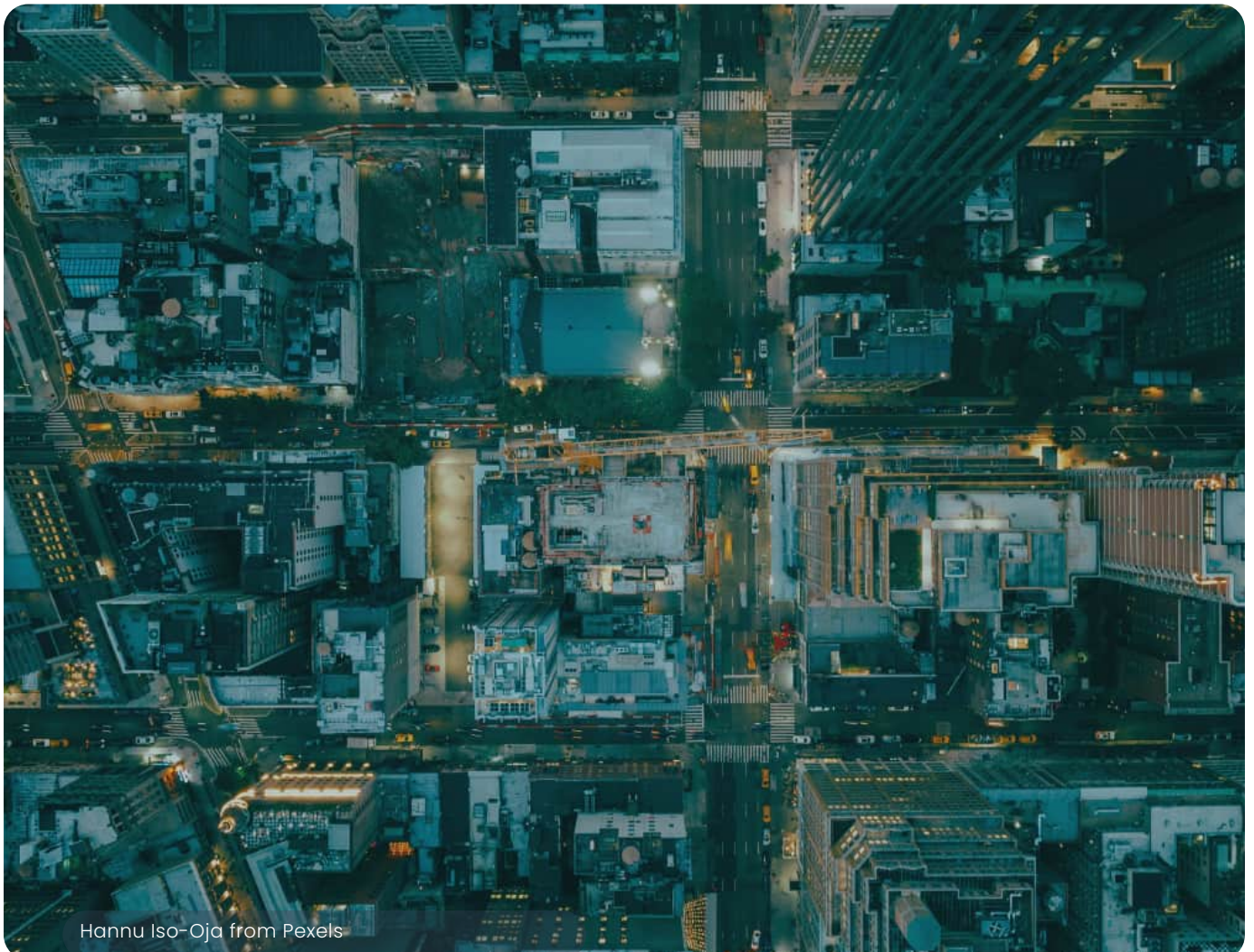
For an in-depth case study on illegal rare earth mining, see section 5.4

<sup>1</sup> The term rare earth mineral is used to refer to minerals from which the rare earth metals can be refined.

Overall, mining is a strategic industry on which many economic activities, government revenues and livelihoods depend on, but it is also an incredibly complex, fast-changing and multifaceted sector, which simultaneously encompasses artisanal miners panning for gold and multi-billion-dollar corporations with complex transnational operations. **The issue of the legality of different mining activities adds further complexity, as the divide between perfectly legal ventures and informal, illicit and illegal ones can often be blurred.** In this context, organised criminal groups and unscrupulous individuals, can find room to dodge tax and launder criminal proceeds worth billions of dollars, while also committing environmental crimes that may have strong repercussions on natural, financial and public capital (National Crime Agency, 2025; OECD, 2022).

### 1.3 Governance

In response to illegal mining, governments around the world are increasingly introducing mining-specific laws and regulations to strengthen the governance of the sector and reduce criminal infiltration. In parallel, a variety of voluntary instruments such as certifications, standards, and traceability tools have been developed by different stakeholders to minimise the undesired impacts, the risks, and the negative externalities that are often associated with unlawful and unsustainable mining operations.



Hannu Iso-Oja from Pexels

### 1.3.1 Legislation for 'conflict minerals'

Over the last few years, governments and regulators have increasingly focused on 'conflict minerals' – a term often used to refer to minerals that are extracted and traded in places where war and violence are present (Ecovadis, 2025). In some cases, like for instance in the DRC, the profits from these minerals go directly towards funding armed groups and terrorism (CNBC, 2023).

The EU's 2017 Conflict Minerals Regulation aims to curb the trade of conflict minerals – specifically tin, tungsten, tantalum, and gold – that finance armed conflict and human rights abuses in conflict zones (EU, 2017). When importing the specified minerals, EU companies must undertake due diligence procedures, and in certain cases, third-party audits and consultations. While many have welcomed this regulation as a step in the right direction, others have emphasised some of its gaps. For instance, manufactured goods like cars and electronics are exempt from due diligence checks, even if they may contain illegally sourced minerals; it sets high volume thresholds, allowing large quantities of materials into the EU unchecked; and its remit does not cover all conflict-related minerals, excluding for instance cobalt, graphite, lithium, and nickel, which have been reported to support conflict financing (International Peace Information Service, 2023).

Similarly, Section 1502 of the Dodd-Frank Act 2010 (US) aims to prevent warlords or armed groups from realising profits from mineral extraction and trade (US, 2010). The text covers the DRC and its nine adjoining countries, and its scope extends to tin, tantalum (coltan), tungsten, and gold – but not to copper, silver, or lithium, which are also linked to conflicts (Global Witness, 2023). Notably, the Act does not mandate companies to divest from the DRC or to source minerals exclusively from conflict-free mines, nor does it impose regulatory fines or penalties for those found to be using them in their products.

These regulations are intended to reduce war and violence by cutting off funding to armed

groups. However, although minerals often help perpetuate conflict, they are not the only root cause. A number of experts argued that focusing only on the commodities without acting also on other factors fostering conflict – such as poor infrastructure, weak governance and enforcement frameworks, and socio-economic inequalities – may do little to reduce violence (Shannon O'Lear, 2018; Tegera & et al, 2014). Indeed, research has shown that the introduction of the Dodd-Frank Act, while coinciding with a reduction in mineral exports from the DRC, has also seen an increase in the incidence of battles by 44%, looting by 51%, and violence against civilians by 28% (Stoop et al., 2018).

The issue of conflict minerals shows how addressing environmental crime and its convergence with predicate offences is much more than a compliance exercise, as it often has broader political, social and environmental implications. **FIs should pay special attention when legislation for conflict minerals is enacted to ensure that they address the threat of criminal and armed groups penetration across the mining supply chain.**

## 1.3.2 Certifications and risk-management tools

In response to rising concerns about the social and environmental harms linked to mining – especially in high-risk contexts – a range of certification schemes and risk intelligence tools have emerged to promote more ethical sourcing practices and responsible consumer decisions, and to improve traceability across mineral supply chains (OECD, 2025).

These initiatives echo the growth of certifications in other sectors, such as those by the [Forest Stewardship Council \(FSC\)](#) and the [Marine Stewardship Council \(MSC\)](#), with specific applications to mining, including the [Kimberley Process](#), which unites public and private actors in curbing the trade of conflict diamonds.

Several certification initiatives exist for minerals and metals, including:

- [Fairtrade Gold](#) and Fairmined are focused on artisanal and small-scale gold mining (ASGM) – these schemes certify mines that meet criteria on mercury use, child labour, and women’s rights. While the current market share of certified gold remains modest (generating \$700,000 USD in 2020), there are currently several projects in Latin America working under these schemes, such as Bolivia’s [Cotapata Mining Cooperative](#), Colombia’s [Oro Verde](#), and Peru’s [SOTRAMI](#).

- [The Initiative for Responsible Mining Assurance \(IRMA\)](#) Targets large-scale industrial mining operations for a number of different minerals.

- [The Copper Mark](#) and [Responsible Jewellery Council \(RJC\)](#) focus on responsible production and sourcing of copper and jewellery inputs.

While impactful, these schemes cover only a small portion of the market. In addition, barriers such as cost, administrative complexity, and limited technical support from certification bodies make these certifications inaccessible for many small-scale miners, particularly in Africa and Southeast Asia (Oakley, 2022). Certification and traceability is also a challenge in regions where illicit economies converge with extractive industries and poor governance, such as the Amazon ([COICA, 2025](#)). In such regions, certification requires a special assurance of environmental and social standards, including through rigorous impact assessments, independent monitoring, full supply chain traceability, and the control of critical inputs to avoid diversion to illegal activities (OECD 2026; Initiative for Responsible Mining Assurance 2018).

Alongside certification schemes and standards, there is a growing range of voluntary tools being designed for different actors across the mining sector. While the scope and application of these tools can vary widely, they typically offer solutions to address traceability, due diligence and risk management issues.

Beyond certification, several intelligence providers and platforms support FIs and corporates in managing mineral-related risks:

- [Benchmark Mineral Intelligence](#): A leading provider of data and analysis on battery supply chains, including sourcing and ESG risks for lithium, cobalt, graphite and rare earths.

- [RCS Global](#): Offers traceability and ESG risk data for raw materials supply chains, with particular focus on automotive and electronics.

- [Environmental Crimes Financial Toolkit](#): Designed specifically for FIs, the ECFT is an open access platform that helps users identify exposure to environmental crime-linked financial flows, including those tied to mining.

While funding for certification and traceability initiatives has historically come mostly from government, donors or philanthropy, FIs have also taken proactive steps. Triodos Bank, for instance, is partnered with Fairtrade Gold as part of its ethical finance mandate and has supported ASM projects through blended finance and technical assistance. This engagement demonstrates how socially responsible banks can help de-risk and scale ethical mining operations by providing access to capital and supporting certification uptake. There is growing potential for mainstream banks to leverage certification status in lending criteria, supply chain finance, and ESG investment strategies, or to use certification indicators as part of enhanced due diligence in high-risk jurisdictions.

## I N F O C U S

### FI Mining Sector Policies

Many FIs have adopted internal policies and frameworks that guide their approach to lending, investment, and due diligence across the mining value chain. These policies generally aim to limit exposure to environmental crime and reputational harm by embedding ESG safeguards, clarifying risk thresholds, and supporting legal, responsible mining – including ASM where appropriate (Santander, n.d.; UniCredit, 2022; World Gold Council, 2024; Societe Generale 2025). While not all explicitly mention illegal mining, many of them nonetheless address common issues such as environmental degradation and human rights.

Key features typically include:

#### Scope and standards

- Apply to all mining-related financing and services (e.g. lending, advisory, trade finance).
- Align with international benchmarks: IFC Performance Standards, OECD Due Diligence, and Equator Principles.

#### Risk-based exclusions

- Prohibit or restrict involvement in illegal mining, operations on protected lands, conflict minerals, and controversial commodities (e.g. thermal coal).
- Require enhanced due diligence for high-risk clients, countries, or minerals.

#### Due diligence and controls

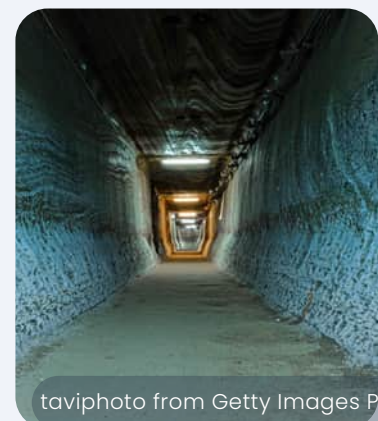
- Mandate environmental and social impact assessments.
- Include checks on corruption, labour practices, Indigenous rights, and biodiversity risks.
- Assign oversight to senior-level committees or ESG teams.

#### Support for responsible ASM

- Some banks and central banks (e.g. in Colombia, Mongolia, and Ecuador) promote the formalisation of ASM.
- Efforts include fair pricing, traceable sourcing, and local refining aligned with global ESG standards.

#### Policy integration

- Mining policies are embedded in broader ESG and sustainability frameworks.
- Referenced frameworks often include: the Kimberley Process, Cyanide Code, and LBMA standards.



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## 1.4. Drivers and enablers

The mining industry is driven primarily by widespread demand for valuable minerals and by technological advancements, which increase the range of potential uses for different materials and widens mineral prospecting and extraction opportunities.

In addition, the skyrocketing prices of certain minerals – most notably gold, due to its status as a stable asset during periods of volatility – and the demand coming from the renewable energy transition for cobalt, coltan, and rare earth minerals (International Energy Agency, 2023, Reuters, 2025a), contribute to support the prospect of potentially large profits, incentivising a wide range of actors – such as industrial mining companies, governments, small-scale artisanal miners, but also organised crime and armed groups – to enter the extractive sector.

Simultaneously, regulatory loopholes and lack of enforcement mean that illegal mining is a relatively low-risk and high-reward business, particularly in areas with weak governance and rule of law, with additional problems linked to the resulting contamination, toxicity, deforestation, labour exploitation, fraud, corruption, tax evasion, money laundering, and conflict and terrorist financing (Global Citizen, 2022a; RFI, 2024; Scientific American, 2022; The Center for Public Integrity, 2012).

Illegality is not, however, inherent to mining. Instead, **corrupt regulatory environments often enable and promote these behaviours**, with criminals or opportunistic actors

bribing authorities to turn a blind eye to the illegal elements of mining (UNODC, 2020). In Colombia, for example, corrupt authorities are bribed to enable illegal gold miners to transport fuel necessary for mining operations beyond volumes authorised by law (US Aid & WWF, 2021).

Furthermore, studies have shown that in countries such as Zimbabwe, South Africa and Ghana, **poverty, unemployment, and lack of access to education and financial resources for vulnerable groups such as women and youths are push factors for involvement in informal and illegal mining** (Bester & Uys, 2023; O’Driscoll, 2017). In Bolivia, for example, half of the female mining workforce is made up of divorcees, widows and single mothers, with their children increasingly turning to illegal mining to make a living (The Guardian, 2024a).

Notably, while informal and artisanal mining can sometimes involve illegal activities due to a lack of adherence with formal regulations and licensing, they also provide an important source of income and poverty alleviation for local communities (World Bank, 2024a), with estimates suggesting that 40 million people worldwide depend on informal mining (IGF, 2017).



Your Name from ninjaDesign

## C A S E S T U D Y



Alfio Mancigli from Getty images

## South African 'zama-zamas'

Easy access to abandoned (and dangerous) mines, enabled by poor regulations, weak governance and a lack of security, has been cited as a driver of illegal gold mining in Zimbabwe and in South Africa, where illegal miners – known locally as 'zama-zamas' – regularly enter abandoned mining sites and spend months at a time underground, sometimes with fatal consequences. Criminal gangs often control access to mines and provide protection and supplies to the miners in exchange for an extortion fee (BBC, 2024b).

Authorities are increasingly cracking down on these underground communities, citing armed gang involvement and lost tax revenue (Al Jazeera, 2024). In attempts to drive out the miners, police have, in some cases, prevented food and water from being lowered into the mining shafts. However, some have argued that harsh crackdowns are an inappropriate response to illegal mining, advocating instead for regulation and formalisation (BBC, 2024b).

## 1.5. Negative impacts

While mining can contribute to economic growth, development, and job creation, it also carries significant risks.

It is estimated that more than half of the world's mines do not publish critical data on production, waste, pollution, and water use, making it difficult to comprehensively assess and document mining impacts (Maus & Werner, 2024). However, **negative impacts are exponentially amplified in illegal mining, where there is limited regulation, transparency, or accountability** (Stewart, 2020). These impacts span environmental degradation, human rights abuses, harm to human health, and economic instability.

**This section outlines key environmental, social, and economic risks associated with illegal mining** – highlighting where impacts are most acute and how they intersect with broader systemic risks. **For FIs and regulators, understanding these risks is essential for informed decision-making, risk management, and ensuring alignment with ESG goals.**

## 1.5.1 Environmental impacts

Illegal mining carries serious environmental consequences due to its lack of oversight, disregard for regulation, and use of unsafe chemicals and equipment, with particular concern for deforestation, water and soil degradation, biodiversity loss, and toxic pollution.

### C A S E S T U D Y



Delali Adogla-Bessa from Shutterstock

#### Ghana's galamsey gold mining

The term 'galamsey' is used in Ghana to describe illegal gold mining, which has led to severe environmental devastation across the country (BBC, 2024d). Ghana's significant gold deposits have attracted ASM miners and Chinese corporations alike, reinforcing Ghana's colonial-era moniker, the 'Gold Coast'. However, gold mining has also led to deforestation, soil erosion, and chemical pollution – including the highly toxic mercury and cyanide – into waterways.

River pollution has meant that many farmers can no longer use nearby water sources for irrigation, and the national water utility has warned that Ghana may need to start importing water by 2030 if illegal mining continues to poison rivers (BBC, 2024d). A recent survey conducted by WaterAid found that 79% of illegal miners surveyed in the country reported health issues directly linked to mining (WaterAid, 2024). Furthermore, rising gold prices continue to incentivise criminal syndicates' involvement in illegal gold production, which is significant across Ghana's illegal mining sector (Reuters, 2025a).

#### Deforestation

While it is not the world's primary driver of deforestation, mining led to the loss of nearly 1.4 million hectares of forests between 2001 and 2021, much of which was concentrated in important ecosystems such as tropical primary rainforests (World Resources Institute, 2024). The indirect impacts of mining, including the development of mining-related infrastructure and settlements, water and soil contamination, and illegal logging, have also been estimated to affect up to a third of the world's forest ecosystems (WWF, 2023). In the Ecuadorian Amazon, for example, over 1,000 hectares were devastated by illegal mining in the Orellana Province alone between 2022 and 2023 (Siqueira-Gay et al., 2020; Mongabay, 2024d).

#### Water depletion and contamination

Water stress is a growing concern, particularly with industrial scale mining, which can extract vast quantities of water for ore processing and dust suppression. In water-scarce regions, this can displace communities, disrupt agriculture, and trigger conflict over resource access. For example, copper and lithium mining in arid regions like Chile and Peru has been linked to local aquifer depletion (The Guardian, 2025). Furthermore, placer mining, a process used to extract minerals such as gold from riverbeds and floodplains, alters river flows, causes erosion, and destroys vegetation (Hustrulid, 2025). This practice has destroyed 864,800 acres of forest and wetland habitat in the Pan Amazon, a region that spans nine countries in South America (Mongabay, 2024c). A recent study estimated that 23 million people live on floodplains that are affected by toxic waste from mining activity (Macklin et al., 2023a).

## Biodiversity loss

Mining infrastructure – including roads, pits, and camps – fragments habitats, disrupts migratory routes, and drives wildlife closer to human activity, increasing the risk of zoonotic disease spillovers and human-wildlife conflicts. **Illegal and poorly regulated mining often occurs in biodiversity hotspots, exacerbating the loss of species and degrading fragile ecosystems** (WWF, 2023; National Geographic, 2018). Furthermore, toxic chemicals such as mercury, lead, and cyanide can accumulate in food chains, harming both wildlife and humans.

### Erosion

Mining practices that use prohibited equipment, devices or chemicals often lead to formation of sinkholes and contamination of soil, groundwater, and waterways, resulting in soil erosion and exacerbating the likelihood of landslides and flooding (WWF, 2020). Soil erosion also compromises the agricultural productivity, with negative implications on farmers and food quality and availability (World Cocoa Foundation, 2024).

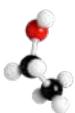
### Toxic pollution and chemical waste

Mining operations – especially ASM and illegal mining – often involve hazardous substances that cause serious environmental and health damage. These pollutants are difficult to contain and persist long after operations end. Two of the most common are mercury and cyanide:

**Mercury** widely used in artisanal gold mining, is cheap and effective but highly toxic. It contaminates soil, water, and food, and can cause severe health conditions. ASM is now the largest global source of mercury pollution (WHO, 2024).



**Cyanide** used in industrial gold processing, dissolves gold from ore but is lethal if mishandled. Spills and improper waste disposal – common in illegal or weakly regulated sites – can poison rivers and aquatic life (GRID Arenda, 2017).



## Climate Impacts

Though difficult to quantify, illegal mining contributes to greenhouse gas emissions, primarily through deforestation, fuel use, and mercury vapor release. These activities indirectly accelerate climate change and global warming, which further threatens ecosystems and biodiversity (United Nations, 2024a).

Other toxic risks include **acid mine drainage** – where exposed rock releases metals into water with long-term ecological impacts – and **radioactive waste** from rare earth mining, which is a health hazard and cause soil and groundwater contamination.

## I N F O C U S

### Mining waste

Valuable metals such as gold, cobalt, and rare earth minerals must be extracted from the raw ore, often with the aid of chemicals. Once the desired commodities have been recovered, the **by-product waste streams are known as 'tailings'**, of which the global mining industry produces billions of tonnes each year.

Large-scale mining operations generally manage tailings in purpose-built facilities such as dams, which contain the slurry of waste material (BHP, 2024; International Institute for Sustainable Development, 2024). However, if improperly managed, tailings can create significant risks to the environment, human health, and infrastructure (Planet Gold, 2022). In the past 50 years alone, there have been 63 major tailings dam failures reported worldwide, with the number trending upwards since 1990, leading to an estimated 2,375 casualties between 1961 and 2019 (Owen et al., 2020; Yilmaz et al., 2023).

In 2019, for example, Brazil's Brumadinho dam collapsed, leading to 270 deaths and millions of tonnes of toxic waste being leaked into the surrounding area (BBC, 2021b). In the aftermath of the event, Brazilian mining giant Vale was ordered to pay \$7 billion USD to affected communities, and Brazilian prosecutors have since charged 16 people – including Vale's former CEO – with murder and environmental crimes (The Guardian, 2020). The legal procedure is still ongoing at the time of writing.

## 1.5.2 Environmental impacts

Mining can have a range of social and health impacts, depending on the context, scale, and level of regulation. Due to its unregulated nature and the lack of formal oversight, illegal mining can exacerbate human rights concerns, expose communities to health risks, and contribute to broader security challenges.

### Human rights abuses

In some regions, illegal mining has been associated with labour abuses – from the lack of health and safety standards to human trafficking, and child labour (Zabyelina, 2023). For example, research from Venezuela's Bolívar State found that nearly half of miners were underage (Lambertini, 2023). While many individuals involved in illegal mining are economically vulnerable and seeking livelihoods, the larger gains go to organised crime actors and intermediaries who profit significantly with limited risk exposure. There are also links between mining and violence against environmental and Indigenous defenders. In 2023, over 10% of global killings of environmental defenders were connected to the mining sector (Global Witness, 2024b).

### Health impacts

Health risks may affect miners, nearby communities, and those responding to mining-related activity, in some cases with long-lasting consequences. These can include infectious diseases (Martins-Filho et al., 2023; Rozo, 2020), sexual and reproductive problems (US Senate, 2019), respiratory issues, (Kuramoto, 2013) and toxic contamination, which can accumulate in food chains and affect neurological and organ functions (Boudou et al., 2006; Esdaile & Chalker, 2018b; World Health Organization, 2024). There are also safety risks in abandoned or unregulated mines, including collapsing shafts, gas exposure, and unmarked explosives (Bureau of Land Management Denver, 2013). Informality and illegality increases the vulnerability of miners and enables labour exploitation (Kuramoto, 2013).

### Negative consequences for IPLCs

Mining – particularly when carried out without consent or outside formal governance structures – can disrupt IPLCs. These negative impacts include: the loss of access to land and natural resources with implications for livelihoods and food security (e360, 2023b; Reuters, 2024); exposure to pollution (e.g. from mercury or cyanide) and infectious diseases; and community tensions and conflicts (Barba, 2022). The energy transition has amplified these concerns (Peterson Institute for International Economics, 2022). Over 50% of the mines expected to produce the commodities needed for renewable technologies are on or near the territories of IPLCs, disproportionately exposing them to the risks connected to negative externalities (Deberdt & Le Billon, 2024; Our World in Data, 2019; Owen et al., 2022).

### Gendered impacts

Due to issues like structural poverty, marginalisation and limited opportunities, women working near mining camps – especially informal or illegal ones – often face exploitative conditions, including trafficking, sexual exploitation and violence (Verite, 2018; The Guardian, 2022). For instance, in South Africa, over 80 illegal miners were arrested following rape reports (Lebitso & Mabudusha, 2023). In addition, biological and cultural factors can make women more susceptible to health impacts from toxic exposure. For instance, women retain toxic substances like mercury for longer, which impact pregnancy and reproductive health (UNDP, 2011; Dack et al., 2022). Additionally, tasks such as water collection and washing heighten exposure to mercury-contaminated rivers, especially near informal gold mining sites (Lambertini, 2023).

## 1.5.3 Economic impacts

Mining can support national economies and local development when properly regulated, but illegal mining activities often undermine economic stability, fiscal integrity, and sustainable use of natural resources. These impacts can affect national governments, FIs, legitimate businesses, and households. At the country level, these impacts can include:

### Unsustainable resource use

Unregulated extraction methods – especially in illegal or informal operations – tend to prioritise short-term gains. This can result in rapid resource depletion, environmental degradation, and reduced land viability for future uses like agriculture, tourism, or forestry (Meutia et al., 2023a).

### Pressure on infrastructure

In areas with high illegal mining activity, the influx of miners, traders, and support personnel may strain local infrastructure, including roads, health services, and housing. This can disrupt public service delivery and limit inclusive economic development (Asuamah Yeboah, 2023).

### Governance and institutional risks

Corruption, permit fraud, and weak oversight linked to illegal mining can erode the credibility of state institutions. This may deter legitimate investment by signalling a high-risk or unstable business environment, particularly in resource-rich but governance-constrained settings.

### Loss of public revenue

Illegal mining typically bypasses formal tax and royalty systems, leading to lost revenue for national and local governments. These funds could otherwise support infrastructure, education, and environmental management, especially in underdeveloped areas (OECD, 2022).

**Illegal mining is also associated with economic and financial risks specific to FIs.** These include:

### Money laundering and financial crime exposure

Gold and other high-value minerals are widely used as vehicles for money laundering due to their liquidity and anonymity. FIs may be unknowingly exposed to primary and secondary liability through trade finance, correspondent banking, or asset portfolios. Links to illicit mineral flows can raise compliance concerns and heighten regulatory scrutiny, particularly in FATF-listed jurisdictions (FATF, 2015).

### Market distortion and investment volatility

Illicit financial flows tied to illegal mining may distort local economies and undercut legitimate businesses. For FIs, this can undermine the long-term viability of investments and can raise uncertainty due to price and stocks volatility and to regional instability.

# Chapter 1 – Key takeaways for FIs

Illegal mining is widespread, present in nearly 100 countries and generating up to \$48 billion USD annually in criminal proceeds.

Mining risks are diverse – spanning legal, illegal, informal, and illicit operations, each with distinct ESG and financial crime implications for FIs.

FIs can be exposed to illegal mining through lending, trade finance, investment, asset management and third-party association – both directly and indirectly.

Key minerals of concern include gold, cobalt, coltan, and rare earths – all associated with environmental harm, human rights issues, and links to organised crime.

Environmental and social impacts include deforestation, mercury pollution, biodiversity loss, forced labour, and exploitation of Indigenous communities.

Drivers include poverty, corruption, high mineral demand, and weak governance – often intensified by loopholes and enforcement gaps.

Informal and ASM operations are not inherently illegal but require careful, context-specific due diligence. Legal grey areas and regulatory blind spots create further risks and uncertainty.

## 2 Illegal mining – Mapping risk, exposure and opportunities for FIs

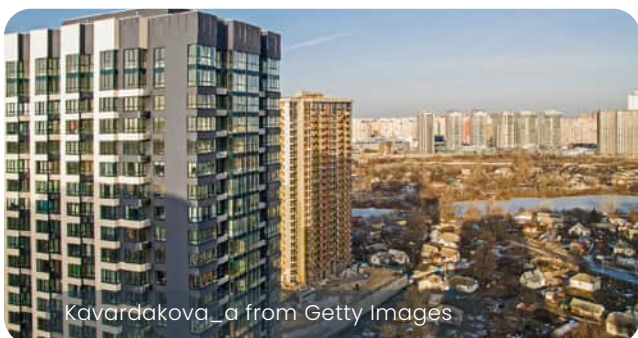
For FIs, illegal mining is not just a peripheral ESG issue – it is a material risk with implications for financial crime compliance, reputational integrity, portfolio stability, and alignment with regulatory and sustainability frameworks.

However, mapping this exposure is complex. Mining operations – legal, illegal, and illicit – are often interwoven through informal actors, layered ownership structures, opaque supply chains, and overlapping jurisdictions. These features create multiple entry points for criminal exploitation and financial system involvement, many of which can be indirect, obscured, or underestimated by traditional risk assessments.

At the same time, the financial sector has a key role to play in tackling environmental crimes such as illegal mining. FIs have the ability and the obligation to monitor, identify, and report suspicious transactions; they can help holding entities to account and they can assist law enforcement in detecting and disrupting criminal activity. In the UK, for example, FIs are legally required under the [Proceeds of Crime Act 2002](#) and the [Terrorism Act 2000](#) to file suspicious activity reports where they have suspicion or knowledge of money laundering or terrorist financing, both crimes that commonly converge with illegal mining. Similar requirements exist in the US

under the [Bank Secrecy Act 1970](#). Furthermore, the [FATF recommendations](#) require countries to ensure that the private sector is aware of money laundering and terrorist financing risks – including those related to environmental crimes such as illegal mining – and that they introduce preventative measures to combat these risks.

However, FIs continue to play a relatively under-utilised role in tackling environmental crime (FACT Coalition, 2024a). This chapter presents findings from an original survey exploring FIs' awareness, exposure and response to illegal mining, providing also concrete indications on how to better harness this vast untapped potential.



## This chapter:

Section 2.1 Outlines the **methodology used to survey FIs**

Section 2.2 Analyses **regional exposure patterns and gaps in institutional awareness and preparedness.**

Section 2.3 Analyses **awareness and understanding** of illegal mining risks

Section 2.4 Examines how **risk translates to action** – and what **internal factors help FIs identify, report, and respond** to illegal mining activity.

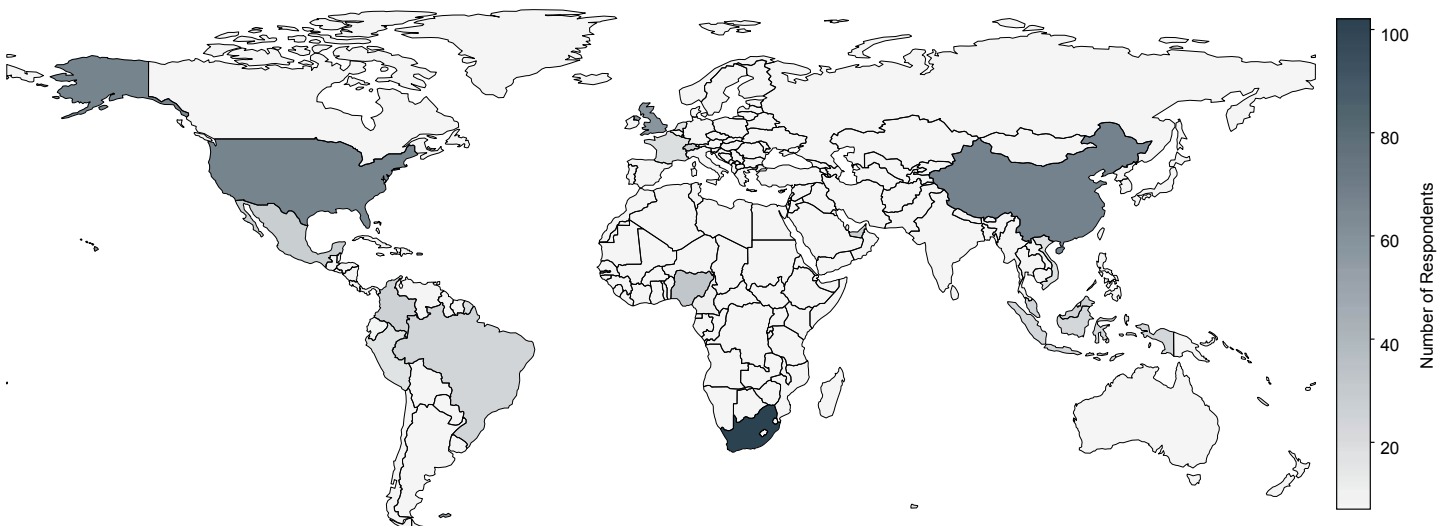
Section 2.5 Identifies **key lessons learned, helpful tools, and opportunities** to strengthen risk frameworks and due diligence.

## 2.1 Methodology

A total of 829 responses were collected from FI professionals across 22 countries, with roles ranging from front desk customer service to senior management. The sampling approach was informed by desk research, prioritising established financial centres and regions exposed to illegal mining. After quality control procedures, 647 responses were deemed valid and incorporated into the analysis.

The research design adopted an intentionally broad risk-mapping methodology. While the focus is on illegal mining, we also acknowledged the existence and potential overlap with illicit and informal practices and with legal grey areas. By casting the net wide at the diagnostic stage, FIs are better positioned to narrow their focus when it comes to respond to concrete threats, targeting the most relevant areas of exposures within their portfolios and operations.

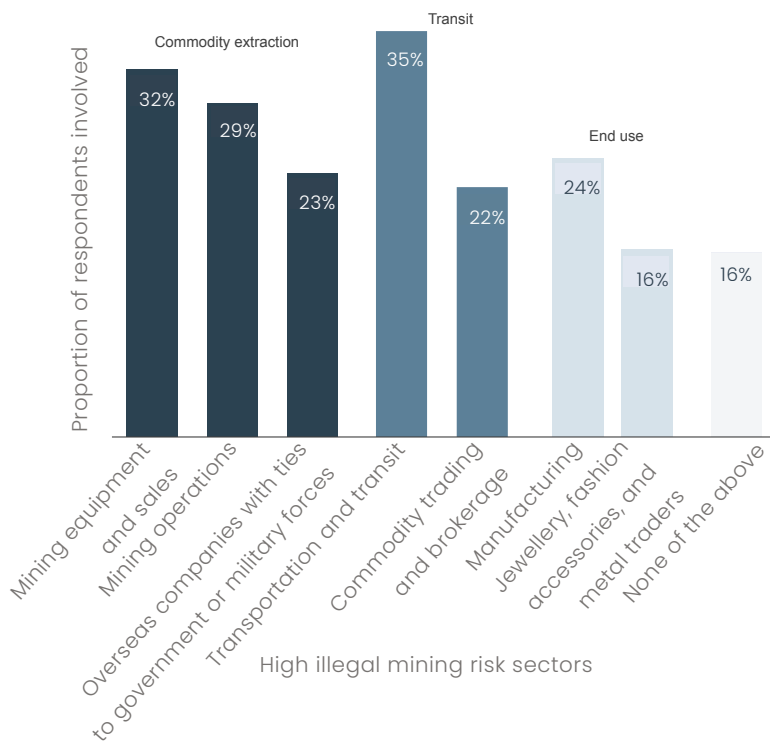
Figure 4: Survey respondents, by country



## 2.2 Risk exposure in the financial sector

To understand the role of FIs in the landscape of environmental and financial crime, it is important to first understand their exposure to risk. This section outlines respondents' business activities in sectors widely understood to be high risk for illegal mining, finding a potentially significant FI exposure to high-risk sectors.

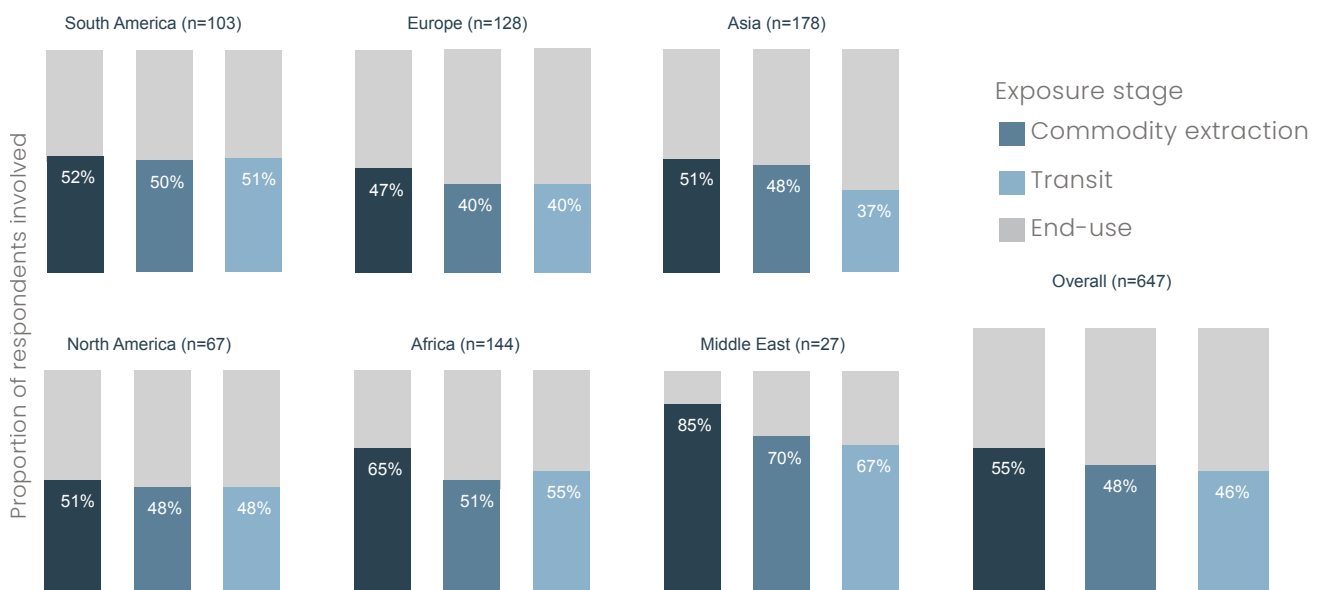
Overall, **84% of FIs reported involvement in at least one high-risk sector**, with transport and transit topping the list. This is a key risk point: minerals – as bulk commodities – are often exported via shipping containers overseas (Zhao & Zhao, 2025), where less than 2% of containers undergo inspection (International Maritime Organization, 2022). Furthermore, many critical minerals that are mined illegally – particularly the rare earth metals, coltan, and cobalt – are only found in select regions of the world and are in high demand globally. They are consequently likely to travel long distances to reach destination markets, creating further exposure for FIs involved in the transport sector. One respondent noted clients mislabelling precious stones as “apparel” to avoid audits – highlighting a known loophole.

Figure 5: FIs business activities in high-risk illegal mining sectors <sup>2</sup>


Around 30% of FIs also reported direct involvement in mining operations and equipment, indicating material exposure to risks at the source of the value chain. While this activity may reflect large-scale mining more than ASM, which uses less industrial equipment, it underscores FI involvement at the extraction phase – particularly in capital-intensive contexts.

Exposure varies by supply chain stage – we distinguished between extraction, transport and end use – and region. The Middle East showed the highest overall exposure across all phases – commodity extraction (85%), transit (70%), and end-use (67%). Africa followed, with strong exposure at the extraction phase (65%) and notable involvement in transit and end-use. South America, Asia, and North America showed consistent but moderate levels across all stages, while Europe reported the lowest exposure overall. These differences may reflect regional variations in regulation and enforcement, market reliance on extractives, or risk screening practices.

Figure 6: FIs exposure to classes of illegal mining risk, by region



<sup>2</sup> 'Transportation and transit' includes: import/export companies, freight forwarding, customs clearance, cargo, logistics or construction companies, motor vehicle spares, second-hand car dealerships, etc.

'Mining operations' includes: extractives, ore processing and refining, artisanal and small-scale mining operations, etc.

'Manufacturing' includes: electronics, the automotive sector, the aerospace and defence industry, glass bulbs/lighting, ceramics, the renewable energy sector, the steel industry, etc.

## 2.3 Awareness and understanding of illegal mining risks

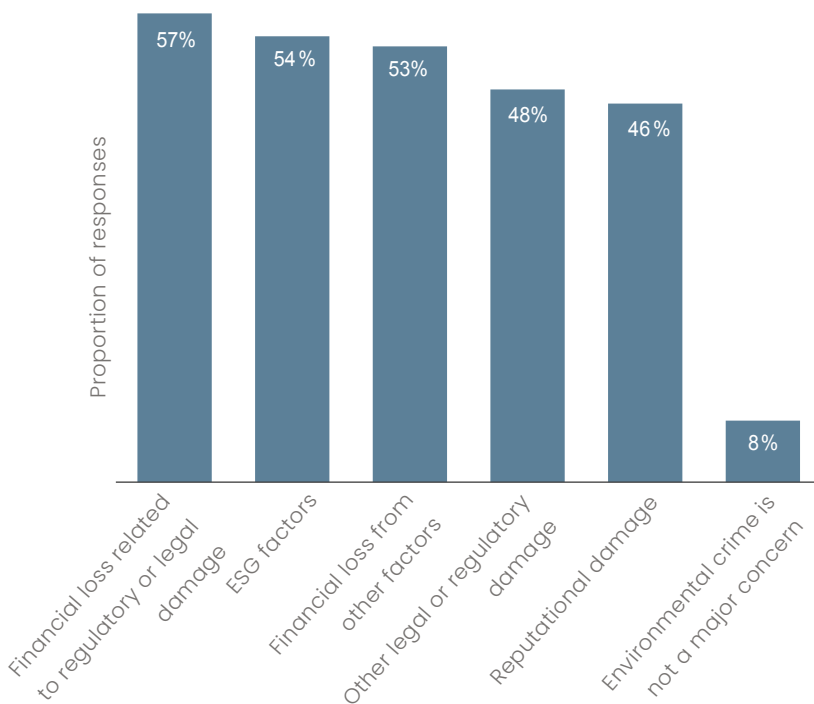
While FIs face significant exposure to illegal mining risks, this does not always translate into strong awareness or targeted responses. This section explores how FIs perceive their vulnerability and how that compares with known risk profiles, typologies, and research.

### 2.3.1 Risk recognition

Encouragingly, most FIs recognised the potential risks posed by environmental crime, with only 8% of respondents stating that it is not a major concern to their organisation.

In terms of specific concerns, **the material risk posed by the potential financial loss due to regulatory or legal fines was most prevalent for FIs (57%), followed closely by ESG considerations (54%).** More than half of respondents expressed concerns over ‘financial loss related to other factors’ beyond regulatory/legal fines (53%), which may indicate awareness of the indirect risks and financial impacts linked with environmental crimes. Reputational damage was indicated 46% of the time.

Figure 7: FIs’ top concerns relating to environmental crime



This risk sensitivity aligns with the changing regulatory landscape. In 2024, penalties to banks by regulators globally increased by 522% to \$3.65 billion USD, with penalties for transaction monitoring breaches exceeding \$3.3 billion USD (Fenargo, 2025). Notably, global ESG-related fines surged by 98%, totalling \$37.7 million USD in 2024. Despite generally low penalties for environmental crime – the EU’s Conflict Minerals Regulation, for example, does not currently impose any penalties for non-compliance – the common convergence with financial crimes suggests that material risks for FIs may be much higher than those posed by environmental penalties alone. The impacts of these fines stretch beyond the immediate penalty. For instance, a 2021 academic study of 308 FIs in the US examined how AML enforcement actions and economic sanction violations also negatively affect a firm’s value (Gowin et al., 2021).

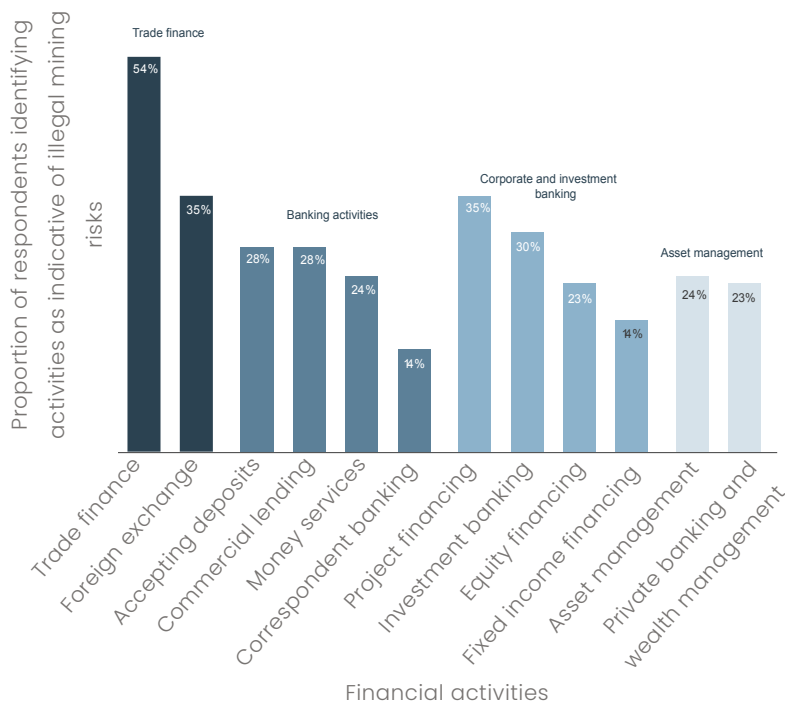
Financial institutions’ top concerns relating to environmental crime

Firms may also be motivated by financial and efficiency gains rather than by loss and risk avoidance. Research findings increasingly suggest that strong ESG frameworks – for example, having a comprehensive environmental crime policy in place – are strongly and positively correlated with profitability (Whelan et al., 2021). With governments and regulatory bodies around the world increasingly mandating ESG disclosures and consumers prioritising ESG factors in their purchasing choices, FIs’ approaches to environmental crime issues are likely to become ever more entwined with their financial performance.

## 2.3.2 Perceptions of high-risk business activities

FIs identified trade finance as the highest-risk activity linked to illegal mining, reflecting concerns about mineral transit and shipping.

Figure 8: Financial activities indicative of illegal mining risks, as perceived by FIs



However, while all options below can be potentially considered high risk for illegal mining, no single option attracted more than 55% of responses, with some (e.g. corporate banking) scoring as little as 14%. This suggests that respondents may underestimate exposure in some cases and may not always have a comprehensive and up-to-date understanding of high-risk business activities beyond transit-related risks.

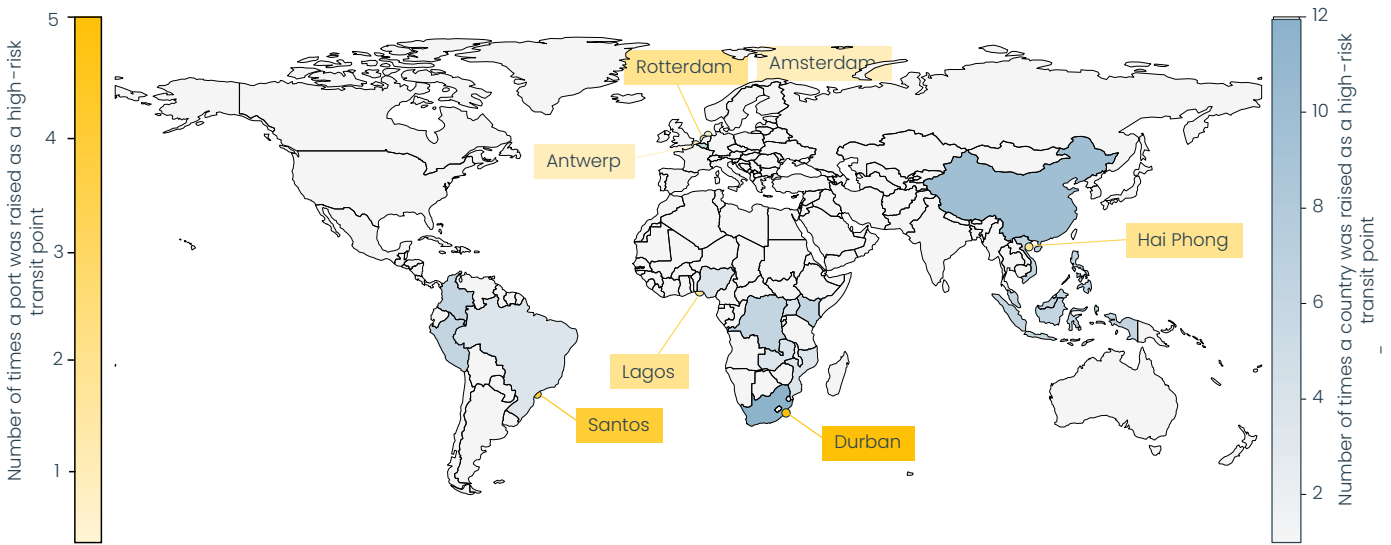


Hannu Iso-Oja from Pexels

### 2.3.3 Geographic risk awareness

The map below presents respondents’ perceptions of high-risk transit hubs and hotspots for illegal mining.

Figure 9: High-risk illegal mining transit ports and countries, as perceived by FIs



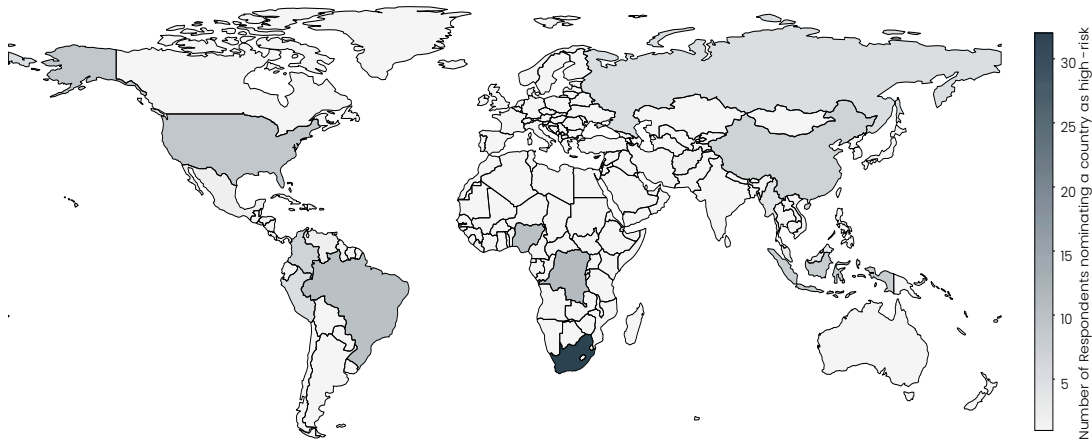
The sample identified some of the key transit points for illegal mining products that are detailed in the existing reports and literature; for example, Colombia and the Santos port in Brazil. It is encouraging that some respondents listed specific ports, reflecting deeper understandings of the precise transit points through which illegal commodities may travel. However, while all responses correspond with current research on the trafficking of illegal minerals, just two specific African ports, and a single Asian port were listed.<sup>3</sup> This may be due to the geographic distribution of respondents and/or the geographic distribution of their business activities. However, it may also suggest that FIs may require a deeper knowledge of trafficking and transit, particularly given their high levels of exposure to risk in this supply chain stage.<sup>4</sup>



<sup>3</sup> Noting that FIs were invited to submit their thoughts on high-risk routes, hubs and regions but that this was an optional rather than a required field.

<sup>4</sup> Noting that the survey was not targeted specifically at teams or roles within FIs that might be expected to have this higher knowledge of trade routes and ports (e.g. compliance teams). Respondents were selected as working in the financial sector more widely, as the survey aimed to understand general awareness and approaches across the industry.

Figure 10: High-risk illegal mining regions, as perceived by FIs



In terms of hotspots, responses revealed a moderate level of overall awareness of some key regions and hotspots for illegal mining. Multiple respondents identified high-risk areas for illegal mining with broad supranational regions or continents such as Africa, Asia, and Latin America, as well as with individual countries such as Brazil and the DRC. In some cases specific sub-national hotspots were also indicated, particularly in Indonesia and South Africa. FIs' awareness of illegal mining hotspots appears to correlate strongly with existing knowledge around the illegal and informal gold mining sector, particularly ASGM, which takes place in countries such as the Philippines, South Africa, and Colombia. The DRC was also flagged, likely due to the increasing recognition and scrutiny around conflict minerals.

However, some well-documented countries were conspicuous by their absence. For example, no respondents mentioned Rwanda, despite its close links to illegal mining activity in the high-profile DRC. Neither were high-risk areas such as Sudan, Burkina Faso, or Bolivia mentioned. Conversely, respondents also listed unconventional locations, such as the US. While the US has been accused of sponsoring a financial system that allows the proceeds from illegal mining to be laundered through it, it is not known as a substantial extractive region (Mongabay, 2023a). **This suggests that respondents overall may lack specific in-depth knowledge of high-risk regions despite broad awareness levels of the risks themselves.**

A more comprehensive overview of geographic risk indicators for illegal mining can be found at the [Environmental Crimes Financial Toolkit](#)

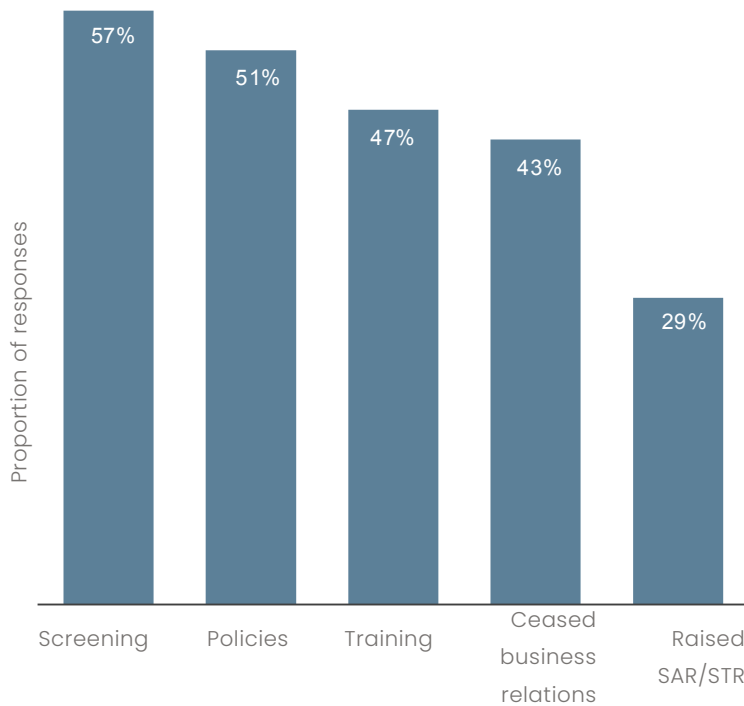


Xusenru from pixabay

## 2.4. From risk to response – what drives FI action?

This section explores how internal awareness, geographic location, and institutional readiness influence action – and where gaps remain. Although 84% of survey respondents reported exposure to at least one high-risk sector for illegal mining, many FIs have not implemented a corresponding level of mitigation.

Figure 11: Actions taken by risk-exposed FIs in response to illegal mining risks



Actions taken by risk-exposed financial institutions to address illegal mining

None of the core controls listed (screening, policy, training) were adopted by more than 60% of exposed FIs.

Notably:

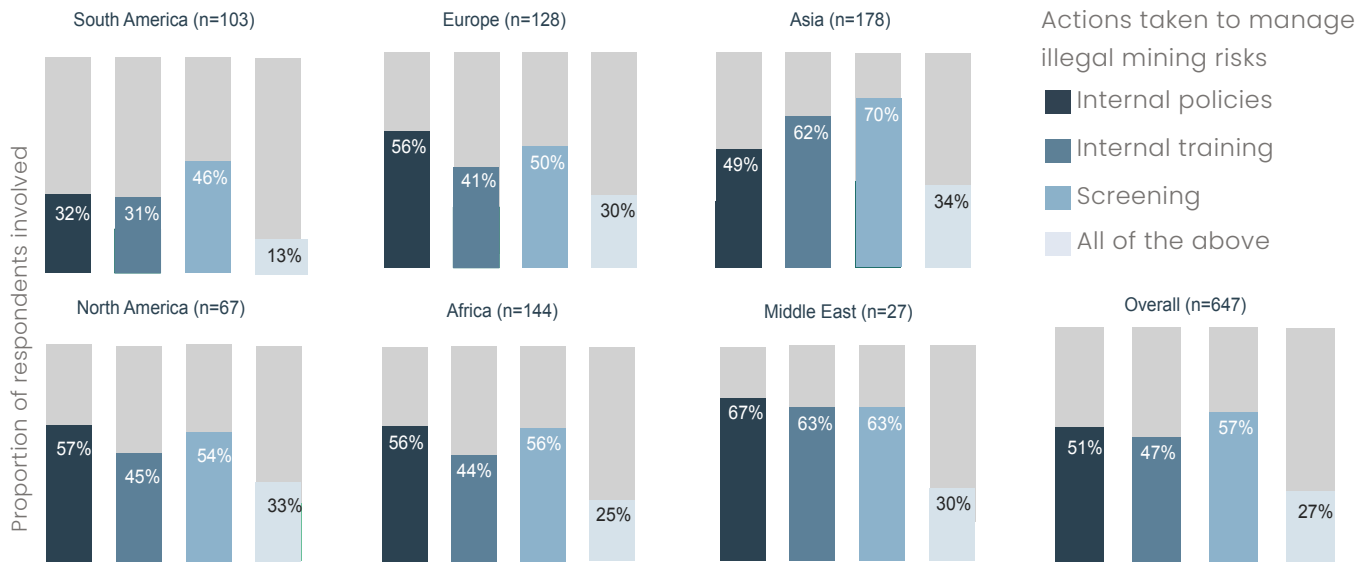
- 40% do not screen for illegal mining risks
- 45% lack internal policies addressing these risks
- 50% do not provide related staff training

*This indicates that many FIs are operating in high-risk sectors without proportionate controls – exposing themselves to potential financial crime, regulatory penalties, and reputational harm.*



## 2.4.1 Regional variations in risk mitigation

Figure 12: Risk mitigation actions taken by FIs in response to illegal mining, by region



Regional trends show variation in how FIs approach illegal mining risk:



Middle Eastern FIs (all surveyed in the UAE) reported the highest adoption of policies (67%) and training (63%), likely due to heightened scrutiny following the UAE's FATF grey-listing (2022–2024) and reports on illegal gold flows.



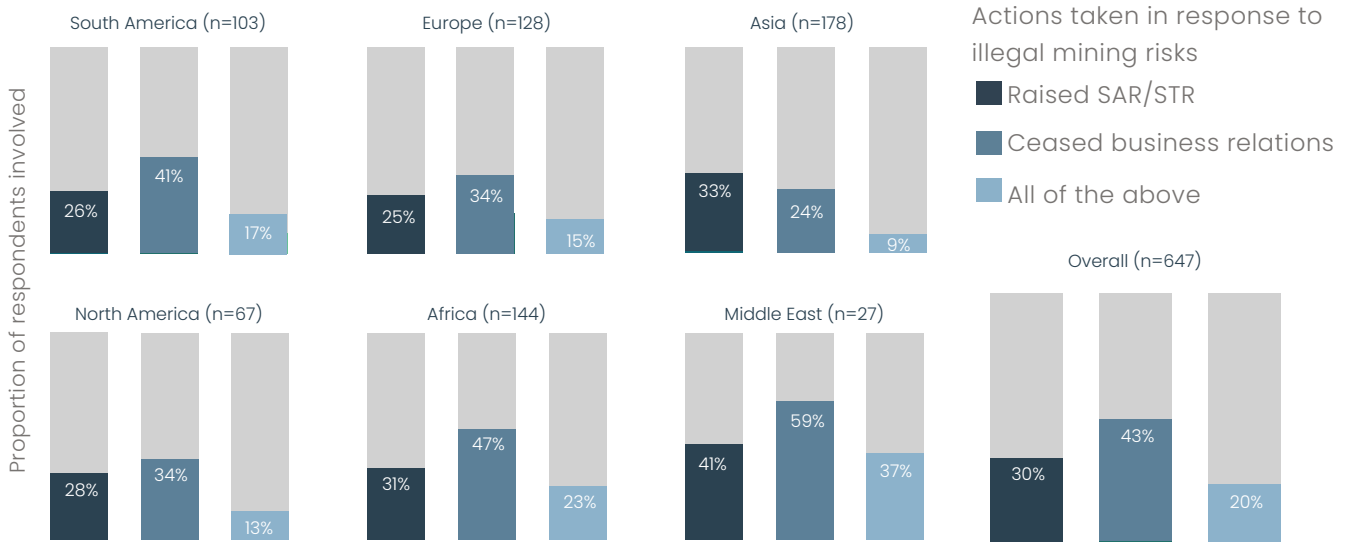
Asian FIs were most likely to conduct screening (70%), though less likely to implement a full suite of controls – suggesting a more focused approach.



South American FIs reported the lowest levels of both training and policy adoption (~30%), potentially reflecting resource constraints or lower regulatory pressure.

Most other regions, including Europe, North America, and Africa, reported moderate control rates (40–60%). **Training consistently lagged behind screening and policy – suggesting many institutions see training as a secondary or later-stage investment.**

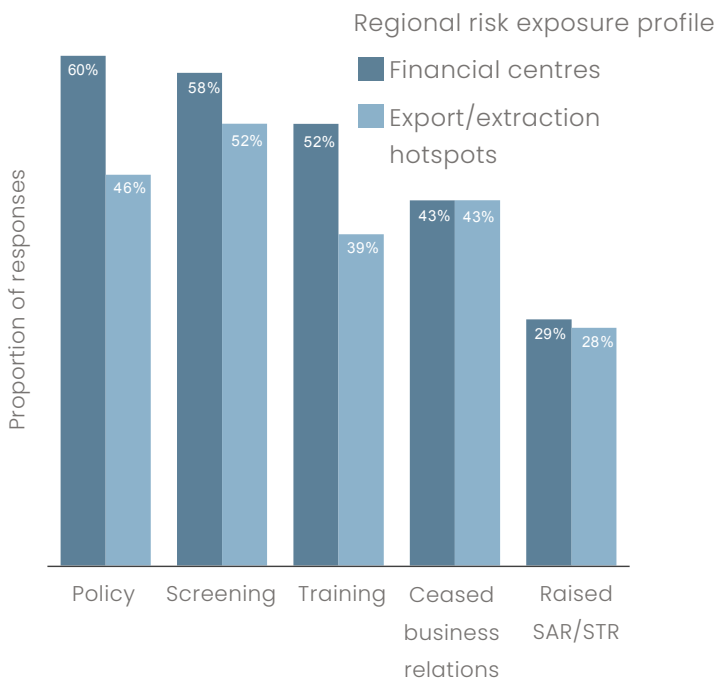
Figure 13: Actions taken by FIs in response to illegal mining risks by region



Respondents in the Middle East were the most likely to have either raised a SAR/STR in response to suspicions about client risk or ceased business relations altogether. It seems congruent that the region with the highest combined rate of training, screening and policy implementation would be best placed to recognise and report suspicious activity. In addition, as noted above, contextual factors such as the FATF’s grey listing of the UAE and/

or international scrutiny over illegal gold flows through the country may have encouraged greater adoption of SAR/STR practices and greater caution over high-risk business relationships. Overall, these results illustrate varying regional priorities in addressing illegal mining risks, likely reflecting different regulatory environments, risk landscapes, and institutional cultures across these geographic areas.

Figure 14: Actions taken by FIs in response to illegal mining risks, by regional risk profile <sup>5</sup>



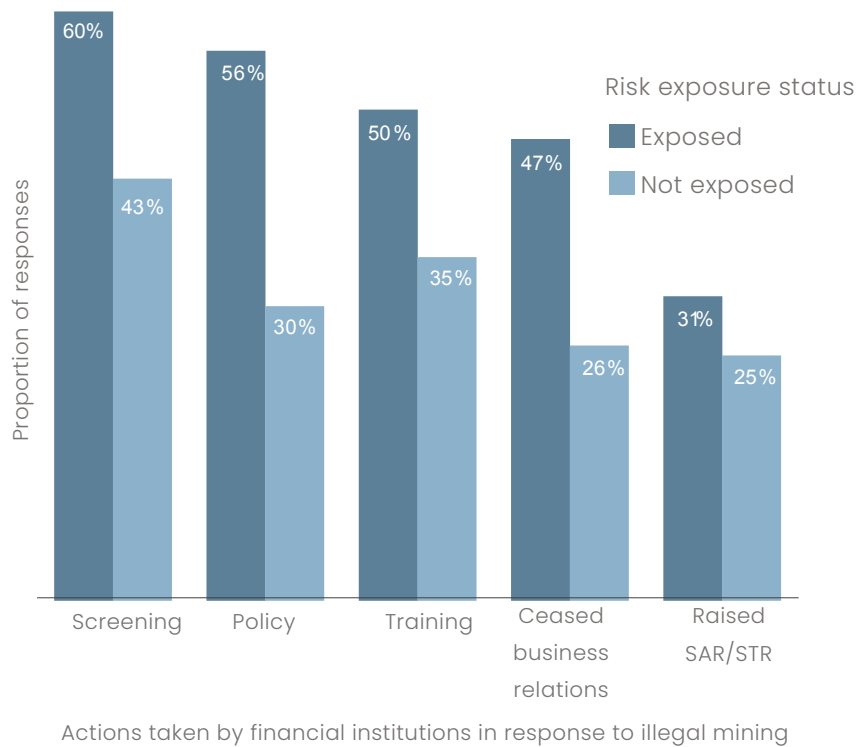
When broken down further into the type of region – export/extraction hotspots and financial centres – additional trends can be seen. **Overall, FIs located in financial centres are more likely to act in response to illegal mining risks in comparison with those located in export and extraction hotspots.** This may be because FIs in these regions have more capacity and resource to implement these actions and are under more regulatory pressure to act. It may also demonstrate that financing is coming primarily from global financial centres rather than extraction hotspots.

<sup>3</sup>Export/extraction hotspots: Brazil, Colombia, Cameroon, Mexico, Nigeria, Peru, South Africa  
 Financial centres: Hong Kong, Singapore, Switzerland, UAE, UK, US

Actions taken by financial institutions in response to illegal mining

While FIs' responses to illegal mining risks overall are not proportionate to the level of risk, there remains a link between risk exposure and action. As seen in figure 22, FIs that are exposed to at least one high-risk illegal mining sector are more likely to screen for risks, implement internal policies and training, and take actions such as ceasing business relations or raising suspicious activity reports due to illegal mining risks. **However, 40% of exposed FIs still do not screen and over 40% lack policies or training**, suggesting that while exposure prompts some response, it does not always lead to comprehensive mitigation. It's unclear whether action is driven by actual exposure, better institutional readiness, or a combination of both.

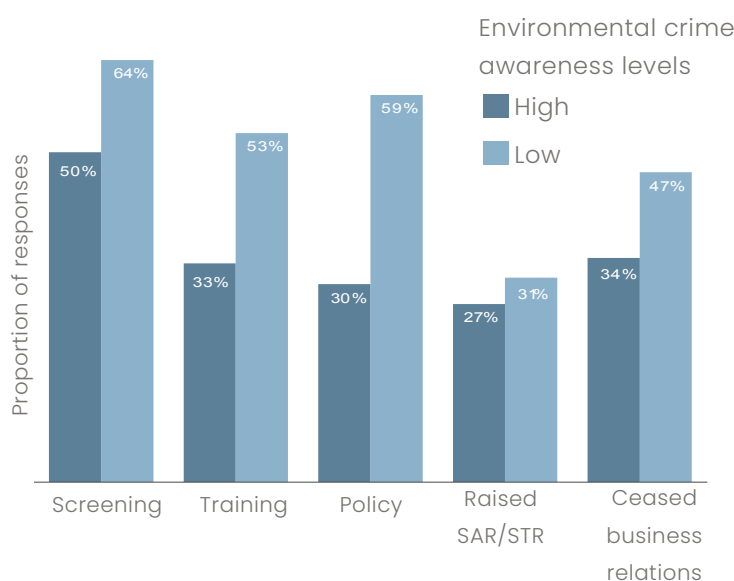
Figure 15: Actions taken by FIs in response to illegal mining risks, by risk exposure



## 2.4.2 Awareness drives implementation

Overall, FIs self-reported a high level of awareness of risks linked to environmental crime, with only 25% of respondents stating that their organisation's awareness was moderate or weak. Data here consistently shows that FIs with higher levels of awareness of illegal mining risks are more likely to have implemented internal policies and training to address these risks compared to those with lower levels of awareness.<sup>9</sup>

Figure 16: Actions taken by FIs in response to illegal mining, by environmental crime awareness levels



Actions taken by financial institutions in response to illegal mining

As discussed, higher levels of organisational awareness of environmental crime are linked with more comprehensive internal implementation of specific policies and training on illegal mining. **Additionally, organisations with higher levels of awareness were consistently more likely to screen for illegal mining, to have ceased relations with a customer due to illegal mining risks, and to have raised a SAR/STR in relation to these risks.**

**This is likely due to the relationship between knowledge, understanding of and attention to risks, and the consequent capacity to identify and address them.** Furthermore, higher levels of awareness may reflect a business-wide approach to environmental crime which may also include, for example, more investment or resources into training, data, and dedicated expertise in house.

It is worth noting that over 30% of respondents from FIs with self-reported high awareness of environmental crime also reported having no policy on illegal mining in place. It is possible that policy implementation simply lags behind awareness, with awareness a prerequisite for understanding the need and advocating for the development of a policy. There may also be other barriers present, such as cost, human resources, knowledge, or willingness, that may be impacting FIs' lack of action.

<sup>6</sup> Participants were specifically asked about their awareness of risks related to environmental crime as an overarching category rather than illegal mining specifically.

<sup>7</sup> These responses are based on subjective self-assessments by survey respondents and should not be taken as objective or as a reflection of all FIs' levels of awareness.

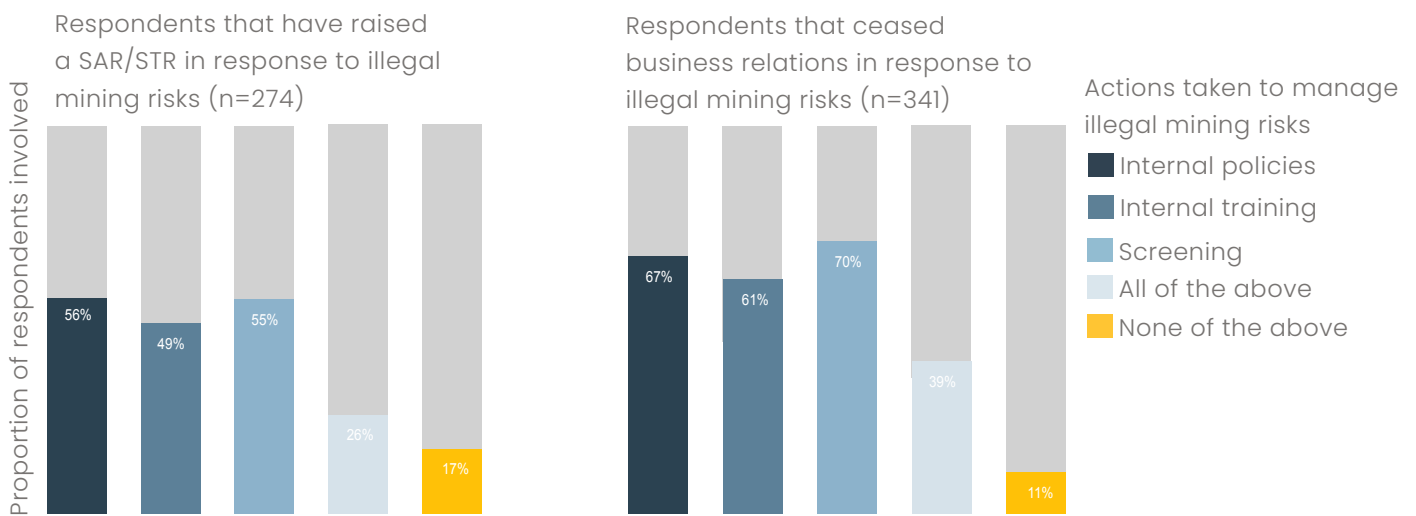
<sup>8</sup> Defined as those who reported 'very strong' or 'strong' levels of organisational awareness of financial crime risks linked with environmental crime.

<sup>9</sup> Defined as those who reported 'moderate' or 'weak' levels of organisational awareness of financial crime risks linked with environmental crime.

## 2.4.3 Stronger frameworks enable stronger action

Among institutions that have raised SAR/STRs, there appears to be a strong tendency to implement comprehensive compliance frameworks; 56% of these institutions have internal policies in place, and an equal percentage conduct screening. Internal training is slightly less common at 49%. Notably, 21% of these institutions implement all available preventive measures (“all of the above”), while a small minority (7%) have none of these in place.

Figure 17: FIs’ responses to illegal mining risks, by internal preparedness actions



FIs that have taken the more severe step of ceasing business relations demonstrate considerably stronger risk management frameworks overall. These institutions show higher implementation rates across all preventive measures: 67% have internal policies (11% higher than the SAR/STR group), 61% conduct internal training (12% higher), and 70% perform screening (15% higher). Most significantly, 39% implement all available preventive measures, which is 13% higher than institutions that only filed SAR/STRs. Only 11% of these institutions have no risk management measures in place.

This data suggests that institutions with more robust risk management frameworks are more likely to take decisive action by terminating business relationships when illegal mining risks are identified, rather than merely filing reports. The comprehensive approach to compliance seen in institutions that cease business relations likely reflects stronger risk awareness, better detection capabilities, and stricter governance policies regarding illegal mining activities.

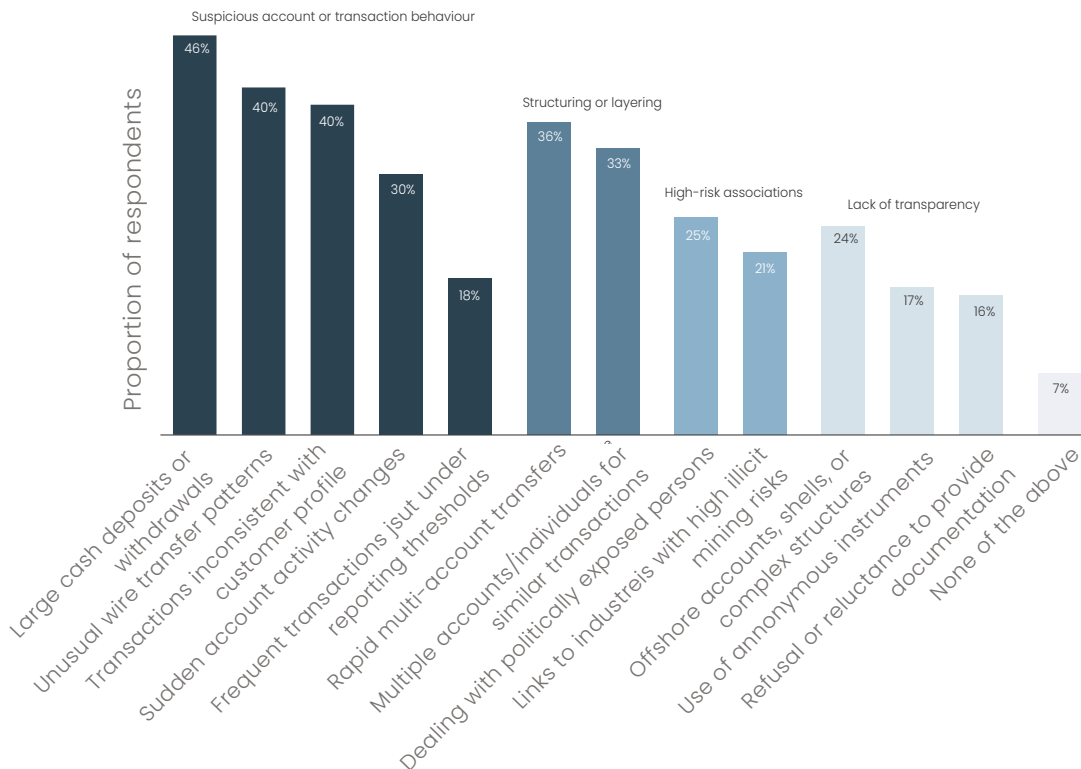
## 2.4.4. What triggers action?

In cases where organisations have ceased activity with a client in response to concerns over illegal mining, respondents also identified the high-risk behaviours that they interpreted as potential indicators of illegal activity. Some of these red flags were reiterated by respondents from FIs that have raised SARs/STRs in response to illegal mining risks. For example, one participant noted that “unusual payment patterns, shell companies, high risk jurisdictions and vague documentation” combined to paint a highly suspicious picture that they further investigated.

Of the respondents surveyed, many reported flagging cases of unusual wire transfer patterns, rapid fund movement through multiple accounts, large cash deposits or withdrawals, and uncharacteristic transactions as a basis for raising SARs/STRs. High-risk associations – either to PEPs or risky industries such as precious metals – were only present in 21% of these cases. This suggests that FIs are more likely to screen for and act on general, well-known indicators of financial misconduct rather than IM-specific red flags.

Alternatively, it may reflect FIs’ knowledge that a range of other financial crimes commonly converge with environmental crimes like illegal mining. It may also support the importance of developing and updating red flags and indicators relating to environmental crimes which can be easily integrated into firms’ screening systems and controls.

Figure 18: Risky behaviours, as identified by FIs that have raised SARs/STRs for illegal mining

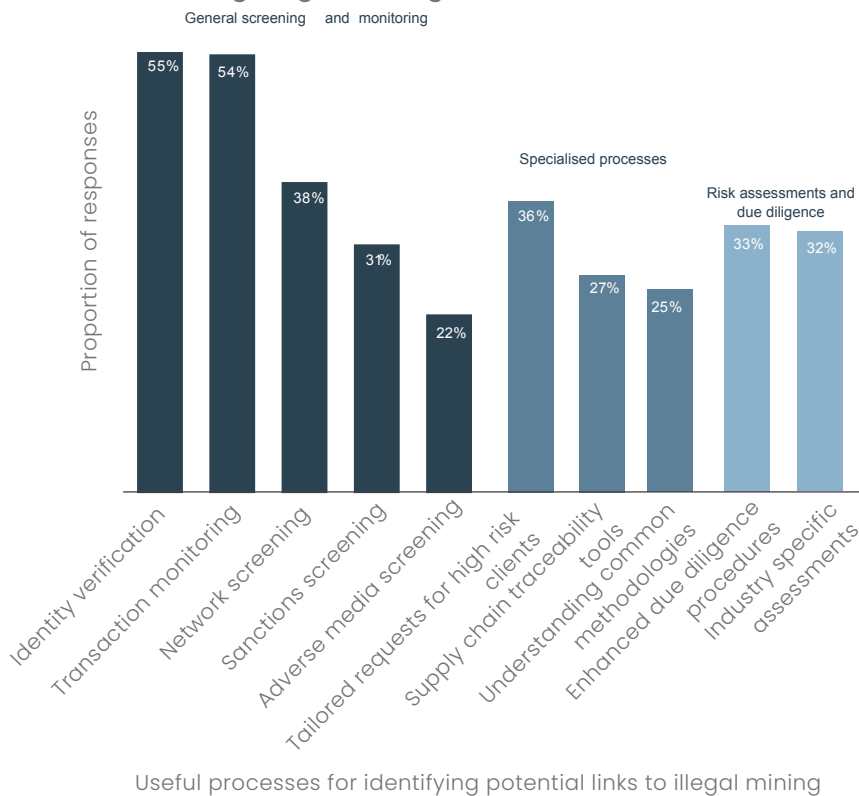


Risky customer behaviours identified by financial institutions that have raised SARs/STRs due to illegal mining risks

## 2.5. Helpful tools, initiatives and procedures

Figure 26 outlines the tools and procedures that respondents found most useful for identifying potential links to illegal mining. Identity verification and transaction monitoring were by far the most popular options – both selected by over 50% of respondents. Options such as adverse media screening were selected to a lesser extent, but one participant explicitly stated that “adverse news related to environmental crimes” was used to inform their organisation’s approach to screening clients.

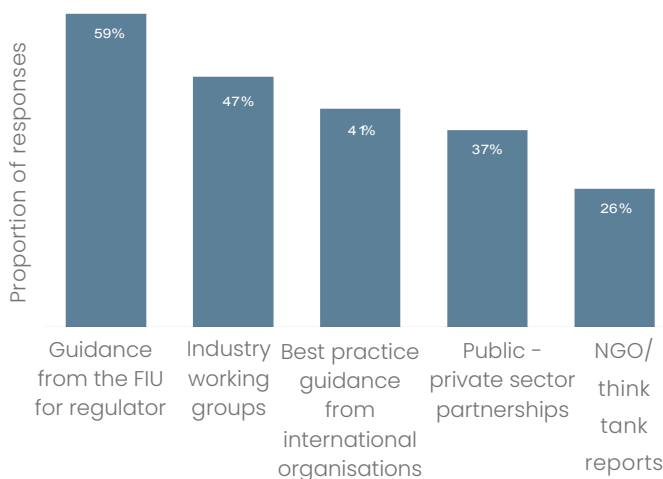
Figure 19: Helpful tools and procedures, as nominated by FIs for addressing illegal mining risks



Respondents across the board found that **guidance from their FIU or regulator was the most useful tool for assisting their organisation in addressing illegal mining risks**, demonstrating the critical role that these bodies play in shaping domestic readiness to tackle environmental crimes.

Similarly, industry working groups were listed as a prominent helpful source of guidance, which potentially reflects their status as trusted organisations composed of FIs themselves, understanding specific risks, pressures, constraints and motivators felt by the industry. Fewer respondents nominated NGO/think tank reports as helpful sources, which may suggest that existing resources are insufficiently tailored to FI perspectives or needs.

Figure 20: Helpful resources, as identified by FIs to address illegal mining risks



Helpful external initiatives as nominated by financial institutions for addressing illegal mining

# Chapter 2 – Key takeaways for FIs

The survey reveals that:

Exposure is potentially widespread, with 84% of FIs surveyed operating in at least one high-risk sector for illegal mining.

Around 40% of FIs operating in high-risk sectors lack basic controls such as screening, policies, or training.

Most FIs demonstrate some awareness of environmental crime risks, but the specific understanding of illegal mining risks and the actions taken appear to be disproportionately low compared to potential exposure levels.

FIs with specific internal policies and frameworks are twice more likely to take action on illegal mining risks, such as filing SARs or exiting risky clients.

Exposure is not limited to high-profile regions and risks extend through global supply chains, including trading hubs, logistics corridors, and end-use industries.

Key high-risk sectors go beyond extractives and include transport and logistics, mining equipment provision, and manufacturing.

Notable red flags include:

Use of shell companies and opaque ownership structures

Misclassification of high-value commodities (e.g. gold labelled as apparel)

Unusual wire transfers and routing via known high-risk jurisdictions

Dealings with brokers or refiners with weak sourcing controls

Large cash withdrawals

## Strategic Recommendations for FIs

Map exposure systematically by incorporating broader assessments of illegal mining risk into existing risk models and third-party screening processes.

Prioritise risk-based focus: Use diagnostic tools to identify where material risks are most concentrated (clients, sectors, regions...) and align interventions accordingly.

Leverage certifications and tools such as the Environmental Crimes Financial Toolkit, traceability platforms, and intelligence sources like Benchmark Mineral Intelligence or Verité.

Integrate mining-specific risk indicators into AML, ESG, and transaction monitoring – including typologies related to gold laundering and shell structures.

Enhance internal coordination between financial crime, ESG and sustainability teams to align detection with broader transition and responsible finance goals.

# 3. Illegal mining and financial crime

Illegal mining is not only an environmental and social issue, but also a significant financial crime issue that exposes FIs to serious legal, regulatory, and reputational risks

The proceeds of illegal mining move through the global financial system, often converging with predicate crimes such as money laundering, corruption, sanctions evasion, fraud, terrorist financing, and human trafficking. Financial crime risks are sensibly higher with illegal mining activities, but they are not limited to them. Depending on the regulatory context, ownership and supply chain structures, risks can also emerge from legally operating or informal entities – including large-scale projects, ASM, and activities in legal grey areas. These blurred boundaries create challenges for compliance teams, as licit and illicit mineral flows can intermingle, masking the true origin and the full risk profile of assets.

As gatekeepers of the financial system, FIs are both vulnerable to these risks and uniquely positioned to disrupt them. This chapter explores how illegal mining intersects with financial crime, outlines common risk exposure points across business lines, and identifies red flags and practical tools for mitigation. By deepening their understanding of the complex convergence between environmental and financial crime, FIs can better meet legal obligations, reduce exposure, safeguard their reputations, and contribute meaningfully to broader efforts to combat illicit finance and nature crime.

## This chapter:

### Section 3.1

Outlines the **regulatory, reputational, and material risks – both direct and indirect** – that exposure to illegal mining and related environmental crimes pose to FIs

### Section 3.2

Identifies **key sectors and financial services most vulnerable** to illegal mining exposure, including trade finance, insurance, commercial banking, and asset management

### Section 3.3

Examines **how illegal mining converges with predicate crimes such as money laundering, corruption, tax evasion, terrorist financing, and human trafficking** – and what this means for financial crime detection and mitigation

### 3.1. Exposure to illegal mining

The risks that FIs face from exposure to illegal mining and other forms of environmental crimes are manifold. These risks can be direct or indirect, and can be broadly categorised into legal, regulatory, reputational, and physical (or material) risks.

These risks can all emerge from both direct and indirect exposure:

**Direct exposure:** FIs face direct risk by providing financing (such as debt or equity) or other financial services to companies significantly exposed to or involved in illegal mining.

**Indirect exposure:** FIs may face indirect risks through third-party relationships and investment chains (e.g. investing in banks that lend to companies with illegal mining exposure or in funds that hold shares in such entities).

See Figure 1 for an overview of key risks that FIs face from exposure to illegal mining.

#### Key risks:



##### Legal risk

This suite of risks can materialise as lawsuits, fines, or criminal charges for enabling or financing illegal mining activities, such as companies sourcing gold without legal authorisation from protected areas or without IPLC consent on Indigenous lands. FIs face significant risks if found to be implicated in activities such as illegal mining, with specific minerals now subject to a growing raft of national and international laws. Given the frequent convergence of illegal mining with money laundering and terrorist financing, there are strong legal risks for FIs that may be caught up in financing or facilitating illegal mining operations (FATF, 2015). Legal risks tend to be hard risks and may also include liability under extraterritorial laws like the U.S. Lacey Act, The Foreign Corrupt Practices Act (FCPA), or the EU Corporate Sustainability Due Diligence Directive (CSDDD).



##### Regulatory risk

This includes a mixture of soft and hard risks stemming from failure to comply with ESG schemes and commitments, AML regulations, and environmental disclosure frameworks. Examples include non-compliance with OECD Due Diligence Guidance for Mineral Supply Chains, the EU Deforestation Regulation (EUDR), or the German Supply Chain Act. FIs are specifically subject to AML laws such as the [Bank Secrecy Act 1970 \(US\)](#) and the [Anti-Money Laundering Directives \(EU\)](#), both of which legally require FIs to submit SARs/STRs when they identify financial transactions that may relate to the proceeds of illegal activities. Weak internal Due Diligence (DD) or Know Your Customer (KYC) practices on clients and investments that may be involved in mineral extraction, trade or logistics can exacerbate risk and exposure.

## C A S E S T U D Y

## Large machinery companies implicated in illegal mining operations on Indigenous and protected lands

A 2023 investigative report found that 75 excavators were in use by illegal gold miners to deforest Indigenous lands of the Yanomami, Munduruku, and Kayapó People (Greenpeace, 2023). Between April 2023 and 2024, 90 backhoes were seized on Indigenous and protected land with the use of such heavy machinery tied to escalating illegal mining activities in the region (Reporter Brasil, 2024b). Companies selling equipment for illegal mining – and the banks providing them finance and credit – may face legal consequences (The Guardian, 2023b).

In response to questions from reporters, one of the companies clarified that it has a rigorous internal sales process in place to block customers suspected of involvement in illegal mining activities, and that it requires all customers to declare that the equipment will not be used to illegal mining purposes (Reporter Brasil, 2024a). However, the company is reliant upon local distributors and, as highlighted by other equipment manufacturers, it becomes difficult to monitor machinery when operators deliberately remove trackers when entering protected areas (Reporter Brasil, 2024a).



### Reputational risk

As public awareness of environmental crime grows, FIs risk reputational damage if they are seen to be contributing to or complicit in illegal resource exploitation and environmental degradation. This may lead to adverse media attention, downgrading of ESG ratings, and harm to public trust, brand value and stakeholder confidence. For example, in the first 100 days following the BP Deepwater Horizon oil spill – for which the company was fined over \$25 billion USD – the market cap value dropped 59% (CNBC, 2011). FIs' exposure to mining is high. It was recently revealed that banks have provided \$37.7 billion USD in credit to mining companies that have been accused of causing deforestation, water contamination, and human rights abuses across Southeast Asia, Central and West Africa, and Latin America (Forests and Finance, 2022a). Furthermore, as of 2022, investors hold \$61 billion USD in shares and bonds issued by these same companies (Forests and Finance, 2022b).

While image and reputation are particularly affected in cases accompanied by criminal or civil charges, reputational risks are not exclusive to these situations and can be exacerbated by sustained media attention when environmental crime intersects with human rights abuses (CNBC, 2011; Data Center Dynamics, 2022; Quartz, 2024; Voice of America, 2024). Illegal mining, for example, is often linked with child labour and violence (Voice of America, 2024) and major tech companies were taken to court in 2019 by bereaved parents over the deaths of children mining for cobalt in the DRC (The Guardian, 2019).



### Transition and material risk

Most FIs and businesses are, ultimately, directly or indirectly reliant on nature. According to the World Economic Forum, over 50% of the global GDP is reliant on natural resources and ecosystem services, including minerals, timber, clean water, fertile soil, pollination, and climate (World Economic Forum, 2020). Crimes like illegal mining accelerate environmental degradation and resource depletion, which can undermine the viability of key investments and assets in sectors like agriculture, mining, energy, trade, construction, and manufacturing (United Nations, 2023; Mongabay, 2018). The pressure of the growing demand for energy transition minerals, coupled with sudden climate and ecosystem shocks, can create shifts in natural resource governance frameworks, pricing, and availability, and lead to financial losses.

As a result, FIs face tangible risks, including supply chain disruptions, reduced borrower capacity to repay loans, collateral devaluation, and the creation of stranded assets. For example, a mining operation that loses its concession due to environmental violations or community opposition may no longer generate returns, impairing any linked financial products. Similarly, if illegal mining contaminates water or agricultural soils, businesses in the food, beverage, or textile industries may experience disruptions, reducing their ability to service debt or realise profits (Almeida et al, 2022; WWF, 2022).

## 3.2. High-risk sectors

FIs can be exposed to illegal mining risks across a wide range of business lines, but the existing evidence suggests that some sectors can be riskier than others. Exposure is not always direct, and often stems from upstream or downstream links within the value chain, making due diligence and monitoring essential.

### Trade finance

#### Trade and export financing

FIs may provide trade or export financing to businesses involved in the mining sector, facilitating the sale of minerals extracted through illegal practices (Trade Finance Global, 2025). When acting as third-party intermediaries in this capacity, FIs take on more of the risk themselves (FATF, 2008). This is exacerbated by the continued reliance on paper documentation, such as bills of lading – essential legal documents issued by carriers to shippers detailing the quantity, type, and destination of the goods in transit – which are sometimes hand-written and susceptible to alterations (for example, by changing the area of origin).

#### Commodity trading

FIs can be directly exposed to illegal mining risks through the buying and selling of raw minerals (MutualFunds, n.d.).

#### Mutual funds

FIs may facilitate exposure to illegal mining through mutual funds or exchange-traded funds (ETFs) that track sectors or commodities, including minerals, without adequately assessing whether the companies or their supply chains adhere to legal and ethical standards.

#### Insurance

Provision of insurance to companies in or related to the mining sector (e.g. transport) can expose FIs to illegal mining risk, particularly as insurers across the world often have little to no AML obligations (ACAMS, 2022). For example, when providing insurance for ships, FIs are rarely aware of what physical goods are in transit; these may include commodities like illegally mined minerals.

### Banking activities

#### Personal and commercial bank accounts

FIs can unwittingly process or hold funds linked to illegal mining activities – including those run by criminal groups wishing to launder their profits through the international financial system – making them vulnerable if they fail to detect the illegal origin of the funds. For example, in 2025, Ghana's Financial Intelligence Centre froze all bank accounts linked to Akonta Mining and its Chairman, Bernard Antwi Boasiako, pending an investigation into allegations of illegal mining in the Tano Nimiri Forest Reserve (Ghana Web, 2025).

#### Cash-intensive business clients

Illegal mining, like most illegal economic activities, involves large amounts of cash in the early stages of the supply chain. Criminals will often use cash-intensive businesses mimicking behaviours associated with legal activities to handle and funnel criminal proceeds (FATF, 2021b). As such, FIs whose clients include cash-intensive businesses risk exposure to illegal mining operations, especially in higher-risk jurisdictions.

#### Correspondent banking

FIs may provide services like facilitating wire transfers, conducting business transactions, accepting deposits, or gathering documents to unknown 'end clients' through correspondent banking relationships with respondent banks in high-risk jurisdictions for illegal mining or those in less-regulated regions with fewer controls (Protiviti, 2022). The lack of oversight, relative opacity of many correspondent banking relationships and comparatively low traceability of funds can enable funds to flow through the correspondent banks' networks, potentially financing illegal mining activity (Moody's, 2025).

### Money transfer systems and foreign exchange services

Criminals may launder the proceeds of illegal mining through money transfer services – especially informal value transfer systems – which are particularly susceptible to money laundering, since many are unregulated (ACAMS, 2022).

### Digital payment platforms

The rapid growth in the use of online payment platforms has provided criminals with new avenues for their illegal activities, including those associated with illegal mining. For example, an individual may use a digital payment system to purchase equipment for illegal mining operations or transfer proceeds from the sale of illegally mined commodities. The speed and convenience of such platforms appeals to criminals, as does the fact that many are still working to implement adequate transaction monitoring systems. For example, in 2024, Paywell and Sajilo Pay were found to have facilitated illegal gold smuggling through their platforms (The Rising Nepal, 2024).

## Corporate and investment banking

### Investments, pensions, investment banking, private equity investment and venture capital

FIs may inadvertently directly invest client – or their own – funds into companies involved in illegal mining activities, particularly in jurisdictions with weak regulatory oversight (LBMA, n.d.). They may also offer access to private equity or venture capital funds that invest in companies linked to illegal mining, either directly through mining operations or indirectly via supply chain businesses.

### Commercial lending and project financing

FIs that provide fixed and working capital loans or lines of credit to mining companies – or to related firms, such as equipment suppliers or transport providers – without sufficient due diligence may inadvertently finance illegal mining operations, particularly in high-risk regions with weak regulatory oversight. In cases where FIs finance large-scale mining projects, they risk funding illegal mining if the project or subcontractors are involved in illegal practices such as unlicensed mining or environmental violations (PWC, 2013).

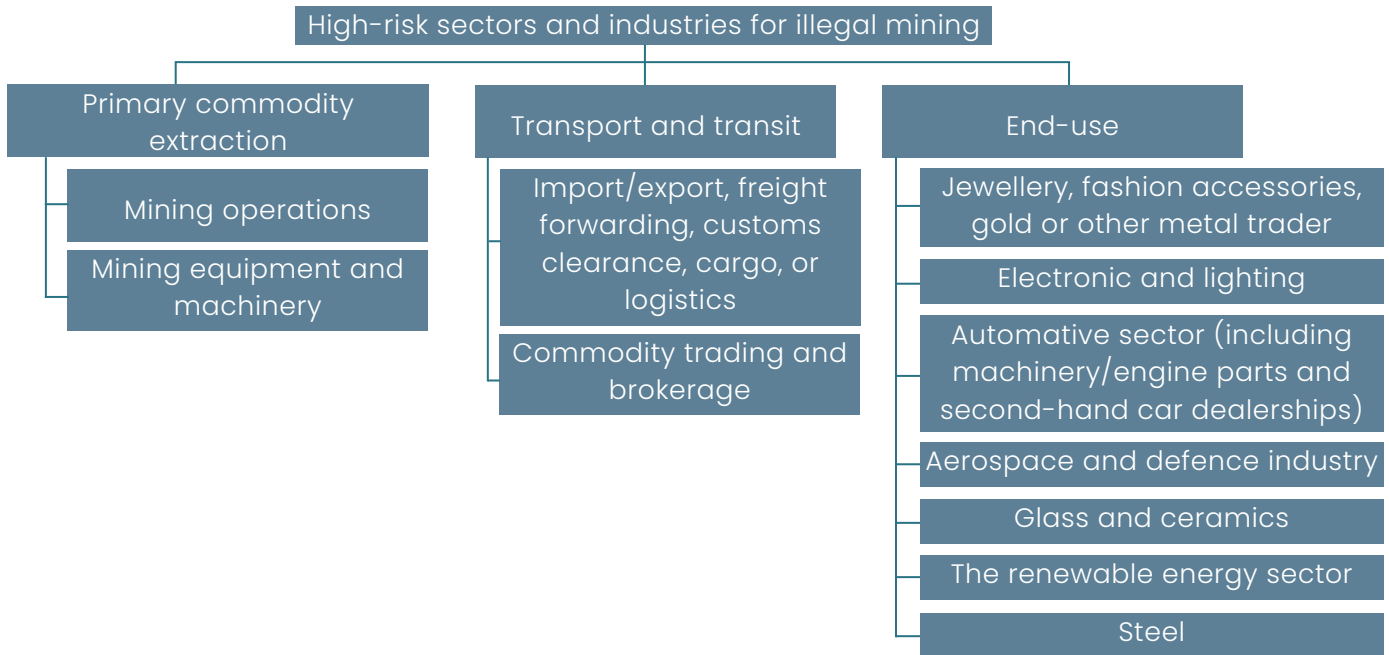
### Nominees and trust services

Criminals involved in illegal mining may use networks of intermediaries, including nominees, custodians and trusts, to disguise the beneficial ownership of a bank account, investment fund, or other financial instruments to avoid detection and to prevent such accounts from being linked back to an individual or company (ACAMS, 2022).

### Asset and wealth management

FIs offering asset management services may manage portfolios containing stocks, bonds, or funds that invest in mining companies with ties to illegal or unregulated mining practices, particularly in countries with high levels of corruption or conflict minerals (PWC, 2013).

Figure 27: High-risk illegal mining regions, as perceived by financial institutions



### 3.3. Convergence with predicate crimes

In the context of AML/CFT, **predicate crimes are the underlying criminal offences that generate illicit proceeds, which are then laundered through the financial system to disguise their illegal origins.** Predicate crimes are therefore the starting point for tracing financial flows linked to serious criminal activity.

The FATF includes a defined list of such offences in its 40 Recommendations, which serve as the global standard for AML/CFT frameworks (FATF, 2025). These predicate offences are incorporated into national legislation – for example, the EU’s 6th Anti-Money Laundering Directive (6AMLD) identifies 22 predicate offences, while the U.S. Bank Secrecy Act (and its expansion under the Patriot Act) covers over 200 offences (FCA, 2025). **Environmental crime, including illegal mining, is increasingly recognised as a predicate offence to money laundering in many jurisdictions, including in the EU and US.**

For FIs, understanding how predicate offences relate to environmental crimes like

**illegal mining is essential.** These underlying crimes not only drive illicit financial flows but also present material compliance, legal, and reputational risks to the financial sector. Tracing predicate crimes enables law enforcement – and by extension, FIs – to identify the origins of suspicious transactions, dismantle criminal networks, and prevent proceeds from entering the financial system.



Illegal mining frequently converges with other serious predicate offences, including bribery and corruption, tax evasion, fraud, trafficking, and terrorism financing. These connections often shape how the proceeds of illegal mining are laundered or legitimised through formal financial channels. Different mining modalities may carry distinct financial crime risk profiles.

For instance:

ASM and informal operations often pose higher risks related to terrorist financing and smuggling, due to low entry barriers and limited oversight. Criminal actors can easily embed themselves as middlemen or aggregators in these loosely regulated sectors (FATF, 2021a).

Large-scale mining, by contrast, is more frequently associated with corruption, procurement fraud, and tax evasion, especially where PEPs or state-owned enterprises are involved. These operations also pose a risk of tainted minerals entering formal supply chains, further complicating due diligence for downstream actors (GI-TOC, 2016)

### 3.3.1. Money laundering and trade-based money laundering

Criminals use a variety of techniques to launder and conceal the nature of the proceeds of illegal mining, including through the creation or the misuse of front companies in trade, logistic and financial services to comingle licit and illegal commodities, especially in the early stages of the supply chain.

The FATF has noted that networks of complex corporate structures, intermediaries and offshore jurisdictions are often employed to conceal illegal financial flows from illegal mining and to layer funds (FATF, 2021a).

Front or shell companies, especially those that relate to natural resource markets or import-export and display large numbers of transactions with low individual profit margins, can be used to blend gains from illegal mining into legitimate business accounts, often in remote areas to evade scrutiny (FATF, 2021a). These operations may also rely on offshore entities, third-party transactions, and complicit intermediaries (e.g. lawyers and refiners). Cash intensive sectors which are not linked to natural resources are also employed, often with links to the import-export sector, facilitating the appearance of payments to suppliers and legitimate invoices (FATF, 2021a).

Regional financial centres, which can act as trade intermediaries facilitating the comingling of minerals (e.g. through trade finance facilities) are particularly vulnerable to money laundering (FATF, 2021a). They process large volumes of trade flows, utilise multiple currencies, and deal with diverse trade financing arrangements, and the mix of legal and illegal funds can be more easily obscured in such complex environments (FATF, 2006). Existing vulnerabilities are exploited by criminals who may, for example, register incorrect values of gold shipments on customs documentation to disguise unrelated illegal transactions amongst legitimate trade flows (Organization of American States, 2022b). Informal and underground money transfer services like hawala are also – the FATF noted – used in regionally specific ways to facilitate money laundering related to illegal mining (FATF, 2021a).

For an in-depth case study on illegal mining and finance, see section 5.2.

## C A S E S T U D Y



### Blowing the whistle on money laundering

According to investigations from the International Consortium of Investigative Journalists (ICIJ), BBC Panorama, Premières Lignes, and Global Witness, a high-profile Dubai gold dealer bought precious metals from sellers accused of laundering money for drug traffickers and criminal groups (International Consortium of Investigative Journalists, 2020). It was also accused of purchasing Sudanese conflict gold in 2012 (Global Witness, 2020). Between 2007 and 2016, more than \$9.3 billion USD worth of Kaloti transactions were flagged in suspicious activity reports (International Consortium of Investigative Journalists, 2020).

In 2013, external and internal auditors from a bank where the dealer held accounts identified suspicious activity indicative of money laundering (BBC, 2019). Whistleblowers from the firms reported being ostracised as a result of raising the alarm, and the external auditor leading the investigation later sued their firm for covering up the company's failings and for being pushed out of the firm (BBC, 2019). The London High Court awarded them \$11 million USD – a decision that the firm briefly appealed before abandoning (International Consortium of Investigative Journalists, 2020).

Following reports of the dealer's suspicious behaviour, the US Treasury commenced an investigation into its financial transactions and email communications. Between 2013 and 2016, four major banks closed accounts associated with it. However, the Treasury ultimately closed the case without charges or a designation of the dealer as a money laundering threat (International Consortium of Investigative Journalists, 2020).




## 3.2.2. Fraud

Mining operations can rely heavily on fraud at any stage of the supply chain to evade official regulation – for purposes ranging from reducing refining costs to covering up illegal extractive activity.

This can include, for example, falsification of mining permits or environmental assessments for extraction activity, fraudulent certification of origin or customs documentation to justify mineral movement, or misrepresentation of weight, purity or value to facilitate trafficking and laundering of illegal minerals into licit supply chains (FATF, 2006, 2021a). In 2024, for example, the Guatemalan government revoked an environmental license for a Canadian-run gold mine, citing forged signatures and the suspicious loss of more than 900 pages of project documentation (Tico Times, 2024).

The blurred line between trade-based fraud and trade-based money laundering is especially evident in the gold sector, often making the two hard to separate (trade-based fraud is often used to disguise the origin of illegally mined materials, while trade-based money laundering aims to legitimise proceeds derived from illegal mining).

Fraud is also closely linked to the laundering of illegally mined minerals. Common typologies include:

-  False invoicing and misdeclared trade transactions to justify fund movement across borders.
-  Smuggling legally mined minerals into other jurisdictions to access cheaper processing, often supported by fraudulent customs paperwork (The Investor, 2024).
-  Commingling illegal minerals with legal ones (especially gold), making it difficult to distinguish between legitimate and illicit origin.

The mining sector is also vulnerable to investment fraud. The speculative nature of mining – especially at early exploration stages – makes it an appealing vehicle for Ponzi schemes and fraudulent ventures, some linked to organised crime (FATF, 2015).



## I N F O C U S

## Gold laundering and money laundering through gold

Gold is particularly attractive to financial criminals due to its high liquidity and stable (or increasing) value. In addition, once mined, gold is difficult to trace to its origin, making it a convenient medium for laundering both products of illegal mining and profits from other crimes (Smith et al., 2024).

Gold laundering often follows a three-stage model:

1. **Sourcing and placement:** Illicit or illegal gold is sourced and inserted into the supply chain (e.g. sold to refineries, smelters or mixed with legal shipments) without adequate verification of source or false documentation.
2. **Layering:** The gold is moved across multiple entities and jurisdictions. One method is manipulating Harmonised System (HS) Codes through what customs officials call a 'tariff shift'. For example, gold ore from Country A (HS code 710812) may be smelted

into jewellery in Country B (HS code 711319), allowing it to be re-exported with a new origin and product classification – effectively concealing its illicit source.

3. **Integration:** The refined gold re-enters the legal market, indistinguishable from legitimate sources and now free for use in trade, manufacturing, or investment.



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### 3.3.3 Corruption and bribery

Corruption plays a central role in enabling illegal mining. Illicit minerals – particularly high-value commodities like gold – can both fund corrupt practices and serve as vehicles for laundering the proceeds of corruption.

Bribery and corruption are used throughout the mining supply chain to:

- Facilitate extraction on protected or indigenous land by securing permits or concessions through corrupt officials.
- Smuggle essential inputs (e.g. mercury, cyanide, or machinery) across borders.
- Allow for the export of unregulated or misclassified minerals, like gold declared as scrap rather than bullion (Organization of American States, 2022b; Smith et al., 2024).

Customs officials may be bribed to allow mercury imports for use in illegal gold mining or to ignore irregular gold shipments. Bribes can be paid in various forms, including cash, a share of mined

gold, equity in operations, or other benefits. In many cases, corrupt actors do not need to actively enable illegal activity – turning a blind eye to environmental violations, unlicensed operations, or suspect exports can be just as impactful. This passive corruption is often seen as a low-risk, high-reward strategy by officials, particularly in weak governance contexts (Organization of American States, 2022b).

Corruption also facilitates other crimes that commonly converge with illegal mining, such as human trafficking (linked to labour exploitation or sex trafficking in mining regions), drug trafficking, and tax evasion. Large-scale mining and ASM operations

are all exposed to corruption risks. Permits, environmental approvals, and political influence can all be targets for bribery, creating systemic vulnerabilities across the sector (Alm et al., 2016; International Narcotics Control Board, 2010; UNODC, 2023a).

### 3.3.4 Tax evasion

Tax evasion, on both large and small scales, is often associated with illegal mining, but has also been observed in legal mining operations (Global Citizen, 2022).

Mining companies can evade taxes to increase margins, siphoning critical public revenue from the points of extraction – typically developing countries (Davis, 2024). This is often aided by corrupt relations between private and public sector officials. Tax evasion by mining companies can occur in different ways, including:

**Transfer pricing tactics** relate to products or services sold to or interest bearing loans between other companies (sister and parent companies, subsidiaries, or subcontractors) at discounted rates. These tactics can reduce profits in the country of extraction – typically developing countries – rerouting gains to the lower-tax offshore jurisdictions with favourable conditions for tax evasion and avoidance (Kaminski, 2024).

**Underpricing commodities** to avoid tax liabilities, import duties, exchange and customs controls or tariffs, or to take advantage of export subsidies (Smith et al., 2024).

**Arbitrage of tax incentive schemes**, in place in various jurisdictions to promote trade and economic growth, given global demand for gold-based commodities (FATF, 2015).

On top of profits being moved across borders on balance sheets, illegal minerals are also physically smuggled across borders undeclared, evading taxes. In the DRC, for example, the country's Finance Minister stated that minerals illegally smuggled to Rwanda in 2023 alone, caused a 1 billion USD loss in tax revenues (ENACT, 2024). Furthermore, artisanal or informal miners may not declare tax, and governments may lack the resources to sufficiently regulate or enforce taxation on small-scale mines (Rumbidzai et al., 2021).



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## C A S E S T U D Y



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### Multinational corporations dodging tax in Mongolia

In 2022, Mongolia recovered \$228 million USD in tax evaded by a multinational mining giant (Global Citizen, 2022b). Back in 2009, the corporation signed an agreement with the Mongolian government to manage and operate the Oyu Tolgoi mine – one of the world’s largest copper and gold sites (Shafaie, 2015). However, despite more than \$1 billion USD in annual revenue from the project, the mine failed to yield much financial benefit for the Mongolian government (Junior Mining Network, 2017). It later came to light that the mining giant was using transfer pricing – selling goods or services under the same corporate umbrella at a manipulated price, or funneling profits through a subsidiary in a tax haven – to reduce its tax burden, taking advantage of Mongolia’s under-resourced tax agency (Oxfam, 2018).

With Mongolia’s mining sector accounting for 19% of its gross domestic product and dominated by multinational companies, tax evasion in cases such as this syphons crucial revenue away from its public finances (IGF, 2022b).

### 3.2.5. Sanctions evasion

Illegal mining often occurs in or around jurisdictions subject to international sanctions due to conflict, corruption, or human rights abuses. The UN Environment Programme estimates that natural resources are linked to 40% of intrastate conflicts, underscoring the role of extractives in the geopolitical arena (UN Peacekeeping, n.d.; Mongabay, 2024b).

Sanctions may target specific commodities (such as gold), or entities and individuals involved in mining operations in sanctioned regimes (US Department of the Treasury, 2023). Sanctions evasion through illegal mining is well documented. For example, in Russia, gold has been stockpiled to shield reserves from Western sanctions (Hunter, 2022); in Venezuela, the Maduro reportedly used illegal gold sales to obtain foreign currency and to avoid sanctions on the state-owned gold company (Reuters, 2019; US Department of the Treasury, 2019). Sanctioned resources often move through transit countries to obscure their origin.

Sanctioned resources often move through transit countries to obscure their origin. As a result, FIs may unintentionally support sanctions violations when:

- Providing trade finance, loans, or payments tied to commodities smuggled from sanctioned countries.
- Failing to identify ultimate beneficial owners (UBOs) or intermediary entities acting on behalf of sanctioned actors.
- Relying on incomplete or manipulated shipping and customs documents, with minerals and metals declared as generic commodities or scrap.

For FIs, the risk is not only regulatory but reputational. Even inadvertent exposure to sanctions violations can result in significant fines, loss of correspondent banking relationships, and inclusion in enforcement actions or blacklists (Moody's, 2024).

For an in-depth case study on the convergence between sanctions evasion and illegal mining in the DRC, see section 5.9



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### 3.3.6 Terrorist and conflict financing

Illegal mining is often used to finance conflict or terrorism, with terrorist organisations, militia, or transnational criminal groups generating income through illegal mining operations or by smuggling illegally mined minerals (United Nations Security Council, 2022).

Proceeds from illegal minerals can and are used to procure weapons that are used in and perpetuate conflict (Stockholm International Peace Research Institute, 2022). Legislative responses such as the [Dodd-Frank Act 2010 \(US\)](#) and the [Conflict Minerals Regulation 2017 \(EU\)](#) target tin, tantalum, tungsten and gold, given their link to conflict and terrorist financing, particularly in politically unstable regions.

Illegal coltan mining has been linked to terrorist groups in South America, particularly as a source of income for drug traffickers and paramilitary in Colombia (The Center for Public Integrity, 2012). In Africa, in 2024, the Nigerian president explicitly linked terrorism financing to illegal mining at a high-level meeting on counterterrorism (Punch, 2024). Cobalt has been strongly tied to conflict financing in the

Northern Kivu region of the DRC, where armed groups actively embroiled in domestic conflict have taken control of cobalt mines to buy arms and enrich their leaders (Prospect, 2024). Gold is another desirable commodity for terrorist organisations. The UN has reported that illegally smuggled gold from Sudan's Darfur to the UAE, for example, contributed \$123 million USD to armed groups' coffers between 2010 and 2014 (Reuters, 2016).

Conflict minerals are often accompanied by widespread human rights abuses – including forced labour, displacements and trafficking – and environmental destruction (NPR, 2023). These conditions are generally exacerbated in conflict zones, where the rule of law is weak and where weapons are often more readily available (IGF, 2022a).

For an in-depth case study on the convergence between terrorist financing and illegal mining in the Sahel, see section 5.10.



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## C A S E S T U D Y



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### The Wagner Group and the Africa Corps

The Wagner Group is a Russian private military company that plays a significant role in illegal mining activities in Africa, particularly as part of Russia's broader strategy to exert influence and secure economic resources in resource-rich, politically unstable regions (Council on Foreign Relations, 2023). The group's involvement in illegal mining operations is intertwined with its global financial networks and linked to conflict financing (Council on Foreign Relations, 2023).

A 2023 report from US think tank 21 Democracy estimates that the Wagner Group – taken over by the mercenary group known as Africa Corps in 2024 – has earned more than \$2.5 billion USD from African gold since February 2022 (21 Democracy, 2023). The group has a sophisticated smuggling network to move illegally mined resources,

particularly gold and diamonds, out of Africa and has been accused of using violence to secure control of mining areas, displacing local communities and exploiting workers into the global market (21 Democracy, 2023).

The US has sanctioned the group for its exploitation of natural resources in countries such as the Central African Republic (CAR) and Mali that create a revenue stream for conflicts across the region, and for links to the conflict between Russia and Ukraine (US Department of the Treasury, 2023).

These practices also often violate international sanctions, like restrictions against the Wagner Group by countries such as the US and UK, highlighting the linkages between illegal mining, sanctions evasion, and conflict financing (US Department of the Treasury, 2023).

### 3.3.7 Environmental crimes

**Illegal mining frequently occurs in tandem with – and is a driving cause of – other environmental crimes.**

For example, from 2001 to 2020, the world lost nearly 1.4 million hectares of trees from mining and related activities (World Resources Institute, 2024b). In affected regions such as the Congo Basin and in the Amazon, land is cleared to make way for both the primary sites of extraction and the associated infrastructure (e.g. roads, airstrips, and mining camps) which allows machinery, supplies and labourers to access these sites (The Conversation, 2024).

A key enabler of this environmental degradation is the rapid spread of ‘ghost roads’, a term used to describe illegally built roads not recorded on maps. These roads often cut through areas rich in biodiversity, allowing illegal loggers, miners, and wildlife poachers easier access

to rainforests (The Guardian, 2024b). In a 2024 study published in *Nature*, researchers found that road building almost always preceded local forest loss, and that the density of these roads is one of the strongest predictors of deforestation (Engert et al., 2024)

The same transport routes are often used to traffic illegally mined minerals and wildlife products, often in the same shipments or via the same smuggling networks. Wildlife can be targeted opportunistically by miners – particularly high-value species like jaguars or rare trees such as rosewood – or may be hunted for subsistence or local trade (UNODC, 2024).

### 3.3.8 Serious organised crime activity

**Illegal mining is increasingly intertwined with the operations of organised criminal groups.**

These networks are known to control mining operations directly, run extortion rackets targeting artisanal miners, provide armed protection at illegal sites; and coordinate smuggling of minerals across borders (United Nations, 2019). In the Amazon, for example, Brazilian authorities have warned of a “total convergence” of illicit actors across extractives, narcotics, and wildlife crime (The Guardian, 2023a; 2024c). Criminal syndicates use the same supply routes and infrastructure – including ports, roads, and transport services – for trafficking minerals, timber, drugs, and wildlife (UNODC, 2020, 2024). ASM is especially vulnerable. Poor, informal miners working in remote areas may be forced to pay extortion fees to operate or risk violence. (Mongabay, 2024a).

**Organised crime also plays a central role in gold laundering and trade-based money laundering.** Organised crime groups may buy illegally mined gold, consolidating it through shell companies, semi-refiners, or even abandoned mines falsely claimed to be operational. They may also divert legally extracted gold ore blending or melting it with illegal supply streams. Since ore purity is difficult to verify, this tactic allows illicit material to enter legitimate value chains with little scrutiny (FATF, 2015). Gold and other illegally mined commodities are often moved across borders and refined in other jurisdictions obscuring origin and complicating law enforcement.

## CASE STUDY



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## Organised crime gangs in South America

According to the Organization of American States' Department Against Transnational Criminal Organizations, organised crime groups currently produce more than 70% of Colombia's gold. The US Bureau of International Narcotics and Law Enforcement Affairs estimated that illegal gold mining generates an estimated \$3 billion USD annually in Peru (Organization of American States, 2022a; US Senate, 2019). In Venezuela, where illegal mining accounts for approximately 90% of mining outputs, armed groups have taken control of mining sites, transport routes, and supply chains, subjugating entire local communities (Center for Strategic and International Studies, 2020). With local populations often forced to engage in these practices or cooperate with armed groups, there have been growing calls to formalise and regulate the informality and illegality in the mining sector (International Institute for Sustainable Development, 2018).

Such groups are incentivised by high gold prices and the comparative ease of gold laundering (Daley, 2024). The lack of government control over mining areas creates a permissive environment for armed groups to enter the mining sector, and the trade in illegal minerals has enabled these groups to use them as a means of laundering drug trafficking profits (InSight Crime, 2021). In 2019, Peru's FIU revealed that illegal gold mining is used to launder twice as much money as narcotics (US Senate, 2019). In recognition of the important role that financial actors can play in preventing the flow of money linked to illegal gold mining, the US Treasury partnered with Brazil, Colombia, Ecuador, Guyana, Peru, and Suriname in 2024 to set up the Amazon Initiative Against Illegal Finance to Combat Nature Crimes, designed to strengthen capacity and cooperation across regional FIUs (Council on Foreign Relations, 2024).

Organised crime groups are seeking to diversify their income and supplementing their revenue from drug trafficking with illegal mining (Daley, 2024). Groups that relocated from cities and urban areas to the Amazon, for example, adapted to take advantage of natural resources like gold and wildlife (The Guardian, 2023a). The smuggling and processing infrastructure initially developed for drugs is often reused and

readapted for illegal mining, with operations facilitated by corrupt networks of officials (The Guardian, 2023a). Notably, in Colombia and Peru, the world's largest producers of cocaine, the illegal gold export now exceeds that of cocaine and illegal gold has surpassed cocaine as the main source of revenue for many criminal and armed groups (Organization of American States, 2022a; Pedrosa, 2024; Zabyelina, 2023).

## C A S E S T U D Y



MART PRODUCTION from Pexels

## Coltan and drug cartels

In Puinawai National Park in Colombia, law enforcement officials are increasingly cracking down on the link between coltan mining and drug trafficking (The Center for Public Integrity, 2012). According to documents filed in the US Federal Court, members of an organised crime group run a collection of cobalt mines that have been described by prosecutors as a money laundering operation, used to support a criminal narcotics enterprise (US Department of the Treasury Office of Foreign Assets Control, 2011). Mines tied to this group have been blacklisted by the US Treasury, and Colombian authorities have pulled their license to mine cobalt in certain hotspot areas (The Center for Public Integrity, 2012).

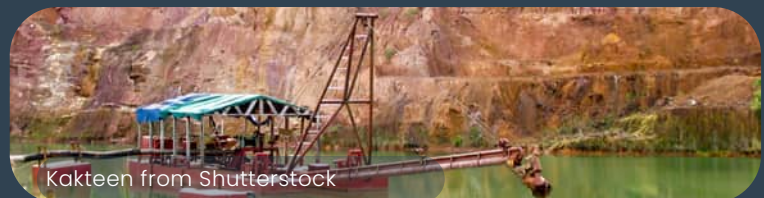
## 3.3.9 Human trafficking

Human trafficking – encompassing also forced labour, child labour, and sexual exploitation – is a significant risk in illegal mining operations.

Trafficking can occur throughout the whole value chain, from clearing land to mineral extraction and processing. For example, forced and child labour are commonly reported in illegal mining sites, with children often engaged in hazardous tasks (Amnesty International, 2016; ILO, 2019). Sex trafficking is common in remote illegal mining camps, where women and girls are exploited under coercion from criminal groups (Reuters, 2017).

Human trafficking also intersects with mineral smuggling. Criminal groups exploit vulnerable individuals – particularly migrants or displaced people – as couriers to transport illegally mined commodities across borders. In Latin America, for example, refugee populations have been forced into smuggling gold in exchange for cash, food or other goods, highlighting the overlap between environmental crimes and broader human trafficking networks (Global Initiative, 2016; International Crisis Group, 2022a).

## C A S E S T U D Y



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## The Orinoco Mining Arc

The Orinoco Mining Arc is a region in the south of Venezuela, designated as a mining area by President Hugo Chavez in 2011 (Center for Strategic and International Studies, 2020). Since then, the region has come under the control of national and foreign criminal groups, with related reports of human trafficking, drug trafficking, child labour, and illegal mining. In 2019, it was estimated that around 45% of the miners in the Bolívar State – a region in the Arc – were underage, and there are reports that the average age of sex trafficking victims in the area is 13-14 years old (Lambertini, 2023).

The UN High Commissioner for Human Rights has expressed concern about the impact of mining on IPLCs and nature in the region, and the increased risk of human trafficking that Indigenous women and girls are exposed to (United Nations, 2020).

For a further in-depth case study on serious human rights abuses and illegal mining in West Papua, see section 5.6.

## Chapter 3 – Key takeaways for FIs

The survey reveals that:

Illegal mining is a cross-cutting financial crime risk, often intertwined with money laundering, corruption, sanctions evasion, fraud, trafficking, terrorist financing, human right abuses and environmental crime.

Exposure spans diverse business activities, with risks across trade finance, lending, asset management, correspondent banking, digital payments, and trust services.

Risks are not always direct, and FIs may be exposed indirectly through downstream clients, investment chains, or co-mingled commodity flows.

Scrutiny of FIs linked to illegal mining is growing and reputational damage can also occur without direct legal liability, particularly when linked to human right abuses, conflict financing and environmental crime.

Different mining modalities bring different risks. ASM and informal mining are typically exposed to a higher risk of trafficking, terrorist financing, smuggling, while large-scale mining can be linked to corruption, tax evasion, environmental damage.

Regulatory frameworks are expanding, and environmental crime (including illegal mining) is increasingly listed as a predicate offence under AML and CFT regimes.

Environmental degradation can drive material financial risks, linked to credit defaults, stranded assets, supply chain disruption, and broader market instability.

## 4. Conclusions and recommendations

Generating an estimated \$48 billion USD per year of criminal proceeds (INTERPOL, 2016), illegal mining is not just enormous in scale, but also incredibly complex. It is a serious offence that converges significantly with other crimes, such as money laundering, corruption, tax and sanctions evasion, conflict financing, trafficking, forced labour, and environmental crime.

**FIs are exposed to direct and indirect legal, regulatory, reputational and material risks from illegal mining.** While illegal operations are associated with the more severe threats, risks can also arise from legal or informal mining operations – especially when ownership structures or supply chains are complex, and in jurisdictions with poor natural resource governance and rule of law. The blurred lines between legal, informal and illegal activities make it difficult for compliance teams to assess – across different jurisdictions and portfolios – the true origin, extent and risk level of illegal mining operations, with governments increasingly seeking to regulate against illegal mining and conflict minerals.

However, as the gatekeepers of the financial system, **FIs can at the same time reduce their exposure to illegal mining and leverage their position and access to transaction data to help detect and prevent illegal mining and predicate crimes.** Findings from the original survey conducted for this report among financial sector professionals show some important knowledge gaps and limitations, as well as potential solutions to overcome them.

In particular:

**High exposure, low mitigation:** 84% of FIs surveyed operated in at least one high-risk sector for illegal mining, but only 60% had policies, screening, or training in place to address this.

**Awareness-action gap:** While FIs largely recognise the material and reputational risks of environmental crime, awareness

does not consistently translate into action.

**Key weak points:** Knowledge of red flags, high-risk regions and hot-spots, and trafficking routes is some cases incomplete or outdated.

**Risk convergence is diverse:** FIs may be exposed through trade finance, project loans, mutual funds, or correspondent banking – and to a wide range of financial crimes, from fraud to terrorist financing.

**Internal controls and training matter:** 89% of institutions that had ceased client relationships or raised SARs in connection to illegal mining had in place dedicated training and robust internal governance systems and screening procedures.

Combining data points from the survey, desk-based research and a series of in-depth case studies from thematic experts across the globe (see next chapter), **this reports also offers a series of actionable recommendations for FIs:**

**Integrate illegal mining into AML/CFT framework:** Explicitly incorporate illegal mining as a risk factor and crime typology in AML and CFT protocols, including specific indicators in transaction monitoring systems, with particular attention to high-risk jurisdictions, sectors and commodities.

**Expand Enhanced Due Diligence (EDD) across supply chain exposure:** Apply EDD to mining clients operating in high risk areas, but also to suppliers and operators in adjacent sectors, like equipment, logistics, refining, and trade.

**Map exposure by client, business line and geography:** Conduct internal and third-party audits to map potential exposure to illegal mining and related financial flows, across correspondent banking, trade finance, wealth and asset management, funds and trusts.

**Develop internal red flags specific to mining:** Survey respondents have flagged the following ones:

- Cash-intensive businesses or shell companies linked to mining supply chains.
- Informal value transfer systems.
- Client activities in known gold or coltan transit hubs like UAE, Rwanda, Colombia.
- Export of high-value commodities with unusual declarations (e.g. 'scrap' or 'apparel') or suspected under-invoicing.

**Embed illegal mining into ESG risk frameworks and screening tools:** Review ESG policies to ensure illegal mining risks are explicitly covered, requiring certification or third-party audit where appropriate and incorporating clients' environmental crime exposure into risk scoring, onboarding, screening, and supply chain risk mapping.

**Enhance training and frontline staff awareness:** Provide scenario-based training with case studies and typologies for compliance teams, relationship managers, and frontline staff to recognise illegal mining risks and predicate crimes.

**Strengthen SAR/STR reporting quality and coverage:** Encourage reporting where red flags arise even in the absence of criminal convictions (e.g. suspicious gold shipments, export permits, or potential ESG violations).

**Engage and cooperate with regulators and FIUs on environmental crime:** contribute to improve existing guidance from regulators on how illegal mining intersects with financial crime, sharing insights with FIUs and industry partners.

**Collaborate on certification, traceability, and transparency initiatives:** Leverage the use of certification schemes, standards, industry bodies and other voluntary tools such as the [Environmental Crimes Financial Toolkit](#), also encouraging clients in high-risk sectors and regions to adopt such instruments when appropriate.

**Promote information sharing, best practices and success stories:** Criminals are constantly innovating with new crime typologies emerging to exploit new vulnerabilities, thus timely and accurate information sharing, cross-sectoral collaboration, and dissemination of best practices are vital responses.

Illegal mining is not just a financial crime problem – it is a geopolitical, economic and sustainability issue. The demand for minerals critical to the energy transition, such as cobalt, lithium, and rare earth elements, is accelerating, and without responsible investments and robust safeguards, this demand may fuel further illegal mining, alongside the related financial crimes, human rights abuses, and environmental degradation.

**Tackling illegal mining is part of building resilient, transparent, and sustainable financial systems. For FIs, addressing this issue is a compliance and legal duty, a control mechanism for risk and exposure, but also – and above all – an investment opportunity.** By devising better detection systems and stronger risk frameworks, FIs can help disrupt criminal networks, protect communities and ecosystems, foster growth, and support a sustainable transition towards a more prosperous future – for them, and for us all.

# 5. In-depth case studies

## 5.1. Bribery and corruption in the Democratic Republic of the Congo's (DRC) mining deals

from our expert guest contributors

International mining companies have long-standing interests in the Democratic Republic of Congo (DRC) due to its valuable natural resources, including diamonds, gold, copper, and coltan.

**Billy Kyte**  
Natural Resource  
Governance Expert

Additionally, it holds the largest deposits of cobalt in the world, a crucial mineral for electric vehicles and renewable energy technologies that many economies increasingly depend on to address the climate crisis. Over the past 15 years, cobalt demand has surged, and the global interest in Congolese reserves raised hopes for economic development and substantial government revenue in the future.

However, despite its abundant mineral wealth, the DRC remains one of the world's poorest countries, with an estimated 73.5% of Congolese people living on less than \$2.15 USD a day (World Bank, 2024b). Corruption and poor management often result in mining revenues being funnelled into offshore accounts instead of reaching the country's Treasury, meaning the Congolese people miss out on the benefits that their resources should provide.

### Dan Gertler and offshore companies

One emblematic case of how corruption in the mining sector leads to huge losses for the state relates to Dan Gertler, an Israeli businessman and close confidant of ex-DRC President Joseph Kabila (BBC, 2021a).

Gertler built his wealth by positioning himself as a key intermediary in DRC's mining industry (US Department of the Treasury, 2017). International mining corporations looking to enter the market had to collaborate with him, and many were willing to do so.

Between 2010 and 2012, major mining concessions in the DRC were acquired by large international companies for billions of dollars. However, much

of that money never reached the Congolese government. The assets were secretly sold, initially at significantly reduced prices to offshore companies owned by Dan Gertler, which then resold them to the multinational corporations (Global Witness, 2017). According to the African Progress Panel report by Global Witness, the Congolese state lost at least \$1.36 billion USD in this process, an amount double the country's combined health and education budgets (Global Witness, 2013).

The companies involved are primarily registered in the British Virgin Islands, a jurisdiction that allows the true ownership of the companies to remain hidden. The DRC government's failure to disclose the full details of one of the sales led the International Monetary Fund to suspend \$225 million USD in loans to the country (Reuters, 2012).

### US sanctions

In December 2017, the Office of Foreign Assets Control (OFAC) at the US Treasury Department sanctioned Dan Gertler, his family foundation and 18 of his companies (US Department of the Treasury, 2017). The US Treasury Department described Gertler as "an international businessman and billionaire who has amassed his fortune through hundreds of millions of dollars' worth of opaque and corrupt mining and oil deals in the Democratic Republic of the Congo (DRC)."

The consequences of this sanctions decision are significant: US companies, individuals, and banks must exercise caution to avoid conducting transactions with Gertler or with

companies that are 50% or more owned by Gertler and/or other sanctioned individuals or entities, even if those entities have not been specifically listed as sanctioned by OFAC (Federal Register, 2017). Additionally, providing any form of support – whether financial, material, or technological – to a sanctioned entity can expose individuals or organisations to potential sanctions. Moreover, OFAC has the authority to impose sanctions on any non-US company doing business with a sanctioned entity.

In June 2018, the sanctions were expanded to 34 individuals and entities with a Treasury spokesman stating that the “Treasury is sanctioning companies that have enabled Dan Gertler to access the international financial system and profit from corruption and misconduct. We are using our tools to change the behaviour of those engaged in the looting of natural resources and the humanitarian consequences that follow.” (US Department of the Treasury, 2018)

This case shows how important it is for banks, investors and other financial institutions to use OFAC’s sanctions list in their due diligence and compliance procedures.

### Glencore’s role

One of the international mining companies that benefited from the services of Dan Gertler in DRC was the Swiss-based mining and commodities giant, Glencore. On 5 August 2024,

the Office of the Attorney General of Switzerland (OAG) found Glencore guilty of “inadequate organisation” and imposed a fine of \$2 million Swiss francs and a claim of \$150 million USD on the company (Swiss Government, 2024). The OAG stated that Glencore had not taken the required measures to prevent foreign public officials from being bribed in relation to mining deals in the DRC.

The case involved the Mutanda and Kansuki mines, where in 2011, Gertler purchased shares from the Congolese state mining company at a fraction of their market value. The OAG’s investigation revealed that approximately \$26 million USD were transferred to Swiss bank accounts under Gertler’s control, with about \$10 million USD paid in cash to a senior official and close associate of then DRC President Joseph Kabila (Public Eye, 2024). According to the OAG’s ruling, Glencore ultimately gained financially from these transactions.

The Swiss NGO Public Eye also revealed the case of Katanga Mining, where in 2008, Gertler secured a significant price reduction for Glencore during renegotiations with Kabila’s government (Public Eye, 2022). In 2017, Public Eye estimated that the Katanga deal had cost the people of the DRC an estimated \$445 million USD in potential earnings.

In May 2022, Glencore also already pleaded guilty to bribery charges related to its operations in the DRC (US Department of Justice, 2022).



## 5.2. Illegal mining and illegal finance

from our expert guest contributors

Illegal mining constitutes a major funding source for non-state armed actors, including terrorist groups, contributing to conflict and violence around the world – a phenomenon that is particularly prevalent in the Amazon region. In South America, illegally mined gold is estimated to generate \$7 billion USD a year for criminal and insurgent groups that have contributed to the ongoing conflict in Colombia. (Global Initiative Against Transnational Organized Crime, 2016).

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Transparency (FACT)  
Coalition

Because illegal mining is a financially motivated crime, efforts to combat it need to consider the financial channels that are currently being used to move and launder its profits. This information can help law enforcement to recover ill gotten gains, financial institutions to identify areas of vulnerability or risk exposure, and policy makers to close down existing loopholes. A recent report by the Financial Accountability and Corporate Transparency (FACT) Coalition identifies and analyses 230 environmental crimes committed in countries in the Amazon region over the past 10 years, seeking to better understand how criminals are committing these crimes and laundering their money (FACT Coalition, 2024b).

One hundred and fifty of these cases involved illegal mining. Among the cases analysed, gold was the most commonly mentioned material (78% of cases), followed by coal (11%) and coltan (5%) (FACT Coalition, 2024b). In many cases, illegal mining overlapped with other crimes – a phenomenon known as crime convergence. Among the most frequently mentioned convergent crimes were (in order of prevalence) corruption, terrorism financing, drug trafficking, other environmental crimes (such as illegal logging), weapons trafficking, tax evasion, and extortion. In 39% of the mining cases, authorities appeared to have followed the money to conduct a parallel financial investigation. Among these financial cases, some of the most common money laundering methods included the use of shell and front companies, real estate, front men or testaferreros, bulk cash smuggling, and trade-based money laundering (TBML). The use of shell and front companies stood out as the single most common method,

used in 78% of illegal mining cases for which we have financial information available. Moreover, among illegal mining cases with financial investigations, 45% of cases involved at least one foreign jurisdiction, and the most common foreign jurisdictions included the United Arab Emirates, the United States, India and Italy.

A recent case from Colombia exemplifies many of these trends. In 2023, the Colombian Attorney General's Office announced charges against a high-profile member of an organised crime group for allegedly owning five illegal gold mining sites in Chocó, a remote rainforest region along Colombia's Pacific Coast (Fiscalia, 2023). According to Colombian prosecutors, the illegal gold mining involved the use of heavy machinery and toxic substances, which were dumped into local rivers and forests, causing significant environmental harm. Moreover, Colombian prosecutors reported finding evidence suggesting that the accused paid 8 million pesos per month (approximately \$2,000 USD or £1,500 GBP) to bribe a high level police official, who in exchange would notify him of any upcoming law enforcement activity (Fiscalia, 2023). When Colombian authorities investigated the individual's financial trail, they found and seized 35 urban properties, six vehicles, three boats, four companies, and four commercial establishments, as well as 39 million pesos in cash. Moreover, authorities noted that the properties appeared under the names of relatives and acquaintances. This suggests that a variety of financial vehicles, including real estate, bulk cash, shell companies, and front men may have been used to carry out illegal operations and launder ill gotten gains. At the

time of writing, the criminal case is making its way through the Colombian justice system. Meanwhile, lawyers of the accused have filed two legal cases appealing the asset forfeiture. The final legal outcomes remain to be seen. In broader terms, FACT's analysis of illegal mining cases in countries in the Amazon region finds that a variety of financial strategies are being used by criminal organisations to launder profits (FACT Coalition, 2024b). Some of the typologies identified, such as real estate money laundering via anonymous companies and frontmen with large amounts of cash, present significant challenges because of their complexity and anonymity. From a law enforcement perspective, it is important to equip investigators and prosecutors with the tools and training to 'follow the money', recognising that they are up against very sophisticated criminal organisations. From a compliance perspective, it is important to ensure that FIs and other private sector stakeholders have the information needed to identify red flags and adequately assess risk. Finally, from a policy perspective, countries should ensure that they have appropriate AML guardrails for their real estate sector, as well as requirements to identify the real or "beneficial" owners of companies.

Moreover, Colombian prosecutors reported finding evidence suggesting that Mosquera paid 8 million pesos per month (approximately \$2,000 USD or £1,500 GBP) to bribe a high level police official, who in exchange would notify him of any upcoming law enforcement activity (Fiscalia, 2023). When Colombian authorities investigated Mosquera's financial trail, they found and seized 35 urban properties, six vehicles, three boats, four companies, and four commercial establishments, as well as 39 million pesos in

cash. Moreover, authorities noted that the properties appeared under the names of relatives and acquaintances. This suggests that Mosquera may have been using a variety of financial vehicles, including real estate, bulk cash, shell companies, and front men to carry out illegal operations and launder ill gotten gains. At the time of writing, the criminal case against Mosquera is making its way through the Colombian justice system. Meanwhile, Mosquera's lawyers have filed two legal cases appealing the asset forfeiture. The final legal outcomes remain to be seen.

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## 5.3. The hidden costs of illegal gold mining: Environmental destruction and criminal networks

from our expert guest contributors

Illegal mining is one of the primary drivers of Amazon rainforest destruction, responsible for invaluable socio-environmental damage. Mining-induced deforestation represents 9% of all deforestation within Brazil's Amazon forest from 2005 to 2015, and it continues to expand into the forest, particularly affecting Indigenous territories (Sonter et al., 2017).

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For illegal mining to thrive, it relies on a network of enabling and interconnected crimes – forming what can be described as an ecosystem of environmental crime (Igarapé Institute, 2022).

A study conducted by Instituto Igarapé that analysed 360 operations conducted by the Brazilian Federal Police in the Legal Amazon between 2016 and 2021, aimed at combating illegal deforestation, found that illegal mining was present in 46% of these cases. Among them, 26% resulted in indictments for money laundering, highlighting the critical role financial crimes play in the broader illegal mining economy. According to a Rhipo-Interpol-GI Assessment, in 2018, environmental crimes were the third-largest illegal economy globally, with illegal gold mining generating from \$12-48 billion USD annually (INTERPOL, 2018).

Money laundering plays a crucial role in sustaining illegal mining, taking various forms – from financing both legal and illegal gold mining with proceeds from other criminal activities, such as drug trafficking, to concealing the illegal origins of extracted gold to allow it to enter the market or the financial system as legitimate. In Amazonian countries, gold extraction is subject to different legal restrictions and licensing requirements to be considered legitimate. Recently, countries, especially Brazil, have made changes to the regulatory framework of this market, but they are still far from closing all the loopholes. Understanding the complexities of the gold mining supply chain is essential for identifying the mechanisms used to launder gold and facilitate illegal financial flows linked to this criminal activity.

The concealment of illegally mined gold begins at the extraction phase through practices such as mixing legally extracted gold with minerals from unauthorized sites. Various fraudulent schemes characterise illegal mining, including the misuse of valid mining licenses without actual operations, falsified land registries to exploit unauthorised areas such as Indigenous land, bribery of public officials, and the co-optation of local mining cooperatives.

Operação Ganância from the Brazilian Federal Police exposed a large-scale scheme in which a mining company laundered illegally extracted gold from the Amazon by using invalid environmental licenses and exceeding the limits of its research permits and usage guidelines (Ministério da Justiça e Segurança Pública, 2022a)<sup>10</sup>. This operation generated an estimated BRL 1.1 billion in profits between 2019 and 2021. The resulting environmental damage, valued at BRL 300 million, impacted an area equivalent to 212 soccer fields.

Another key link in this chain is the Distribuidoras de Títulos e Valores Mobiliários (DTVMs), as they are the only legal entry point for gold from small-scale mining (garimpo) into the formal market. These institutions, authorised by the Central Bank of Brazil, have historically operated with weak regulatory oversight.

Operação Dilema de Midas revealed that indicted DTVMs purchased illegally extracted gold without requiring documentation on its origin and, in some cases, even falsified records to give the appearance of legality (Ministerio Publico Federal, 2019). Between January 2015 and May 2018, a single gold-buying point

<sup>10</sup> According to the Brazilian Mining Agency (ANM), the research permit is an authorization title granted by the ANM to conduct research activities aimed at defining a mineral deposit, that is, to qualify, quantify, and spatially locate the mineral substance of interest. The usage guideline is an authorization, granted exceptionally, for the extraction of certain substances before the granting of the mining concession.



acquired at least 600 kg of illegally mined gold, amounting to over BRL 70 million.

A study conducted by Instituto Escolhas found that four financial institutions (DTVMs) purchasing gold from mining operations in the Amazon traded 79 tons of gold between 2015 and 2020, with clear signs of illegality (Instituto Escolhas, 2020). The irregularities included fraudulent mining titles (linked to areas without evidence of extraction), titles overlapping with Conservation Units, permits allowing extraction beyond legal limits, and gold sold without documented proof of its legal origin.

In the BRL 300 million scheme uncovered by Operação Gold Rush, a jewellery store functioned as a front company to conceal the illegal origins of gold (Ministério da Justiça, 2022). The gold was either illegally mined in Roraima state or smuggled from Venezuela and was falsely registered as if purchased in small quantities from Venezuelan migrants to mask its illegal origins and evade law enforcement. The store distributed illegal gold across 20 Brazilian states.

Weak regulations and lax enforcement against illegal mining, in addition to this market's high profitability, have made it attractive to other criminal organisations, including those linked to drug trafficking. Reports have documented the involvement of groups such as Brazil's First Command of the Capital (PCC) and dissident factions of Colombia's Revolutionary Armed Forces (FARC) in the illegal gold trade (BBC Brasil, 2021).

A common money laundering tactic in this illegal economy is the simulation of fictitious gold transactions using fraudulent invoices – used not only to legitimise proceeds from illegal mining but also to launder money from other criminal activities. Operação Narcos Gold, which exposed a BRL 1 billion money laundering and drug trafficking scheme, revealed that gold mines in Pará, a state in Brazil's Legal Amazon, were being used as clandestine airstrips for drug transportation and as a front for laundering drug money (Ministério da Justiça, 2021). The scheme involved individuals and businesses across multiple Brazilian states,

using fictitious gold invoices to legitimise assets actually derived from drug trafficking.

The connection between illegal mining and other illegal economies was also evident in the Operação Gold Rush. The investigation began after a Financial Intelligence Report on an individual imprisoned for drug trafficking revealed the existence of a front jewellery store in Roraima. Over five years, this store processed more than BRL 200 million and served as a hub for payments related to illegal gold sales involving individuals from multiple states. The investigation also uncovered the involvement of shell companies and legitimate businesses, including an urban cleaning company that funnelled millions of Brazilian reais into illegal activities.

Illegal mining in the Amazon has severe environmental and social consequences, and addressing this issue requires coordinated regional solutions among Amazon Basin countries.

First, regulatory frameworks must be harmonised at the regional level, ensuring consistent enforcement mechanisms, stringent controls, and meaningful sanctions for illegal mining activities. Governments must also strengthen their capacity to implement these regulations, enforce penalties, and oversee the restoration of degraded areas and confiscated assets.

Additionally, improving data-sharing systems – such as mining licenses, transportation documents, and other relevant records – will enhance oversight by providing a more comprehensive view of mining operations. This integrated approach will help authorities track illegal activities more effectively.

Finally, transparency in mining data is essential for strengthening risk assessment processes in the private sector. By improving access to mining-related information, businesses and financial institutions can better detect and prevent the laundering of illegal proceeds tied to illegal mining, disrupting the financial networks that sustain these criminal activities.

## 5.4. The problem(s) with gold supply chains

### from our expert guest contributors

The gold supply chain is one of the most complex and problematic supply chains in the world. Tracing the supply chain of gold – both formal and illegal – through the network of intermediaries, trading hubs, refineries, vaults and eventually banks, is extremely complex. This is mainly because the traceability depends on transparent record keeping by different actors along the supply chain, and public disclosure about the provenance of the raw material.

**Richard Kent**  
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Gold is extremely valuable and portable– which makes it a convenient means for criminal groups to smuggle, traffic and launder the proceeds of criminal activity.

Much gold of unknown origin originates in countries with the largest rainforests, where illicit gold production is widespread. Countries with Amazon territories, the Congo Basin and the rainforests of Papua are most directly responsible for the production of this gold, but much of the trade and subsequent layering of proceeds of illegal gold of unknown origin takes place in global gold trading hubs. This gold eventually arrives to downstream jewellery manufacturers, and bullion banks, that often fail to identify the full chain of custody of this high-risk gold.

In recent years, several investigative organisations have exposed how illegal gold originating in the Amazon and other climate critical forests, finances conflict, causes environmental destruction, and can potentially enter the formal gold supply chain of LBMA Good Delivery List (GDL) refineries (Global Witness, 2014). The LBMA is an organisation formed by the world's largest refineries and is responsible for approximately 70-80% of the international gold trade.<sup>11</sup>

Many of the world's largest refineries and jewellery buyers continue to fail to conduct due diligence on high-risk gold, in line with the international standards set out by the OECD Minerals Guidance, and the laws of the EU Conflict Minerals Regulation.

Although 15-20% of the world's gold production is produced by ASM, according to official figures

by the LBMA, less than 1% of that goes to LBMA-listed refineries and FIs (LBMA, 2023). However, it is highly likely that ASM gold from the Amazon and climate critical rainforests reaches this formal gold supply chain through 'intermediate refineries' i.e. trading between LBMA and non-LBMA refineries – and that this number is far higher.

The involvement of criminal and organised crime in the gold industry is increasing all over South America, particularly within the Amazon territories and at the cross-border hotspots (Amazon Underworld, 2023). In the Amazon region, environmental and organised crime spans the borders and jurisdiction of eight countries: Colombia, Venezuela, Ecuador, Peru, Bolivia, Suriname, Guyana, and French Guiana – which makes law enforcement more difficult.

#### The problem with the midstream, and 'recycled gold'

Refiners are often seen as the custodians of the provenance of gold, but research demonstrates how even those companies with the highest purported sourcing standards can indirectly facilitate the laundering of illegal gold.

Companies operating in the mid-stream of the supply chain, i.e. refineries, gold collectors, pawn shops, often facilitate the trade of illegal gold, by failing to trace and disclose the true origin of high-risk gold. Refiners often work with jewellery collectors to process and sell 'unprocessed' and so-called 'recycled' gold – of unknown origin.

<sup>11</sup>Interview with market analysts

Downstream companies – jewellery, electronics, and bullion banks – are often unaware of the origin of gold beyond ‘refiner-level’ data, that they request and publish as equivalent to ‘country of origin’, which is not necessarily the case. Both midstream and downstream companies drive the demand for the gold industry, and are also the companies that profit most from the industry, particularly given the present all-time-high prices for gold.

Some companies commit to source only ‘recycled gold’, citing emissions reductions and therefore saving on costs incurred from carbon emissions. Gold refineries, as of October 2024, reported that almost twice the quantity of all international gold trade is recycled (3,424 tonnes), compared with 1,863 tonnes that originates from industrial mining. This enormous quantity of recycled gold has a market value of approximately \$244 billion USD. Less than 1% of the total share of gold sourced by refineries on the LBMA Good Delivery List is designated as ASM, at only 51 tonnes (LBMA, 2024).

This demonstrates the scale of the problem, and that this demand for so-called recycled gold is inadvertently driving the market for illegal gold, which easily finds its way into the recycled gold supply chain.

### The exposure of banks and FIs

Banks and investors must become more aware of the risks of the physical gold they invest in that, if not mitigated, can directly and

indirectly finance and support organised crime and conflict in climate-critical rainforests, particularly the Amazon.

Refiners, institutional investors and bullion banks all buy and trade gold using the LBMA spot market price. This often entails cash transactions, and usually the delivery of physical gold from and to designated holding vaults around the world, including those vaults owned by the LBMA.

London is the most influential hub for the spot gold market, largely because of the London Bullion Market Association (Reuters, 2025b). However, the United States, China, Switzerland, India, Japan and the UAE are other major physical gold trading centres, where problematic gold may find its way into the legitimate market, and the vaults of international bullion banks (World Gold Council, n.d.).

Interest in the gold industry from investment funds has been a major factor behind the continued rise of gold bullion to all-time highs in recent years (Reuters, 2025b). This investment seeks to mitigate exposure to volatility in global markets and political instability. However, it can also contribute to a speculative buying and selling, and drive prices to levels that incentivise environmental and organised crime.



Modfos from Getty Images

# 5.5. Tracking extent and location of gold mining across the Amazon

from our expert guest contributors

Spurred by a doubling of the value of gold in the past ten years, gold mining is one of the fastest growing forms of environmental crime in the Amazon and an increasing threat to the environmental and social stability of the region.

**Matt Finer and  
Blaise Bodin**  
*Amazon Conservation*

Addressing this threat first requires tracking the extent and location of mining taking place, especially where it might be illegal. According to data from the Amazon Mining Watch, over 963,000 hectares had been deforested by gold mining across the entire Amazon in 2018 (Amazon Mining Watch, 2024). Between 2019 and 2023, the mining deforestation footprint is estimated to have grown by over 944,000 hectares (2.3 million acres). Thus, of the total accumulated mining deforestation footprint for the Amazon of over 1.9 million hectares (4.7 million acres), about half has occurred in just the past five years, showing the acceleration of the activity. Of that total area, it is estimated that 38% (725,498 hectares/1.7 million acres) occurred within protected areas and Indigenous territories, where these operations are most likely illegal. The countries with the most overall mining deforestation in the Amazon are: 1) Brazil, 2) Guyana, 3) Suriname, 4) Venezuela, and 5) Peru (Monitoring of the Andes Amazon Program, 2024).

These statistics concern alluvial mining, which takes place on firm land and causes deforestation scars in the landscape. However, many gold mining operations take place in rivers, where barges drag the riverbed to filter the gold, mixing up large volumes of sediments in the process. Because it does not cause deforestation, river-based mining cannot be detected from the forest loss it creates. River mining can however be detected with a combination of intelligence from the ground and cross-checking with very high-resolution imagery capable of visualizing barges.

Based on these different methodologies, Amazon Conservation was able to generate a

precise, detailed, and up to date map of active gold mining sites (hotspots)<sup>12</sup> across all nine countries of the Amazon biome (Monitoring of the Andes Amazon Program, 2023). Overall, 58 active forest and river-based mining sites across the Amazon were detected. Of these, at least 49 were presumed to be illegal based on their location in rivers (13 sites) and within protected areas or Indigenous territories (36 sites).

Amazon Conservation continues to improve on this concept of mapping active mining hotspots, with the most recent version illustrated below. In the map, orange circles indicate active mining sites causing deforestation and blue circles indicate active river mining sites. For both, a red border around the circle indicates presumed illegal activity. It is hoped this type of map, when combined with Amazon Mining Watch (see below), will act as a guide for regional policy actions.

<sup>12</sup> A site is defined as an area of recent/active mining activity that shares the estimate of legality and could be the target of a specific or set of interventions, and is distinct from surrounding sites in terms of its general location and/or legality.

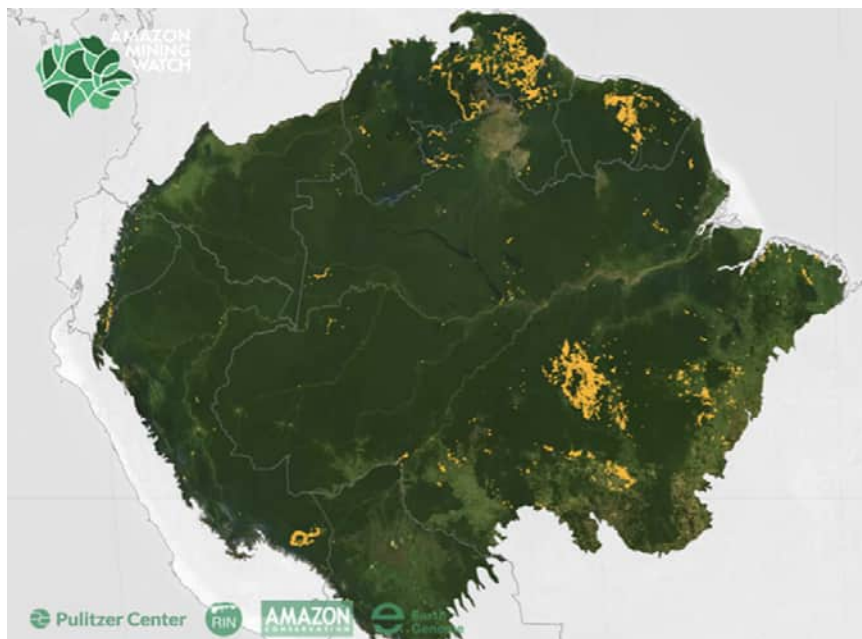
Figure 28: Map of mining hotspots in the Amazon



**Amazon Mining Watch - a platform for tracking the extent and location of gold mining across the Amazon in near real-time.**

Amazon Mining Watch is a joint project of Amazon Conservation, Earth Genome and the Pulitzer Center. This novel data platform uses machine learning based on historical satellite images (European Space Agency’s Sentinel-2) to map the extent of gold mining “scars” across the Amazon at 10-meter resolution. Users can

zoom in any area to explore the location of recent and past mining occurrences, and tally the total area for the Amazon for a given year. With support from the Moore foundation, Amazon Conservation and partners will continue to develop the platform in 2025, increasing the frequency of the data to quarterly updates and adding contextual information such as the economic impact of mining and applicable regulations.



## 5.6. Illegal mining in the project Earth

# Observation (EO) against Environmental Crimes

from our expert guest contributors

Earth Observation (EO) is proving a crucial tool for environmental investigations worldwide, thanks to the expansion of both the hardware (i.e. the satellites providing imagery and data) and software (e.g. platform for data integration, AI applications) available to the civil society, to enforcement agencies, and other players involved in action against environmental crimes.

**Lorenzo Colantoni**  
Istituto Affari Internazionali & ESA

In this regard, those tackling illegal mining are benefitting from these new investigatory tools; a few enabling actions could, however, maximise the impact of EO, particularly through better integration with other tools (financial investigations above all), and with greater attention to crime convergence.

'Earth Observations against Environmental Crimes' is a project led by the Rome-based Istituto Affari Internazionali (IAI), under an assignment from the European Space Agency (ESA). The project aims to deliver the first-ever comprehensive analysis on the use of satellite images to counteract environmental crimes at the global level, with a specific focus on the data supplied by the EU Copernicus programme and its Sentinel satellites.

While the research is cross-sectorial and considers a variety of offenses, from illegal logging to fishery crime and waste trafficking, illegal mining is one of the core areas considered. EO indeed offers a variety of advantages in exposing these offenses; the free data offered by the EU Copernicus and the NASA Landsat programmes are able to detect the vast majority of illegal operations, even cases of small scale or artisanal mining. They can also work in synergy with higher resolution data offered by private companies and other institutions through the so-called "tip and cue" methodology: lower resolution images are used to scan large territories and detect suspicious activities (the "tip"), which are then investigated with dedicated, high-res images. While the use of optical images could be hindered by the cloud cover (a persistent problem in tropical

areas), synthetic aperture radar (SAR) data work regardless of clouds, as well as smoke or haze (a common occurrence during the fire season in the Amazon or in Borneo).

The study has already identified several different kinds of contributions of EO against illegal mining, beyond the identification alone of operations; plotting concession maps over satellite images of mines can reveal whether the holder has illegally expanded activities. Although pollution is not always easy to identify through EO, this can offer clear insights into the environmental impact of operations through the analysis of tailings – particularly when they are contained by dams. Satellite data also offer insights in areas which would be otherwise impossible to investigate, such as conflict zones, or areas where access is precluded by concession holders (often with the support of corrupted local authorities). EO also offers significant pre-emptive capabilities, particularly when illegal mining is associated with deforestation; this is, for instance, the case of the Radar for Detecting Deforestation (RADD) alerts, which uses SAR data to detect canopy disturbances in near real-time, in several cases associated to illegal mining or related activities (opening of roads and construction of other infrastructure, for instance). The system is now integrated in several, easy to use platforms, such as the Google Earth Engine, Global Forest Watch, and Nusantara Atlas.

There are indeed several examples of these successful applications. Investigations on illegal Rare Earth Elements extraction in Myanmar have been done largely through EO,

due to the high political instability and complex security situation in the country. These analyses have allowed the EO to map mining operations and their recent expansion in detail. Satellite imagery is playing a key role in understanding the growing threat represented by illegal sand mining, which has now reached a critical level in regions such as the Mekong Delta, North and Southern Africa, among the others. AI combined with satellite monitoring has played a crucial role in understanding the extent of illegal alluvial gold mining in Colombia, a series of investigations which in several cases were done in conjunction with the monitoring of drug production in the Amazon (UNODC, 2022).

While the contribution of EO in the global fight against illegal mining is already relevant, there are several factors preventing it from reaching its full potential. Entrenched national interests,

outdated judicial and legislative frameworks, and a lack of operative capabilities to perform operations on the ground after satellite detection are among the most relevant. Satellite images also offer a clear picture of the offence, but not of the offender; with regard to illegal mining, as it is often very complicated to discover UBOs, achieving successful prosecutions can be hard using just satellite detection of unlawful operations. In this sense, it will be crucial to fully integrate satellite analysis with financial investigations, since the first can provide a quick and economic way to find assets and infrastructures, while the latter can help to unveil the links between different illegal operations, even at different stages of the supply chain (particularly regarding intermediaries, smelters and refiners, as well as final buyers).



Dima\_zel from Getty Images

## 5.7. Crimes Associated with Critical Minerals in Southeast Asia

from our expert guest contributors

While the world as a whole is facing a growing critical minerals rush, some regions are particularly involved in this process – and, in turn, are increasingly exposed to illegal mining for these elements. Southeast Asia is perhaps one of the most vulnerable and, while its endowment of resources could represent a relevant source of income and of diversification for several countries, swift action should be taken to address the already existing criminal infiltrations in the sector.

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Crimes Associated with Critical Minerals in Southeast Asia: Trends, Challenges, and Solutions is a research project launched by UNICRI. The research was led by Lorenzo Colantoni, UNICRI consultant, under the overall guidance of Matthew Burnett-Stuart (Associate Expert, UNICRI), and focuses on understanding the risks brought by the boom of critical minerals extraction and trade in the region, as well as the best tools to address them in a crucial time for the industry.

Southeast Asia has a significant endowment of critical minerals, and a consolidated presence in some sectors: among the others, Indonesia hosts 22% of known global reserves of nickel and the Philippines 5%, Myanmar has some 14% of global tin and 18% of Rare Earth Elements (REEs), and so does Vietnam (ASEAN Centre for Energy, 2024). The region is, however, largely unexplored and unexploited, a factor which could – and to some extent is already – radically changing the sector.

This is matched by a relevant exposure of Southeast Asia to illegal mining: the extractive sector has suffered for decades from corruption and infiltration of criminal players, while the fast-growing global demand for critical minerals, the high earnings and price volatility favours quickly developed projects – often with little regard to environmental or health considerations. The exposure is also increased by the specific criminal methodologies touching the Southeast Asian mining sector; unlike other regions or sectors affected by illegal mining (such as illegal gold mining), most unlawful operations

in Southeast Asia are large-scale, apparently fully legal activities, while small scale mining plays a minor role (with the exception of REEs in Myanmar). Corruption is a crucial enabling factor at all levels – from local officers turning a blind eye to environmental violations or the smuggling of illegal minerals, to high-level corruption allowing the award of licences even in illegal circumstances.

There have already been several cases highlighting the exposure of Southeast Asia's critical minerals to illegal activities. A 2024 investigation in Indonesia unveiled one of the biggest corruption scandals in the country, related to tin mining in the Bangka and Belitung islands; illegal operations involved the state-owned tin company PT Timah TBK, which was directly responsible for illegal mining, but also supported illegal operations of subsidiaries and small scale miners in the islands, causing up to 26 billion dollars in environmental and human health damage (The Diplomat, 2024). Malaysia has also been heavily affected: in 2024 the Natural Resources and Environmental Sustainability Minister declared that, out of the estimated 19,000 tonnes of REEs, 16,000 has been mined illegally (The Star, 2024). The most affected country in the region is, however, Myanmar, whose political instability significantly contributed to the spike in the illegal mining of tin (in the separatist Wa State) and in REEs (in the Kachin State area, which recently came under control of the Kachin Independence Organisation) (Frontier Myanmar, 2024).

Countries are, however, already taking action,

with mixed success. Indonesia's nickel export ban has proved effective, and the shortening of the supply chain has improved, to some extent, the transparency of the supply chain. While the crackdown on corruption by Vietnamese authorities has achieved mixed results, the weakening of Indonesia's Corruption Eradication Commission could instead undermine efforts to counteract illegal mining (CSIS, 2024; East Asia Forum, 2020).

Considering the current rapid expansion of operations, this is, however, a crucial time to ready the critical minerals sector in Southeast Asia. A few key changes can prove effective, in the short and medium term; improving the specialisation on both the operative (enforcement agencies, administrative authorities) and judicial sides will be crucial, as well as the integration of new technologies. Empowering Indigenous communities will also bring fast and effective results, particularly through a more substantial approach to Free, Prior and Informed Consent

(FPIC) procedures. However, the real game changer will be the establishment of tracing procedures to determine the illegal or legal origin of minerals, as well as other violations across the whole supply chain. It will be a complicated and expensive process, from an economic but also political perspective, but it will also represent the fundamental backbone on which to build a series of other measures (particularly those to put pressure on international buyers). It will, however, require, in turn, a truly global coordinated action – one that has recently been envisaged by the UN panel on critical minerals – which will match efforts for Southeast Asia to similar attempts in other regions (United Nations, 2024b).



## 5.8. Environmental crime and serious human rights abuse in West Papua

from our expert guest contributors

West Papua is one of the most biodiverse places in the world, home to unique and endangered species such as birds-of-paradise and tree kangaroos. It has largely intact tropical rainforests, which are home to a rich biodiversity.

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Papua hosts a large part of the third largest tropical rainforest in the world, behind the Amazon and the Congo rainforests (Amnesty International, 2022). In 2010, 94% of Papua's territory was covered by natural forest, and it is now rapidly losing forest coverage because of extractive industries (Gaveau et al., 2021; World Resources Institute, 2020). According to the World Resources Institute, Papua lost 670 thousand hectares of forest between 2011 and 2020, 69% of which was classified as primary forest, with the highest levels of biodiversity (Gaveau et al., 2021; World Resources Institute, 2020).

Natural resource extraction and the mining industry has long contributed to socio-environmental, interstate and separatist armed conflict in West Papua (International Crisis Group, 2022b). As Indonesia massively expands its production of energy transition minerals, Papua is fast becoming Indonesia's new hotspot mining region. Vast resources and finance pour into ongoing exploration in the gold, nickel, and copper sectors – most of which is found in forested areas.

There are plans to develop Indonesia's next industrial park in Siduarsi, on the forested northern coast of Papua (Argus, 2024). However, while nickel prices remain low, many existing investors and mining operators are pouring resources into the gold industry – where prices are at an all-time high.

The Inta Jaya Regency, a mostly forest-covered region in the central highlands of Papua province, is at the epicentre of the latest gold rush and conflict with local communities.

The Wabu Block ranges from 2,200–3,100 metres above sea level, and holds approximately 8.1 million ounces of gold, making it one of Indonesia's five largest known gold reserves. The concession was relinquished to the state-owned MIND ID and PT Aneka Tambang Tbk (ANTAM) operators in 2020 (PT Freeport Indonesia, 2021). Antam is the state gold mining company in Indonesia, and Indonesia's only gold refinery that is listed on the London Bullion Market Authority (LBMA). It therefore has very substantial exposure to international banks and investors, international jewelry and consumer electronics companies. The concession covers over 69,000 hectares, an area roughly equivalent in size to Indonesia's capital city of Jakarta. Antam recently announced that it would reduce gold imports, and focus on the Papua region instead (The Jakarta Post, 2020).

This region is also the focus of the armed conflict between the separatist insurgency and the Indonesian government. The conflict between separatist Papuan groups and Indonesian security forces has its roots in the post-colonial transition, and has escalated since 2019. Amnesty International documented eight cases concerning 12 unlawful killings by Indonesian security forces in 2020 and 2021 in the surrounding region where most of the gold mining is taking place (Amnesty International, 2022).

The presence of private and state security forces in Intan Jaya regency has rapidly expanded, and the number of military outposts has grown from two to 17 military posts in the Sugapa district. The expansion of security and military presence apparatus – that often work

directly with mining operators – has been concurrent with unlawful killings, raids and beatings (Amnesty International, 2022). In the last two years, there are at least six major new concessions documented on the Indonesian mining registry, ranging from 4000 hectares to 120,000 hectares.

The Inta Jaya Regency is inhabited by Indigenous Papuans, mostly belonging to the Moni tribe, whose livelihoods revolve around the forest (Minority Rights Group, 2021). Indigenous Papuans use the forests within the concession boundaries to cultivate crops, hunt animals, and collect timber, and fear environmental pollution, the loss of customary land, and damage to their livelihoods (Amnesty International, 2022).

There has been a complete absence of consultation with the Indigenous Papuan communities in adherence to international laws on free, prior, and informed consent (FPIC), and Indonesian laws on customary forests (Asia Pacific Solidarity Network, 2024). 13 Indigenous Papuans face daily restrictions on movement, electronic devices are used to monitor the movement of civilians, and many are displaced (Amnesty International, 2022). FPIC is an obligation and legal right upheld by a number of mining operators and financial

institutions active in Papua, and elsewhere in the region. Violations of international law, regardless of domestic jurisdiction, can have serious implications for mining operators, banks and investors, and can lead to serious human rights abuse and environmental crime.

### Investor action

Several of the gold, nickel, and copper blocks have attracted attention and investment from a range of publicly listed UK, Australian and other international companies, that are exploring high risk and active armed conflict areas (Reuters, 2025c). The resurgence and expansion of gold mining activities, combined with a lacklustre government stance on environmental and human rights standards, raises serious red flags for companies looking to invest in and lend to mining operations active in West Papua.

While this article does not allege that state security forces employed by Antam are directly involved in environmental crime, human rights abuse, or political violence, it raises concerns about the existing operating context, and high-risk of environmental crime and serious human rights abuse which financial institutions and downstream companies are exposed to.



Jeffrey S.S. from Pexels

## 5.9. Unmasking the gold laundering network: Insights into Brazil's illegal gold trade

from our expert guest contributors

The international market's receptivity to illegal gold mining makes the practice attractive for many reasons: extensive market, difficulty in tracing the origin, worldwide value, and ease of smuggling. In Brazil, what used to be known as artisanal small-scale mining rapidly became large-scale, mechanised, and often illegal gold mining, usually resulting in significant social and environmental impacts.

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Charity**  
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According to an investigation by Reporter Brasil, an investigative journalism organisation, between 2019 and 2020, nearly 203 tons of gold were exported by the country, with an estimated quarter being produced illegally (Reporter Brasil, 2021b).

Illegal gold mining can take place in the form of multiple illegal activities, including mining in illegal areas, false claims of origin, overextraction, or using invalid environmental licenses. Gold and other natural resources are easy to launder and sell in Latin America, where interventions from law enforcement agencies and police forces are limited by insufficient capacity, budgets, and political will. This means laundering illegally extracted gold in global precious metal markets is low-risk and extremely profitable.

Once gold has been extracted, it enters the domestic market either as a financial asset or as a commodity – with distinct supply chain characteristics. In both cases, gold can be laundered, although in different ways. For gold to become a financial asset, it must first be purchased by either the Central Bank (BACEN) or national financial institutions, such as securities companies or DTVMs (Distribuidoras de Títulos e Valores Mobiliários, in Portuguese), which are authorised to purchase gold. They act as the first official trading point for extracted gold and the primary point where taxes on small-scale gold mining are collected.

DTVMs are central to how illegal gold enters the legal market. For instance, BP Trading, a large precious metals export business that generated

USD 350 million in revenue in 2018, was exposed as one of Brazil's top exporters of gold from illegal activities. In 2019 and 2020, BP Trading accounted for 10% of Brazil's gold exports, primarily to Canada and the UK. An analysis of BP Trading's financial statements showed that the company's main supplier of gold included two DTVMs accused by the Federal Prosecutor's office of trading illegal gold extracted in Pará state. The two DTVMs, F.D Gold and Carol DTVM, together with Ourominas, accounted for more than 70% of all illegal or potentially illegal gold in the state.

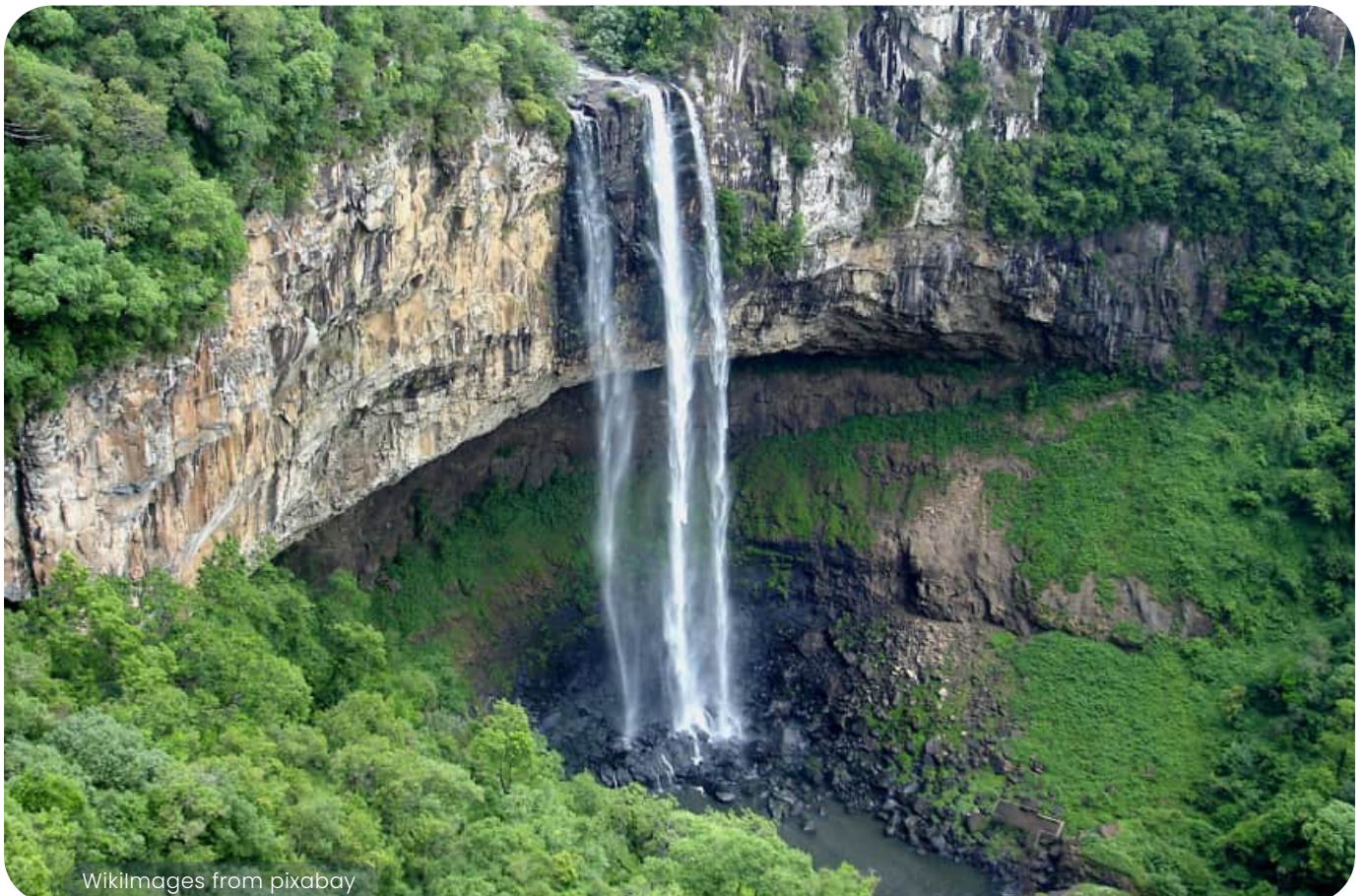
Furthermore, the methods used to launder the proceeds of illegal gold mining include moving cash and using shell companies. Official information published on the Federal Police website reveals that in 2022, the police force triggered three simultaneous operations – Ganância, Golden Greed, and Operation Comando – targeting the illegal extraction and trade of gold from the Amazon, as well as associated crimes including money laundering, corruption, and the formation of criminal organisations, among others (Ministério da Justiça e Segurança Pública, 2022b). Operation Ganância was triggered following a tip-off related to companies in the health sector in Porto Velho, in the Rondônia state, which were allegedly laundering money from fraudulent bids since at least 2012, uncovering schemes involving the injection of illegal capital generated by illegal gold mining (Ministério da Justiça e Segurança Pública, 2022b). The criminal groups behind these schemes had been making bank payments, withdrawals, and

bank transfers worth millions of reais (Brazilian currency), operating through shell companies, and, interestingly, creating their own crypto asset (token) as a means of justifying their returns from illegally sourced gold, disguising them as third-party investments for the generation of dividends. Between 2019 and 2021, these criminal groups moved over R\$ 16 billion (roughly \$3.5 billion USD) through their bank accounts (Ministério da Justiça e Segurança Pública, 2022b).

In addition, gold is used as a form of currency in the gold mining activity itself for the purchase of goods, equipment, machinery, and fuel (COAF, 2021). More recently, illegal gold mining has been linked to drug trafficking. According to the Federal Police and other investigators of illegal mining in the Brazilian Amazon, there is no doubt that the lack of regulation of the gold market in Brazil encourages money laundering, which in turn attracts organised crime (Reporter Brasil, 2021a). In addition, the modus operandi of illegal gold mining, which relies heavily on small private aircraft for transportation of

fuel, equipment and heavy machinery to gold mining areas and to transport of gold out of mining sites, is conducive to facilitating the transportation of drugs across the region and its borders with neighbouring countries (InSight Crime, 2023).

There is evidence that members of criminal groups, such as PCC (First Command of the Capital) and CV (Red Command) – respectively the country’s largest and oldest criminal organisations – are increasingly present in goldmining areas, either providing protection in exchange for payments in gold, or themselves engaging in illegal gold extraction (InSight Crime, 2023). A leading investigator of illegal gold mining, Federal Prosecutor Paulo de Tarso Moreira de Oliveira, from Pará state, believes that gold is the best way to launder money today, and that any organisation or individual in need of justifying an increase in wealth from criminal money can safely rely on the illegal gold sector (UNODC, 2023c).



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## 5.10. Terrorist financing in the Sahel

from our expert guest contributors

Armed terrorist groups have become increasingly prevalent in the Sahel over the past decade, with particular attention paid to the presence of Jihadi groups in gold mining areas (Financial Times, 2021). Their role fueling violence in the region has received significant media coverage: most notably the 2019 attack on the mining town of Solhan in Burkina Faso by armed assailants (including children) which led to over 130 casualties (CNN, 2021).

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No group has claimed responsibility for the attack. Nonetheless, there have been increasing calls from US security officials and international organisations to crack down on armed violence committed against artisanal mines and the terrorist appropriation of mined gold (CNN, 2021; International Crisis Group, 2019). Following the attack, Burkina Faso announced a ban on all artisanal mining in the Sahel region (ENACT, 2022b).

The relationship between artisanal gold mining and armed groups in Burkina Faso is, however, complex and should be read in the context of shifting land use policies, rural populations' growing dependence on mining income, and ongoing political instability.

Since 2000, Burkina Faso's population has doubled in size while agricultural productivity continues to decline (in part due to climate change), which has rendered mining an increasingly important source of income (Brugger & Zongo, 2023). Artisanal mining has shifted from a part-time activity to cover poor agricultural yields into a full-time occupation that supports around a million people across the country, particularly unemployed rural youth. Despite the size of the industry, however, state control is fragmented. Following the 2014 coup of Blaise Compaoré – himself responsible for the 1987 assassination of popular reformist president Thomas Sankara – a plethora of powerful groups have struggled for control across Burkina Faso, including the military forces, volunteer militias, armed rebels, terrorists, and US security (Idrissa, 2019).

Conflict over land control is further complicated by ethnic tensions. In particular, the introduction of private land ownership under Compaoré in 2009 has facilitated the monopolisation of

agricultural land by powerful elites, further alienating the traditionally pastoral Fulani ethnic group against the dominant Mossi group – who are mostly sedentary agriculturalists (Idrissa, 2019)

In this context, artisanal gold mining can be read as a response – predominantly by poor rural communities – to an ongoing lack of economic and political stability, and as an important source of income for these groups. Indeed, recent academic research has found that gold mines are not the dominant target of armed attacks and that many terrorist groups actually win the support of miners by lowering taxes and expanding extraction, in contrast to state responses that drive miners away by closing their mines or replacing them with large-scale, formal operations (Brugger & Zongo, 2023).

For example, one miner from Sanmatenga was quoted as saying: *"The authorities in Burkina Faso believe that illegal gold mining facilitates terrorist acts and that they must work to stop it. Yet, they forget that this will increase unemployment, allowing the terrorists to recruit former orpailleurs<sup>14</sup> into their ranks."* (Brugger & Zongo, 2023)

Consequently, while recognising the real links between terrorist groups and artisanal gold mining in Burkina Faso, it is important to also acknowledge the underlying socio-political circumstances that necessitate artisanal gold mining and the important role it plays in providing income for millions of people across the world.

<sup>14</sup> The term orpailleur is used to refer to gold panners.

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## About Themis

Themis helps clients identify and manage their specific financial crime risks, through a combination of innovation, insight and intelligence. Our cutting edge platform helps organisations understand these strategic threats through an ESG and socio-economic lens and protects their customers, staff, suppliers and shareholders from criminal attacks or association.

For more information, visit [www.wearethemis.com](http://www.wearethemis.com)

## About WWF

WWF (Worldwide Fund for Nature) is one of the world's largest independent conservation organisations, active in nearly 100 countries.

Our supporters – more than five million of them – are helping us to restore nature and to tackle the main causes of nature's decline, particularly the food system and climate change. We're working to ensure a world with thriving habitats and species, and to change hearts and minds so it becomes unacceptable to overuse our planet's resources.



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