MINING AND MONEY:
FINANCIAL FAULTLINES IN THE ENERGY TRANSITION

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About Us

Forests & Finance is an initiative by a coalition of campaign and research organisations including Rainforest Action Network, TuK Indonesia, Profundo, Amazon Watch, Milieudefensie, CED Cameroon, Repórter Brasil, BankTrack, Sahabat Alam Malaysia, Friends of the Earth US and Observatório da Mineração. Collectively we seek to prevent financial institutions from facilitating environmental and social abuses common in forest risk commodities and mining. We seek to achieve this through improved financial sector transparency, policies, systems and regulations.

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A banner from MAM - The Movement for Popular Sovereignty in Mining - calls out the corporate capture of COP30 processes by mining companies. It says: "Against the plundering of our minerals COP30 has closed a deal with the destruction of the Amazon".
Copyright: Jerê Santos/MAM.

EXECUTIVE SUMMARY

Combating the climate crisis and transitioning to a low-carbon economy must not come at the cost of people and the planet. While climate action demands an urgent shift away from fossil fuels, the current race to extract so-called 'transition minerals' is repeating the same violent, exploitative and unsustainable practices that have defined the fossil fuel era. These minerals are widely used in current clean energy technologies such as solar panels, wind turbines, batteries, energy grids and electric vehicles (EVs), but their extraction and processing still involve high-risk, environmentally destructive and socially harmful practices that require urgent reform.

According to the International Energy Agency (IEA), demand for transition minerals is set to more than double by 2030 and triple by 2040.[1] Meeting this demand could require USD 800 billion in new mining investments, much of it channelled through commercial banks and institutional investors.[2] Yet in the absence of strong regulation and robust environmental and social safeguards, this financing boom is fuelling deforestation, landgrabs, pollution, contamination and violence against Indigenous Peoples, environmental defenders and affected communities.[3]

New research from the Forests & Finance Coalition shows that between 2016 and 2024, major banks provided USD 493 billion in credit (loans and underwriting), while investors held USD 289 billion in bonds and shares of 111 transition mineral companies, as of June 2025. Nearly 70% of transition mineral mines overlap with Indigenous or peasant lands and up to 71% of these mines are in high-biodiversity regions.[4] Many of these regions are already facing climate shocks, land conflicts and poverty.[5] Since 2010, over 835 allegations of abuse have been linked to transition mineral mining. These range from land grabs to attacks on environmental defenders and underscore the systemic risks too often obscured by the "green" and "clean" marketing behind these extractive operations.[6]

Financial institutions play a central role in enabling this wave of destructive expansion. Our assessment of 30 major banks and investors reveals dangerously weak environmental, social and governance (ESG) policies for the mineral mining sectors. The average score was just 22%, with most institutions lacking any meaningful safeguards on deforestation, Indigenous rights, tailings waste management, emissions reduction, access to remedy, or mine closure. Without urgent reform, finance will continue to reinforce an extractive, high-risk model that undermines both climate and nature goals, and tramples human rights.

This report aims to highlight faultlines in the financial sector and calls on policymakers and institutions to raise the bar. Through case studies, it connects the flows of capital to the social and environmental costs of transition mineral extraction, and calls for a shift from extractivism to equity, from exploitation to accountability. A truly just energy transition depends on just finance that reduces harm, upholds rights, protects nature and supports equitable clean energy access.

Key Findings

Highly concentrated sector: Mineral production and financing are dominated by a small group of countries, financial institutions and companies.

- Banks committed USD 493 billion in loans and underwriting for transition mineral mining between 2016 and 2024 – 53% went to just ten companies.
- 63% of transition mineral mining credit came from banks in China, the United States, France, Canada, and Japan.
- Investors held USD 289 billion in bonds and shares of transition mineral mining companies as of June 2025 – 82% was in just ten companies.
- 80% of investment came from institutions in the United States, Australia, the United Kingdom, Japan, and Brazil.

Dangerously Weak financial policies: Financial institutions mining policies are inadequate, vague or have critical loopholes enabling harmful practices.

- The average policy score was 22% across 30 major financial institutions.
- Two of the world's largest investors – Vanguard and CITIC – scored the lowest, just 3%.
- The top score (Norwegian Government Pension Fund) was 48% but even it lacked key safeguards on tailings management, land legality and mine reclamation.
- Social scores averaged just 19%, with 80% of institutions lacking any policy on Human Rights Defenders, and no institution had safeguards for Indigenous Peoples living in voluntary isolation.

We cannot fight climate change and biodiversity loss by scaling up systems which displace communities, pollute and destroy ecosystems, exploit workers and entrench injustice.

High-risk industry with serious harms: Transition mineral mining is already driving widespread environmental destruction and human rights abuses.

- Harita Group's nickel operations in Indonesia are powered by coal and have caused deforestation, water contamination and public health impacts for over a decade.
- Vale's iron and nickel operations in Brazil have caused decades of social conflicts and two catastrophic dam collapses that killed hundreds and caused Brazil's largest environmental disaster.
- China Molybdenum's copper and cobalt operations in the Democratic Republic of Congo have displaced communities, exploited workers and polluted water sources.
- Alcoa and South32's aluminium (bauxite) operations in Australia have destroyed forests, threatened water security and violated the rights of the Noongar Traditional Owners.

The energy transition must not be built upon the same extractive model that created today's planetary crises. We cannot fight climate change and biodiversity loss by scaling up systems which displace communities, pollute and destroy ecosystems, exploit workers and entrench injustice. A just energy system fit for the future depends on transforming the way minerals are sourced and financed – responsible mineral value chains must embed rights, accountability, transparency, justice and sustainability at the core.

Call to Action: Align Capital with a Just, Equitable and Sustainable Energy Transition

To deliver clean energy for all without replicating extractive harm, governments must establish financial and policy frameworks that embed equity, rights and accountability. This requires transparent, accountable, and inclusive governance that ensures finance does not fuel deforestation, rights violations, or ecosystem collapse. Without structural changes, the energy transition will fail to meaningfully address the climate and nature crises. For financial institutions, we call on banks and investors to urgently align finance with a just, equitable and sustainable energy transition by implementing these commitments:

1. **Respecting human rights** — including Indigenous Peoples' Rights, Free, Prior and Informed Consent (FPIC), labour standards, and protection of human rights defenders.
2. **Protecting nature** — excluding finance for companies linked to deforestation, biodiversity destruction, water pollution, and unsafe waste management.
3. **Strengthening accountability** — through human rights and environmental due diligence, supply chain traceability, transparency, and grievance mechanisms.
4. **Aligning with climate and nature frameworks** — requiring credible climate transition plans and cutting fossil fuel finance.
5. **Establishing red lines** — excluding clients with repeated or unresolved rights violations, environmental harms, or failure to remedy harms.

The Forests & Finance Coalition supports the CSO *"Principles to Ensure Energy Transition Minerals Advance Justice, Equity and Human Rights"* and calls for governments to: reduce mineral demand equitably; protect people and planet; support equitable development and tax justice; promote equitable international trade and investment; and ensure strong United Nations action on transition minerals.[7]

Alcoa Huntly mine (2025). Credit: The Wilderness Society.

INTRODUCTION

The race to secure transition minerals is being framed as an essential step toward climate action. But the current economic model driving mineral demand relies on overconsumption, corporate concentration, and the exploitation of marginalised people and the environment. Unchecked extraction of minerals to power a clean energy future in wealthy countries is causing particularly severe impacts on communities in lower-income countries.[8] Without a fundamental rethinking of how and why minerals are extracted, who benefits, who bears the costs, and who gets to decide, the energy transition risks becoming yet another chapter in the long and sordid history of mining.

As it stands, the current financial architecture and institutions' risk management practices remain a long way off track.[9] Instead of enabling a transition grounded in equity, justice and sustainability, they are reinforcing extractive, short-term models that deepen social and environmental harm, diverting capital to the largest actors with the worst track records. This report finds that some of the companies with the most egregious practices, including contamination, landgrabbing and tailings mismanagement are some of the biggest winners of the mineral boom with financiers banking on corporate impunity.[10]

Much of the energy transition has been centred on mining, with estimates indicating that at least 384 new mines will be needed by 2035 just to meet projected mineral demand for batteries.[11] In the European Union, 50-60% of their transition mineral demand is linked to EV production alone.[12] Although decarbonising transport is essential, this focus risks sidelining more urgent energy access needs as 150 million people in the Asia Pacific and 600 million people in Africa still lack electricity.[13] To ensure the energy transition is truly just, we need to address overconsumption in wealthy countries and support renewable energy infrastructure in regions facing energy insecurity.

In recognition of these urgent challenges, the United Nations Secretary-General convened a High-Level Panel on Critical Energy Transition Minerals in 2024 outlining guiding principles to align mineral production with human rights and sustainability. Civil society has gone further, calling for structural reforms that reduce mineral demand equitably, ensure fair benefit-sharing and hold financial institutions and mining companies accountable.[14]

This report explores the critical role of finance in enabling harmful mining practices by:

- Mapping financial flows to over a hundred of the largest transition mineral mining companies globally, identifying which banks and investors have financed them.
- Assessing 30 major financial institutions' policies on mineral mining against 34 criteria aligned with international laws and best practice on environmental protection, human rights and governance – revealing widespread gaps and loopholes that enable harm.
- Profiling four case studies where mining companies have caused serious social and environmental harms, enabled by financial institutions and compounded by weak policies or enforcement failures.

RESEARCH OVERVIEW

This report is grounded in two original research streams: 1) financial mapping of credit and investment from global banks and investors to major mining companies; and 2) policy assessment of financial institutions' policies on mineral mining. For this report, the term 'transition minerals' is used as a catch-all term for ten commodities extracted in the name of the energy transition, even though some are geologically classified as metals. The minerals chosen for this study were: Aluminium, Chromium, Cobalt, Copper, Graphite, Iron, Lithium, Manganese, Nickel and Zinc. Coal mining is excluded from this assessment.

The authors wrote to all the banks and investors named in the case studies on pages 24 to 42. Of those, only Citi and ABN Amro had responded to provide comments by the time of publication. Citi referred to their Environment and Social Risk Management Policy and ABN Amro said they had largely wound down their corporate banking outside the Netherlands and Northwest Europe, and worldwide commodity financing by the end of 2022. The authors also wrote to Alcoa and South32 named in the Australia case study. South32 referred to their Sustainability Policy, while Alcoa provided specific comments which can be found in full on our website: forestsandfinance.org/Mining25_AlcoaResponse

The authors believe the information in this report comes from reliable sources and strive to ensure that the data and analysis presented in the report are thoroughly researched. However, data may change over time or be subject to interpretation, so we encourage users with questions or corrections to contact us here in the spirit of transparency: forestsandfinance.org/contact-us

Methodology: Financial Mapping

The research focuses on 130 mining companies. For each of the selected minerals, this research identified the largest producers and companies holding the largest reserves. The companies were identified using industry reports (e.g. Fitch Quarterly Reports), US Geological Survey (USGS) data, trade journals, and other relevant sources to identify the main companies engaged in the exploration and extraction of each mineral. Company publications, presentations and other disclosures, as well as media archives and alternative industry reports and trade journals were used to complete as far as possible an overview of current production and/or reserves data.

Many mining companies have diversified portfolios, including different minerals. Therefore, this research identified the proportion of business activities that can reasonably be attributed to the upstream extraction and midstream processing of the specific selected minerals. The proportion of business activities related to the focus metals was calculated for all identified borrowers/issuers for each year a financial relationship was identified. These proportions were called "segment adjusters" since their application to identified financing "adjusts" the original value to reflect the "segment" value more accurately.

Segment adjusters were developed using the segment reporting in annual reports to the fullest extent possible, complemented by further information from company publications and websites and estimations where necessary. The following financial indicators were used in order of preference: segment capital expenditures/additions to non-current assets, segment liabilities, segment assets, segment revenues, and segment profit/loss.

Where financing was identified at the subsidiary level, this research identified the segment activities using company publications. Where financing was identified for a financing vehicle, the group level adjuster was applied. A similar methodology was applied to calculate "geographic adjusters" as several companies included in the study are active in multiple countries. Visit our website for the full financial mapping methodology.

Methodology: Policy Assessment

This methodology evaluates how major financial institutions (FIs) manage environmental, social, and governance (ESG) risks in their financing and investment activities within the transition minerals sector. A total of 30 FIs were selected based on their size and relevance, particularly in tropical forest regions.

The assessment framework uses 34 ESG criteria across four categories:

- **Environmental**: Includes zero deforestation, biodiversity protection, water and air quality, responsible tailings management, mine closure planning, and a ban on deep-sea mining.
- **Social**: Covers Free, Prior and Informed Consent (FPIC), human rights due diligence, labour protections, living wages, gender-based rights, and artisanal mining support.
- **Governance of Financial Institutions**: Assesses board-level oversight, policy enforcement transparency, disclosure of financing and emissions, and access to grievance mechanisms.
- **Governance of Companies**: Examines legality, supply-chain transparency, anti-corruption practices and tax integrity.

Each criterion is scored from 0–10 based on how specific and comprehensive the FI's policy is.

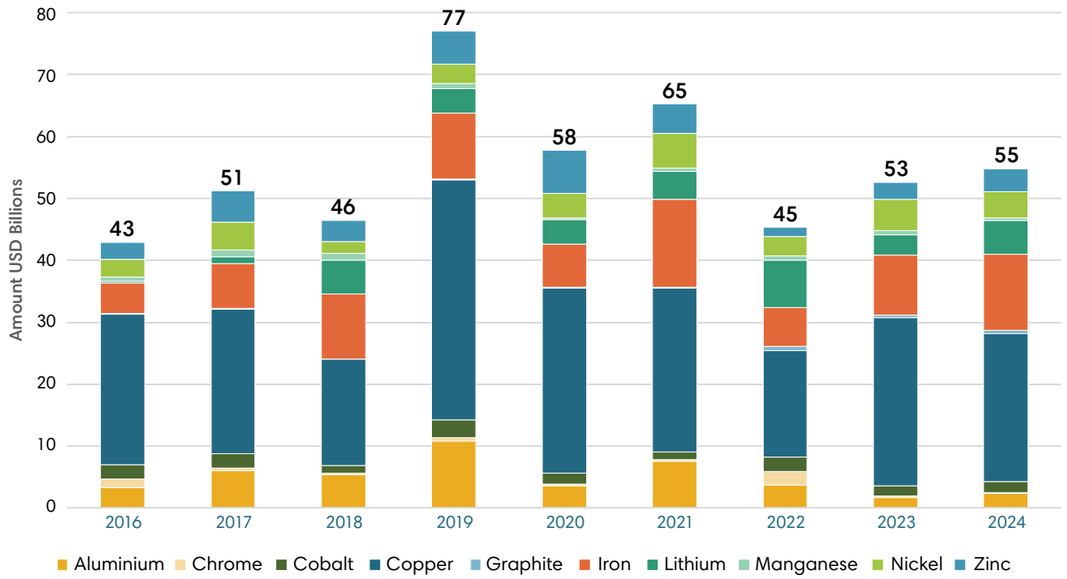
0	No commitment
3	General / unqualified commitment
5	Partial or qualified requirements
7	Full requirements for clients / investees
10	Full requirements including suppliers

Scores for each criterion are weighted by the FIs split between financing (loans and underwriting) and investment (bondholding and shareholding). The total score for each FI is converted to percentages to allow direct comparison between institutions. Visit our website for the full policy assessment methodology.

MINERAL FINANCING TRENDS

Our research identified credit and investment flows to 111 out of the 130 researched company groups operating in the mineral sectors worldwide. Between 2016 and 2024, financial institutions provided USD 493 billion in credit and held USD 289 billion in investment in companies mining transition minerals such as copper, lithium, cobalt, and nickel. This capital is heavily concentrated with 63% of all credit originating from banks based in just five countries: China; the United States; France; Canada; and Japan. Similarly, 80% of all tracked investment originated from institutions based in the United States, Australia, the United Kingdom, Japan, and Brazil.

Figure 1. Credit Flows to Transition Minerals by Year (2016-2024, USD billions)



These financial hubs also host many of the world's largest mining corporations. Notably, 62% of total credit flowed to companies headquartered in China, the United States, Australia, Canada, and Switzerland. This pattern was mirrored on the investment side, where 79% of total investment went to companies based in Australia, the United States, Brazil, Canada and the United Kingdom. This highlights the dominance of a few countries in shaping global transition mineral value chains. At the other end of the value chain, extraction is heavily concentrated in a few countries, with around 50% of the finance flowing to just six countries: Chile, Australia, China, Peru, Brazil and the Democratic Republic of Congo.

Regions and Minerals

Figure 2. Country Credit Map for Transition Minerals (2016-2024, USD billions)

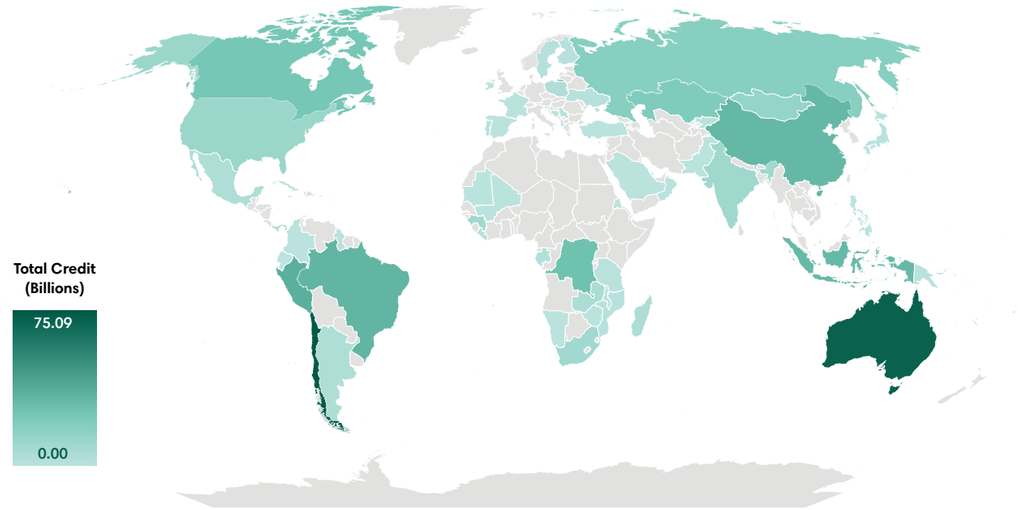
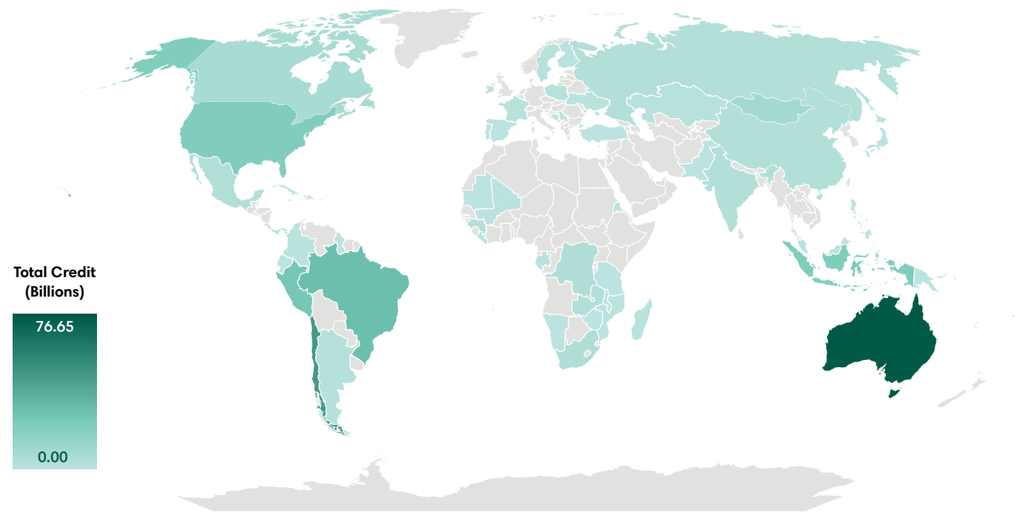


Figure 3. Country investment map for transition minerals (2025, USD billions)



The distribution of finance across credit and investment was balanced for most minerals in our research. The top three minerals receiving the highest volumes of finance were copper, iron and aluminium. Copper led with USD 228 billion in credit and USD 154 billion in investment, underscoring its ubiquity in energy infrastructure. Iron followed with USD 82

billion in credit and USD 82 billion in investment, while aluminium received USD 45 billion in credit and USD 9 billion in investment.

South America emerged as the most significant region for mineral finance, attracting 30% of all mapped credit (USD 151 billion) and 36% of tracked investment (USD 105 billion). The bulk of this finance went to copper, iron and lithium operations, reflecting its major role in global copper production and its strong appeal to investors. Oceania ranked second, with USD 72 billion in credit and USD 77 billion in investment. This region's financing was largely driven by iron, copper and lithium, reflecting Australia's pivotal role in supplying raw materials essential for EV batteries.

Sub-Saharan Africa also emerged as a key region, securing USD 67 billion in credit and USD 17 billion in investment. The region is a growing hotspot for transition minerals such as cobalt, graphite, manganese, and nickel. Southeast Asia was the leading region for nickel credit (USD 19 billion), highlighting Indonesia's rapid expansion in nickel processing and growing relevance in the global mineral supply chain.

Table 1. Credit and Investment by Mineral

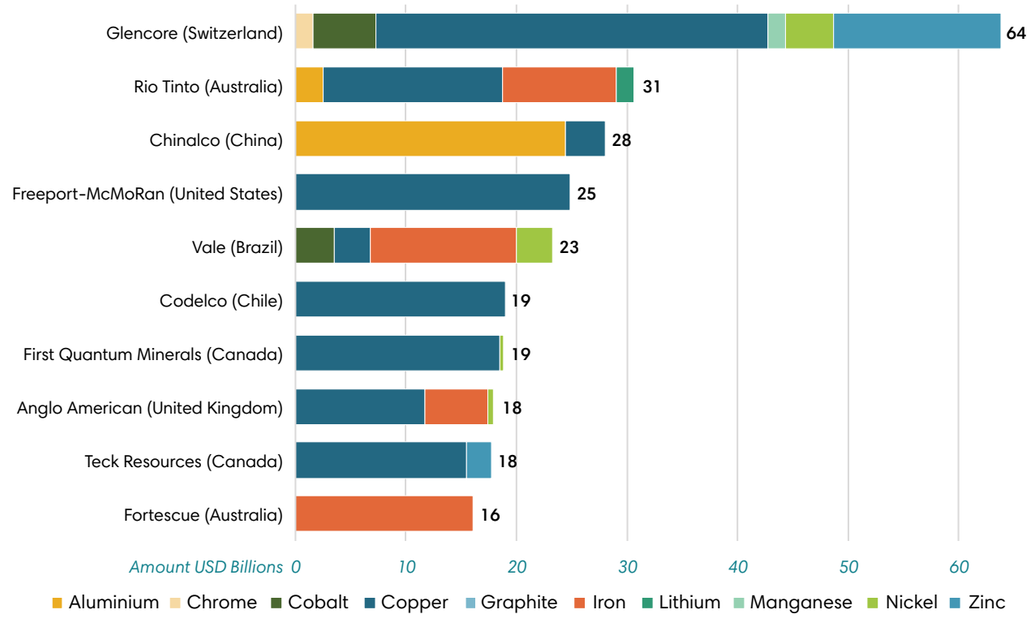
	Credit (2016-2024) USD Millions	Investment (June 2025) USD Millions
Aluminium	44,619	9,290
Chrome	5,639	283
Cobalt	17,576	5,632
Copper	227,892	153,563
Graphite	2,538	119
Iron	82,408	82,249
Lithium	35,888	21,058
Manganese	6,292	1,156
Nickel	34,262	8,824
Zinc	36,170	7,295

Mining Companies

A small group of powerful mining companies dominate the global financial flows into transition minerals. Between 2016 and 2024, just 30 companies received USD 422 billion in credit (86% of total mapped) and USD 281 billion in investment (97% of total mapped). Overall, capital was concentrated in the hands of companies headquartered primarily in China, the United States, Australia, Canada, Brazil, and Switzerland, though their operations span the world.

This geographic concentration is clustered in a few financial centres, reinforcing existing imbalances in who controls and profits from the energy transition. Many of these companies, including those profiled in this report on pages 24 to 42 have long, well-documented records of serious harmful corporate practices which have often not been effectively addressed or remedied.

Figure 4. Largest Companies Receiving Transition Mineral Mining Credit (2016-2024, USD Billions)



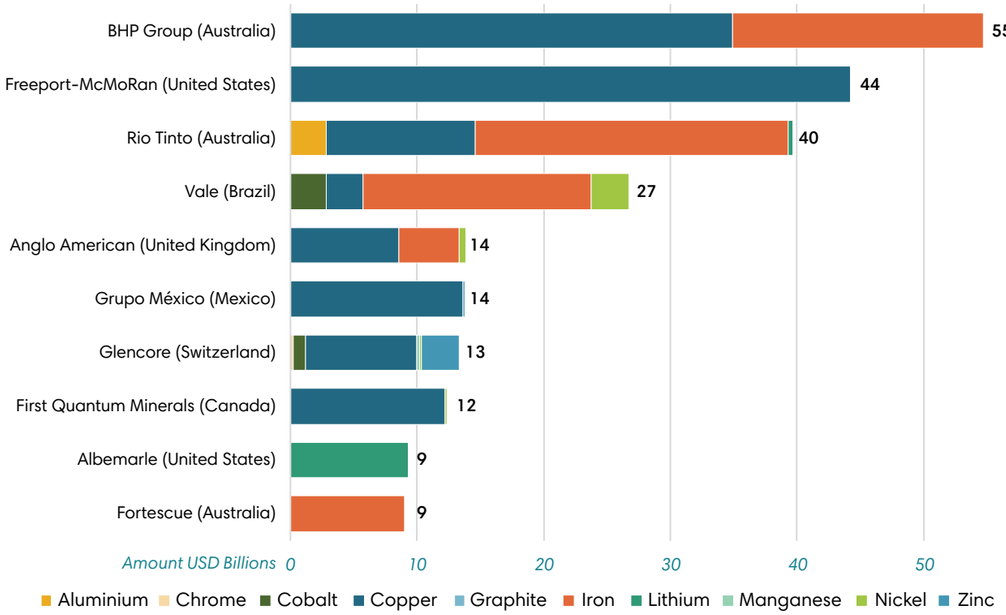
The ten largest companies by credit received a combined total of USD 260 billion between 2016 and 2024, accounting for 53% of all credit mapped during this period. Swiss mining giant Glencore was the most financed company, securing USD 64 billion, more than double

the second and third largest companies. Glencore's diversified portfolio received particularly high volumes of credit to copper (USD 35 billion), zinc (USD 15 billion), nickel (USD 4 billion), and cobalt (USD 6 billion). Its operations are spread across South America, Sub-Saharan Africa, Oceania, Central Asia, Southeast Asia and North America.

Glencore was followed by the Australia/UK dual-listed mining company Rio Tinto (USD 31 billion) which received credit for copper (USD 16 billion), iron (USD 10 billion), aluminium (USD 3 billion) and lithium (USD 2 billion). Rio Tinto is mostly active in Central Asia, Oceania and South America, with significantly smaller operations in other regions.

Next, Chinese Chinalco received USD 28 billion, primarily for aluminium (USD 24 billion), highlighting China's dominance in upstream metals used for energy infrastructure and domestic industrial demand. Other top-financed groups include Freeport-McMoRan (United States), Vale (Brazil), and Codelco (Chile). Credit flows to these firms were concentrated in copper and iron.

Figure 5. Largest companies receiving transition mineral mining investment (June 2025, USD Billions)



Approximately 35 trains pass through Vale's tracks daily, including one of the largest freight trains in regular operation in the world. Credit: Ingrid Barros.

As of June 2025, financial institutions held USD 237 billion in the bonds and shares of ten companies, accounting for 82% of all investment mapped. Over USD 94 billion was invested in the Australian giants BHP Group and Rio Tinto, which primarily extract copper and iron.

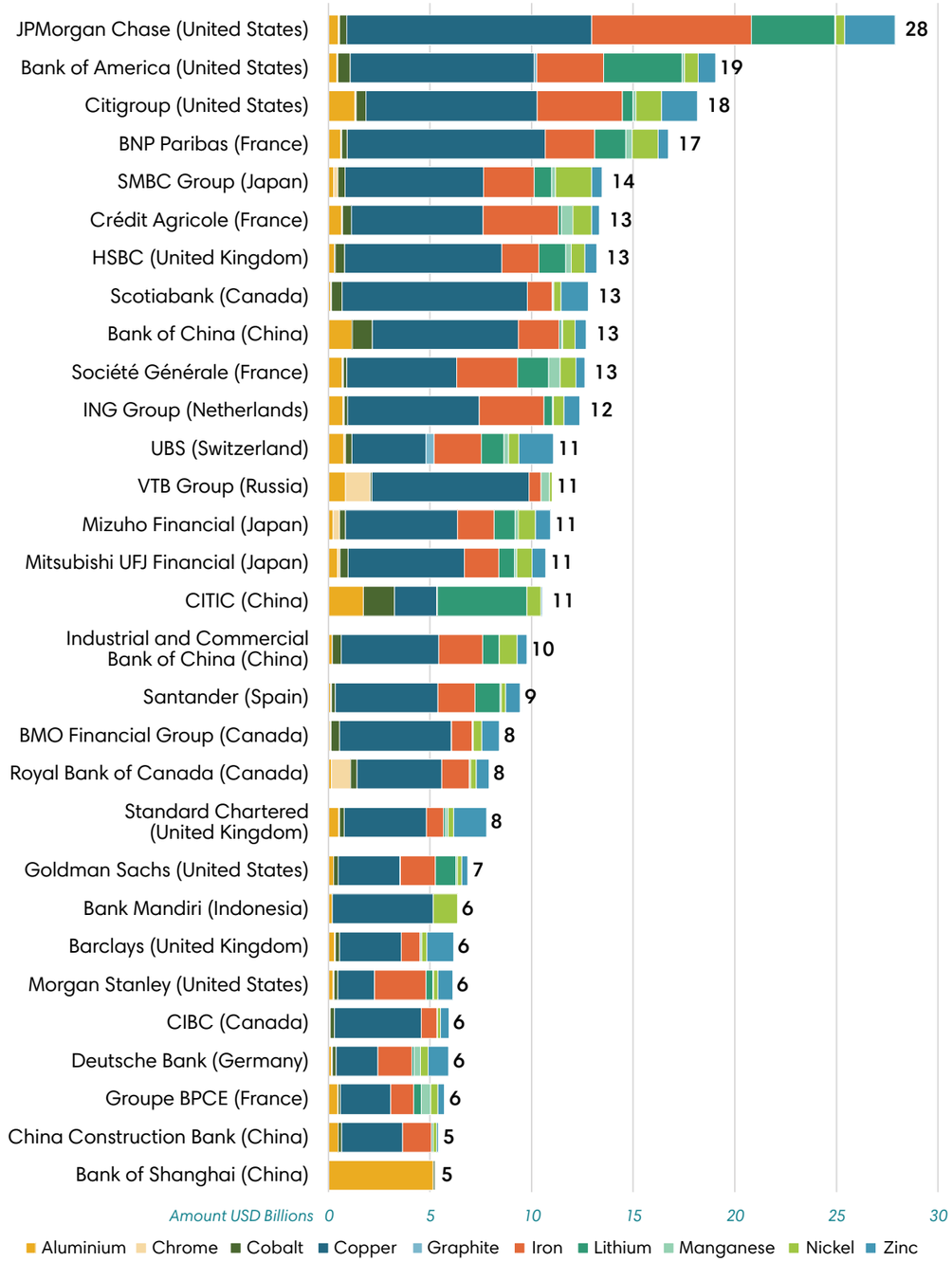
Between 2016 and 2024, just 30 companies received USD 422 billion in credit and USD 281 billion in investment.

US-based Freeport-McMoRan received USD 44 billion, for its copper operations. These operations include the massive copper and gold Grasberg mine in Papua, Indonesia.

Brazil's Vale secured USD 27 billion across iron, cobalt, copper and nickel due to their role in global battery and steel supply chains. The remaining companies – Anglo American, Glencore, Grupo México, First Quantum Minerals, Albemarle and Fortescue – received a combined USD 72 billion.

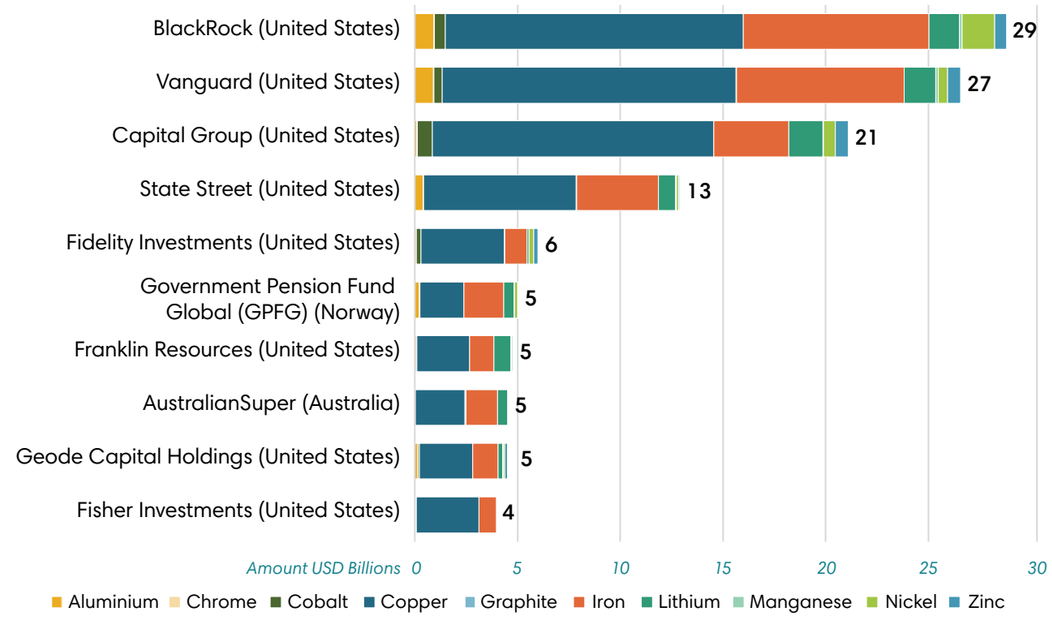
Financial Institutions

Figure 6. Ranking of the Largest Transition Mineral Mining Creditors (2016-2024, USD billions)



Between 2016 and 2024, these banks provided USD 324 billion in credit to mineral mining operations. JPMorgan Chase was the largest by a clear margin providing USD 28 billion, followed by Bank of America (USD 19 billion), Citi (USD 18 billion) and BNP Paribas (USD 17 billion).

Figure 7. Ranking of the Largest Transition Mineral Mining Investors (June 2025, USD billions)



The 10 largest investors in mineral mining operations held USD 118 billion in bonds and shares of transition mineral mining companies as of June 2025. BlackRock (USD 29 billion), Vanguard (USD 27 billion) and Capital Group (USD 21 billion) were the largest three.

The 10 largest investors in mineral mining operations held USD 118 billion in bonds and shares of transition mineral mining companies as of June 2025.

Vale Carajás mine. Credit: Disclosure/Vale.

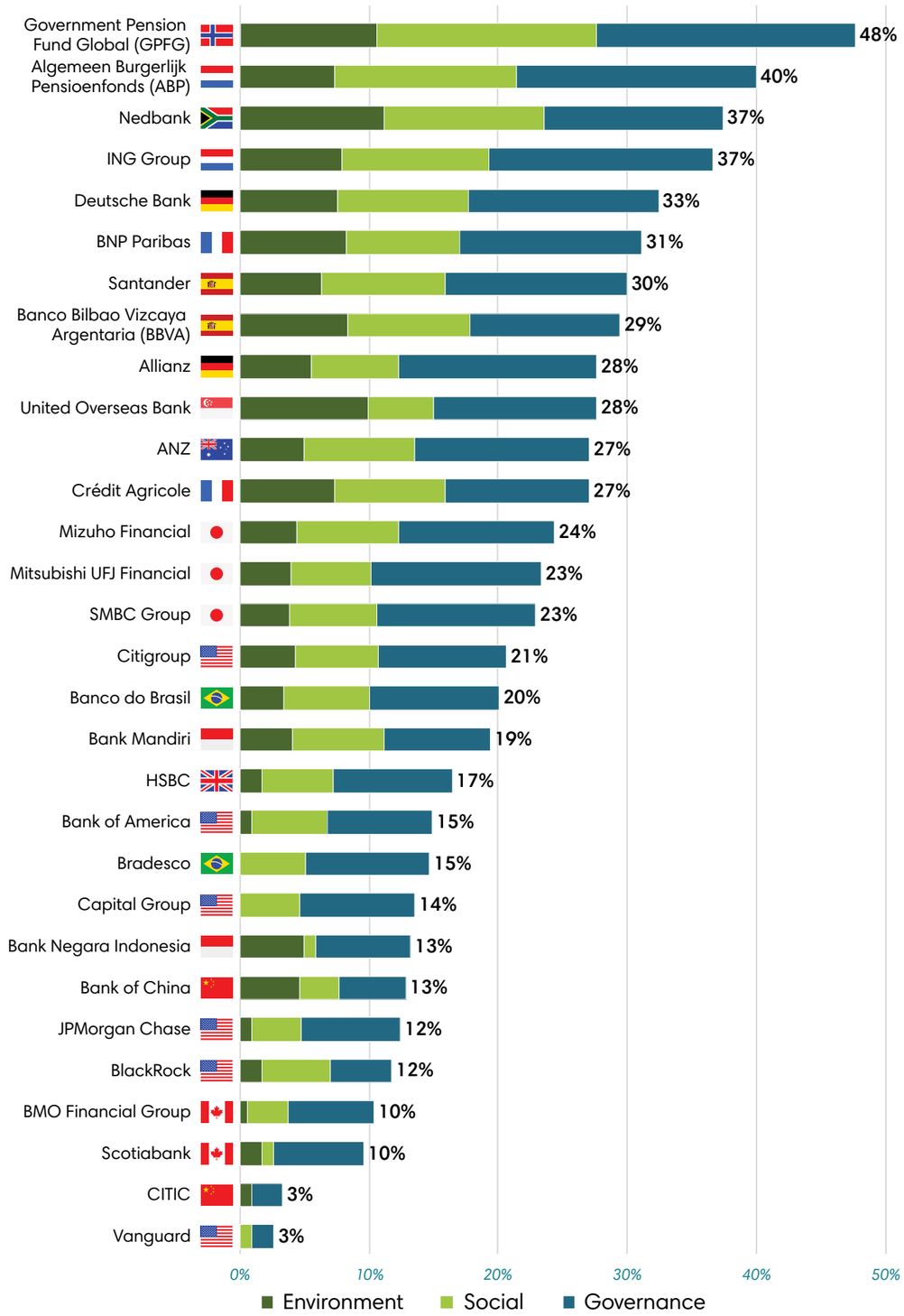
FINANCIAL INSTITUTION POLICY ASSESSMENT ANALYSIS

Our assessment of the policies of 30 major banks and investors exposed major policy failings in the financing of the mineral mining sector. The average overall score across institutions was just 22%, with a range from only 3% (Vanguard and CITIC) to 48% (GPFG). These scores reveal that financial institutions are not adequately mitigating risks or addressing the harms linked to their clients' mining of transition minerals.

Environmental safeguards were the weakest area, averaging a score of just 17%. Despite the known impacts of mining on ecosystems, only 13% of institutions had clear zero-deforestation policies. None had requirements for clients to manage tailings storage risks and 43% of institutions had no policy on hazardous waste management. Only 10% had credible policies on mine closure or reclamation that protected natural environments.

Social protections scored slightly higher but averaged just 19%. While 63% of institutions made general commitments to Free, Prior and Informed Consent (FPIC) for Indigenous Peoples, most applied only to project finance or excluded customary rightsholders. Shockingly, none had policies addressing the rights of Indigenous Peoples living in voluntary isolation, a grave omission given the significant overlap between mining zones and Indigenous territories.

Figure 8. Mineral Mining Policy Assessment Scores



Human Rights Defenders (HRDs) remain unprotected with 80% of financial institutions lacking any policy. In a sector notorious for violence, criminalisation, and intimidation, such inaction by financiers is dangerous and negligent. Equally concerning, 40% had no policy requiring clients to remedy harms they cause to communities, or to remedy harms themselves.

These scores reveal that financial institutions are not adequately mitigating risks or addressing the harms linked to their clients' mining of transition minerals.

Governance scores averaged just 22%, with notable gaps in enforcement and accountability. Only one institution (Allianz) applied its ESG policies across a client's entire corporate group. This gap allows many high-risk subsidiaries to escape scrutiny. While some banks disclosed engagement strategies for clients receiving loans or underwriting, transparency was minimal for equity or bond holdings, with only four institutions (GPFG, ANZ, ABP, and Allianz) providing examples of mining companies.

Grievance mechanisms, which are vital for accountability and for affected communities and individuals to seek remedy for harms caused by mining companies, were lacking. A staggering 60% of institutions had no public grievance mechanism, and 25% had internal-only mechanisms, falling short of the requirements of the UN Guiding Principles.

Furthermore, climate alignment is missing. Few institutions required clients to develop climate transition plans aligned with a 1.5°C pathway, and the majority (80% of institutions) had no policy or only vague commitments. When it came to the institutions' own transition plans, none of the assessed institutions had robust policies in place and seven institutions had no policy at all. Without clear expectations on absolute emissions reductions, just transition principles, and the phase-out of harmful practices, these banks and investors risk enabling greenwashing.

Tax responsibility is another critical gap as 60% of institutions had no policy coverage. Despite the importance of tax justice for equitable development and public revenue in resource-rich countries, only two institutions assessed (GPFG and ABP) had any policies requiring clients to disclose tax payments, commit to country-by-country reporting, or refrain from aggressive tax avoidance. This lack of tax transparency not only facilitates profit shifting and capital flight, it undermines the ability of governments, particularly in the lower income countries, to fund renewable energy infrastructure and public services.

Nickel mining across eastern Indonesia, like this site in Sulawesi, involves stripping back forest and layers of soil, creating the conditions for chromium-6 to be formed.
Credit: The Gecko Project.

EXPOSING THE FAULT LINES:
THE HIDDEN COSTS OF THE ENERGY TRANSITION

As the demand for transition minerals rises, so too does the scramble to extract them, regardless of the cost. Mining companies are aggressively expanding into biodiverse regions and Indigenous territories backed by vast financial flows from global banks and investors.[15] While the industry promotes itself as critical to the energy transition, it is reproducing the same patterns of environmental destruction, rights violations and corporate impunity that have long defined the extractive industries. Without urgent reforms, the energy transition risks becoming another chapter of extractive injustice.

Our analysis and the case studies that follow – from Indonesia, Brazil, the DRC and Australia – illustrate how finance fuels systemic harms in the extractive sectors. Financial institutions are not just complicit; they are key enablers. Weak due diligence, inadequate ESG policies, and a failure to enforce safeguards allow companies to operate with impunity. Hidden behind the marketing of "green", "clean" and "renewable" mining companies continue to cause deforestation, water pollution, excessive greenhouse gas emissions, labour abuses, displacement, health problems, and attacks on Indigenous Peoples environmental defenders.[16]

Indonesia: Coal Powered Nickel and the Cost of Contamination in Paradise

Indonesia holds the largest nickel reserves in the world, and produced half of the global supply in 2023.[17] Key to EV batteries and steel, the International Energy Agency (IEA) predicts that Indonesia will supply almost two-thirds of the world's nickel by 2030.[18] Investment in domestic refining capacity has surged following the Indonesian government's export ban on raw nickel in 2020 along with tax incentives, subsidies and deregulation.[19]

Chinese companies represent the largest foreign investors in Indonesia's nickel industry.[20] In large industrial parks in Morowali (IMIP) and Weda Bay (IWIP), China's Tsingshan is a joint venture partner, while China's Ningbo Lygend is a joint venture partner in Obi Island.[21] Indonesian nickel ends up in the supply chains of EV manufacturers, including Tesla, Ford and Volkswagen.[22]

However, behind the claims that the industry is driving a transition to clean energy lies a deepening crisis, as forests are cleared, ecosystems are contaminated and communities displaced.[23] Captive coal power[a] production, primarily linked to nickel refining, has tripled in the last five years.[24] In addition to driving deforestation and climate change, public health experts have estimated air pollution from captive coal in Indonesia will cause 5,000 premature deaths and USD 3.42 billion in health costs by 2030.[25]

Harita Group: Industrial Expansion and Contamination on Obi Island

Obi island, part of the ecologically sensitive Coral Triangle, was once known for its rich marine biodiversity, its endangered coral reefs, and its fishing communities.[26] Today, it hosts Harita Group's vast nickel complex, backed by China's Ningbo Lygend. This sprawling mining

a Captive refers to coal power plants that are build and used solely for industrial purposes. For example, a nickel smelter.

Harita Nickel's plant looms over palm trees and homes in Kawasi village, Obi island (2025). Credit: Rifki Anwar/The Gecko Project.

and smelting complex is powered by captive coal plants, locking in fossil fuels for decades, undermining global climate goals, and exposing communities to harmful air pollution.[27] Harita is one of Indonesia's most powerful conglomerates, with major palm oil and mineral operations and has a history of harmful business practices.[28]

Investigations by The Gecko Project and OCCRP revealed that senior executives at Harita Group had been aware for over a decade that their mines and outflows from their industrial facilities were the source of contaminated local drinking water springs, which had breached legal limits for highly carcinogenic hexavalent chromium (Cr6). Leaked emails indicate the company had sought to cover this up.[29] Harita did not respond to requests for comment from these allegations, but has since published a press release on its website stating the water is not contaminated.[30] The contamination has turned rivers reddish-brown with thick sediment, and communities report illness, livestock deaths, and declining fish stocks, threatening their livelihoods.[31] The severe consequences of Harita Group's operations on ecosystems and public health on Obi Island have still not been remedied or meaningfully addressed by the company.

Despite Harita executives knowing about the ongoing contamination from 2012, in 2021, Harita launched Indonesia's first large-scale high-pressure acid leaching (HPAL)

refinery.[b] This chemically intensive process produces vast amounts of toxic waste which require responsible management – a major concern for a company which already faced allegations of contamination.[32] This was followed in 2023 by an initial public offering (IPO) raising major investment despite concerns raised by Mining Advocacy Network (JATAM) and Trend Asia.[33] It is concerning that Harita Group was able to secure financial and political support for this high-risk project when they had ongoing allegations related to water pollution and human rights violations.

Sector-Wide Impacts and Harm

The destruction on Obi Island reflects a bigger crisis across Indonesia's nickel sector that financiers need to pay attention to.

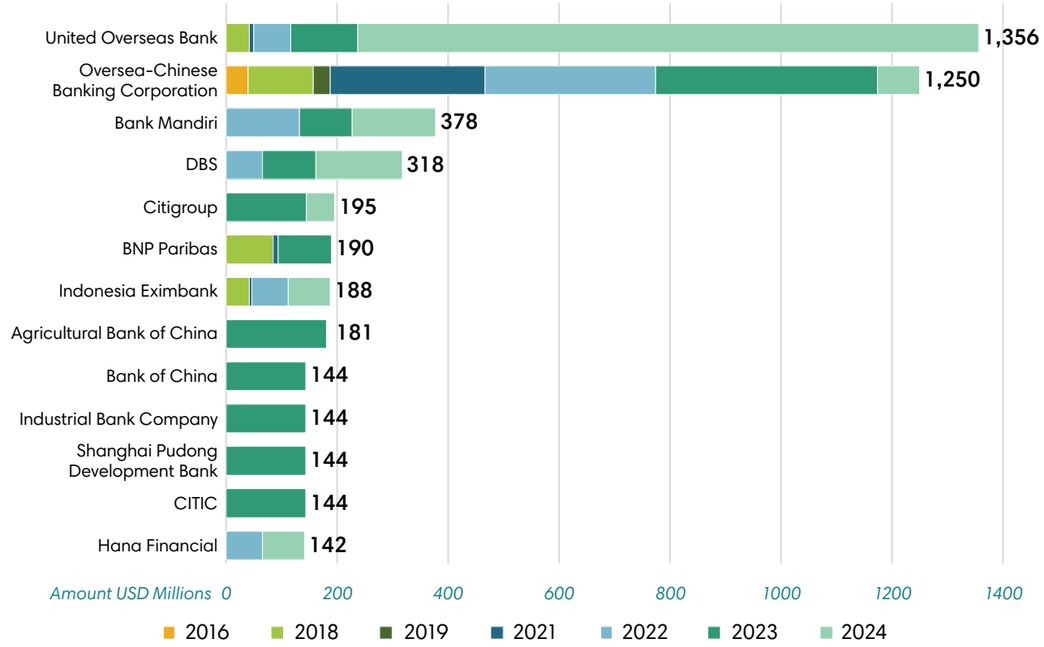
- Communities across eastern Indonesia report contaminated drinking water, damaged coral reefs, deforestation, drastic declines in fish stocks and health problems[34] due to marine pollution from nickel operations at industrial parks in Weda Bay and Obi Island.[35]
- Findings from civil society organizations and labour unions indicate that in Morowali industrial park, the nickel downstreaming policy is being implemented at the cost of workers' lives and environmental health, evidenced by high rates of workplace accidents, excessive working hours, inadequate occupational health and safety (OHS) protections, the double burden faced by women workers, and exposure to carcinogenic air pollution affecting both workers and surrounding communities.[36]
- On the island of Halmahera, communities living near Weda Bay have reported companies taking their land without consent or fair compensation.[37] In some cases, people who refused to sell their land faced intimidation and retaliation.[38] Weda Bay Nickel's concession also overlaps the lands of the Hongana Manyawa, an Indigenous People living in voluntary isolation posing an existential threat to their community.[39]
- In Raja Ampat, a UNESCO geopark, land use for mining grew by 500 hectares between 2020 and 2024.[40] This is causing deforestation and marine biodiversity loss in this iconic coral reef ecosystem.[41]

b High pressure acid leaching is a process to extract nickel and cobalt from laterite ore to produce battery-grade product.

The Role of Finance

Harita's nickel operations have been financed by banks with commitments to responsible financing, including Singapore's three largest banks, American Citigroup and French BNP Paribas. Indonesia's Bank Mandiri and five Chinese banks are also major creditors. Overall, Forests & Finance has identified USD 5.1 billion in credit flows to Harita group's Indonesian mineral operations between 2016 and 2024. US investor Vanguard also held over USD 10 million in shares as of June 2025.

Figure 9. Creditors of Harita Group's Indonesian Mining Operations (2016-2024, USD Millions)



Harita's contamination of Obi Island's water with carcinogenic chromium, and its cover up of its water testing results present material risk from civil and criminal legal action. They also violate the water protection and waste management policies of its financiers including its largest creditor, United Overseas Bank (UOB), constituting a major reputational risk. Harita's deforestation in its mining operations and its carbon-intensive smelting via captive coal power undermines claims of net-climate benefits in the energy transition value chain. Bank of China, while scoring only 13% overall, had the highest score on GHG emissions suggesting that addressing Harita's coal powered smelters should be a priority for their engagement. CITIC and Vanguard had no policy coverage on any of these criteria, reflecting a complete failure to address the risks associated with their financing.

Table 2. Policy Assessment Scores for Harita Group's Financiers

Financial Institution	Total Policy Score	Scores For Key Criteria (out of 10)				
		Zero Deforestation	Water Protection	GHG Emissions	Waste Management	FPIC Rights
Bank Mandiri	19%	3.0	0.0	3.0	0.0	0.0
Bank of China	13%	3.0	0.0	5.0	0.0	0.0
BNP Paribas	31%	3.0	3.0	3.0	2.8	2.8
CITIC	3%	0.0	0.0	0.0	0.0	0.0
Citigroup	21%	0.0	2.9	2.9	2.9	3.0
United Overseas Bank	28%	3.0	5.0	3.0	5.0	3.0
Vanguard	3%	0.0	0.0	0.0	0.0	0.0

Note: The Total Policy Score is based on the combined score across all 34 criteria and converted into a percentage to allow for easy comparison with other institutions. The full criteria definitions can be found under criteria 1, 3, 4, 6 and 10 of the policy assessment framework.

Harita's financiers must make their policies relevant, engage Harita to provide full transparency regarding its contamination of Obi Island, and provide remedy for harmed communities and environmental damage. Institutions must also ensure their clients implement responsible tailings storage and a phase-out of coal power for smelting as a condition of future financing.

The severe consequences of Harita Group's operations on ecosystems and public health on Obi Island have still not been remedied or meaningfully addressed by the company.

Credit: Isis Medeiros.

Brazil: Fatal Dam Failures, Environmental Disasters and Corporate Impunity

Brazil has a long history of large-scale mining and consistently ranks among the world's top mineral producing countries. During Brazil's period of military dictatorship (1964-1985), foreign companies from the United States, the United Kingdom, Germany, Belgium and France rapidly expanded their mining operations.[42] The expansion of extractive and infrastructure projects degraded forests, contaminated rivers and displaced Indigenous Peoples and traditional communities. Entire communities have been left without clean water, and two catastrophic tailings dam failures have killed hundreds of people.[43]

While iron ore remains the driving force of Brazil's mining industry and a key input for steelmaking, the sector is rapidly evolving to capitalize on the surging demand for transition minerals such as lithium, nickel, copper and manganese. According to the Brazilian Mining Institute (IBRAM), the sector expects to attract new investment of USD 68.4 billion in the next five years.[44] Much of this is slated for iron extraction, long dominated by Vale, Brazil's largest mining corporation.

A recent Observatório da Mineração study found that mining, compounded by climate change, is worsening water insecurity, extreme weather events and socio-environmental risks.[45] Pará was identified as the most climate-vulnerable mining state, followed by Minas Gerais where two Vale dams collapsed.[46] Deforestation, ecosystem degradation and climate

Córrego do Feijão Mine, where the dam collapse occurred (2023). Credit: Flávio Tavares/Repórter Brasil.

change are pushing the Amazon towards ecological collapse.[47] Between 2005 and 2015, mining caused 9% of all Amazon deforestation, affecting areas up to 70km beyond mining lease boundaries.[48]

Vale: Expansion in the Amazon

In Pará state, within the Amazon rainforest, Vale operates massive mining complexes, including Carajás – home to the world's largest open-pit iron mine – and S11D, which extracts and processes copper, nickel and manganese. These operations, along with infrastructure such as the Carajás railway, have caused conflicts with Indigenous Peoples, rural communities and smallholders for decades.[49] As Vale continues to expand, these conflicts spread and intensify. Despite public sustainability commitments, Vale's record is marred by decades of ecological destruction, systemic rights violations, and catastrophic dam failures.[50]

One of the mines in the Carajás Complex is Onça Puma, a nickel mine supplying the global steel industry. The mine has been blamed by the Xikrin People for contaminating the Cateté river with heavy metals.[51] Once a vital source of food and water for around 2,000 Indigenous People, they now say "the river is dead". A 2024 study by the State University of Pará confirmed widespread contamination caused by the mine.[52] Alarmingly high levels of heavy metals and other toxic substances were found in 100% of the 720 Indigenous people tested – levels associated with serious chronic illnesses and birth defects.[53] The Xikrin People have been in legal disputes with Vale since 2011, initially over the lack of participation in the mine's environmental licensing process, and now over ongoing contamination.[54] To date, only one European buyer, Outokumpo, has ceased sourcing from Onça Puma due to these human rights concerns.[55]

Vale has said that it respects Indigenous autonomy, follows regulations and is not responsible for the contamination of the Cateté river.[56]

Tailings Dam Failures in Minas Gerais: A Criminal Legacy

Vale's tailings dam failures remain among the worst mining disasters in modern history. In 2015, the Samarco Fundão dam, (a joint Vale-BHP venture) in Mariana collapsed killing 19 people and decimating the Rio Doce river basin – killing almost every living thing in it.[57] It remains Brazil's worst environmental disaster as toxic sludge travelled over 600 km, destroying the livelihoods of thousands of people across 39 municipalities as it flowed from Mariana to the Atlantic coast.[58]

Despite this catastrophe, Vale failed to address safety deficiencies across its operations. Just four years later, the Córrego do Feijão dam in Brumadinho collapsed killing 272 people, mostly workers.[59] It remains one of the deadliest industrial disasters of the 21st century.[60] The toxic spill destroyed forests and poisoned the Paraopeba river watershed, cutting off safe water for 1.5 million people and devastating livelihoods for many Indigenous and river-side communities.[61]

Investigations revealed that Vale had prior knowledge of both dam's structural weaknesses but failed to act.[62] These tragedies were the result of corporate negligence and systemic governance failures.[63] Minas Gerais, the state where both disasters happened, has the highest concentration of tailing dams in Brazil, with ongoing threats to nearly 20 million residents.[64]

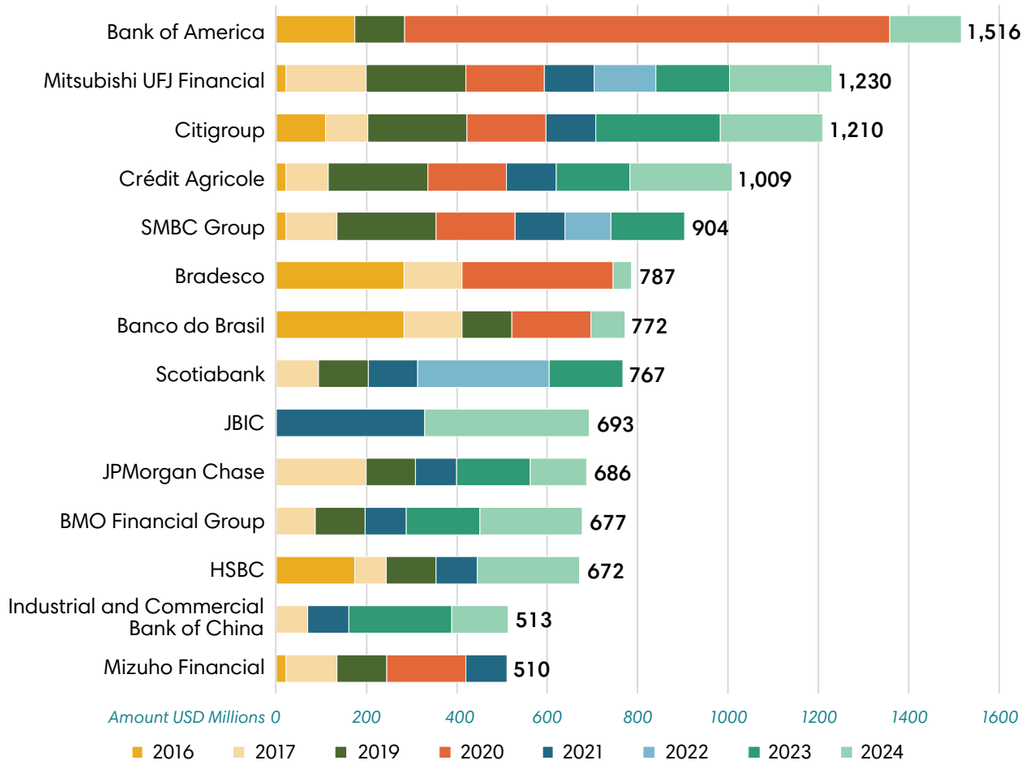
Legal accountability remains elusive and concerns have been raised about corporate impunity.[65] The criminal trial for the Mariana disaster ended in acquittals, and a multi-billion-dollar settlement has been criticized for inadequate reparations.[66] Six years after Brumadinho, affected communities are still waiting for justice.[67] Vale faces ongoing lawsuits including a USD 3.8 billion lawsuit in the Netherlands.[68] In 2022, Vale was fined USD 46 million for missing a legal deadline to decommission unsafe upstream dams, now delayed until 2035.[69] Communities remain at risk as 20 of Vale's tailing dams are considered high-risk for failure.[70]

Vale says that it has implemented changes and engaged in long-term reparation plans to support affected communities of both Mariana and Brumadinho disasters.[71]

The Role of Finance

Between 2016 and 2024, Forests & Finance identified USD 15.8 billion in credit to Vale's Brazil operations, with 14 banks each providing over half a billion dollars. Notably, most of this financing was issued after two of the deadliest mining disasters in recent history with the dam collapses in Mariana in 2015 and Brumadinho in 2019. This should raise serious concerns about whether lenders are conducting meaningful environmental and human rights due diligence. The continued flow of capital after these disasters suggest that financial institutions are failing to screen for systemic risks and are enabling Vale's impunity by prioritising returns over accountability and responsible mining.

Figure 10. Creditors of Vale's Brazilian Mining Operations (2016-2024, USD Millions)



Four investors held over USD 1 billion each in bonds and shares of Vale's Brazilian operations as of June 2025. These were Caixa (USD 3.1 billion), BlackRock (USD 2.9 billion), Capital (2.8 billion) and Vanguard (1.5 billion).

Not all investors are willing to overlook Vale's egregious business practices with 48 pension funds and investors publicly excluding Vale.[72]

Table 3. Policy Assessment Scores for Vale's Financiers

Financial Institution	Total Policy Score	Scores For Key Criteria (out of 10)				
		Zero Deforestation	Waste Management	Accident Mitigation	FPIC Rights	Grievance and Remedy
Banco do Brasil	20%	2.4	2.4	0.0	2.4	0.0
Bank of America	15%	0.0	0.0	0.0	3.0	5.0
BlackRock	12%	0.0	0.0	0.0	3.0	3.0
BMO Financial Group	10%	0.2	0.2	0.5	3.0	0.3
Bradesco	15%	0.0	0.0	0.0	0.0	5.0
Capital Group	14%	0.0	0.0	0.0	0.0	0.0
Citigroup	21%	0.0	2.9	0.0	3.0	3.0
Crédit Agricole	27%	3.0	2.5	5.0	3.0	5.0
HSBC	16%	3.0	2.8	0.0	2.8	3.0
JPMorgan Chase	12%	3.0	0.0	0.0	3.0	0.0
Mitsubishi UFJ Financial	23%	2.6	2.6	0.0	3.0	0.0
Mizuho	24%	0.0	3.0	3.0	0.0	3.0
Scotiabank	10%	2.9	0.0	0.0	0.0	0.0
SMBC Group	23%	7.0	0.0	0.0	5.0	3.0
Vanguard	3%	0.0	0.0	0.0	0.0	0.0

Note: The Total Policy Score is based on the combined score across all 34 criteria and converted into a percentage to allow for easy comparison with other institutions. The full criteria definitions can be found under criteria 1, 6, 8, 10 and 13 of the policy assessment framework.

As Vale rapidly expands into the Amazon and impacts Indigenous Peoples and traditional communities, financial institutions must recognise the material risks tied to its long-standing governance failures, fatal dam collapses, rights violations, and weak remediation. Despite these risks, most of Vale's top financiers lack adequate safeguards. Policy assessments show major gaps on zero deforestation, Indigenous rights (FPIC), waste and tailings management, accident mitigation and access to remedy. Major financiers such as Vanguard, Scotiabank, JPMorgan Chase, BlackRock, Capital Group and Bank of America scored poorly across the board. Crédit Agricole scored the highest overall (27%) and was the only bank with a meaningful accident mitigation policy.

Vale's track record and continued expansion highlights the urgent need for banks and investors to strengthen environmental and human rights due diligence and adopt exclusions to prevent the financing of repeat offenders in high-risk sectors. Financial institutions are complicit in the harms Vale has caused and must ensure affected communities are able to access remedy.

Inside the TFM mine. ©2021 RAID

Democratic Republic of Congo: Displacement, Pollution and Worker Exploitation

The Democratic Republic of Congo (DRC) supplies around 70% of the world's cobalt and holds over half of global reserves.[73] With cobalt production projected to increase by 108% by 2028 DRC is central to supplying minerals for the global energy transition.[74] Yet despite the extractive sector's economic value, nearly three-quarters of the population lived in poverty in 2024.[75]

The rapid expansion of industrial mining is creating what appear to be "sacrifice zones" marred by pollution, displacement and exploitation.[76] Mining is also driving deforestation contributing to both draughts and floods.[77] This illustrates the profound disconnect between the push for net-zero, with increased demand for EVs in wealthy countries, and the devastating consequences for Congolese fenceline communities living near large extractive sites – many of whom are excluded from the benefits of the energy transition.[78]

Most cobalt is extracted from the Central African Copperbelt which spans southern DRC and northern Zambia. This is the second-largest copper reserve in the world, containing vast deposits of cobalt, often found together in high-grade ore. As demand surges, foreign corporations are intensifying extractive projects and building out operations at an unprecedented scale.[79] Chinese companies now control roughly 70% of production in the DRC, reshaping the local mining economy and supply chains.[80] Meanwhile Western governments push for increased access from the DRC to the US and Europe through infrastructure and logistics projects like the Lobito Corridor.[81]

Pollution and Contamination in Lualaba and Haut-Katanga Provinces

Around 60% of global production of cobalt is concentrated in DRC's southern provinces of Lualaba and Haut-Katanga provinces.[82] Industrial-scale mining dominates and artisanal mining now accounts for just 2% of production.[83] A 2024 investigation by RAID and AFREWATCH into five major mines – including China Molybdenum's Tenke Fungurume Mine (TFM) – found widespread labour exploitation and severe environmental harm.[84] These mines supply global EV manufacturers including Tesla, Renault and Volkswagen.[85]

People living in fenceline communities near the mines can trace the decline in living standards to the recent cobalt boom as income has plummeted affecting access to education and healthcare. Pollution and water contamination have caused widespread health problems, from skin conditions to gynaecological and reproductive health problems.[86] Over half of the residents interviewed reported that women and girls are experiencing irregular menstruation, infections, pregnancy complications. The gender-specific health issues, with teenage girls more severely affected, align with broader research showing that women and girls bear disproportionate harm from extractive industries across Africa.[87]

Despite mining companies stating that they have robust environmental policies and mitigation strategies in place, RAID and AFREWATCH identified at least 14 toxic incidents in recent years linked to the five mines covered in their research.[88] These included tailings dam failures and acid spills which residents say were not properly remediated.[89] The scale of harm has led to concerns that these areas are becoming "sacrifice zones" – described by UN experts as areas where populations suffer devastating health consequences and human rights abuses from living in heavily contaminated areas.[90] This is incompatible with the UN right to a clean, healthy and sustainable environment.[91]

China Molybdenum (CMOC): Tenke Fungurume Mine

CMOC, backed by Chinese state financing and joint ventures with Congolese state-linked firms, controls 80% of Tenke Fungurume Mining (TFM) – the world's most productive cobalt mine.[92] TFM has been linked to forced displacement, toxic waste dumping and labour abuses.[93]

In Kabombwa village, downstream from TFM's lime plant,[c] 11 people died from contaminated water between 2020 and 2022. Most of the thousand residents have now left their homes but say compensation was not sufficient.[94] The company's environmental impact

c Lime is often used in chemical processing of minerals including copper and cobalt.

Women wash clothes in the village of Mwelampande near the TFM copper-cobalt mine ©2023 RAID

study in 2007 and addendum in 2022 indicate that the health problems appeared as soon as the plant was commissioned.[95] Local residents report that TFM did not consult them or disclose environmental impacts as required under national law.[96]

A recent investigation has revealed widespread labour rights abuses at TFM and four other mines in Kolwesi, Lualaba's capital.[97] The majority of workers are subcontractors and are particularly vulnerable to exploitation. Workers were routinely paid under the Kolwesi living wage, exposed to unsafe working conditions, toxic substances and expected to work excessive hours, sometimes back-to-back shifts for 30 days straight. Access to healthcare was limited and workers attempting to unionise often faced retaliation.[98]

CMOC has stated that it has robust water management systems and disputes allegations of major spills from its TFM mine, or links to health risks from water pollution.[99]

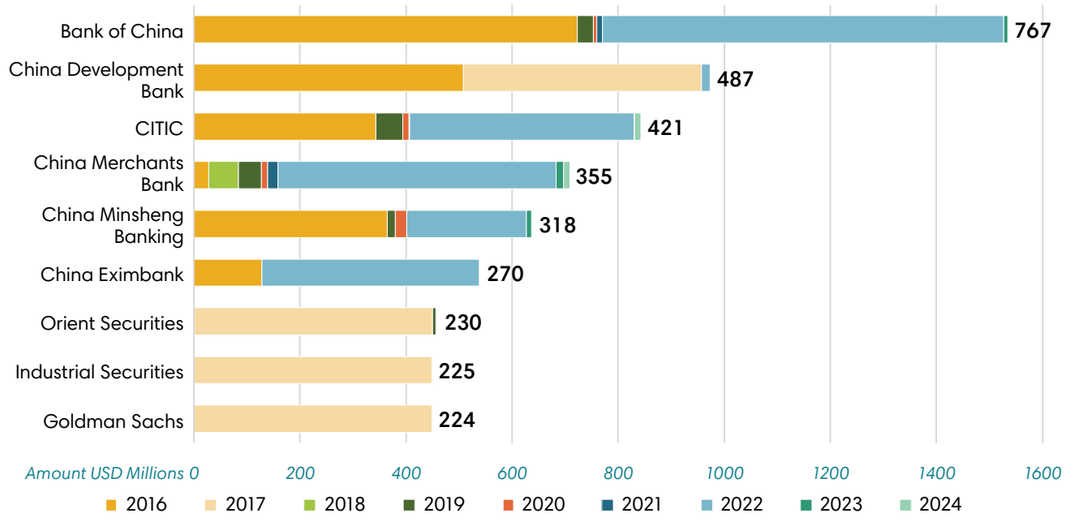
In 2022, the Congolese government suspended exports from TFM, accusing CMOC of underreporting reserves and withholding royalty payments owed to state miner Gécamines.[100] A resolution reached in April 2023 saw CMOC agree to pay a USD 800 million settlement with USD 1.2 billion in dividends over the life of the project.[101]

The Role of Finance

Between 2016 and 2024, CMOC's mining operations in DRC received USD 3.8 billion in loans and underwriting – 92% of it from Chinese banks. US-based Goldman Sachs was the only non-Chinese financier to provide over USD 100 million during this period. Major institutional investors such as CITIC, BlackRock, and Vanguard also maintain stakes in CMOC, with holdings of USD 23.2 million, USD 18.7 million, and USD 11.8 million, respectively, as of June 2025. Despite well-documented cases of water contamination, forced displacement, labour exploitation, and withheld royalties, these financiers continue backing CMOC's operations.

A medical centre in Salabwe near the TFM copper-cobalt mine ©2022 RAID

Figure 11. Creditors of CMOC's DRC Mining Operations (2016-2024, USD Millions)



Policy assessments of four of CMOC's financiers identified critical policy gaps and failure to mitigate major risks. None of the assessed institutions require clients to pay a living wage or prevent aggressive tax avoidance – issues directly linked to poor working conditions and state revenue losses. CITIC and Vanguard had no safeguards in any of these areas, scoring just 3% overall. Bank of China and Blackrock scored poorly with only vague or limited commitments on key issues. The lack of due diligence and meaningful safeguards on key issues such as deforestation, FPIC rights, living wage, water protection and fair tax, mean that CMOCs financiers continue to enable harmful business practices to persist. Financiers must adopt stronger safeguards, ensure impacted communities have access to remedy and that there is compliance with national environmental and tax laws.

Table 4. Policy Assessment Scores for CMOC's Financiers

Financial Institution	Total Policy Score	Scores For Key Criteria (out of 10)				
		Zero Deforestation	Water Protection	FPIC Rights	Living Wage	Fair Tax
Bank of China	13%	3.0	0.0	0.0	0.0	0.0
Blackrock	12%	0.0	3.0	3.0	0.0	0.0
CITIC	3%	0.0	0.0	0.0	0.0	0.0
Vanguard	3%	0.0	0.0	0.0	0.0	0.0

Note: The Total Policy Score is based on the combined score across all 34 criteria and converted into a percentage to allow for easy comparison with other institutions. The full criteria definitions can be found under criteria 1, 3, 10, 18 and 33 of the policy assessment framework.

Australia: Destruction of Noongar Country, Irreplaceable Forests and Water Catchments

Australia has a long history of mining and plays a significant role in the global supply of transition minerals, ranking among the top producers of iron and aluminium. It is home to some of the world's largest mining companies and attracts significant finance from global banks and institutional investors. Although the country is often portrayed as a stable and responsible mining jurisdiction, there are deep-rooted problems particularly around Indigenous rights violations and environmental degradation.

The Western Australian Forest Alliance has reported on how mining for bauxite ore, which is used to produce aluminium, has become one of the most ecologically and culturally destructive forms of extraction.[102] Aluminium is often used in lighter vehicles, renewable energy infrastructure, and electricity transmission among other things. However, its

Huntly Mine Alcoa (2025). Credit: The Wilderness Society.

extraction in Australia is linked to widespread deforestation and pollution in highly sensitive ecosystems, including critical drinking water catchments and endangered species habitat.

Alcoa and South32: Destroying the Jarrah Forests of Noongar Country

Two of the world's largest aluminium producers, Alcoa and South32, are rapidly expanding their aluminium operations across Noongar Country in the South West of Western Australia.[103] This region is home to the iconic Jarrah forests, one of the world's most biodiverse temperate forest systems. These forests of immense cultural, ecological, and hydrological importance are being cleared at an alarming rate. Between 2010 and 2020, over 11,000 hectares were cleared for bauxite mining, with planned expansions by Alcoa and South32 threatening an additional 83,000 hectares and the fragmentation of 337,000 hectares by 2060.[104] Forests slated for future mining include critical drinking water catchments and habitat for endangered species like the numbat, western ringtail possum, and black cockatoos.

The Jarrah forests are part of Noongar Country. For more than 45,000 years, the Noongar People have acted as the custodians of these lands and waters.[105] Their deep Traditional Ecological Knowledge, including their recognition of six distinct seasons, is rooted in reciprocal relationships with the forest, its biodiversity, and its cycles. This knowledge is not only foundational to the cultural identity of Noongar People but is vital to the long-term

health and resilience of the Jarrah ecosystem. Yet mining has taken place since the 1960s without conducting a UNDRIP aligned Free, Prior and Informed Consent (FPIC) consultation of the Indigenous Noongar Traditional Owners.[106] This, along with the recent compliance assessment of Alcoa, raises concerns about ongoing cultural heritage impacts, and the violation of internationally recognised Indigenous rights.[107] Civil society groups have raised concerns about important gaps between UNDRIP and principles of the International Council on Mining and Metals (ICMM), of which both Alcoa and South32 are members. For example, the ICMM position on Indigenous Rights denies retrospective application of FPIC in cases where it was never carried out or was flawed in its execution.[108]

Bauxite mining also poses a major threat to regional water security. Operations are concentrated in forested drinking water catchments at a time when climate change is exacerbating drought and water stress.[109] The cumulative impacts of land clearing, contamination, and groundwater extraction are degrading vital hydrological systems that both ecosystems and communities depend on.[110] Alcoa has been historically permitted to mine in Perth's drinking water catchment but in 2022 the Water Corporation stated that: *"Bauxite mining operations represent the single most significant risk to water quality in Perth Metropolitan and Southwest drinking water catchments."*[111]

Alcoa states that it adheres to the principles of the ICMM, is certified by the Aluminium Stewardship Initiative and operates in accordance with its Indigenous Peoples Policy. It denies that is has impaired drinking water supply and claims it has mitigated risks in its future mining proposal.[112]

Failure to Rehabilitate Ecosystems or Restore Habitats

These companies have repeatedly failed to prevent or mitigate harm, despite making public commitments and being required by the government to rehabilitate the land they destroy through mining.[113] To date, Alcoa has not successfully restored any of the 28,000 hectares they have destroyed through strip mining bauxite.[114] Even though they have reported 75% of cleared land as "rehabilitated" to their investors, none of it has met the Government's official rehabilitation criteria.[115]

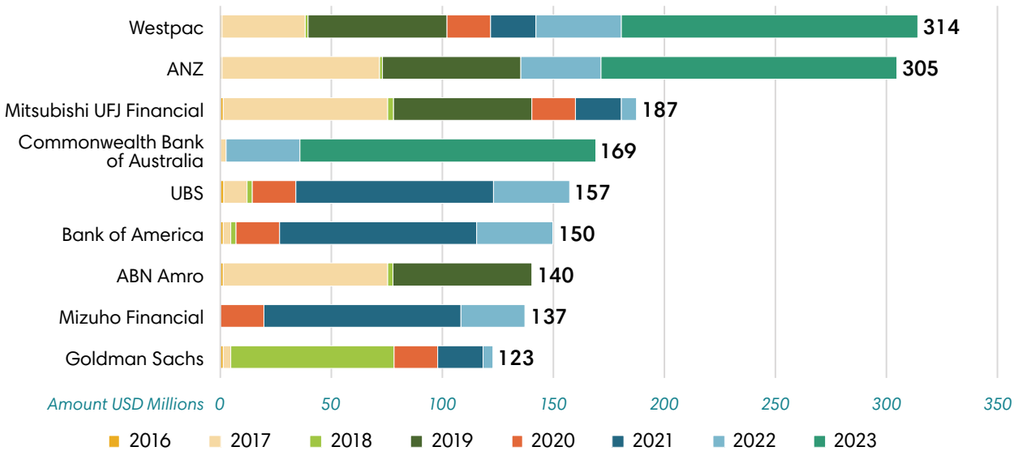
Scientists have raised concerns about the ability of the Jarrah to be rehabilitated at all after strip-mining.[116] Vital aspects of the ecosystems, such as nesting hollows for endangered species like Carnaby's black cockatoos, take between one to two hundred years to reoccur, if at all.[117] Instead of a complex and ancient ecosystem like the one destroyed through mining, Alcoa leaves behind destroyed and empty landscapes that cannot support biodiversity in the same way.[118]

End Forest Mining Rally (2023). Credit: Donna Chapman.

The Role of Finance

Between 2016 and 2024, Alcoa and South32's mining operations in Australia received USD 2.3 billion in credit, with nine banks each providing over USD 100 million. As of June 2025, four major investors held over USD 100 million in bonds and shares of these companies: Vanguard (USD 194 million); Blackrock (USD 205 million); State Street (USD 111 million); and Allan & Gill Gray Foundation (USD 132 million). Despite the widespread cultural and ecological harms, along with major threats to water catchments caused by these companies' operations in Noongar Country, these financiers continue to support expansion into the irreplaceable Jarrah forests.

Figure 12. Creditors of of Alcoa and South32's Australia Mining Operations (2016-2024, USD Millions)



Policy assessments of some of these companies' most significant financiers show a lack of adequate safeguards to address and mitigate the serious environmental and human rights risks posed by Alcoa and South32. Vanguard scored just 3% overall, with no policies on deforestation, biodiversity, FPIC rights, water protection or reclamation plans. BlackRock and Bank of America also scored poorly with no coverage on key environmental criteria. While ANZ scored the highest overall (27%) and had the highest score for water protection (5/10), their other scores indicate more limited coverage. Only MUFG had any requirements for clients to have reclamation plans which is crucial to support the ecosystem rehabilitation when the mines close.

Table 5. Policy Assessment Scores for Alcoa and South32's Financiers

Financial Institution	Total Policy Score	Scores For Key Criteria (out of 10)				
		Zero Deforestation	Biodiversity Protection	Water Protection	Reclamation Plan	FPIC Rights
ANZ	27%	3.0	3.0	5.0	0.0	3.0
Bank of America	15%	0.0	0.0	0.0	0.0	3.0
BlackRock	12%	0.0	0.0	3.0	0.0	3.0
Mitsubishi UFJ Financial	23%	2.6	3.0	3.0	2.6	3.0
Mizuho	24%	0.0	3.0	3.0	0.0	0.0
Vanguard	3%	0.0	0.0	0.0	0.0	0.0

Note: The Total Policy Score is based on the combined score across all 34 criteria and converted into a percentage to allow for easy comparison with other institutions. The full criteria definitions can be found under criteria 1, 2, 3, 7 and 10 of the policy assessment framework.

There are serious weaknesses among many of the major financiers' policies on Indigenous Rights. While Australian banks, ANZ, Westpac and Commonwealth Bank all have "Reconciliation Action Plans" which acknowledge the Traditional Owners of the lands across Australia, they do not appear to preclude banks from violating Indigenous Peoples' Rights through their financing.[119] This case highlights how major financiers are failing to mitigate environmental and human rights risks in the mining sector through their policies and processes. With plans to expand mineral extraction over the next decade, financial institutions must urgently strengthen their policies, adopt clear non-compliance protocols and take responsibility for the harms linked to their financing.

A protest by the Movement on popular sovereignty in mining, at the Brazilian congress. Copyright: Jerê Santos/MAM.

RECOMMENDATIONS
FOR ALIGNING CAPITAL WITH A JUST, EQUITABLE AND SUSTAINABLE ENERGY TRANSITION

To align capital with a just, equitable and sustainable energy transition, governments must establish binding frameworks that embed human rights, environmental safeguards and anti-corruption standards into all financial and policy frameworks. This means transparent, accountable, and inclusive governance that prevents finance from driving deforestation, rights violations, or ecosystem collapse.

All these recommendations must be designed and implemented in alignment with international human rights and environmental law, including the UN Guiding Principles on Business and Human Rights (UNGPs), UN Declaration on the Rights of Indigenous Peoples (UNDRIP), the Paris Agreement, the Global Biodiversity Framework, International Labour Organisation (ILO) core standards and other multilateral commitments.

Recommendations for Policymakers

To tackle the vast flows of credit and investment to harmful industries such as mining, governments must embed justice and environmental protection into financial regulation. As recommended in the Forests & Finance: Regulating Finance for Biodiversity report (2024) policymakers should: integrate biodiversity, climate and human rights risks into financial regulation; align monetary and fiscal policy with sustainability goals; strengthen mandatory human rights and environmental due diligence; and ensure corporate transparency and accountability.[120] The Forests & Finance Coalition endorses the Principles[d] to Ensure Energy Transition Minerals Advance Justice, Equity and Human Rights which call on governments to:[121]

- **Reduce mineral demand equitably**
- **Protect people and planet**
- **Support equitable development and tax justice**
- **Promote Equitable International Trade and Investment**
- **Ensure Strong United Nations Action on Transition Minerals**

Recommendations for Financial Institutions

Financial institutions have a critical role in shaping the energy transition and in ensuring that mining finance respects human rights, protects ecosystems, and contributes to stable, equitable operating environments. They should endorse the Principles to Ensure Energy Transition Minerals Advance Justice, Equity and Human Rights and embed the following standards into their sectoral policies, portfolios, and decision-making:

1. Respect and Uphold Human Rights and International Law

Financial institutions must only provide finance to companies that uphold international human rights law and best practice standards, including:

Indigenous Peoples' rights and Free, Prior and Informed Consent (FPIC): Apply the principles of the UNDRIP, including the rights to: give or withhold FPIC; decline participation in an FPIC process; exercise self-determination and sovereignty over territories, including the right of Indigenous Peoples in voluntary isolation to remain uncontacted.[122]

Inclusive participation: Respect and uphold the rights of affected countries and communities to participate meaningfully in decisions about mining on or near their territories. This requires inclusive, accessible, and culturally appropriate decision-making processes; recognising FPIC as an ongoing process; and where mining operations breach international human rights law or fail to meet agreed protections, supporting the right of affected communities and governments to seek renegotiation, suspension, or termination of mineral agreements and licenses, in line with the UNGPs and OECD Guidelines for Multinational Enterprises.[123]

Labour rights: Adhere to the ILO core standards, including freedom of association, elimination of forced and child labour, non-discrimination, and safe, fair working conditions, with particular attention to protections for contracted, informal, and migrant workers.[124]

Protection of defenders: Adopt a Zero Tolerance Policy for all forms of violence, intimidation, and reprisals against human rights defenders (HRDs), affected communities, and/or workers.[125]

Access to remedy: Maintain effective, accessible, and independent grievance and remediation mechanisms that are aligned with the UNGPs and provide transparent pathways for communities to access remedy.[126]

2. Protect Nature and Uphold National and International Environmental Law

Financial institutions must only provide finance to companies that comply with environmental law and global best practice, including:

No deforestation or ecosystem destruction: Ensure operations do not contribute to deforestation, forest degradation, conversion of natural ecosystems, or the destruction of critical biodiversity areas, protected areas, wetlands, peatlands, or intact forests.

Robust waste management systems: Ban ocean and riverine tailings disposal; require tailings facilities to meet the highest international safety standards in design, construction and maintenance, with a zero-failure objective, independent monitoring and clear accident mitigation and emergency response plans.

Protect water sources and aquatic ecosystems: Prevent contamination from mining effluent, acid leaching and other extractive processes. In the event of contamination, make it mandatory to completely restore the affected area and guarantee full reparation to all those affected.

d These recommendations have been jointly developed by the SIRGE Coalition, Earthworks, Climate Action Network, Natural Resource Governance Institute, Publish What You Pay, the EU Raw Materials Coalition and Business and Human Rights Resource Centre, incorporating feedback from over 40 organizations.

Plan for closure and restoration: Implement comprehensive mine closure and reclamation plans that include restoring ecosystems and repairing environmental damage caused by their operations.

3. Strengthen Due Diligence, Transparency and Accountability

Financial institutions should strengthen their own systems to prevent financing harmful mining activities, including:

Group-level due diligence: Before issuing or renewing any financial services conduct comprehensive due diligence at the corporate group level, as defined by the Accountability Framework Initiative (AFI).[127]

Mineral supply chain traceability: For high-risk supply chains, financial institutions should require disclosure of sourcing data, adopt anti-corruption safeguards, and use independent third-party verification.

Public disclosure of grievances: Disclose all complaints, allegations, and grievances associated with mining clients, along with updates on investigations, remediation, and outcomes.

Independent monitoring: To verify that financed clients comply with human rights, environmental, and anti-corruption standards.

Non-compliance protocols: Publish clear protocols for mining clients with time-bound engagement plans, escalation processes and divestment or termination thresholds.

4. Align Financing with Climate, Nature and Development Goals

Financial institutions should align all mining-related finance with global goals and the best available science, including:

Portfolio emissions reduction: Reduce financed CO_2 by 48% and all GHG by 43% by 2030 (from 2019 baseline), reaching net zero by 2050.[e] Apply the sectoral reduction pathways of a Net Zero Emissions (NZE) scenario with low or no overshot and limited reliance on negative emissions (e.g. IEA NZE scenario).

Client requirements: Only finance companies with credible, time-bound climate transition plans to reduce Scope 1, 2 and 3 emissions aligned with the 1.5°C global warming pathway and the best available science.

No fossil fuel lock-in: Exclude finance for fossil fuel-linked mineral supply chains, including captive coal plants. No exceptions should be made for facilities claiming Carbon Capture, Utilisation and Storage (CCUS) capacity or alleged hydrogen-readiness.

Transparency: Report transparently in line with the Extractive Industries Transparency Initiative (EITI) Standard, or equivalent levels of disclosure. This includes reporting project-level payments to governments (taxes, royalties, and fees), contracts, commodity trading, and beneficial ownership information.[128]

Fair taxation: Ensure clients comply with the letter and spirit of tax laws and regulations in the countries where they operate, publish group structures and country-by-country tax data, and refrain from using tax avoidance schemes.

Public commitment: Align with the UN Principles to guide critical energy transition minerals towards equity and justice.[129]

5. Establish and Enforce Red Lines and Exclusion Policies

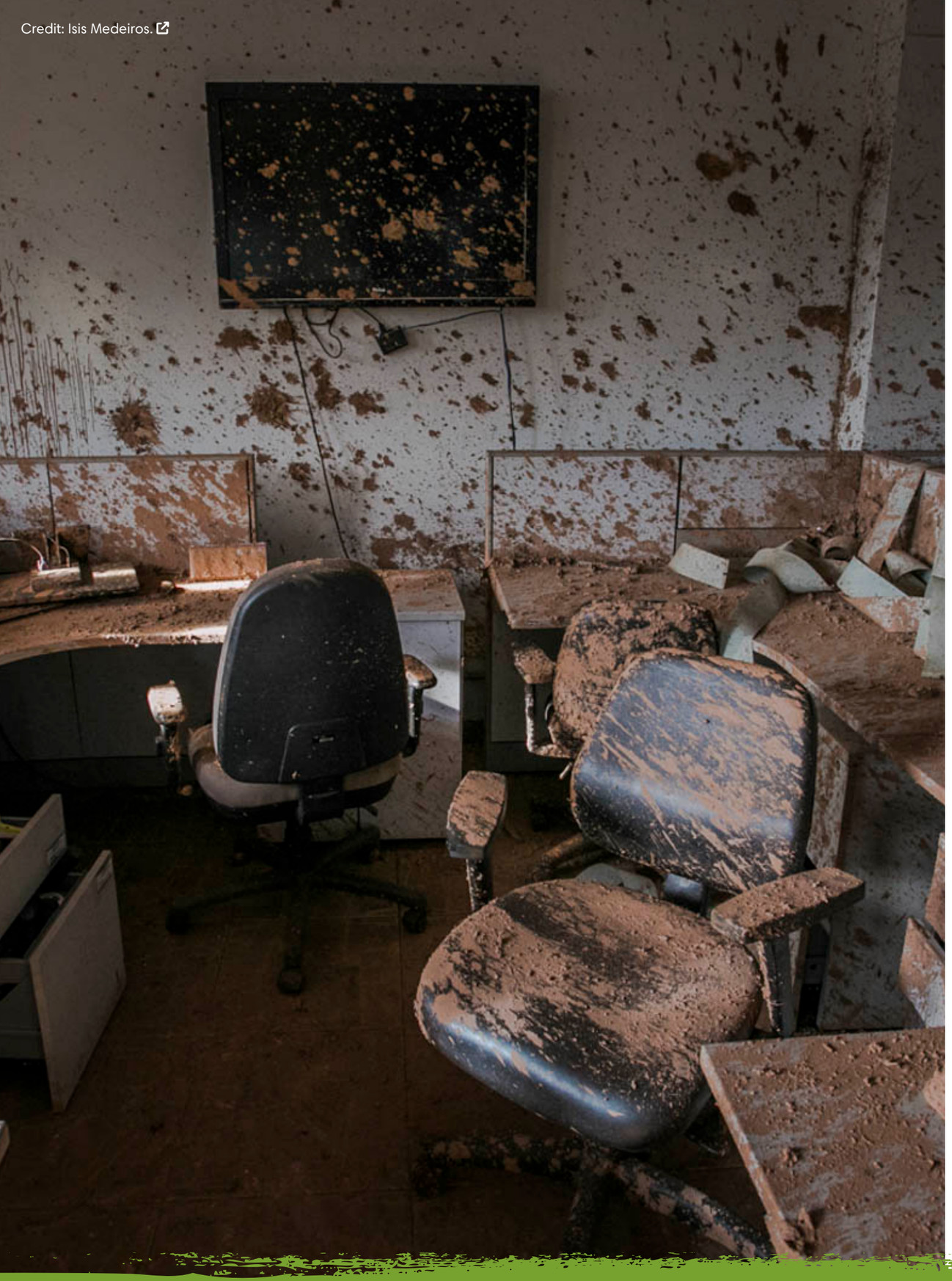
Financial institutions must adopt clear exclusion criteria, consistently applied across all services, including:

Exclusions: Companies linked to deforestation, Indigenous rights violations, severe community harm, contamination, tailings mismanagement, violence against defenders, new fossil fuel infrastructure, or repeated / unresolved ESG violations must be excluded.

No-go areas: Align with the Banks and Biodiversity No-Go Areas framework, excluding operations in high-risk ecosystems and where FPIC has not been obtained.[130]

Enforcement: Embed regular review, verification, and enforcement of exclusion policies into all due diligence processes and place non-compliant clients on public watchlists, set time-bound milestones, and terminate finance or divest if violations remain unresolved to ensure accountability.

e Reduced in line with IPCC average global reduction pathways.



Credit: Isis Medeiros.

CONCLUSION

This report reveals the vast financial flows that are driving the expansion of transition mineral extraction. Under the banner of the energy transition, much of this finance has supported major mining companies with well-documented track records of environmental harm, human rights abuses and governance failures. These companies' operations are exacerbating risks in regions already facing climate shocks, ecosystem degradation and systemic inequality.

Our review of mining policies for 30 major financial institutions shows that most have inadequate safeguards for the mineral mining sector. The average score was just 22%. Overall, their policies are vague, limited in scope, or entirely absent which enables capital to continue flowing to companies that clear forests, contaminate water and people, violate Indigenous rights, exploit workers and displace communities. The extractive financing model that powers the fossil fuel economy is being recycled in the name of clean energy.

The time to course-correct is now. To build a future powered by clean energy, we must first transform how it is financed with justice as the foundation, not an afterthought.

If the transition is to be truly just, then we need finance to be just. Governments must adopt and enforce strong regulation, holding financiers accountable, and shifting away from a growth-at-all-costs paradigm to one of long-term sustainability, equity and justice. Financial institutions must proactively align with international laws and best practice to become actively accountable. This means implementing clear red lines, refusing to finance high-risk clients and rerouting capital to circular, low-impact, and community-led renewable energy, especially in regions facing energy poverty.

Financial institutions must raise their own standards, and they should actively support stronger laws. Regulatory clarity would reduce reputational risk, simplify compliance, and make it easier to exclude high-risk clients while aligning with global standards like FPIC. A just energy transition cannot be realised without strong governance and financial regulation that centres human rights, biodiversity, and ecological limits at every stage of the mineral value chain. The time to course-correct is now. To build a future powered by clean energy, we must first transform how it is financed with justice as the foundation, not an afterthought.

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“A world powered by renewables is a world hungry for critical minerals. For developing countries, critical minerals are a critical opportunity – to create jobs, diversify economies, and dramatically boost revenues. But only if they are managed properly. The race to net zero cannot trample over the poor. The renewables revolution is happening – but we must guide it towards justice.”

— UN Secretary-General António Guterres

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