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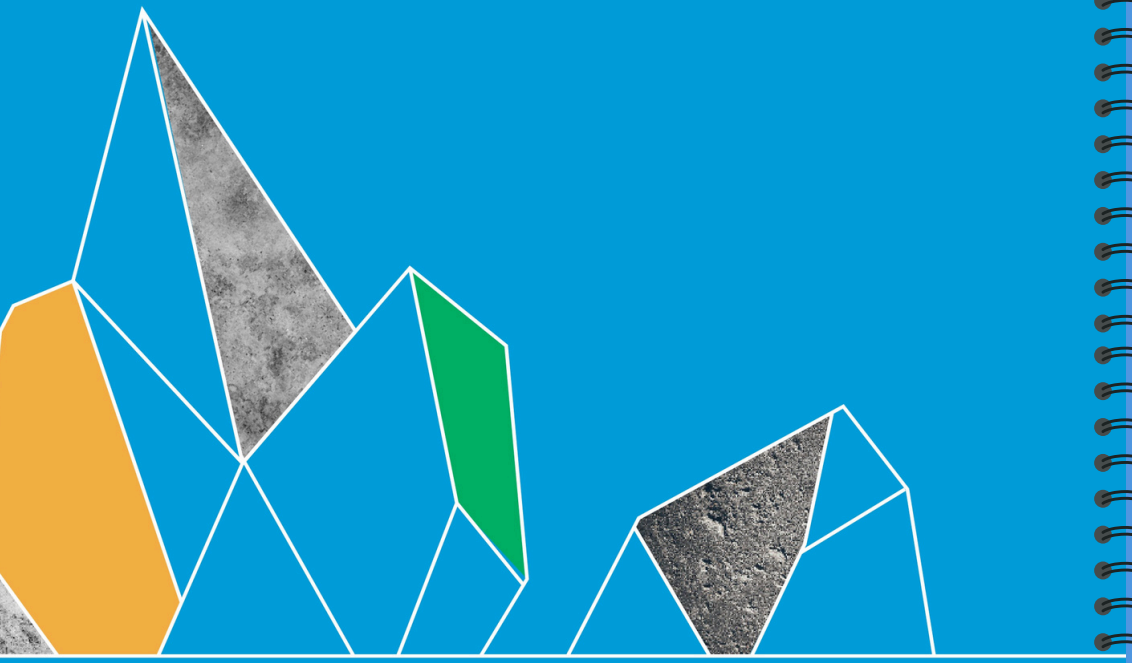
STUDY GUIDE

UNITED NATIONS ENVIRONMENT ASSEMBLY

Strengthening International Cooperation on the Environmentally Sound Management of Minerals and Metals

RESOURCING THE ENERGY TRANSITION

PRINCIPLES TO GUIDE CRITICAL ENERGY TRANSITION MINERALS TOWARDS EQUITY AND JUSTICE



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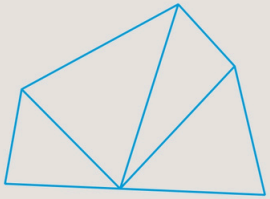
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PRINCIPLES TO GUIDE CRITICAL ENERGY TRANSITION MINERALS TOWARDS EQUITY AND JUSTICE

UN Secretary-General's Panel on Critical Energy Transition Minerals



EXECUTIVE SUMMARY

The global climate crisis has arrived. This year has already included the three hottest days in recorded history, with deadly extreme heat affecting much of Asia and the Middle East. Raging wildfires continue to devastate parts of North America and Europe. Record-setting floods have inundated communities from Brazil to Bangladesh. Severe droughts beset Southern Africa. Artic permafrost is in thaw. Sea levels are rising, wildfires are burning, extreme heat is crippling. The window to limit global temperature rise to 1.5°C above pre-industrial levels and meet the goals of the Paris Agreement is closing.

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Did You Know That... **01**

According to the European Union's Copernicus Climate Change Service: the 21, 22 and 23 of July 2024 were the three hottest days ever recorded globally, with 22nd of July averaging 17.16°C worldwide, underlining the urgency of the energy transition that drives mineral demand.

There is still time, humanity with a shared future must act decisively to accelerate a global energy transition. At the United Nations Climate Change Conference (COP28) in Dubai, governments agreed to triple the roll out of renewable energy and double energy efficiency by 2030. The International Energy Agency (IEA) estimates that demand for the critical energy transition minerals required to enable this global energy transition will triple by 2030, and quadruple by 2040.

A transition of this magnitude brings with it tremendous opportunities, but also substantial challenges. Mining, at all scales, large and small, has too often been linked with human rights abuses, environmental degradation and conflict. Indigenous Peoples' lands and resources have been dispossessed and the lives of local peoples upended. Responsible companies, across the entire value chain, working to reform the sector continue to face an uneven playing field, with insufficient incentives for irresponsible actors to meet acceptable standards.

Yet harnessing critical energy transition minerals to build the renewable energy technologies needed to achieve the goals of the Paris Agreement and net zero emissions by 2050, also has the potential to lift hundreds of millions of people out of poverty through access to affordable, modern and sustainable energy and energy technologies. Developing countries as partners in the energy transition can foster development through opportunities for value addition, benefit-sharing, economic diversification and participation in the critical energy transition minerals value chains that will power the next generations, rather than serve only as the providers of raw materials.

This is why the United Nations Secretary-General established the Panel on Critical Energy Transition Minerals, to develop Guiding Principles which can serve as guardrails for the energy transition. The Panel was co-chaired by Ambassador Nozipho Joyce Mxakato-Diseko of South Africa and Director-General for Energy Ditte Juul Jørgensen of the European Commission and comprised of members diverse by geography, gender and age. The principles build on existing international norms and legal obligations to which governments have already committed and are accompanied by a set of specific, actionable recommendations so that everyone can benefit from the opportunities inherent in a transition to renewable energy.

What exactly are 'critical energy transition minerals'? They are simply the minerals necessary to construct, produce, distribute and store renewable energy. They include the copper, cobalt, nickel, lithium, graphite, rare earth elements (REEs) and aluminium required for electric vehicles and battery storage; the silicon, cadmium, tellurium and selenium (to name a few) that build solar panels. Wind power requires copper. Hydropower uses copper too, and chromium, zinc and more aluminium.

For countries with the critical energy transition minerals required for these technologies – including developing countries in Africa, Asia, Latin America and the Pacific – the opportunity is significant. At the same time there must be no regression in the hard-won individual and collective rights of Indigenous Peoples. Respect for this is absolute.

Committed to intergenerational equity, the decisions we make today will shape generations, both present and future. We must ensure past mistakes do not become the hallmarks of the future, not just where minerals are mined, but along the entire value chain from refining and manufacturing, to transport and end-of-use recycling. Meeting this challenge in a principled way can only be done if governments, business, civil society and the United Nations act together to properly manage mineral value chains, uphold the rule of law in a non-discriminatory way, respect national sovereignty, invest in true multilateralism and peacebuilding and ensure universal human rights are protected. Peace and security, as well as cooperation are paramount for humanity to benefit from these minerals. Human security should be fostered in all its forms.

Resourcing the energy transition requires a new paradigm rooted in equity and justice.

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Did You Know That... **01**

This commitment was adopted at COP28 in Dubai (December 2023) as part of the 'United Arab Emirates Consensus', the first COP outcome to call on parties to transition away from fossil fuels. Over 130 countries also endorsed the accompanying "Global Renewables and Energy Efficiency Pledge".

Interesting Facts **01**

Demand growth differs sharply between minerals: the IEA projects that lithium demand alone could grow nearly eightfold by 2040, driven by electric vehicles and battery storage, while new copper mines take on average 10–15 years to move from discovery to production.

Definition **05**

A group of 17 metallic elements: the 15 lanthanides, plus scandium and yttrium. They are important for technologies such as electric vehicles and wind turbines because several are used to produce powerful, lightweight permanent magnets. Despite their name, they are not actually geologically rare; rather, they are rarely found in concentrations high enough to make mining economically viable. Their extraction and processing can also be chemically complex and highly polluting. China currently accounts for around 90% of global refining capacity, giving it significant influence over this stage of the supply chain.

Did You Know That... **06**

The Democratic Republic of the Congo produces roughly 70% of the world's mined cobalt; the 'lithium triangle' of Argentina, Bolivia and Chile holds about half of known lithium resources; Indonesia accounts for roughly half of global nickel output; and Africa hosts about 30% of the world's critical mineral reserves.

Did You Know That... **06**

A 2023 study in Nature Sustainability found that 54% of energy transition mineral projects worldwide are located on or near the lands of Indigenous Peoples, which explains why Indigenous rights recur throughout the report.

GUIDING PRINCIPLES ON CRITICAL ENERGY TRANSITION MINERALS

The United Nations Secretary General's Panel on Critical Energy Transition Minerals proposes seven voluntary Guiding Principles, building on existing norms, commitments and legal obligations outlined in United Nations texts:

PRINCIPLE 1
Human rights must be at the core of all mineral value chains.

PRINCIPLE 2
The integrity of the planet, its environment and biodiversity must be safeguarded.

PRINCIPLE 3
Justice and equity must underpin mineral value chains.

PRINCIPLE 4
Development must be fostered through benefit sharing, value addition and economic diversification.

PRINCIPLE 5
Investments, finance and trade must be responsible and fair.

PRINCIPLE 6
Transparency, accountability and anti-corruption measures are necessary to ensure good governance.

PRINCIPLE 7
Multilateral and international cooperation must underpin global action and promote peace and security.

ACTIONABLE RECOMMENDATIONS

To embed and maintain these Guiding Principles across critical energy transition mineral value chains, the Panel has made a number of actionable recommendations that leverage the United Nations in the creation of key bodies and processes. These include the establishment of:

A High-Level Expert Advisory Group to accelerate greater benefit-sharing, value addition and economic diversification in critical energy transition minerals value chains as well as responsible and fair trade, investment, finance, and taxation.

A global traceability, transparency and accountability framework along the entire mineral value chain – from mining to recycling – to strengthen due diligence, facilitate corporate accountability and build a global market for critical energy transition minerals, though the framework should not be used as a unilateral trade barrier.

A Global Mining Legacy Fund to build trust and address legacy issues as a result of derelict, ownerless or abandoned mines, and strengthen financial assurance mechanisms for mine closure and rehabilitation.

An initiative that empowers artisanal and small-scale miners to become agents of transformation to foster development, environmental stewardship and human rights.

Equitable targets and timelines for the implementation of material efficiency and circularity approaches across the entire life cycle of critical energy transition minerals.

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Something to Think About **01**

The mining sector already has several voluntary standards and due-diligence frameworks, including the Extractive Industries Transparency Initiative (EITI), the Initiative for Responsible Mining Assurance (IRMA), the International Council on Mining and Metals (ICMM) Performance Expectations, and the OECD Due Diligence Guidance. However, as the Panel notes, these existing efforts have not been sufficient to ensure justice and equity. Should the international community focus on harmonizing existing voluntary standards, or move toward establishing binding international obligations?

Something to Think About **04**

Developing countries worry that green trade rules — like the EU's carbon border tax on aluminium, or new battery due diligence laws — could end up working as disguised protectionism rather than real environmental protection. Where should the line be drawn between legitimate sustainability standards and protectionism in green clothing?

Interesting Facts **05**

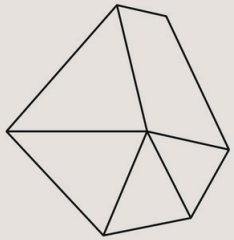
The legacy problem is vast but poorly mapped: the United States alone is estimated to contain over half a million abandoned hardrock mine features (US Government Accountability Office) and Australia around 50,000 abandoned mines, while no comprehensive global inventory exists.

"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

Interesting Facts **01**

The Panel's report was launched on 11 September 2024, days before the Summit of the Future in New York, and the Secretary-General asked the Co-Chairs to share its recommendations with Member States ahead of COP29 in Baku.



INTRODUCTION

Humanity is facing multiple inter-related crises of climate change, biodiversity loss, pollution and poverty, and our continued reliance on fossil fuels is pushing us towards irreversible tipping points. The window to limit global average temperature rise to 1.5°C above pre-industrial levels and meet the goals of the Paris Agreement is closing.

We must act decisively to accelerate the global energy transition. At COP28, all countries agreed to triple the global renewables capacity and double energy efficiency by 2030.

This urgent action is estimated to almost triple the demand for critical energy transition minerals[1] by 2030 and quadruple it by 2040.[2] The construction and production of renewable energy technologies, and the distribution and storage of energy will require a significant increase in these resources, including lithium, graphite, nickel, cobalt, manganese, rare earth elements, and others.

Minerals are essential to our societies and economies, and the way in which they are mined is of consequence to sustainable development. The scale and pace of expected mineral demand for the renewable energy transition demands a new paradigm of responsibility. This historic transition presents an opportunity to address challenges within mineral value chains, which have too often been linked to environmental degradation, greenhouse gas emissions, geopolitical tensions, and instability. By learning from past mistakes and supporting responsible actions, we can scale up the use of critical energy transition minerals while driving shared prosperity, lifting hundreds of millions out of poverty by providing affordable and reliable energy access, meaningfully contributing to the Sustainable Development Goals and a Just Transition.[3] To achieve this, justice and equity must be at the core of the entire value chain ensuring no one is left behind.

Justice requires change. Urgent and impactful action is needed from the global community across critical energy transition minerals value chains. All countries, including resource-producing developing countries, should have the opportunity to meet their development objectives equitably. We acknowledge that while we have shared responsibilities, each of us have different capacities and resources to enact change.

Pathways for industrial development and local value addition are pivotal. Mining in developing countries has too often operated as an 'enclave' with little value accrued to the host country. Developing countries, fixed at the bottom of global value chains, have faced significant hurdles in implementing industrial policy measures to transform their economies. This position could worsen if existing trade rules that hinder structural transformation remain static. Local and regional value addition can ensure a more equitable distribution of benefits and create opportunities for diversification, broader access to energy, and sustainable growth and development.

Human rights must be at the core of all mineral value chains. This is not only a moral imperative, but essential to meeting legal obligations, and ensuring justice, equity and sustainability. Human rights must be protected, respected and fulfilled, including those of workers, children, youth, women, local communities, and environmental and human rights defenders. Indigenous Peoples, who are custodians and owners of mineral resource-rich lands have been dispossessed of lands and resources, excluded, and marginalized from decision-making. They have infrequently shared equitably in the benefits and must have their individual and collective rights upheld and their knowledge and contributions recognized.

International cooperation is essential for a just, orderly and affordable energy transition for all, and the responsible management of mineral value chains. Peace and stability are paramount for justice, equity and prosperity. Strong multilateral,

1 This Panel uses the term 'critical energy transition minerals' (CETMs) to refer to the mineral commodities that are necessary for the construction, production, distribution and storage of renewable energy and associated infrastructure.

2 IEA (2024). Critical Minerals Market Review 2024. International Energy Agency. May.

3 A whole of society approach to just and equitable transitions "encompasses pathways that include energy, socioeconomic, workforce and other dimensions, all of which must be based on nationally defined development priorities and include social protection so as to mitigate potential impacts associated with the transition," United Nations Framework Convention on Climate Change (2023). Decision -/CMA.5. United Arab Emirates Just Transition Work Programme.

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Definition **03**

A concept originating in the labour movement and codified in the ILO's 2015 Guidelines, referring to greening the economy in a way that is fair and inclusive, creating decent work and leaving no one behind; the United Nations Framework Convention on Climate Change's (UNFCCC) UAE Just Transition Work Programme (2023) extends this to 'whole of society' pathways based on nationally defined development priorities.

Definition **05**

An enclave economy is one where an export sector — typically extractives — operates with minimal linkages to the surrounding economy: capital, technology and profits flow in and out, while local employment, processing and supplier networks remain thin. It is closely related to the 'resource curse', the paradox that resource wealth often correlates with slower growth and weaker institutions.

Something to Think About **05**

Indonesia's 2020 ban on exporting raw nickel ore attracted tens of billions of dollars in domestic processing investment, but a WTO panel found it inconsistent with trade rules in 2022. Is export restriction a legitimate industrial policy tool for developing countries, or a distortion that fragments global supply chains?

national and multi-stakeholder governance is required to uphold the rule of law, and ensure human rights are protected, respected and fulfilled, including through redress, when needed.

At this historical juncture, we must build trust and cooperation to establish rights-based, just and responsible mineral value chains that will unlock their transformative power for sustainable development. All countries are entitled to affordable access to the renewable energy technologies necessary to meet their climate change commitments, which will require stable and resilient critical energy transition mineral value chains.

The Panel on Critical Energy Transition Minerals was established and tasked by United Nations Secretary-General António Guterres to develop a set of "global and common voluntary principles on issues which are key to building trust between governments, communities and industry, enhancing transparency and investment, and ensuring just and equitable management of sustainable, responsible and reliable value chains for terrestrial critical energy transition minerals."

The Panel was co-chaired by Ambassador Nozipho Joyce Mxakato-Diseko of South Africa and Director-General for Energy Ditte Juul Jørgensen of the European Commission. Panel members, diverse by geography, gender and age, were appointed by the United Nations Secretary-General as "expert representatives" following their nomination by governments, intergovernmental and international organizations, and non-state actors. The report constitutes a collective view, and while members endorse the general thrust of the arguments, this should not be taken as unanimity on every finding or recommendation. Panel members participated in their expert capacities, not as representatives of their governments or organizations.

The Panel builds on decades of efforts and experience to foster responsible mining and uphold human rights and norms, including through intergovernmental agreements and commitments, as well as national, regional, stakeholder and industry-led initiatives and standards. The Panel recognizes that past efforts have not yet brought the necessary justice and equity due to a variety of complex factors. Through its work, the Panel aims to elevate previous efforts and drive forward concrete and ambitious changes across the entire mineral value chain with its Guiding Principles and Actionable Recommendations.

The Guiding Principles take as their foundation existing norms, commitments and legal obligations outlined in international instruments, including obligations set out in the UN Charter, the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights, the International Covenant on Civil and Political Rights, the UN Convention on the Elimination of All Forms of Discrimination Against Women, the Universal Declaration of Human Rights, the UN Framework Convention on Climate Change, the Paris Agreement, the UN Convention on the Rights of the Child and the UN Convention Against Corruption; as well as the commitments set out in the UN Declaration on the Rights of Indigenous Peoples, the UN Declaration on the Right to Development, the UN Guiding Principles on Business and Human Rights, the Rio Declaration on Environment and Development, and the Kunming-Montreal Global Biodiversity Framework. The Guiding Principles also build on various other multilateral environment agreements and ILO International Labour Standards, several of which include accountability mechanisms that have a role to play in the monitoring progress.

Our shared commitment to mitigating and adapting to climate change, the global energy transition and the related need for minerals provide a once in a lifetime opportunity. We must all work together with a common sense of urgency, shared purpose and responsibility, to build and power the future we need, while leaving no one and no place behind.

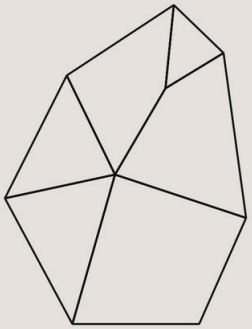
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Definition **06**

Known as the 'Ruggie Principles', unanimously endorsed by the Human Rights Council in 2011. They rest on three pillars: 1) the State duty to protect human rights, 2) the corporate responsibility to respect them, and 3) access to remedy for victims.

Interesting Facts **06**

Adopted in December 2022, this framework commits States to protect 30% of land and sea by 2030 (the '30x30' target). As protected areas expand and mineral exploration accelerates simultaneously, the potential for spatial conflict between conservation and extraction grows.



GUIDING PRINCIPLES

The Panel recommends the following voluntary Guiding Principles to be applicable to the entire value chain and life cycle of critical energy transition minerals. These interconnected Guiding Principles each carry equal weight and should be collectively advanced, and their order is not indicative of any priority.

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PRINCIPLE 1
Human rights must be at the core of all mineral value chains.

PRINCIPLE 2
The integrity of the planet, its environment and biodiversity must be safeguarded.

PRINCIPLE 3
Justice and equity must underpin mineral value chains.

PRINCIPLE 4
Development must be fostered through benefit sharing, value addition and economic diversification.

PRINCIPLE 5
Investments, finance and trade must be responsible and fair.

PRINCIPLE 6
Transparency, accountability and anti-corruption measures are necessary to ensure good governance.

PRINCIPLE 7
Multilateral and international cooperation must underpin global action and promote peace and security.

PRINCIPLE 1
HUMAN RIGHTS MUST BE AT THE CORE OF ALL MINERAL VALUE CHAINS.

Increasing global demand for minerals has significant potential to advance social and economic progress, however, if not managed responsibly, could trigger or exacerbate human rights violations and abuses, conflicts, violence, and harm to affected communities and individuals along the value chain. Upholding human rights is therefore vital to ensuring a just, equitable and people-centred energy transition, with particular attention to protecting the rights of children, youth, women, workers and local communities, and recognition of the importance of a clean, healthy and sustainable environment for the enjoyment of all human rights.

Human rights include the individual and collective rights of Indigenous Peoples, and other rights holders with ancestral ties and rights to land. States shall consult and cooperate in good faith with the Indigenous Peoples concerned, through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, while taking into account national specificity and legal context. Upholding their individual and collective rights, including their right to be recognized as equal partners in development and to own, use, develop and control their lands, territories and resources is crucial for preserving their cultures and promoting equitable development.

Human rights risks and impacts must be identified and assessed, with the appropriate preventive and mitigation measures taken and remedied. This includes, implementing existing international human rights and labour rights law and frameworks agreed upon by all countries, applying credible industry standards throughout all parts of the value chain, performing human rights due diligence and impact assessments, engaging with and involving affected people

Interesting Facts **01**

The UN General Assembly formally recognized the right to a clean, healthy and sustainable environment as a universal human right in resolution 76/300 (28 July 2022), building on Human Rights Council resolution 48/13.

Definition **02**

This is the principle of Free, Prior and Informed Consent (FPIC), articulated in Articles 19 and 32 of the UN Declaration on the Rights of Indigenous Peoples (2007): 'free' means without coercion, 'prior' means before authorization, and 'informed' means with full understanding of the project and its impacts.

Something to Think About **02**

Supporters argue this qualifier respects sovereignty and diverse legal systems; Indigenous organizations warn it risks turning FPIC from a right into a discretionary policy. How can consent be guaranteed in practice while accommodating different national legal frameworks?

Definition **03**

An ongoing process by which companies identify, prevent, mitigate and account for adverse human rights impacts across their operations and supply chains, as set out in the UN Guiding Principles and the OECD Due Diligence Guidance; the EU's Corporate Sustainability Due Diligence Directive (2024) began converting this expectation into binding law for large companies.

in decision-making, putting into effect accessible, culturally appropriate and effective grievance handling and redress mechanisms, and participating in traceability mechanisms, especially in conflict-affected and high-risk areas and situations of involuntary resettlement. Resettlement must be considered an option of last resort, accompanied by appropriate compensation, and in the case of Indigenous Peoples, should only happen with their Free Prior and Informed Consent.

The protection of civic space and human rights for environmental and anti-corruption defenders is crucial to ensure human rights are upheld and enable the democratic participation of all people in matters of public significance.

Safe and healthy working environments, a fundamental principle and right at work, must be ensured as workers face significant occupational safety and health risks, which can result in diseases, injuries, life-long disabilities and death.

PRINCIPLE 2
THE INTEGRITY OF THE PLANET, ITS ENVIRONMENT AND BIODIVERSITY MUST BE SAFEGUARDED.

Mineral production and supply inevitably impact the natural environment. Increased mineral demand risks placing additional pressure on biodiversity, water, geodiversity and ecosystems. We must redouble our efforts to safeguard the integrity of the environment and ensure the long-term health and resilience of people and the planet, in particular ecosystems that are vulnerable to these pressures, and noting the indispensable role of Indigenous Peoples in biodiversity protection.

Responsible practices should be implemented and regulations enforced to safeguard the environment. Pollution and waste in all its forms should be avoided, reduced, eliminated and remediated, consistent with polluter-pays principle, and biodiversity loss and deforestation should be halted and reversed. Greenhouse gas emissions should be reduced and production processes decarbonized across mineral value chains as a matter of priority.

Any mineral wastes generated should be safely managed and stored to prevent disasters from catastrophic and chronic failures, consistent with best available technology and practice and the Global Industry Standard on Tailings Management, and in consultation with impacted rights holders and stakeholders.

Environmental bonds or other forms of financial assurance should be established before any mineral development. Prevention and remediation measures should be commensurate with the scale, impact and size of the disturbed area while respecting the ecological, cultural and social significance of the land on which operations take place. This is essential to build relations of trust with local governments, Indigenous Peoples and other affected rights holders and populations.

Environmental, social and cultural risks should be assessed prior to any activity (and as needed throughout) and managed, monitored and addressed according to the mitigation hierarchy across the mineral life cycle and value chain. This includes mineral exploration, construction, processing, smelting and refining, as well as production and manufacturing, closure, waste management, reclamation and recycling. Strategic assessments should inform participatory land use planning and geological exploration, to ensure that environmental impacts are understood and managed in a comprehensive manner. The financing, staffing and authority of regulatory and compliance officers should be sufficient to ensure the enforcement of environmental protection.

Best practices should be aligned with the principles set out in the Rio Declaration, inter alia the precautionary approach, and be utilized to ensure ecosystems are protected, including the possibility of declaring World Heritage Sites as

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Did You Know That... 02

According to Global Witness, 196 land and environmental defenders were killed in 2023 alone, and mining has consistently been the industrial sector most frequently linked to these killings.

Definition 05

Principle 16 of the 1992 Rio Declaration: those who produce pollution should bear the costs of managing and remediating it, rather than externalizing them onto society. In mining, it underpins environmental bonding, tailings liability and the financing debate around the proposed Global Mining Legacy Fund.

Definition 06

Tailings are the finely ground waste left after ore processing, typically stored behind large dams. The GISTM was launched in August 2020 — co-convened by the United Nations Environment Programme (UNEP), the Principles for Responsible Investment and the International Council on Mining and Metals — in response to the 2019 Brumadinho dam collapse in Brazil, which killed around 270 people.

Definition 08

A sequenced approach to managing environmental impacts: first avoid, then minimize, then restore or rehabilitate, and only as a last resort offset residual damage.

'no-go areas' and encouraging governments to consider declaring other protected and conserved areas as 'no-go areas' for activities related to critical energy transition mineral value chains, taking into account national legal contexts.

Innovation in product and service design, improvements to material and energy efficiency, circularity, and balancing consumption with sustainable supply, especially in high income countries, reduces pressures on environments and can contribute to fairer distribution of economic and social benefits and affordable access to energy.

PRINCIPLE 3
JUSTICE AND EQUITY MUST UNDERPIN MINERAL VALUE CHAINS.

Pursuing climate-resilient and sustainable development, particularly in the context of mineral value chains has significant social and economic implications, including changes in job markets, wealth distribution, environmental impacts, and access to resources. The benefits and burdens of these changes are too often unequally distributed, disadvantaging groups who may be vulnerable or marginalized. The urgency of the energy transition cannot justify irresponsible practices in mining, processing, smelting, refining trade and recycling of minerals. We must ensure that no one is left behind and that everyone has access to fair treatment, legal redress and the opportunity to meaningfully participate in decision-making processes.

Decent work, which includes adequate universal social protection, opportunities for skills development, rights at work, job creation, and social dialogue, is essential for any Just Transition, including those related to mineral development. These aspects must align with national development priorities and be consistent with internationally recognized laws and labour standards that uphold fundamental principles and rights at work, such as freedom of association, the right to collective bargaining, the elimination of forced and child labour, the eradication of workplace discrimination, and the assurance of a safe and healthy working environment. Furthermore, they should provide labour protection through fair wages and limits on working hours.

Gender equity and respect for the rights of women, girls and gender-diverse people should be transversal throughout the entire mineral value chain, ensuring equal job opportunities, pay, benefits and fair treatment, active and meaningful participation in decision-making, physically and psychologically safe workplaces and an absence of gender-based violence, discrimination and harassment. Engagement should include women and non-majority groups, including in impact assessment, consultations, negotiations and resettlement. Data points should be gender disaggregated and publicly disclosed for accountability.

The role of responsible artisanal and small-scale miners in exploration and mining of critical energy transition minerals, and in creating jobs and livelihood opportunities in developing countries should be recognized. Artisanal and small-scale mining (ASM) should be transformed into legal, formalized, professional and safe activities, with significantly improved environmental management free of exploitation, child labour and conflicts, including conflicts with formal sector mining.

Intergenerational equity should guide decisions and actions such that they are characterized by a long-term, sustainable perspective and consider the well-being of not only present but also future generations.

Equity and justice also mean that all people, in particular those from countries that are not part of critical energy transition mineral supply chains or do not produce renewable energy technologies, should have universal access to affordable, modern and sustainable energy.

Interesting Facts **01**

Members of the International Council on Mining and Metals have pledged since 2003 not to mine or explore in World Heritage Sites, yet International Union for Conservation of Nature (IUCN) monitoring continues to identify extractive activity as a leading threat to natural World Heritage Sites.

Definition **04**

This references the ILO's 1998 Declaration on Fundamental Principles and Rights at Work, which sets out core labour standards binding on all ILO member states regardless of whether they have ratified the specific conventions: freedom of association and the effective recognition of the right to collective bargaining, the elimination of forced labour, the abolition of child labour, and the elimination of workplace discrimination. A fifth category — a safe and healthy working environment — was added by amendment in 2022, and the report echoes this directly when it calls safe working conditions 'a fundamental principle and right at work' on page 11.

Something to Think About **05**

Women make up roughly 30% of the artisanal and small-scale mining workforce globally — up to half in parts of Africa — yet are concentrated in the lowest-paid, most hazardous roles. If data is not disaggregated by gender, these patterns remain statistically invisible; what disclosure obligations could realistically be established internationally?

Definition **06**

Mining by individuals, families or small cooperatives using limited mechanization, often informally. An estimated 45 million people work in ASM worldwide, supporting some 270 million livelihoods; the sector supplies about 20% of the world's gold. Estimates of its cobalt contribution vary depending on what's being measured: ASM is thought to supply around 10% of the world's cobalt overall, but 15–30% of the DRC's own cobalt output specifically comes from artisanal sources.

Something to Think About **08**

An estimated 685 million people still lacked electricity in 2022 (A/79/501), most of them in countries that are neither major mineral producers nor manufacturers of renewable technologies. How can countries outside the mineral value chain altogether avoid becoming mere price-takers of the transition?

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PRINCIPLE 4
DEVELOPMENT MUST BE FOSTERED THROUGH BENEFIT SHARING, VALUE ADDITION AND ECONOMIC DIVERSIFICATION.

Mineral production, processing and consumption can play a critical role in economic development, and spur industrialization through value addition and beneficiation. However, there is currently a significant disparity in how benefits are distributed between different actors, countries, and the upstream, midstream, and downstream sectors of the value chain.

The dependence of mineral-producing developing countries on exports of mineral commodities has resulted in vulnerability of their economies to mining cycles, and limited their realization of the economic benefits of mining. Value addition and beneficiation of minerals can spur industrialization, which plays a critical role in economic development.

Furthermore, the resilience of global critical energy transition mineral value chains can be strengthened by more diversified participation, particularly by developing countries, unlocking opportunities for economic growth and development and at the same time building more diverse and resilient value chains.

All countries, in particular developing countries, should have an equitable opportunity to harness technological innovation, participate in global mineral value chains and to benefit from these. This includes fair shares of sector revenues that are effectively managed, and participation through enhanced local content, the development of small and medium sized enterprises, local mineral processing and value addition to foster economic development of industries that use processed mineral commodities as inputs and manufacture products for domestic consumption, regional and international trade. Shortfalls in government capacities should be enhanced to make the most of such opportunities.

The benefits derived from mineral exploitation are also often distributed inequitably between people, disproportionately affecting women, children, youth, workers, artisanal and small-scale miners, Indigenous Peoples, and other rights holders. Addressing these challenges is crucial for achieving sustainable and inclusive development. Specific measures should be implemented to ensure that Indigenous Peoples, and other rights holders with ancestral ties and rights to land, are recognized as equal partners, and benefit equitably from these opportunities, with benefit-sharing schemes aligned with their right to self-determination.

Tax systems should be transparent, equitable and underpin the principles of equity, justice so that adequate proceeds from taxes and royalties accrue to finance development. Taxation and royalties should be fairly levied, collected and utilized for the public good, including for the benefit of affected communities, while tackling tax evasion and abusive transfer pricing. Developing robust tax frameworks and addressing transfer pricing can address base erosion and profit shifting risks while supporting benefit sharing and value chain integration.

Economic diversification, supported by infrastructure, and industrial policies that promote the utilization of minerals for green industrialization, increased productive capacities, skills and quality job creation can help address the risks associated with an overreliance on raw commodity export. Stable legal frameworks, access to justice, respect for the rule of law, and anti-corruption and anti-bribery frameworks are important enablers of economic diversification.

Multilateral cooperation and partnerships can support value addition and fair trade through technology transfer, infrastructure provision, regional coordination, access to finance, scientific research and development, as well as skills and knowledge transfer via education, training and capacity building.

Did You Know That... 02

UNCTAD classifies roughly two thirds of developing countries as commodity-export dependent, leaving national budgets exposed to price swings outside their control; a raw mineral can multiply in value several times over as it moves from ore to refined metal to battery precursor to finished cell.

Definition 02

The processing of raw ore to increase its value before export — crushing, separating, refining and manufacturing intermediate products. A current example is the 2022 agreement between the DRC and Zambia to develop a joint special economic zone for battery precursor production.

Definition 06

Tax planning strategies by which multinational companies shift profits from where economic activity occurs to low-tax jurisdictions. A common method is manipulating transfer prices — the prices one subsidiary of a company charges another for goods or services. For example, a mining subsidiary in a producer country may sell its ore at an artificially low price to a sister company in a tax haven, which resells it at the true market price: the profit then appears in the tax haven's books rather than in the country where the mineral was actually extracted. The OECD estimates global losses at USD 100–240 billion in corporate tax revenue annually.

PRINCIPLE 5
INVESTMENTS, FINANCE AND TRADE MUST BE RESPONSIBLE AND FAIR.

Countries should have equitable opportunity to participate in mineral value chains. Responsible investment and fair trade are vital enablers of sustainable, inclusive development but are currently not sufficiently accessible or adequately tailored to the needs of the employers, workers, Indigenous Peoples, and communities in developing countries. Confronting these challenges is imperative to drive economic diversification and value addition close to the source, and to catalyse the overall transformation of mineral-dependent economies.

The financing of responsible mineral value chains should be driven by responsible investment principles that incentivize sustainable, long-term orientated decision-making. Investors, banks, insurers, commodity and stock exchanges, development banks, governments and businesses should provide access to finance on inclusive and affordable terms to actors across the mineral value chain. Financing should include environmental, social and governance protections consistent with internationally recognized sustainability standards, human rights laws and frameworks, including the individual and collective rights of Indigenous Peoples. Finance can also promote the implementation of these Guiding Principles. This includes ensuring all new mines needed to meet future critical energy transition mineral demand are developed in conformance with these Guiding Principles, all existing mines conform with them within a defined period; and that companies in the wider mineral value chain drive sustainable demand.

Inclusive, affordable, sustainable and tailored financial products, such as development finance, low-interest loans, project finance, blended finance, grants and credit guarantees, should be made available to support site-level transformation, value addition and associated infrastructure. This is especially the case for small and medium-sized enterprises, Indigenous Peoples and other rights holders with ancestral ties and rights to land, and artisanal and small-scale miners committed to responsible practices.

Multilateral development banks have a particular role to play in supporting investment and development of local value chains in developing countries. There is a need for clear and relevant regulation and policy predictability from governments to support stable investment environments, as well as public accountability and transparency.

The centrality of the rules-based and non-discriminatory multilateral trade system should be retained and leveraged for sustainability, justice and equity so that mineral-producing countries can increase their access to investments and processing technologies for those seeking to add more value to their mineral resources. Rules-based and non-discriminatory international investments and trade agreements, frameworks and initiatives should account for the significant burden of debt faced by many developing countries, aim to buffer against price volatility, and promote structural transformation through value addition and economic diversification.

PRINCIPLE 6
TRANSPARENCY, ACCOUNTABILITY AND ANTI-CORRUPTION MEASURES ARE NECESSARY TO ENSURE GOOD GOVERNANCE.

Transparency and accountability are fundamental to good governance and responsible decision-making. All actors must uphold the rule of law and domestic legislative regimes and company practices must be consistent with international law, commitments and norms. Oversight, including through multi-stakeholder

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Definition 03

The strategic use of concessional capital, money from governments, development banks or charitable foundations offered on more generous terms than the market would demand, to attract private investment into projects that markets alone would not finance. It takes several forms: grants (funding that never has to be repaid), guarantees (a public body promises to cover an investor's losses if a borrower defaults, making the loan safer to give), and first-loss tranches (the public funder agrees to absorb the first share of any losses, cushioning private investors who come in behind them). By shouldering part of the risk, public money 'crowds in' private money, the main proposed bridge between investors' 'too risky' perception of mining regions and the capital needs of responsible local operators.

Interesting Facts 04

The World Bank launched its Climate-Smart Mining Facility in 2019, the first multilateral fund dedicated to making mineral supply for the energy transition sustainable in developing countries.

Something to Think About 05

The OECD documents a more than fivefold increase in export restrictions on critical raw materials since 2009, while consumer countries build preferential arrangements such as the Minerals Security Partnership (2022), a US-led coalition of fourteen states and the European Union that channels public and private investment into critical mineral supply chains among trusted partner countries. Is the minerals trade fragmenting into rival blocs, and what role can multilateral environmental governance play in reversing this trend?

mechanisms is fundamental to detecting, avoiding and addressing criminal activities, including organized crime and corruption, illicit financial flows, illegal mining and conflicts of interest which can lead to undue influence and policy capture.

Traceability mechanisms, more harmonized performance standards, and clear regulation are needed that cover all issues and actors. This can be enabled by supporting interoperability across standard systems, emphasising strong international standards that include independent third-party audits of operations, performance based environmental, social and governance metrics, equitable distribution of the costs of compliance, multi-stakeholder design and implementation. Technical assistance can support the widespread uptake and implementation of international standards. Performance standards and traceability mechanisms should also be made conditional for access to finance and markets. Indigenous Peoples and other rights holders must be actively involved in these processes, with their rights and perspectives fully integrated into governance frameworks.

Access to information is a human right. The availability and disclosure of transparent and accessible information is necessary for meaningful stakeholder engagement and participation, public accountability and equitable decision-making, as well as to reduce information asymmetry, combat corruption, and address human rights and environmental risks. This includes, inter alia, information on environmental and social impacts, mineral prices, production, contracts, licences, permits, revenue, taxes, royalties, payments, beneficial ownership of corporate entities, trade in commodities and resource-backed loans, as well as decision-making processes.

The surveying and mapping of geological deposits is essential for sound decision-making and should be accessible to the public, while respecting commercial sensitivities. This is particularly relevant for Indigenous Peoples and other rights holders so that they can be fully aware of, and engage in, the processes affecting their lands and resources. Transparent environmental and social monitoring and inspection data is essential to demonstrate performance and compliance status.

PRINCIPLE 7
MULTILATERAL AND INTERNATIONAL COOPERATION MUST UNDERPIN GLOBAL ACTION AND PROMOTE PEACE AND SECURITY.

International and regional cooperation is key to ensuring critical energy transition minerals do not become a source of tension and conflict. Sustainable development cannot be realized without peace and security, and peace and security will be at risk without sustainable development. Strong, more inclusive and agile governance structures, with true multilateralism at their centre, are crucial to guide coordinated and evidenced-based action at all scales. Dialogues between producer and consumer countries and other stakeholders are required to build trust and ensure country concerns are addressed.

International efforts to address climate change, energy security, poverty reduction and sustainable development, inter alia, should adequately address the diverse role of minerals, where relevant. Official development assistance related to minerals should be increased. Development cooperation can assist developing countries to enhance capacities in line with these Guiding Principles. This includes investing in knowledge sharing, improving access to quality professional education in policy and technical spheres, investment in science and technology for public good, promoting technology transfer, and improving the accessibility and affordability of technologies.

Did You Know That... 01

UNCTAD estimates that Africa loses around USD 88.6 billion every year to illicit financial flows — roughly 3.7% of the continent's GDP — with extractive commodities among the largest channels, a figure exceeding annual inflows of development assistance and foreign direct investment combined.

Definition 03

The natural persons who ultimately own or control a company, as distinct from nominee shareholders (individuals or firms registered as a company's official owners on paper while acting on behalf of the real, hidden owner) or shell structures (companies with no genuine business activity, existing only as legal vehicles to hold assets and obscure who is truly behind them). Since 2020 the Extractive Industries Transparency Initiative (EITI) Standard has required its 50-plus implementing countries to publicly disclose the beneficial owners of companies bidding for or holding extractive licences.

Did You Know That... 05

UNEA has addressed this topic through Resolution 4/19 (2019) on Mineral Resource Governance, Resolution 5/12 (2022) on the Environmental Aspects of Minerals and Metals Management — which mandated regional consultations culminating in the Global Intergovernmental Meeting in Geneva on 7–8 September 2023 — and Resolution 6/5 (2024).

This study guide's own topic corresponds to the resolution adopted by the United Nations Environment Assembly on 12 December 2025, "Strengthening international cooperation on the environmentally sound management of minerals and metals" (UNEP/EA.7/Res.3), which explicitly builds on the same three prior resolutions traced above.

Something to Think About 05

Several Latin American governments have floated coordination among lithium producers — sometimes dubbed a 'lithium OPEC' — while consumer countries organize their own buyers' clubs. Would producer coordination empower developing countries, or accelerate exactly the fragmentation and tension Principle 7 warns against?

Multilateral trade frameworks play a significant role in shaping the opportunities presented by critical energy transition minerals, and it is crucial that they support resource-producing countries to diversify their economies and provide opportunities to advance up the value chain.

By fostering an environment that encourages innovation, sustainable and equitable growth, and the fair sharing of benefits, resilient and stable mineral value chains can be built for the sustainable development of all.

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Did You Know That... **01**

Around 80% of global battery cell manufacturing capacity is currently located in China (IEA), while most mineral-producing developing countries capture only the mining stage of the value chain.



ACTIONABLE RECOMMENDATIONS

The following actions are recommended to support the implementation of the Guiding Principles. The Panel calls on governments, the private sector, civil society and other stakeholders to support the Guiding Principles and the Actionable Recommendations. To this end, the Panel recommends the following actions to the United Nations Secretary-General.

ACTIONABLE RECOMMENDATION 1
ACCELERATE GREATER BENEFIT SHARING, VALUE ADDITION AND ECONOMIC DIVERSIFICATION.

Establish a High-Level Expert Advisory Group to facilitate a multi-stakeholder dialogue on 'Accelerating Critical Energy Transition Minerals Value Addition Towards Equity' (ACTIVATE), through greater benefit-sharing, value addition, economic diversification, trade and investment, and fiscal policy with a view to unlocking the power of local mineral resources for a green future. The Advisory Group, hosted by the United Nations, will build on, and work with, existing fora and include governments, industries across the value chain, trade unions, relevant international organizations, civil society, Indigenous Peoples, other rights holders, youth and local communities. Actions will be informed by a mapping of current initiatives and definition of the enablers and priorities that advance equity and justice in critical energy transition minerals value chains and support governments, rights-holders and stakeholders in mineral-producing countries to:

- Mobilize resources and promote best practices on issues such as value addition, economic diversification, taxation and fiscal policy (including addressing transfer pricing, base erosion and profit shifting risks), local content policies, robust and efficient permitting, trade and investment, community benefit sharing, technology and shared infrastructure that supports downstream processing facilities and broader energy access, energy transition and green industrialization in developing mineral-producing countries;
- Work with UN Trade and Development (UNCTAD) and the World Trade Organization (WTO) to identify barriers to market access and trade to assist development;
- Liaise with relevant bodies in the United Nations system on the enforcement of human rights, environmental, governance, social and climate change safeguards, including the individual and collective rights of Indigenous Peoples, and recognising the role of Indigenous Peoples in safeguarding global biodiversity, supportive global ecosystems and sustainability.

ACTIONABLE RECOMMENDATION 2
TRACEABILITY FOR ACCOUNTABILITY

Launch a multi-stakeholder expert process to develop a global traceability, transparency and accountability framework along the entire mineral value chain – from mining to recycling – based on criteria and mechanisms that strengthen due diligence, facilitate corporate accountability and build a global market for critical energy transition minerals, not to be used as a unilateral trade barrier. The system would aim to provide:

- A framework for disclosures and comprehensive, independently verified due diligence on the mineral sector's environmental, social and governance performance. This could include geographic location data, human rights practices, environmental practices (including greenhouse gas emissions, environmental harms, respect for no-go areas, tailings management approaches), social practices (including on gender, labour rights, Indigenous Peoples, and the obtainment of their Free, Prior and Informed Consent), and governance practices (including on corruption risks, fraud, illicit mining, illicit financial flows, money laundering, transparency gaps, fair deals and equitable benefit-sharing).
- Tools and guidance for collecting, verifying and communicating data to support regulators and

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Interesting Facts **01**

On 10 December 2025 the Secretary-General launched a UN Task Force on Critical Energy Transition Minerals, chaired jointly by UNEP, United Nations Development Program (UNDP) and UN Conference on Trade and Development (UNCTAD). Rather than standing alone, ACTIVATE now sits as one of the Task Force's five technical clusters, alongside traceability, the Global Mining Legacy Fund, artisanal mining, and circularity.

Did You Know That... **04**

Partial traceability regimes already exist: the OECD Due Diligence Guidance, Section 1502 of the US Dodd-Frank Act (2010) on conflict minerals, and the EU Battery Regulation, whose digital 'battery passport' becomes mandatory for large batteries from February 2027. The new element proposed here is a single universal, interoperable framework covering all actors.

market actors to incentivize good performance and penalize bad or illegal practices. This could help to support procurement and investment decisions, as well as eligibility requirements for subsidies and tax credits.

- Platforms for multi-stakeholder dialogue at the national, regional and global level to facilitate scrutiny of disclosures, advance accountability and ensure that the information is accessible to all stakeholders, while protecting commercially sensitive information.

The process would build on existing initiatives in close consultation with relevant actors along the mineral value chain. The system would be informed by a mapping of, and lessons learned from, existing due diligence, traceability, and accountability models, seeking to implement best practices and address gaps. The framework should ensure the costs of compliance are reasonable and fairly distributed along the value chain, that reporting requirements are streamlined, that illicit mining and legitimate mining are clearly distinguished, and that responsible artisanal and small-scale miners do not face disproportionate barriers to participation.

ACTIONABLE RECOMMENDATION 3. GLOBAL MINING LEGACY FUND

Establish an initiative, with a view to creating a Global Mining Legacy Fund and encouraging the strengthening of financial assurance mechanisms, as a way to build trust and enable justice that will support affected individuals, communities, countries and Peoples, including Indigenous Peoples and other rights holders, to address multiple legacy issues as a result of derelict, ownerless or abandoned mines. The Fund is intended to be supported by industry and interested governments and will finance priority environmental remediation, human rights remedy and economic revitalization at high-risk relinquished and/or abandoned legacy mining sites, including critical energy transition minerals sites, identifying opportunities to promote reprocessing and recycling of waste and local economic development simultaneously. This initiative does not replace or supersede current or future obligations, responsibilities and the liability of companies towards responsible mining operations, nor their role to implement and uphold traceability, transparency and accountability standards throughout the value chain. To advance the initiative the Panel proposes the creation of an International Taskforce to develop a practical plan and financing mechanism to operationalize the fund.

The plan will include a piloting phase in two to three mineral-producing developing countries based on a national assessment of legacy, abandoned facilities that are not known to have a responsible party nor currently being operated by a company. The fund would be accompanied by capacity building to improve mine closure practices and develop adequate financial assurance mechanisms to avoid future legacy sites.

ACTIONABLE RECOMMENDATION 4 EMPOWER ARTISANAL AND SMALL-SCALE MINERS TOWARDS RESPONSIBILITY

Convene an initiative that empowers artisanal and small-scale miners to become agents of transformation to foster development, environmental stewardship and human rights. The initiative would work with artisanal and small-scale miners, including of critical energy transition minerals, who are committed to responsible practices to support them on a pathway towards formalization, where possible, and divert them from situations where mining

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Something to Think About **03**

Certification and audit costs are largely fixed, so they weigh far more heavily on a small artisanal cooperative than on a multinational, which can push the smallest producers deeper into informality. What design features — tiered requirements, subsidized audits, group certification — could prevent traceability from becoming a barrier to the miners it aims to protect?

Interesting Facts **04**

Where no responsible party exists, the polluter-pays principle has no polluter to reach and remediation costs default to the State — or to no one. The report specifies that the fund 'does not replace or supersede' corporate liability, addressing the concern that a collective fund could become a subsidy for abandonment.

Something to Think About **07**

Formalization campaigns have repeatedly stalled where licensing is costly, land rights are unclear, or formal status brings taxation without services; the Minamata Convention (2013) addresses artisanal gold mining as the world's largest source of mercury emissions. What would make formal status genuinely attractive to a miner?

is expressly illegal or when mining is associated with, or could lead to, civil conflict and criminality in all its forms, including illicit financial flows and transnational crime. The initiative would build on existing initiatives in close consultation with relevant actors and address the specific challenges faced by women, children, and Indigenous Peoples. The initiative could include:

- Support for the establishment of the International Council on Artisanal and Small-scale Mining, a nascent representative council for artisanal and small-scale miners at the international level to advocate for responsible mining;
- Support for knowledge exchange and capacity-building initiatives developed and implemented in partnership with artisanal and small-scale mining leaders, with the aim to improve practices, including on occupational health and safety, geological knowledge, environmental management, value addition, community relations, access to services and markets, and technical skills;
- Specific research and data gathering on the size, impacts, significance and economic contribution of artisanal and small-scale miners and small and medium-sized enterprises in critical energy transition minerals value chains;
- Improved access to (micro-)finance by artisanal and small-scale miners and small and medium-sized enterprises in mineral value chains, including those of Indigenous Peoples, accompanied by conformance with ASM-specific performance standards, and supported by capacity-building and awareness-raising programmes of both miners and financial service providers.

ACTIONABLE RECOMMENDATION 5. MATERIAL EFFICIENCY AND CIRCULARITY TARGETS TO BALANCE CONSUMPTION AND REDUCE ENVIRONMENTAL IMPACTS

Launch a process with a view to reaching agreement on equitable targets and timelines for the implementation of material efficiency and circularity approaches along the entire life cycle of critical energy transition minerals including extraction, on-site and off-site processing, protection of ecosystems as referred under Principle 2 under best practices, refining, management of mining waste and tailings, rehabilitation of sites and closed or abandoned mines, manufacturing of products containing critical energy transition minerals, reuse, recycling and other circular business models. In progressing towards improved material efficiency and higher share of circularity, attention should be given to:

- Innovation in product and service design, improvements to material and energy efficiency and sustainable consumption to reduce environmental impacts. For example, the price of resources could reflect externalities or products could be designed with circularity in mind.
- Engaging all actors across the entire value chain to design products and components to accelerate circularity and improve material efficiency.
- Ensuring benefit sharing of circular economy models across the entire value chain.
- Replacing critical energy transition minerals with alternatives where possible and accelerating research and development for technologies with lower mineral requirements, lower environmental impacts and higher

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Interesting Facts **Bullet 1**

If established, this would be the first global representative body through which artisanal miners speak for themselves in international forums — a sector of 45 million workers that has, until now, been discussed at the UN almost exclusively by others.

Definition **02**

An economic model that keeps materials in use through reuse, repair, remanufacturing and recycling, in contrast to the linear 'take-make-dispose' pattern. For minerals, circularity is the principal demand-side lever: every tonne recovered from a spent battery is a tonne that need not be mined.

Did You Know That... **Bullet 4**

Lithium-iron-phosphate batteries, which use no cobalt or nickel, have grown to over 40% of the global EV battery market, and sodium-ion batteries — requiring no lithium at all — are entering commercial production, showing how substitution can rapidly reshape demand forecasts.

potentials of circularity.

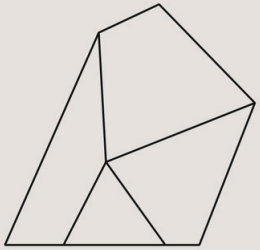
- Strengthening the enabling conditions for circularity by aligning finance and investment to circularity; strengthening infrastructure and recycling systems; harmonizing policies on product design, waste management and recycling; exploring extended producer responsibility schemes, facilitating international cooperation to strengthen circularity across the entire value chain; reducing trade barriers; enabling equitable benefit sharing and aligning to multilateral environmental agreements.

- Strengthening knowledge and capacity to accelerate the shift to circularity, including by addressing data and information gaps (e.g. better tracking of critical energy transition minerals along the entire life cycle, including extraction rates, robust environmental assessments, recycling capacity, recycled volumes, collection rates, cross-contamination and traceability of end use).

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Did You Know That... **Bullet 02**

Less than 1% of rare earth elements and only a small fraction of lithium-ion batteries are currently recycled, yet the IEA estimates that by 2040 recycled copper, lithium, nickel and cobalt could reduce primary supply needs by around 10%. The EU Battery Regulation sets binding recovery targets, for example 50% of lithium by 2027 and 80% by 2031.



CO-CHAIRS' CONCLUSION

At this moment, when humanity is navigating a confluence of crises from climate change to biodiversity loss, pollution and poverty, we, the Co-Chairs and Panel members of the United Nations Secretary General's Panel on Critical Energy Transition Minerals came together with optimism to put forward an ambitious but achievable vision – one where the mineral value chains that are necessary to reduce greenhouse gas emissions that are causing the climate crisis and resource the renewable energy transition come to be characterized by equity and justice.

Our mandate, which we accepted with a sense of pride and great responsibility, was to use the strength of our diverse perspectives and experiences to find common ground, foster cooperation and inspire urgent action. We believe that despite the significant risks and the chequered history, critical energy transition mineral value chains can offer a pathway to shared prosperity, economic transformation for developing countries, and the promise of energy security for all – but only if they follow the guardrails we outline above – chief of which are to leave no-one behind and to safeguard our fragile planet for future generations.

We are proud to present this report which demonstrates our shared commitment to change. We call on all actors to do their part to implement the Guiding Principles and Actionable Recommendations.

We emphasize the importance of ensuring the swift and immediate establishment of the High-Level Expert Advisory Group which is critical to ensuring the realization of the Guiding Principles to bring to life justice and equity.

Panel members are committed to, and hope that work will be taken forward for, mobilizing and bolstering multi-stakeholder cooperation globally to accelerate benefit sharing, value addition and economic diversification with a particular focus on the critical issues of non-discriminatory trade and investment, fair taxation to secure public revenues for industrial development and value addition, access to finance including the crucial role of the financial sector, as well as access to energy and support for the energy transition in developing countries.

In particular, we invite the United Nations High Commissioner for Human Rights, the UN Human Rights Council (UNHRC), all the Special Procedures of the UNHRC and Treaty Bodies, and other relevant institutions, such as the International Labour Organization (ILO) supervisory system, to integrate these Guiding Principles into their work and use their accountability instruments to monitor and ensure human rights and labour rights compliance in critical energy transition mineral value chains and the protection of environmental human rights defenders and environmental defenders, with particular attention to safeguarding vulnerable groups such as children, women and elders. Particular attention should be devoted to the individual and collective rights of Indigenous Peoples.

Above all we call on all actors to uphold the rights of Indigenous Peoples, on whose lands much of the global reserves of critical energy transition minerals are located. Only by cooperating in good faith with Indigenous Peoples, treating them as equal partners in development, acknowledging their indispensable role in biodiversity protection, and respecting all of their rights, including as articulated in the UN Declaration on the Rights of Indigenous Peoples, and to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, will it be possible to resource the energy transition successfully, and with equity and justice.

Something to Think About **03**

Civil society coalitions (more than 150 Indigenous Peoples' organisations, labour unions and civil society groups, convened by Climate Action Network International, the Natural Resource Governance Institute, Publish What You Pay, Oxfam and others) publicly urged the Secretary-General to launch the Group rapidly, and the December 2025 Task Force answered part of that call. What mandate, funding and composition would ensure that producer countries, Indigenous Peoples and artisanal miners hold meaningful seats within it?

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UN SECRETARY-GENERAL'S PANEL ON CRITICAL ENERGY TRANSITION MINERALS

