CIDSE's OHCHR INPUTS ON HUMAN RIGHTS IN THE LIFE CYCLE OF RENEWABLE ENERGY AND CRITICAL MINERALS

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1. Introduction

The urgency to combat climate change has spurred a global commitment to transition towards renewable energy systems, as evidenced by the COP28 decision to triple renewable energy capacity and double energy efficiency by 2030. However, this transition is intrinsically linked to the rapidly increasing demand for minerals that are considered or classified as critical, ushering in an era of what can be termed "Green" Extractivism. Major institutions such as the World Bank and even the UN see mining as an opportunity for growing developing countries' economies. Yet political ecologists and geographers have pointed out that such logic risks creating *''neo-colonial patterns of uneven development and the creation of sacrifice zones of mineral extraction in the global South*" (Andreucci et al., 2023). This input emphasizes human rights impacts in the renewable energy and critical minerals lifecycle, addressing the Special Rapporteur's three key questions.

2. Human Rights Impact of Renewable Energy Development

The deployment of renewable energy sources, while crucial for mitigating climate change, is a double-edged sword in terms of human rights. Evidence from CIDSE and its members shows that a 100% renewable energy future has great potential in tackling poverty, inequality, climate change, and increasing local resilience. Decentralised renewable energy improves access to electricity for marginalised communities, minimise environmental impact, promote local ownership, and improve health outcomes by reducing reliance on polluting fuels. The renewable energy sector can create sustainable jobs, offering new livelihoods in manufacturing, installation, and maintenance. Again, energy independence promoted by renewables can contribute to regional stability and reduce the potential for resource-related conflicts, offering better alternatives to traditional fossil fuels extraction.

However, large-scale solar and wind farms often require extensive land acquisition displacing communities and exacerbating land conflicts, including Indigenous Peoples with deep cultural and spiritual ties to their ancestral lands. Large-scale hydropower projects, while a long-standing source of renewable energy, have historically caused massive displacement and altered vital ecosystems, impacting water resources and food security for downstream communities. They often serve the energy needs of other large-scale extractive (mining) projects and sometimes proceed without adequate consultation, such as free, prior, and informed consent (FPIC), resulting in violations of land rights, noise pollution, loss of biodiversity and livelihoods, and the destruction of habitat and cultural heritage.

The global supply chains for renewable energy technologies, including the manufacture of solar panels and wind turbines, are often characterised by unsustainable labour practices, raising

concerns about worker exploitation, unsafe working conditions, and the potential for forced labour. The end-of-life management of renewable energy components, particularly batteries, poses a growing waste management challenge with potential environmental and health consequences if not addressed responsibly.

These negative impacts are often due to the prioritization of rapid deployment targets over human rights safeguards. Insufficient environmental and social impact assessments, coupled with a lack of meaningful community engagement and weak regulatory frameworks, create an environment in which rights violations can occur with impunity.

Those disproportionately affected include local and Indigenous communities with deep ties to their land and resources, whose rights to land, self-determination, and culture are often disregarded in the rapid and unjust pursuit of green extractivism[1] to meet the 1.5° C target. They contribute the least to emissions but are devastated by the rapidly worsening impacts of climate change while seeing fossil fuel extraction continue at full speed alongside new mining projects, casting doubt on the reality of a true "just transition". Also, more than 685 million people in these climate-affected regions lack access to modern energy. These are often local communities who lack political and economic power to negotiate project terms, and future generations who may bear the consequences of unsustainable practices. This disproportionate impact is the result of historical power imbalances, systemic discrimination, and failure to adopt a rights-based approach to the energy transition.

3. Human Rights Impact of The Life Cycle of Critical Minerals

Critical minerals are the foundational building blocks for the construction, production, distribution and storage of renewable energy, making their extraction, processing, and disposal an integral part of the energy transition. Over half of critical minerals are located on or near the lands of Indigenous and peasant peoples living in resource-rich territories (see Figure 2). The vast majority of cobalt comes from the Democratic Republic of the Congo (DRC), nickel from Indonesia, Australia and Brazil, and the majority of lithium is being mined in Australia, Bolivia, Chile and Argentina, while Chile, Peru and Mexico account for 35% of copper reserves. China is responsible for the most of processing of minerals and assembly of components. While these minerals are essential for a decarbonised society and future, their life cycle is fraught with potential human rights abuses (Pope Francis, 2023, LD 52).

Case studies of cobalt mining in the Democratic Republic of the Congo (DRC) starkly highlight the severe human rights abuses, including child labour and dangerous working conditions, associated with the extraction phase. Cobalt supply chains have been shown to include minerals coming from artisanal miners working in appalling conditions. For example, artisanal small-scale miners in the DRC face hazardous conditions, economic exploitation, child and forced labour, and widespread informality, with limited protection or rights. Urgent action is needed to address these systemic abuses and improve safety, wages, and working conditions. Nickel mining in the Philippines has been linked to significant environmental damage, including deforestation and water pollution, soil contamination, affecting the livelihoods and the rights to water, health, and food security of local communities. Similarly, lithium extraction for batteries in the Lithium Triangle, also in Brazil, can lead to water depletion that disproportionately affects local

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[1] The term "green extractivism" is the intensified extraction of natural resources which are often exported and processed abroad for higher economic value, including minerals essential for renewable energy technologies, replicating or exacerbating the negative social and environmental consequences of traditional extractive industries. It is misleading as the extraction methods remain unsustainable, yet the fight against the climate crisis is used to justify their acceleration.

communities and ecosystems, raising concerns about the rights to water and a healthy environment. Bauxite mining in the Amazon rainforest, while supplying various industries including some renewable energy components, illustrates the devastating consequences of large-scale extraction on biodiversity, Indigenous rights, and the global climate.

In conflict-affected regions, the control over critical mineral resources can fuel violence and human rights abuses, perpetuating a "resource curse." The latest Global Witness Environmental Defenders Report documents 196 killings of activists in 2023, with the highest number in Latin America. Over 40% of those murdered were Indigenous people. Mining has been identified as the main industry responsible for the killings, with 25 related to mining, 23 in Latin America. Women accounted for 12% of those killed, but violence against women is often under-reported. They are more likely to face gender-based violence and non-lethal forms of violence including displacement, repression and criminalisation.

These negative impacts are exacerbated by weak governance in resource-rich countries, high global demand for these minerals, and a lack of transparency and accountability in complex supply chains. Demand for critical minerals is not only driven by renewable energy needs. They are also critical to the aerospace and defence industries, e-mobility, digitalisation and robotics. In addition, many companies that control mines are not from the same country as the location of the mine (see Figures 3 and 4). Multinational companies based in Canada, the United States, China, the United Kingdom, Switzerland and Australia own several mines outside of their country, while China is responsible for most of the processing (see Figure 1). The globalised nature of renewable energy supply chains further complicates accountability and obscures the responsibility of businesses and governments.

4. International law is relevant for protecting human rights in the life cycle of renewables and critical minerals

International human rights law, including the Universal Declaration of Human Rights and core treaties that uphold fundamental rights such as the right to life, health, and self-determination, can apply to companies when conducting human rights due diligence throughout the life cycle of renewable energy and critical minerals. Specific conventions concerning Indigenous Peoples such as the Free, Prior and Informed Consent (FPIC) and ILO Convention 169 (ILO 69) provide further protections for groups particularly vulnerable to the impacts of energy and mineral development. While the ILO 169 upholds the FPIC, its scope is limited exclusively to Indigenous Peoples creating a barrier to the wider implementation of FPIC as a general principle of participatory decision-making for all affected communities. Principles of International environmental, such as the duty to prevent environmental harm and the right to information and participation (as enshrined in the Aarhus Convention and the Escazú Agreement), are also relevant. International labour law, through the ILO Conventions, sets standards for decent work and workers' rights. Furthermore, the UN Guiding Principles on Business and Human Rights (UNGPs) and the OECD Guidelines for Multinational Enterprises 1 provide a framework for corporate responsibility to respect human rights, but they are non-binding. To address this gap, the ongoing negotiations on the UN Binding Treaty on Business and Human Rights aim to establish enforceable human rights obligations for companies. The open-ended intergovernmental working group on transnational corporations and other business enterprises with respect to human rights as well as the General Comment No. 26 (2023) of the Committee on the Rights of the Child on children's rights and the environment, with a special focus on climate change are also crucial. In cases of serious human rights violations, international criminal law may also be relevant.

However, there are significant barriers. The principle of state sovereignty can limit the ability of international bodies to intervene in national contexts where violations occur. The lack of direct applicability of some international norms within national legal systems weakens their enforcement. Holding non-state actors, particularly transnational corporations operating complex global supply chains, directly accountable under international law remains a significant challenge. Weak enforcement mechanisms at the international level further undermine the effectiveness of existing legal frameworks. Stronger domestic legal frameworks, consistent with the principles outlined in the UNGPs and the OECD Guidelines, are also needed to ensure transparency and to prevent and mitigate adverse human rights and environmental impacts throughout their value chains. Power asymmetries between states, multinational corporations and affected communities can lead to situations where corporate interests overshadow human rights concerns. The complexity of global supply chains makes it difficult to trace responsibility for human rights abuses and ensure effective remedies. Moreover, trade and investment agreements can sometimes prioritise economic interests over human rights obligations, creating potential conflicts. Finally, the very concept of a "just transition" itself can be narrowly interpreted, focusing primarily on technological and economic shifts while neglecting the crucial human rights dimensions, thus creating an obstacle to a truly equitable and rights-respecting transformation.

5. Moral Framework and alternatives inspired by Catholic Social Teachings

Catholic social teaching, as articulated in Laudato Si' and Laudate Deum, provides a robust moral framework for addressing these challenges. Integral ecology underscores the interconnectedness of environmental and social well-being and calls for energy transitions that uphold human rights, justice, and sustainability, ensure the common good, protect the vulnerable, and safeguard future generation. Pope Francis (LS 109) criticises the technocratic paradigm that prioritises profit and technological progress without sufficient ethical reflection on human and environmental costs, a crucial consideration in the rapid expansion of renewable energy infrastructure and its dependence on mineral resources.

Sufficiency[2] and circularity can reduce the demand for primary extraction and minimise waste. The circular economy contrasts with the linear model by keeping products and materials in use longer to minimise waste and emissions. Other proposed alternative energy and economic systems including the Well-Being Economy, Degrowth, Doughnut Economics and Foundational Economies essentially provide a holistic and participatory economic framework for the principles presented in *Buen Vivir*[3] and Laudato Si'; they argue that economic systems should prioritize meeting the needs of all people and nature within planetary boundaries through participatory decision-making, not just GDP growth.

Recommendations:

a) **Integrate human rights into just transition frameworks**: Ensuring that national and international just transition strategies explicitly prioritise human rights, equity, and social justice, moving beyond a purely technological or economic focus.

b) **Support decentralised renewable energy**: Support the deployment of decentralised renewable energy, which is less resource-intensive than large projects, flexible, resilient, can be owned by local communities and provides an opportunity to close the energy

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[2] The IPCC defines sufficiency as policies and daily practices that avoid demand for resources (energy, materials, water, land) while ensuring well-being within planetary limits, focusing on meeting needs without excess.

[3] It is based on a way of living that is communal, in harmony with nature and culturally-sensitive.

access gap. Investment in decentralised and community-owned renewable energy systems can also reduce reliance on large-scale, resource-intensive projects.

c) **Minimise the need for critical minerals**: Promoting sufficiency, circular economy and incentivising the responsible sourcing of critical minerals to reduce demand for primary extraction and minimise waste and implementing robust demand-side management strategies to reduce overall energy consumption.

d) **Strengthen human rights and environmental safeguards**: Developing and implementing legally binding international instruments and national legislation that explicitly integrate human rights safeguards into all stages of renewable energy and critical minerals development, including mandatory human rights and environmental due diligence for all actors involved in the life cycle of renewable energy and critical minerals.

e) **Ensure Free, Prior, and Informed Consent (FPIC)**: Establishing and enforcing rigorous FPIC protocols for all projects affecting Indigenous Peoples and local communities, ensuring their meaningful participation in decision-making processes and their right to say no, and establishing accessible and effective grievance mechanisms.

f) **Promote transparency, accountability and due diligence in supply chains**: Require full transparency, traceability and independent monitoring in the supply chains of renewable energy technologies and critical minerals, coupled with robust mechanisms for accountability and access to remedy for victims of human rights abuses including artisanal and contractual miners.

g) **Implement robust environmental and social impact assessments (ESIAs)**: Require comprehensive and participatory ESIAs that explicitly assess potential human rights impacts and integrate mitigation measures from the outset of project planning.

h) **Strengthen labour protections**: Enforce international labour standards throughout the renewable energy and critical mineral sectors, ensuring fair wages, safe working conditions, and the right to organize.

i) **Address end-of-life management**: Develop and implement comprehensive strategies for the sustainable management and recycling of renewable energy batteries and critical minerals, minimizing environmental and health risks.

6. Conclusion

Rooted in Catholic social teachings, a truly just and equitable transition demands a transformative shift to renewable energy systems that reduce or eliminate reliance on critical minerals and that have at their core strong human rights, social and environmental safeguards throughout their lifecycle. By embracing alternative renewable energy models and strengthening legal and corporate accountability and due diligence, the international community can ensure a future where climate action and human rights are mutually reinforcing, leaving no one behind. This requires a fundamental re-evaluation of power imbalances and a commitment to placing the well-being of people and the planet ahead of short-term economic gain.
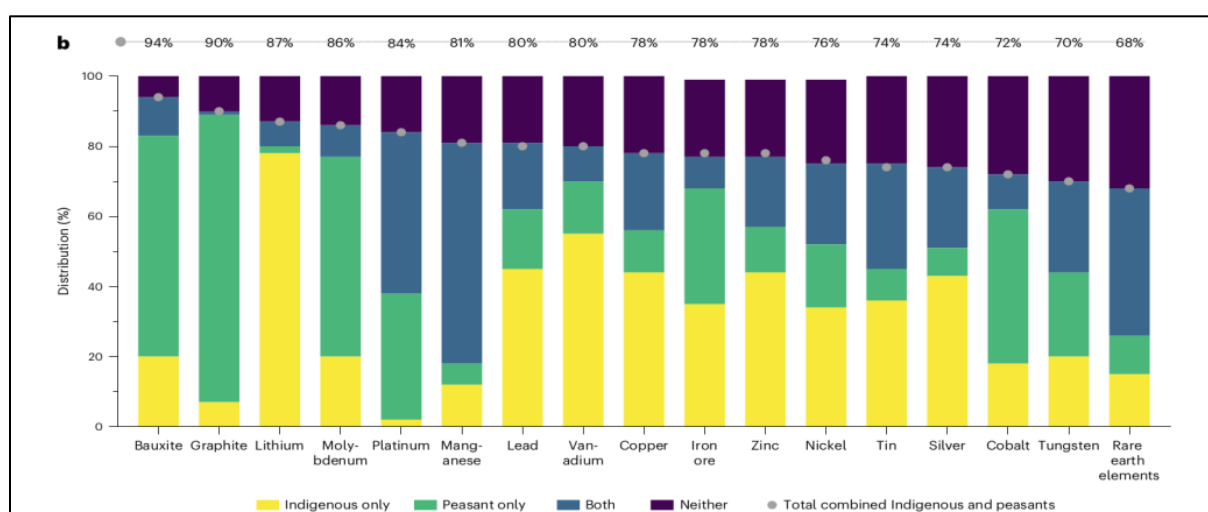
7. List of Figures
Figure 1: Top extractors and processors of critical minerals
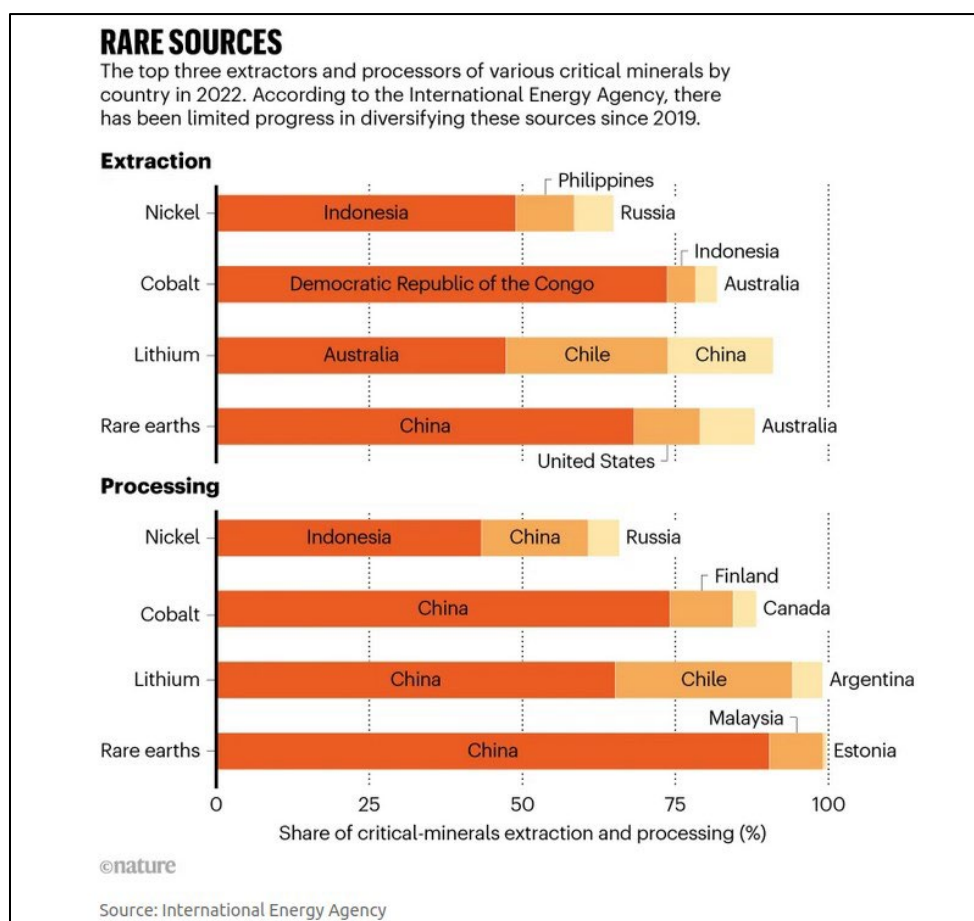
Source: Lèbre É. et al., The social and environmental complexities of extracting energy transition metals. Nature Communications, 11, 202034, Data from IEA.

Figure 2: Minerals and metals reserves and resources on or near to Indigenous and peasant lands.
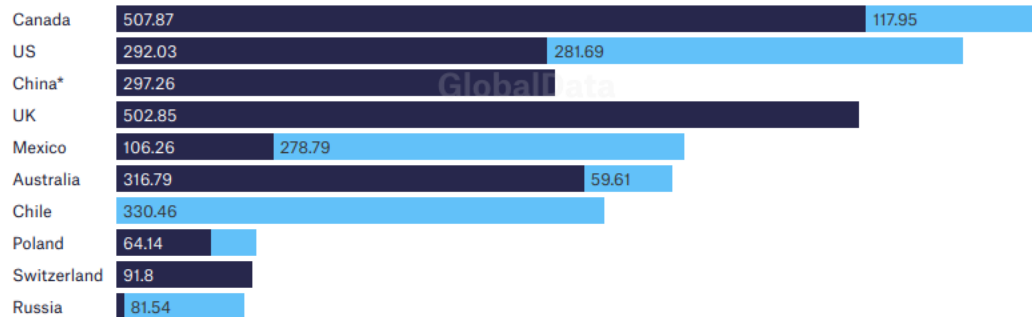

Source: Owen, J.R. et al., Energy transition minerals and their intersection with land-connected peoples, Nature Sustainability, 6, 202351.

Figure 3: Top ten countries owning mines domestically and abroad

Top ten countries for corporate ownership of mines containing critical minerals

Top ten countries by domicile of primary-equity owners of operational mines containing copper, cobalt, nickel, lithium or manganese as a primary commodity, 2022 (million tonnes per annum)

Legend: ■ Overseas ■ Domestic

Country	Overseas	Domestic
Canada	507.87	117.95
US	292.03	281.69
China*	297.26	
UK	502.85	
Mexico	106.26	278.79
Australia	316.79	59.61
Chile	330.46	
Poland	64.14	
Switzerland	91.8	
Russia	81.54	

*Data for domestic mines in China is not available, therefore China could be higher on the list.
Chart: Polly Bindman/Energy Monitor • Source: GlobalData

Source: Bindman, P., The countries controlling the critical minerals supply chain: in four charts. Energy Monitor, 30.10.2023.

Figure 4: Domicile of mine owners and location of their mines

Top ten countries by ownership of critical mineral mines overseas, by destination

Top ten countries by domicile of primary-equity owners of operational mines plus their primary locations, containing copper, cobalt, nickel, lithium or manganese as a primary commodity, 2022 (million tonnes per annum)

Legend: ■ Chile ■ Peru ■ Kazakhstan ■ Zambia ■ US ■ Indonesia ■ Democratic Republic of Congo ■ Other

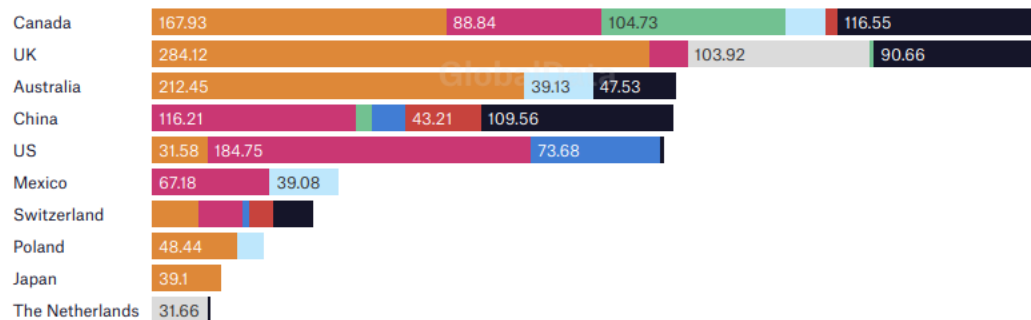| Country	Chile	Peru	Kazakhstan	Zambia	US	Indonesia	DR Congo	Other
Canada	167.93	88.84		104.73				116.55
UK	284.12	103.92						90.66
Australia	212.45	39.13						47.53
China	116.21					43.21		109.56
US	31.58	184.75				73.68		
Mexico	67.18	39.08						
Switzerland								
Poland	48.44							
Japan	39.1							
The Netherlands			31.66					

Chart: Polly Bindman/Energy Monitor • Source: GlobalData

Source: Bindman, P., The countries controlling the critical minerals supply chain: in four charts. Energy Monitor, 30.10.202347.

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