TOWARD A JUST MINERALS TRANSITION IN THE PHILIPPINES

DISCUSSION PAPER

January 2023

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Executive Summary

One of the ironies of the clean energy transition is its accompanying minerals intensity. The World Bank estimates a 500% increase in the demand for energy transition minerals and metals (ETMs), or simply, transition minerals, required in the transition to renewable energy. [1]

But if fossil fuel use is the principal culprit behind climate change, mining is an equal-opportunity offender responsible for biodiversity loss, water contamination, and other environmental crimes. Is there no recourse but to jump from the pan and into the fire?

This paper examines the debate on minerals transition, with a view to providing a possible policy framework in the context of the Philippines, the fifth most mineralized country in the world. [2]

In 2020, the country was the second largest supplier of nickel at 14%. Used in all clean energy technologies, nickel is increasingly becoming one of the transition minerals for the switch to renewable energy.[3] It also has 4 billion MT of copper (another transition mineral for electric vehicles and power distribution), making it the world's fourth largest copper reserve.[4] It boasts the fourth largest reserve of cobalt, which is used in the production of electric cars and EV batteries.

A just minerals transition defines the role of ETMs in support of the just energy transition. As such, a just minerals transition is situated within the shift to a low-carbon pathway based on social and environmental justice, or just transition. At the core of just transition is the shift from the extractive economy (powered by fossil fuels) to a regenerative economy.

Thus, a just minerals transition does not give the mining industry free reign to mine transition minerals in service of renewable energy. Instead, it critiques the prevailing economic paradigm, which can only be sustained by resource intensity.

If mining isn't situated within just transition, it will perpetuate extractivism or the un-ecological and anti-social resource exploitation model, perpetuating the industry's primary-export orientation, albeit using a clean source of energy. It risks replacing a civilization system based on fossil fuel with a "green" version of the same model. After all, the clean energy transition's technologies are more material intensive than fossil-fuel-based energy supply systems. [5]

Mining, in fact, will continue to drive the climate crisis. Approximately 8% of global carbon emissions is from mining.[6] The figure rises to 28% when other indirect emissions from mining are factored in.[7] The manufacture of iron and steel represents 90% of total emissions from the sector; the refining and smelting process can rack up 99% of total emissions.[8]

A just minerals transition rationalizes the role of ETMs within just energy transition. But it goes beyond mere "responsible mining" or "climate-smart mining," which are the current mainstream frameworks for mining. Recognizing the limits to responsible mining as well as the need to shift to a regenerative economy, a just minerals transition attempts to minimize or optimize, not maximize, the role of mining in a low-carbon future.

Without just minerals transition, the environmental and social costs of renewable energy will yet again be absorbed by poor nations who are already absorbing the impacts of the climate crisis. With the concept of "critical minerals," a new window to further open up poor nations to mining has been discovered, albeit under the banner of responsible or sustainable mining. They will end up not just supporting, but bearing almost the entire weight of the energy transition. Soon enough, poor nations will be accused of holding up the line to a full energy transition if they resist mining.

An even more disturbing scenario plays out when we examine where a huge chunk of the extraction of ETMs occurs. Spatial analysis estimates that 69% of ETMs projects occur on or are near indigenous peoples' or peasant lands.[9] In the Philippines, 60% of mineral deposits can be found in ancestral domains.[10]

Without a just minerals transition, mining for the energy transition will serve foreign energy markets and negatively impact national natural resources protection and sustainability, and energy sovereignty.

A newly industrialized country that is moving from an economy based on agriculture to one that is underpinned by manufacturing and services, the Philippines must consider its climate impacts. While its contribution to global warming is miniscule, its GHG emissions will quadruple in the energy sector by 2030 due to its growing economy, increasing urbanization, and motorization.[11] That it is one of the most climate-vulnerable countries in the world[12] should also give the government pause. Resource use must take all this into account. For renewable energy to be truly responsive to economic and social needs requires the socio-technical reorganization of systems.[13]

Facets of a Just Minerals Transition

An emerging field of inquiry, a just minerals transition has the following attributes, based on and synthesizing current literature: it is post-extractivist; it is based on justice; it integrates, but also recognizes the limits to circularity; and it reinforces accountability in mineral sourcing. It can be further expanded or nuanced as debates refine and test out its premises. It is mainly pitched in the logic of "indispensable extraction." [14]

• Post-extractivism

A just minerals transition works toward a post-extractivist future, recognizing mining for what it is: an essentially extractivist and, therefore, predatory undertaking.[15]

Drawing on various determinations, extractivism as an organizing concept "refers to a complex of self-reinforcing practices, mentalities, and power differentials underwriting and rationalizing socio-ecologically destructive modes of organizing life through subjugation, depletion, and non-reciprocity."[16]

While it recognizes the role of transition minerals (in the shift to renewable energy), it does not decontextualize mining and absolve it of its hand in the neocolonial, capitalist, and extractive global economic order. Instead, it firmly situates a discussion of transition minerals within the larger discourses of political economy. It hews to indispensable extraction, a concept "which proposes only the extraction of resources necessary to ensure wellbeing, while operating within ecological limits."[17]

Post-extractivism then does not mean prohibiting industries involved in extraction but limiting these to "those that are genuinely necessary, meet social and environmental conditions, and are directly linked to national and regional economic chains."[18]

A just minerals transition must also be grounded in the broader framework of resource sufficiency, which "creates wealth and quality of life, or a 'sufficient psychic income,' from the resources we can fairly and sustainably use."[19] It is about having a ceiling for unsustainable patterns, especially overconsumption, while promoting distributional justice where resources can meet everyone's needs.[20]

• Justice and Redistribution

A principle related to post-extractivism is the need for redistribution. If economic growth in the Global North remains universally accepted, it will only "perpetuate global and local inequalities and drive the demand for energy, metals, minerals, and biomass further, beyond the already breached capacity of the biosphere."[21] The premise of redistribution is to correct resource intensity which has powered the prosperity of rich nations.

Economic growth as an indicator is deficient, and redistribution corrects "social and economic injustice and the threat that extractivism and climate breakdown pose."[22] Informed by the ideas of "contraction" and "convergence," redistribution directs more energy, food, and public services to poor populations, while the elite across the Global North and South reduce their consumption.[23]

Under a just minerals transition, democratic minerals governance is vital: decision-making on mining rests with mining-affected communities. The concept of the "Right to Say No" is a developing handle which positions "consent as a central aspect of intersectional resistance against capitalism and patriarchy, as well as challenging colonial views of nature as a resource for the market."[24]

Finally, a just minerals transition must be rights-based, upholding the entitlements of communities. This early, companies engaged in transition minerals are repeating the same patterns of human rights violations for which the mining industry in general has racked up in disturbing abundance.

• Circularity

Circular economy could "halve global demand for certain minerals, like cobalt, lithium, and nickel, which are key to the clean energy transition."[25] It has been shown that it is 13 times cheaper to extract copper or gold from e-waste than it was to mine them, and, in China, a recycling company has been able to produce more cobalt in a year than all its mines combined.[26]

But the circularity of minerals is overstated: presently only 36% of the yearly demand for raw metal can be supplied by recycled metals, and at 70% if the metal has a high recycling capacity.[27] In fact, the concept of circular economy has been criticized as an oversimplification and could prove inadequate when operationalized.[28]

Circularity isn't in itself without use when integrated within a broader movement for transforming the global economy. Circularity in the minerals value chains must form part of a broader just minerals transition. In much the same way, the responsible sourcing of minerals, while important, cannot be a stand-alone effort.

- **Accountability in Mineral Sourcing**

The idea of "responsible minerals sourcing" suggests the practice of procuring raw minerals in a manner that respects human rights and protects human and environmental health. Various standards have been developed by the mining industry, and of late by businesses with non-government organizations. This was a response to the criticism against the industry for committing human rights violations and environmental degradation.

Such standard-setting mechanisms, however, are greatly limited by their voluntary nature, often awarded through certifications of compliance or good practice. The standards are, thus, directive rather than mandatory, and the repercussions for companies are mostly reputational rather than operational. State legislation is needed to provide teeth, ensuring accountability and genuine responsible mineral sourcing.

Every care must be undertaken to prevent mining companies from greenwashing responsible sourcing for transition minerals. In this sense, a just minerals governance must also be anchored in communities' right to self-determination and environment. Responsible sourcing cannot exist outside the social and ecological realms. When people's decisions and ecological limits are breached, responsible sourcing ceases to be. In no case shall responsible mineral sourcing be an end in and of itself. It cannot be divorced from all the other facets of a just minerals transition.

Recommendations

Just minerals transition is an important lens in articulating minerals governance in the Philippines, which has been identified in various critical and transition minerals mapping reports. The following specific recommendations chart practical and paradigmatic shifts to prepare the country for seismic shifts in transition minerals.

• Adopt a just minerals transition in the country's policy regulatory framework.

Legislation in support of a just minerals transition is necessary. Congress should pass the Philippine Mineral Resources Act (PMRA), also known as the Alternative Minerals Management Bill (AMMB), which proposes a transformation of the present minerals regime by balancing the need for minerals with environmental, social, and economic considerations. The bill is anchored in the climate justice discourse and rationalizes mining under a national industrialization framework, where only strategic minerals will be mined. It has an exhaustive list of no-go mining zones, and it puts decision-making in the hands of the community and local government units (LGUs). It also bats for comprehensive transparency and disclosure requirements. A just minerals transition can be adopted by the AMMB to harmonize it with the principles of climate and redistributive justice. One of the mechanisms would be a stringent supply chain transparency, including an integrity criteria, and accountability in mineral sourcing. It would also require a decision-making process that is informed by an assessment of the true costs and benefits of minerals extraction. And supplemented by the development of mining technologies to reduce the impacts of mining.

• Integrate just minerals transition in existing policy blueprints.

Government policy blueprints such as the Philippine Development Plan and the Philippine Energy Plan could be updated to include a just minerals transition. The proposed sunset review of the Renewable Energy Act could also interrogate the role of transition minerals. In including a just minerals transition, which proceeds from an "alternative to development" framework, the development or economic frameworks used by such blueprints would also need to be reconstituted. Such that not only energy security but demand reduction interventions are considered, in line with the principles of energy sufficiency and efficiency. An efficient energy system would imply greater material efficiency, and therefore, demand less energy minerals.

• Legislate local no-go zones.

Several no-go zone bills have been filed in Philippine Congress. In any case, there is another route, one that is perhaps even more promising, because it does not need an act of Congress. This is the creation of local ordinances that ban aspects of mining inimical to environmental considerations. No-go zones are a logical result of reconstituting the world away from extractivism.

INTRODUCTION

Despite climate change being a clear and present danger, political action remains frustratingly tepid. The challenge is enormous: global carbon emissions must be halved in ten years, breach Net Zero in the 2050s, and afterward sustain a net negative if the world is to see a 50% chance of limiting global warming to 1.5°C by the end of the century. [29]

The main driver of global warming isn't letting up: 80% of the world's current energy needs is still filled by fossil fuels. Manufacturing outputs remain a primary indicator of a country's national development index. The global construction industry growth is projected to be twice as much as it was in 2020 by 2030.[30] The transportation market is expected to grow at a compounded annual rate of 9.6% by 2026. As soon as the pandemic restrictions were eased, global emissions from the transport sector grew by 8% or approximately 7.7. Gt CO2.[31]

Human "development" has largely depended on industries, which in turn have depended on fossil fuels and other minerals for both power and infrastructure. Economies, thus, have been premised on energy, primarily through fossil fuels, and on large-scale industries. Thus, energy consumption continues to increase—in fact, it has never been higher. Meanwhile, our survival as a species hangs by a thread.

A newly industrialized country that is moving from an economy based on agriculture to one that is underpinned by manufacturing and services, the Philippines must consider its climate impacts. While its contribution to global warming is miniscule, its GHG emissions will quadruple in the energy sector by 2030 due to its growing economy, increasing urbanization, and motorization.[32] That it is one of the most climate-vulnerable countries in the world[33] should also give government pause. Resource use must take all this into account.

For renewable energy to be truly responsive to economic and social needs requires the socio-technical reorganization of systems.[34] The push for energy transition requires the reconfiguration of both the energy and extractive sectors, their networks, and services.[35]

The world consumes 100.6 billion tons of materials every year, of which only 3.2 billion tons are represented by metals (in 2019)—just 3% of total materials consumed.[36]

The table below shows industrial metals mined in 2019.

Metal	Quantity Mined (tonnes)	% of Total
Aluminum	62,900,000	30%
Manganese Ore	56,600,000	27%
Chromium Ores and Concentrates	38,600,00	19%
Copper	20,700,000	10%
Zinc	12,300,00	6%
Titanium (Titanium Dioxide Content)	6,300,000	3%
Lead	4,700,000	2%
Nickel	2,702,000	1%
Zirconium Minerals (Zircon)	1,337,000	1%
Magnesium	1,059,000	1%
Strontium	220,000	0.11%
Uranium	53,400	0.03%
Bismuth	3,700	0.002%
Mercury	2,400	0.001%
Beryllium	250	0.0001%
Total	207,278,486	100%

Figure 1: Industrial Minerals Mined in 2019. Source: Visual Capitalist. [37]

Iron is the world's most mined metal, representing 93.57% of all metals mined in the world in 2019. Meanwhile, 98% of mined iron ore goes into steelmaking. Industrial metals only represent 6.39%.

Metal/Ore	Quantity Mined (tonnes)	% of Total
Iron Ore	3,040,000,000	93.57%
Industrial Metals	207,478,486	6.39%
Technology and Precious Metals	1,335,848	0.04%
Total	3,248,814,334	100%

Figure 2: Most Mined Minerals. Source: Visual Capitalist. [38]

Mining is a profitable venture. Amid the pandemic, when other industries took a beating, mining profits soared. In the Philippines, while business and industries saw a downtrend, mining giant Nickel Asia saw 12% rise in net earnings[39] that had financial advisers betting on investing in mining stocks.[40]

Figure 3: Net Profit of the Top 40 Mining Companies, 2012-2021. Source: Mine 2022, A Critical Transition.[41]

The contribution of mining to national economies is also considerable as seen in the table below. Mining contribution is high (black) in Western, Southern and Central Africa, Oceania, Central Asia, and Latin America, while it is low (pale grey toward white) in Western Europe, Middle East, North Africa, and Japan. [42]

Figure 4: Mining Contribution Index (MCI-Wr) Score by Country 2016. Source: Mining's contribution to national economies between 1996 and 2016 [43]

The current minerals framework in the Philippines is articulated in the 1995 Mining Act (RA No. 7942). The legislation was passed to attract foreign investors, and to increase revenue and outputs from mining activities. It allows for 100% foreign ownership for specific minerals and for multiple tax incentives such as duty-free capital equipment imports, VAT (value-added tax) exemptions, among others. The Mining Act merely echoed the investment-centered, export-oriented track of the liberalizing national economic policy at that time.

However, the negative externalities from mining are often hidden and glossed over. In the Philippines, a 20-year trend survey (2000 to 2021) of real regional GDP contribution of mining and quarrying saw a range of 1.8% to 2.9%, with an overall contribution to the national GDP at less than 1%.[44]

The economic tradeoff to the environmental costs of mining is bloated. In mining areas, the "company town" syndrome is prevalent: there exists little economic activity that is independent of the mining operation.[45] In the Philippines, for example, an analysis found that mining did not significantly contribute to alleviating poverty in two mining provinces.[46] Despite promises of generating local employment, mining does not actually promote local employment; skilled workers flock to mining projects, edging out locals.

This economic data must be further foregrounded by the host of potential impacts embedded in the very practice of mining. Hazards from mining waste alone are manifold, as can be seen in the figure below.

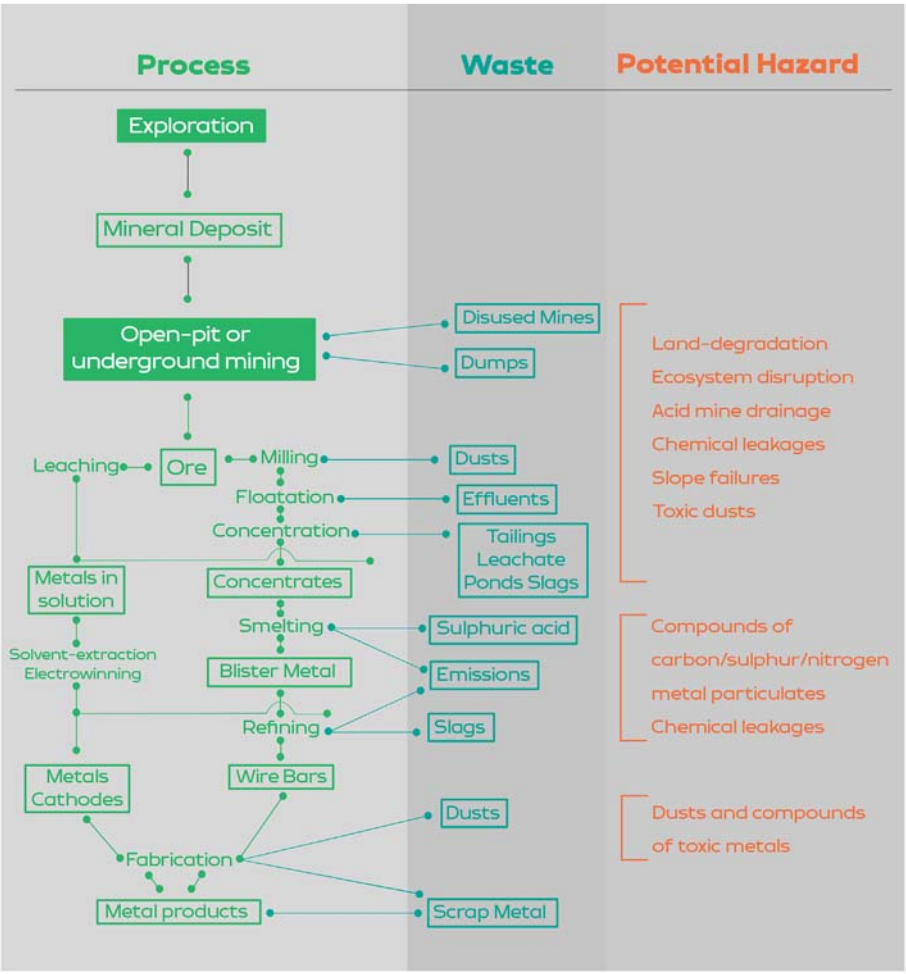

Figure 5: Negative Impacts of Mining. Source: Mining and the Environment[47]

In terms of biodiversity, mining has impacts across local, landscape, regional, and global sites, as can be seen in the table below.

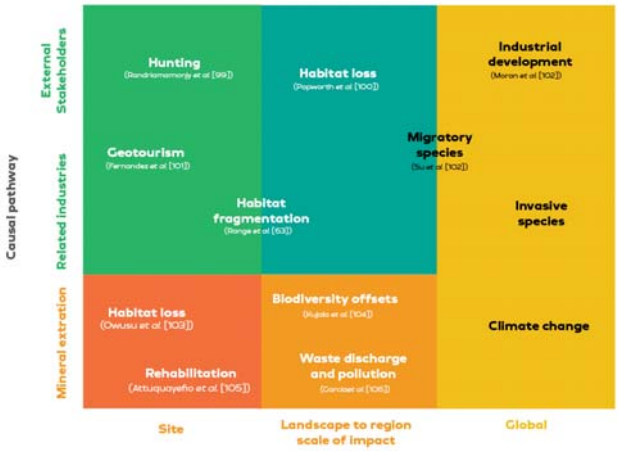

Figure 6: Mining Impacts on Biodiversity. Source: Mining and Biodiversity: Key Issues and Research Needs in Conservation Science[48]

There are documented cases where mining operations have permanently removed entire ecosystems.[49] Approximately 8% of the global area potentially impacted by mining overlapped with protected areas.[50] It seems obvious that to conserve biodiversity, encroachment activities — which result in habitat loss, degradation, and fragmentation — must be reduced.[51] In the Philippines, environmentally critical projects (ECPs), or projects appraised to have significant risks of negative environmental impacts under the country's environmental impact assessment system (majority of which are mining operations) have a direct footprint of over half a million hectares of landscapes. These overlap with registered indigenous ancestral domains, which are the among the last bastions of biodiversity in the country.[52]

Around 7% of global deforestations is driven by mining.[53] Mining has both direct and indirect effects on forests. In fact, indirect and cumulative impacts are much more concerning, as road and infrastructure are built and economic activities such as logging expose forests.[54] A World Bank study found that 3,300 mines across the world resulted in forest loss and degradation within 50 km of most of the mines, reaching up 100 km in some areas.[55] This translates to roughly 10% of global forests being affected by working large-scale mining projects, and a third of planned or non-operational mines are included.[56] In less than a century, Philippine forest covers saw a 83% decline due to mining and logging.[57] The table below gives a snapshot of MFAs (mining in forest areas) across the globe.

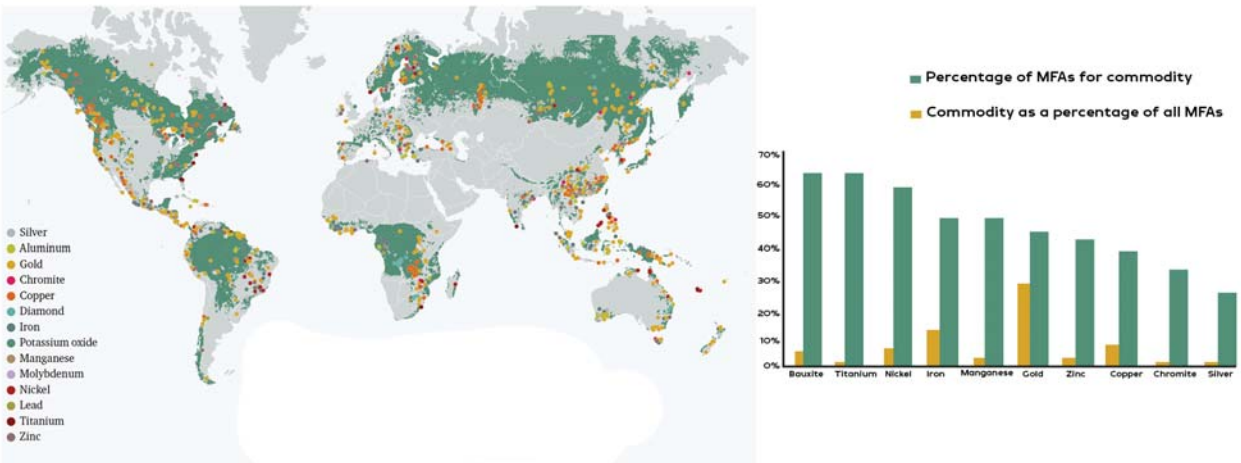

Figure 7: Mining in Forest Areas Across the World. Source: Chatham House.[58]

Mining has a high water footprint and could threaten the water sources of communities where water is already scarce. Water needs to be drained with underground mining, which affects ground water supply and surface water, or even pollutes rivers.[59] A study that projected the impacts of a large-scale open-pit mining project in the Philippines found the mining excavation will necessarily break into, disrupt, and degrade the aquifer in the area, causing the loss and pollution of the water source of over 100,000 thousand farmers, not including the communities further downstream.[60]

Mining displaces people from their communities and their lands, as well as their traditional livelihoods, such as farming, fishing, and small-scale forestry. Such is the destructiveness of mining to the landscape that "little in the way of traditional rural life is liable to survive in its vicinity."[61] Moreover, human rights abuses, owing to the resistance of communities to large-scale mining projects, are rife in mining areas.

The 2021 Responsible Mining Index found that only two international mining companies scored above 50%, already a low bar, when 59 human rights-related metrics were averaged.[62]

Figure 8: Human Rights Scorecard of Select Mining Companies. Source: Responsible Mining Foundation.[63]

In the Philippines, based on available data, 16 out of 43 environmental defenders killed in 2019 were linked to the extractives sector, where half of these deaths was carried out by state forces.[64] In 2016, a third of the deaths was related to extractives.[65]

Mining is also an energy guzzler, consuming up to 10% of the world's energy.[66]

Of late, the mining industry has even become bolder, exploring new frontiers — the ocean floor. Mining companies, challenged with regulations and opposition that make terrestrial mining a challenging endeavor, are exploring deep sea mining, especially in developing countries with weak regulatory mechanisms. It is estimated that more cobalt, manganese, and nickel can be found in the Clarion-Clipperton Zone (CCZ), which covers Hawaii to the Baja California Peninsula, than on land.[67] With profit projected to grow from a 2020 figure of US$650 million to US$15.3 billion by 2030 at a compounded annual growth rate (CAGR) of 37.1%,[68] there is great interest to mine the ocean floor. [69]

Tagged as "the biggest land grab in the history of humankind,"[70] deep sea mining has rung alarm bells for threatening ocean system stability. Much is yet to be understood of oceanic systems and the impacts of deep-sea mining projects and their potential for large-scale destruction.[71]

But what is perhaps a more pressing facet to mining which should complicate its role in energy transition is its own share of carbon emissions. Approximately 8% of global carbon emissions is due to mining.[72] The figure rises to 28% when other indirect emissions from mining are factored in.[73] The manufacture of iron and steel represents 90% of total emissions from the sector; the refining and smelting process can rack up 99% of total emissions.[74]

Understanding the Current Mining Regime as Extractivism

Mining's ideological roots can be traced to extractivism, defined as an "un-ecological and anti-social model fueled by the unstainable exploitation of nature," which was birthed by colonialism and supported by the conception that the earth and people, especially less powerful ones, were resources to be exploited to benefit a few.[75]

The origins of mining can be traced to prehistoric times, but it took off with Mediterranean civilization. In the rise of colonial Europe, mining became tied with the colonial project. Mineral wealth from the New World eventually funded the Renaissance.[76] Colonialists saw the New World as a frontier of resources to be exploited for the modern state project and to further the capitalist model of development.[77]

Today, mining has become an indispensable tool for inhabiting the world; metals are widely considered the "building blocks of the global economy."[78]

More technically, drawing on various meanings, extractivism as an organizing concept refers to a "complex of self-reinforcing practices, mentalities, and power differentials underwriting and rationalizing socio-ecologically destructive modes of organizing life through subjugation, depletion, and non-reciprocity." Extractivism depends on processes of centralization and monopolization, is premised on capital accumulation, and includes diverse sector-specific development and resistance dynamics.[79]

Most rich nations are thus "net importers of nature and the 'underdeveloped' are net exporters of nature," galvanizing primary-export accumulation and extractivism itself. [80] This could only be the result of the various effects of political and economic dependency on resource exploitation.

Eduardo Gudynas prescribes two conditions for characterizing extractivism in minerals, usually occurring at the point of extraction at the national or local level: when it is primarily export-oriented (where at least 50% of what is mined is exported), and when it has a high volume and/or intensity. [81]

Another definition speaks, this time from a global extractivism(s) perspective, of total extractivism, or "the insatiable imperative which drives global techno-capitalism to consume and encompass all life."[82] In this vein, global extractivisms "denote a more nuanced understanding of global colonialities, beyond the traditional core – periphery dynamics."[83]

Extractivism goes beyond the extraction of resources and engenders a way of conducting in the world, a practice of doing business so to speak.[84] Ecofeminists, for example, point out how colonizers framed indigenous people's ancestral lands as "terra nullius," or empty land, to justify the former's claims on them.[85]

MINING AND THE ENERGY TRANSITION

Both a process and a paradigm, energy transition is premised on the transition from a stock energy system to a more sustainable flow energy system. The dominant narrative for transition is premised on the necessity for energy sobriety, efficiency, and renewable energies.[86]

There are fears that the mining industry has hyped up the role of metals in the production of renewable energy, to justify more extractive activities. The Philippine Nickel Industry Association, for example, has stated the importance and urgency of increasing the supply of minerals to produce metals for renewable energy infrastructure and machineries to combat the climate crisis.[87] Mining profit, particularly for nickel, rose during the COVID19 pandemic when most industries took a downturn.

In the table below, the World Bank projects a dramatic increase in demand (over 3 billion tons) for minerals in the transition to renewable energy up to 2050, using 2-degree scenario (2DS) and beyond-2-degree scenario (2DS) technology scenarios. This scenario sets the stage for the push to increase investments in and expand mining projects.

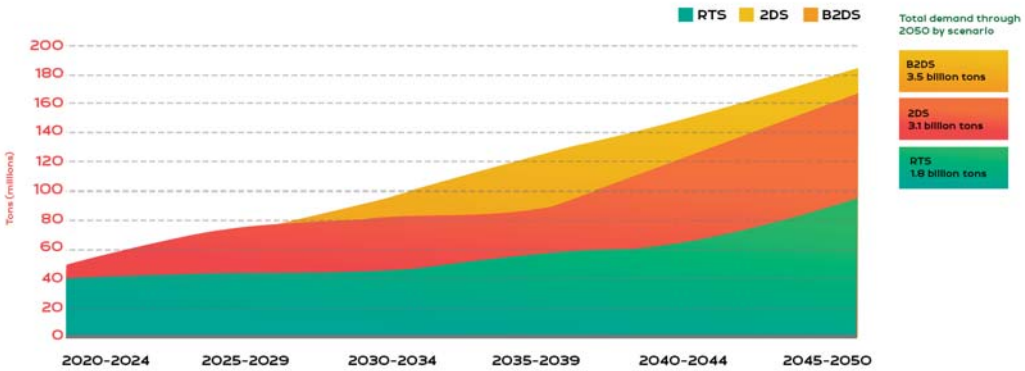

Figure 9: Projected Annual Average Demand of Minerals Up to 2050 Under the IEA Energy Technology Perspective Scenarios. Source: World Bank.[88]

Transition minerals are deemed "critical minerals," when viewed geopolitically. Critical minerals possess two distinguishing features: they are "essential" to the economy and national security, and their supply chains are at high risk of disruption.[89] A mineral's criticality, which changes over time, depends on supply and social needs.[90]

In terms of market value, transition minerals will overtake coal in the next two decades, with copper taking the lion's share. While not in the same category as critical minerals, steel will be an integral part of the transition as an infrastructure material.

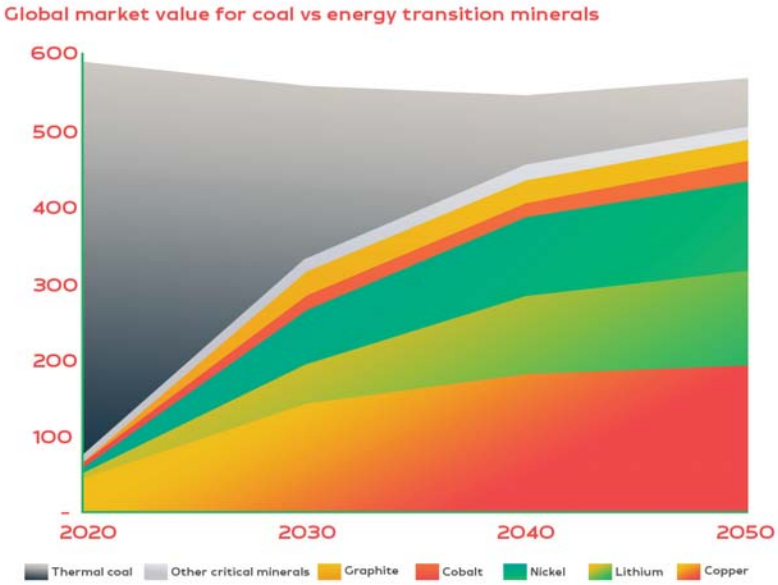

Figure 10: Global Market Value for Coal vs. Energy Transition Minerals. Adapted From the International Energy Agency.[91]

Interest in transition metals will surge to feed various renewable technologies. The table below captures select metals required per energy source.

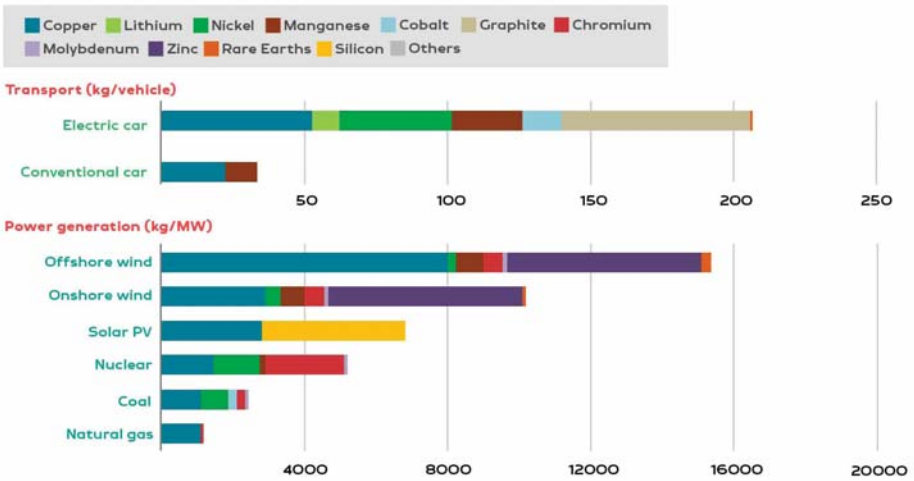

Figure 13: Minerals used in selected clean energy technologies. Source: International Energy Agency.[92]

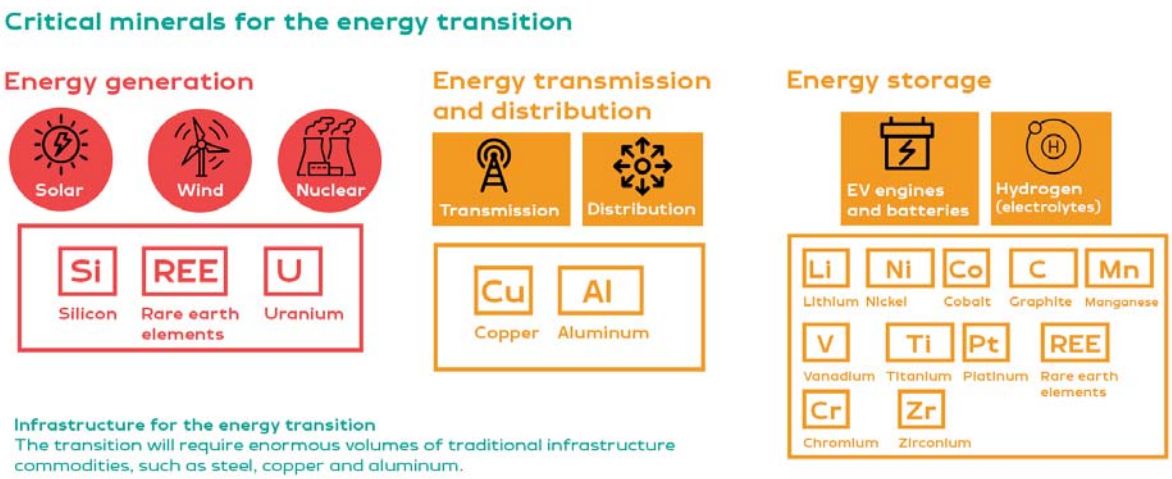

Figure 11: Critical Minerals for the Energy Transition. Source: Mine 2022, A critical transition. [93]

But criticality might be counterintuitive: in the mining industry's eagerness to facilitate supply flows, governments might compromise safeguards, ultimately affecting "procedural justice and human rights protections at the source of extraction."[94] Criticality could end up being a smokescreen for "green extractivism" and for maintaining dominance in the global order.

To reach the goals set by the Paris Agreement, mineral requirements for renewable energy technologies would need to be quadrupled by 2040; a faster transition to Net Zero by 2050 would need six times more minerals in 2040 than in 2022. [95]

Countries rich in "green energy minerals" were identified in a USAID report. In the table below, the countries are listed with the corresponding number of transition minerals present. (These are countries where USAID has a presence.) The Philippines has five. All the countries come from the "developing" world.

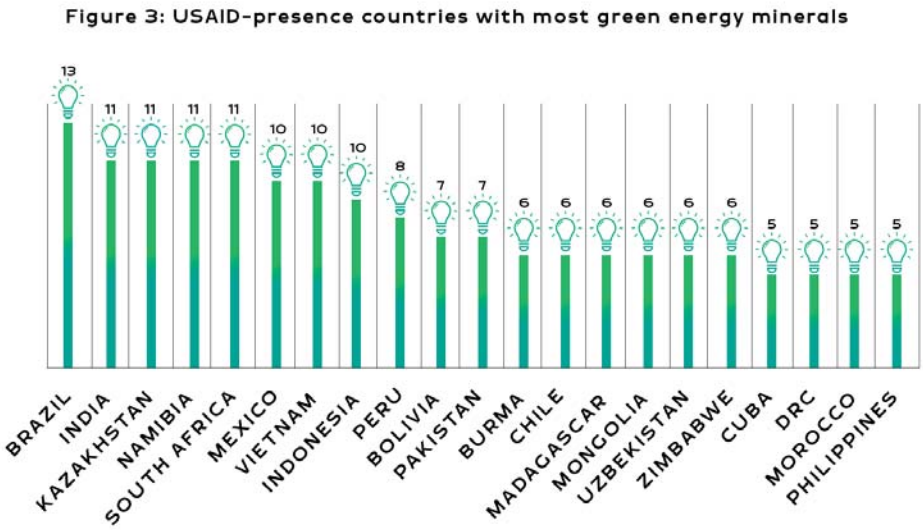

Figure 12: USAID-presence countries with most green energy minerals.
Source: Mining and the Green Energy Transition, USAID.[96]

In fact, the Philippines is the fifth most mineralized country in the world.[97] The Mines and Geosciences Bureau (MGB) eyes a whopping nine million hectares, out of the country's total land area of 30 million hectares, as having "high mineral potential."[98] As of January 2022, only a sliver — 2.55% or 764,357.3211 hectares — of its total land area has mining tenements.[99] The value of its reserves is around 8.91 trillion US dollars.[100] According to one estimate, 60% of mineral deposits can be found in ancestral domains.[101]

In light of the COVID-19 pandemic, the previous administration announced that it would pursue mining as an economic recovery strategy, a line echoed by the newly sworn-in president, saying that the country "should maximize natural resources for recovery."[102]

In 2020, the Philippines was the second largest supplier of nickel at 14%. Used in all clean energy technologies, nickel is increasingly becoming one of the transition minerals for the transition to renewable energy.[103] The country also has 4 billion MT of copper (another transition mineral for electric vehicles and power distribution), making it the world's fourth largest copper reserve.[104] It also has the fourth largest reserve of cobalt, which is used in the production of electric cars and EV batteries.

The Department of Trade and Industry (DTI) "envision[s] that...one or two large world-class copper mines (particularly Tampakan) are developed and starts production."[105] As of this writing, the Tampakan Gold-Copper Project (TGCP) is all but ready to operate, save for a local environmental ordinance provision banning open-pit mining, which had been lifted by the provincial council but eventually vetoed by the governor. All eyes are on TGCP, which has been mired in allegations of human rights violations since its inception years ago, including the killing of then-pregnant Juvy Capion and her two sons in a purported military operation against Daguel Capion, Juvy's husband.[106] The prospective mine site can be found within a high biodiversity area and a watershed.

For the Philippine Board of Investments, the economy can be aligned with 26th Glasgow Conference of Parties (COP26) results by "greening the supply chain...[and] for the Philippines to process critical minerals, including green metals where the Philippines has relative abundance such as nickel, cobalt, and copper."[107] The Board, however, does not have a blueprint for how the supply chain can be made green nor a mechanism to ensuring this.

But some civil society organizations (CSOs) aver that the need for mining is overstated and is merely a tactic to greenwash mining. The contention is that mining isn't inevitable with energy transition; it is a fundamental contradiction within climate mitigation and it doesn't see extractivism as a flawed model held up by injustice.[108]

The challenge lies in the scale and practice of the transition to a less energy-intensive and, thus, to a less minerals-intensive economy. Because the energy transition's technologies are actually more material intensive than fossil-fuel-based energy supply systems.[109] For example, in a study on the full transition for using solar and wind for ground transport and for producing hydrogen for aviation and chemical processes, "the resulting demand for nearly every mineral, including common ones such as copper, nickel, graphite, and lithium, would exceed not just existing and planned global production capabilities, but also known global reserves of those minerals."[110]

CURRENT MINING FRAMEWORKS

Several variants have emerged to rationalize the role of mining within sustainable development and climate action discourses.

One of the first variants is **sustainable mining**, or minimizing the negative effects of mining while ensuring that extraction does not exceed source thresholds. But sustainable mining quickly faded since it could not assure a net positive value once social and environmental costs are factored into mining.[111]

Responsible mining has emerged as a more defensible framework for managing minerals. The International Union for the Conservation of Nature (IUCN) has a set of guidelines for responsible mining. It includes transparency in the metal value chain, involving communities in mining development, and ensuring mines yield net benefits; transparent and robust laws and regulations; companies submitting to world standards; and clear agreements on site restoration.[112] The IUCN proposes that responsible mining can "minimize the loss of biodiversity and ecosystem services and to achieve a sustainable energy transition." [113]

An earlier iteration of responsible mining proposed eight principles, as follows: (1) Social and environmental assessment; (2) Transparency; (3) Acceptance by stakeholders; (4) Food production trumps questionable mining; (5) Compliance with international standards; (6) Corporate prequalification; (7) Insurance and performance bonds; and (8) Royalties, taxes and fees.[114]

According to its proponents, the Initiative for Responsible Mining Assurance (IRMA) provides a "comprehensive standard that defines best practices during mineral exploration and development, prior to the operational phase of a mine."[115] The IRMA-ready standard is presently at the consultation phase with stakeholders.

The IRMA Standard for Responsible Mining looks at four key aspects: (1) business integrity; (2) planning and managing for positive legacies; (3) social responsibility; and (4) environmental responsibility. Each facet contains more specific assessments. For example, business integrity covers legal compliance, community engagement, grievance mechanism, and access to remedy, and revenue transparency. Under planning for legacies, resettlement, emergency preparedness, free, prior, and informed consent (FPIC), and other aspects are included. Social responsibility covers fair labor, cultural heritage, occupational health and safety, security arrangements, etc. Finally, waste management, air quality, cyanide, mercury management, greenhouse gas emissions, and biodiversity, ecosystem services and protected areas are tackled in environmental responsibility.[116]

The Responsible Mining Foundation (RMF) published the Responsible Mining Index before it closed in 2022. The RMI was a biennial report on the policies and practices of some of the world's largest mining companies, focusing on the six aspects of economic development, business conduct, lifecycle management, community wellbeing, working conditions, and environmental responsibility.[117] The RMF recognized the importance of situating mining within sustainable development, and the independent audit of mining firms especially with the energy transition.

The responsible mining frame attempts to provide safeguards against destructive large-scale mining inasmuch as mining as an activity cannot be totally eliminated. The RMF premises this on the contemporary individual's lifeways, stating, "As consumers and taxpayers, we are all responsible for the persistence of extractives as an industry – without our lifestyle expectations and socio-economic and political choices, mining as an industry and the manufacturing supply chain would not exist."[118] Positing mining as a necessary evil, proponents of responsible mining as a framework are seeing it as a potential standard that could be adopted as a new minerals governance regime.

However, as with any paradigm, its meaning can be shorn of its original intent. In the Philippines, for example, responsible mining has become coopted by the industry as a shorthand for the existing national law on mining, the 1995 Mining Act, which is deficient on several fronts. The law, for example, is silent on allowing mining in critically important areas such as heads of watersheds, key biodiversity areas (KBAs), and critical habitats, among others. Hatched in the 1990s, the 1995 Mining Act was born of trade liberation as an economic strategy. As such, it supports a purely export-oriented minerals regime. Many other controversies and nuances hound responsible mining. CSOs are batting for a legal definition of responsible mining, or an alternative paradigm, which outlines the characteristics of a minerals regime at whose center is social and environmental justice.

Climate-smart mining, advanced by the World Bank, has surfaced as another policy framework for minerals governance, this time explicitly within the energy transition.

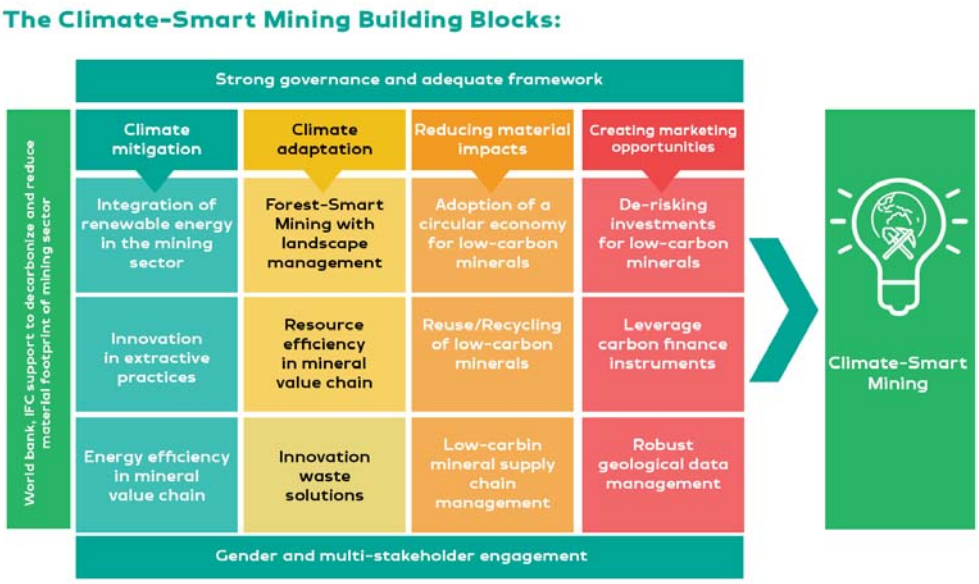

Figure 13: Climate-Smart Mining Building Blocks

Anchored in the UN Sustainable Development Goals, climate-smart mining, in particular, is geared toward helping poor nations with rich mineral deposits to benefit economically while minimizing environmental and climate impacts.[119]

At its core, climate-smart mining believes in the "sustainable extraction and processing of minerals and metals to secure supply for clean energy technologies by minimizing the social, environmental, and climate footprint throughout the value chain of those materials." [120]

Climate-smart mining includes subscribing to circular economy for low-carbon minerals and the use of renewable energy in mining.

A sub-component of climate-smart mining is **forest-smart mining**, which looks at the links between mining and forests and other land uses with a view to minimizing damage and loss.[121]

It follows a mitigation hierarchy for mining projects: 1) avoid negative climate impacts and biodiversity loss; 2) minimize actual impacts and losses; 3) rehabilitate and restore forest cover and biodiversity when losses aren't prevented; and 4) offset negative impacts through substitution or compensation.[122] Its overarching frame is "commitment to no net loss of forest cover, or even by a commitment to net gain where there is potential for reforestation or afforestation." [123] Because of its broadness, the forest-smart approach moves from the higher end of the hierarchy, such as idea of "no-go" mining zones, to the lower end, which includes carbon and biodiversity offsets.[124]

Because of the said features, climate-smart mining has also been considered "green mining," and is also known as Green and Climate-Smart Mining (GCSM). By its own admission, the World Bank believes meeting the soaring demand for minerals for securing a low-carbon future "lies in mineral-rich countries in the developing world." [125]

In terms of the transition mineral lithium, for example, two-thirds of known reserves can be found in what is known as the "Lithium Triangle," made up of Argentina, Bolivia, and Chile.[126] The largest cobalt reserves are concentrated in the Democratic Republic of Congo; bauxite reserves, in Brazil, Guinea, Indonesia, and Jamaica.[127] Between 10% and 30% of known reserves of nickel are found in New Caledonia.[128] As revealed in the preceding USAID report, at least 13 transition minerals are concentrated in 21 countries — all from the "developing" world.[129]

As such, an estimated $1.7 trillion in investments is needed to power minerals extraction for renewable energy;[130] a portion of this investment, the Bank believes, could be directed to low- and middle-income countries and "contribute to economic growth, jobs, and local development."[131]

In other words, the environmental and social costs of renewable energy, under climate-smart mining, will be absorbed by poor nations, who are already absorbing the impacts of the climate crisis. With the concept of transition minerals, and especially with the more loaded term, critical minerals, a window has been discovered to further open poor nations to mining, not merely to support, but to bear almost the entire weight of the energy transition. As can be seen below, a handful of transition minerals can be found in the developing world.

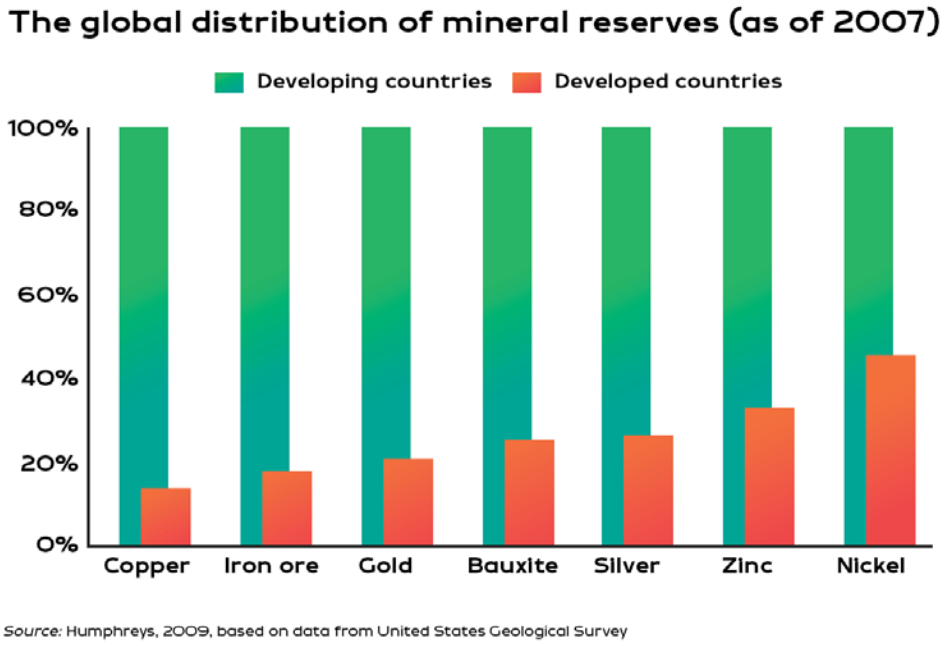

Figure 14: Global Distribution of Mineral Reserves (as of 2007). Source: United Nations.[132]

More specifically, in Figure 15, of the twelve (12) countries with the highest mineral deposits of copper, lithium, nickel, cobalt, and rare earth elements, six (6) are from the Global South: DRC, China, Indonesia, Peru, the Philippines, and Myanmar.

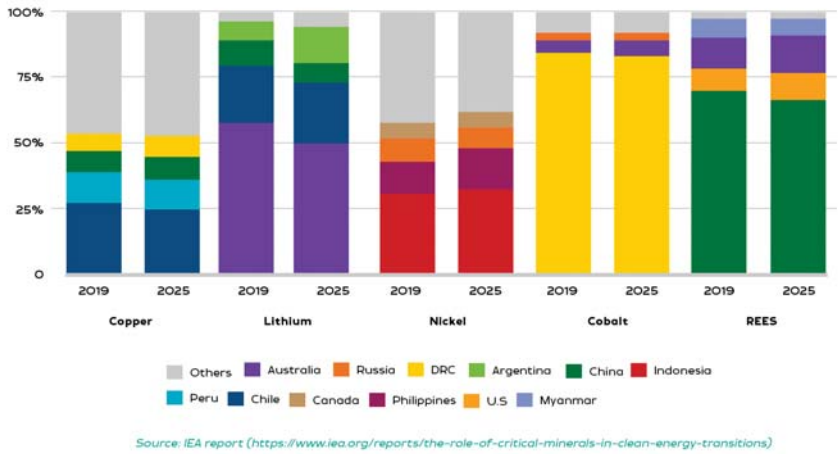

Figure 15: Projected Production of Critical Minerals. Source: Wilson Center.[133]

China alone produces 18 transition and critical minerals,[134] including most of rare earth elements.

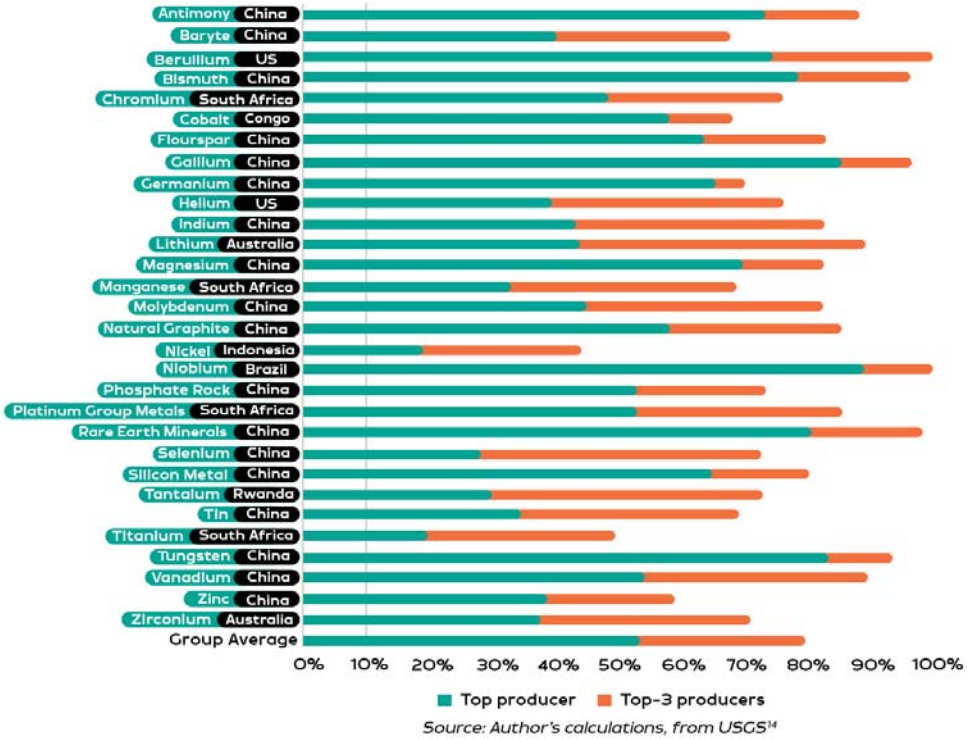

Figure 16: Critical Minerals Market Share by Leading Producers, 2017. Source: Critical Minerals for the 21st Century Indo Pacific. Perth USAsia Center[135]

Soon enough, poor nations will be accused of holding up the line to a full energy transition if they resist mining.

An even more disturbing scenario plays out when we examine where a huge chunk of the extraction of ETMs occurs: indigenous peoples' and peasant lands. Spatial analysis study estimates that 69% of ETM projects occur on or near indigenous peoples' or peasant lands.[136]

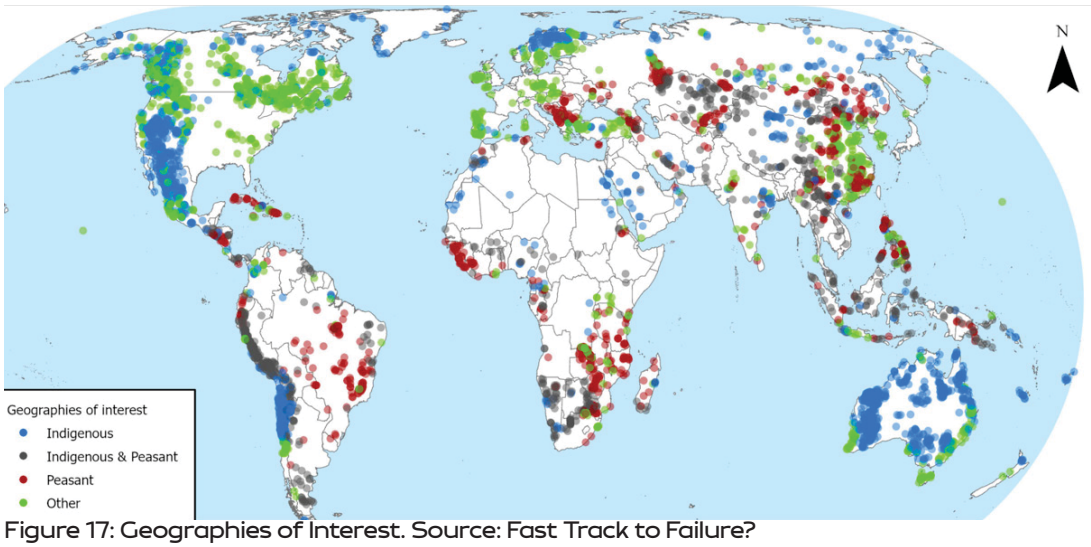

Figure 17: Geographies of Interest. Source: Fast Track to Failure?

Further, the study found that more difficult conditions exist within these jurisdictions,[137] and transition minerals could merely exacerbate these:

> *Some 34% of ETM projects on Peasant land are located near a recent violent conflict, compared with 20% of ETM projects globally. Meanwhile, 70% of projects on Indigenous Peoples' land, and 81% of projects on Peasant land are in food insecure areas, compared with 60% of projects globally. Then, 79% of projects on Peasant land are in gender unequal jurisdictions, compared with 56% of projects globally.*[138]

In the Philippines, environmentally critical projects (ECPs), dominated by mining, overlap with or are close to indigenous peoples' territories: 49% of mining projects in the Philippines conflict with registered ancestral domains (without yet accounting for those under Native Title claims).[139]

Transition minerals could end up being neocolonialist and instrumentalized under the banner of "green extractivism."

JUST MINERALS TRANSITION

In 2017, El Salvador made history as the first country in Latin America to ban metal mining. The government had issued a moratorium on new mining licenses over water concerns in 2008. Mining firm Pacific Rim (later acquired by OceanaGold) appealed the decision at the World Bank's International Center for the Settlement of Investor Disputes, claiming damages of $315 million. The Bank ruled in favor of El Salvador, ordering Pacific Rim to pay $8 million in legal costs. When the company refused to pay, movements used it to push for and eventually secure a legislative ban on mining.[140]

El Salvador is one of a handful of countries or territories which have banned mining or specific minerals.

Country/Territory	Year	Types of mining
Antartica	1998	All mining
Costa Rica	2010	Open-cast mining
El Salvador	2017	All metal mining
Kyrgyzstan	2019	Radioactive minerals
Spain	2021	Radioactive minerals
Northern Territory (Australia)	2021	Deep-sea mining
Cuenca (Ecuador)	2021	All metal mining

Figure 18: Mining Bans Worldwide. Source: War on Want.[141]

While these countries or territories have abandoned mining, the reverse is true for most of the world, moving toward more mineral intensity to power the energy transition.

An emerging field, a just minerals transition is as of yet an iterative undertaking. This paper references and synthesizes current proposals, mostly from civil society, on just minerals transition. The concept of just minerals encompasses robust mining laws, circular economy, and responsible minerals sourcing.[142] Demand reduction, less harmful sourcing, and better regulation are the proposals of civil society actors.[143]

If mining isn't situated within just transition, it will perpetuate extractivism albeit using a clean source of energy and risks replacing a civilization system based on fossil fuel with a "green" version of the same model.[144] At the core of these proposals is the shift from the extractive economy (powered by fossil fuels) to a regenerative economy.

In the Philippines, movements propose an alternative minerals governance regime that, recognizing the inherent destructiveness of mining, allows mining under only stringent conditions, including nationalization. Together, these, as well as other policy handles, begin to draw the outlines of a just minerals transition.

Facets of a Just Minerals Transition

Just transition has many iterations. It ranges from the modest goal of reskilling affected workers and repurposing industries to "greening the economy." Its origins can be traced to the labor movement to provide funds and opportunities for workers who would be displaced by policies protecting the environment in the 1970s and later with labor unions forming alliances with environmental groups in the 1990s.

To begin with, just transition is about the transformation of the energy system itself, based on the rights of workers and communities and goes beyond technology to the root causes of a system which commodifies energy.[145] The Paris Agreement articulates the imperative for a just transition.

It also involves the transformation of the economic system that the energy system (em) powers, challenging economic and political power to make the switch from a purely extractive economy to a regenerative one.[146] Simply put, just transition makes the proposal that an economy to be truly healthy should be founded on healthy communities living in a healthy environment. Just transition, therefore, challenges existing dominant paradigms of energy processes — its generation and consumption, which are underpinned and largely governed by private capital and investments.

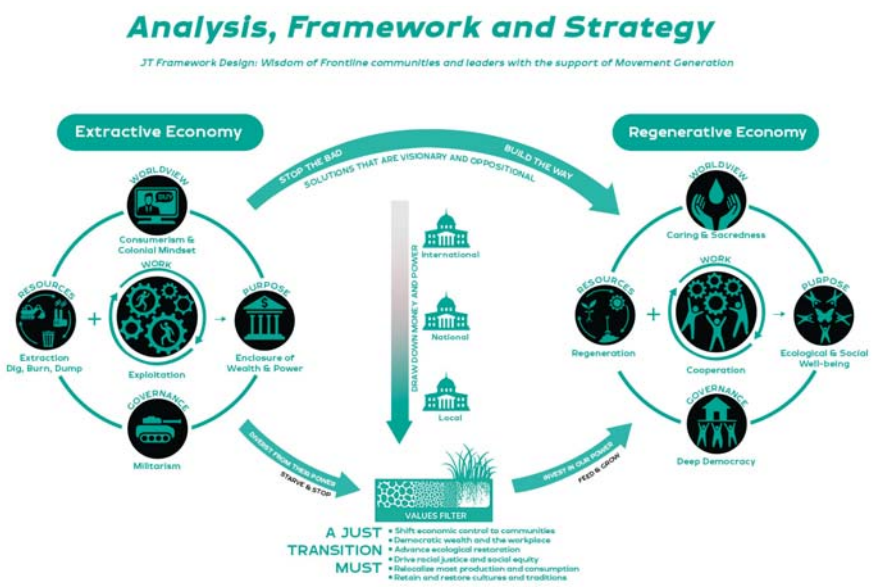

Figure 19: Just Transition Framework Design. Source: Climate Justice Alliance[147]

In this model, a regenerative economy is proposed, meaning, inter alia, the redistribution of resources and power to communities, the transformation of the food system, ecosystem restoration, and the prevalence of a deep democracy where decisions are made by people[148] such that energy sovereignty, cultural appropriateness, and gender – just implementation are given primacy.

Framed another way, this means economic justice, which must work in parallel to climate justice, to achieve equitable and thriving societies. In sum, it counters the accumulative and profit-centric modes of doing business, and the idea of economic efficiency that the benefits will "trickle down" to everyone.[149]

The World Bank contends that economic growth, the yardstick which measures capitalism's success, is responsible for reducing extreme poverty rates, especially in developing countries. As of April 2020, the World Bank cites recent estimates which find that 10% of the global population lived at or below $1.90 a day in 2015, a significant drop from 36% in 1990.[150]

The Bank found that 10% increase in economic growth, using median income as a measurement, results in a poverty reduction rate of 21.2%.[151] Meanwhile, Credit Suisse says that, in 2019, while the world's wealthiest did see their fortunes rise, so did the world's poor see their situation improve: the bottom 90% of global wealth-holders' share increased from 11.5% in 2000 to 18.3% in 2019.[152]

These figures, however, do not contend with negative environmental externalities.

The COVID-19 pandemic, which is an ecological disaster, illustrates the huge cost of this economic design. The Asian Development Bank estimates economic losses from the pandemic between $5.8 trillion and $8.8 trillion globally, depending on containment scenarios.[153] Climate change, a product of rapid industrialization, has also exacted its toll on the global economy: climate-affected countries reported direct losses of $2.908 trillion between 1998 and 2017. [154]

Environmental policymaking today is informed by policy and institutional choices that consider the environment and "deviate from original notions of neoliberalism,"[155] covering an entire gamut of practices, from renewable energy to biodiversity protection. However, the International Monetary Fund (IMF) itself has admitted to the shortcomings of neoliberalism: the benefits of growth are difficult to posit when real-life country experiences are examined; growth leads to inequality; and inequality is ultimately harmful for growth.[156] As an illustration, the latest iteration of Oxfam's annual report finds that the top 1% have captured almost 20 times more of the world's wealth compared to the bottom 50%.[157] Distressingly, inequality is partly the reason for one person dying every four seconds. [158]

Economic growth is therefore deficient. On the other hand, economic justice aspires to transform the global economy by (1) providing public services for all through tax justice; (2) scaling up economies based on social ownership and cooperativism; (3) supporting local markets and fair trade; (4) valuing and measuring the wellbeing of people and planet; and (5) ensuring binding rules to dismantle the power of big business.[159]

A just transition must also be feminist so that it does not intensify the stranglehold of patriarchy and gendered exploitation. It is an "opportunity to transform gender norms, to spur social investment towards infrastructure and services" that correct traditional household and care work arrangements. [160]

In identifying the facets of a just minerals transition, recommendations toward articulating the role of transition minerals in the just transition are proposed. An emerging discourse, it can be further expanded or nuanced as debates refine and test its premises.

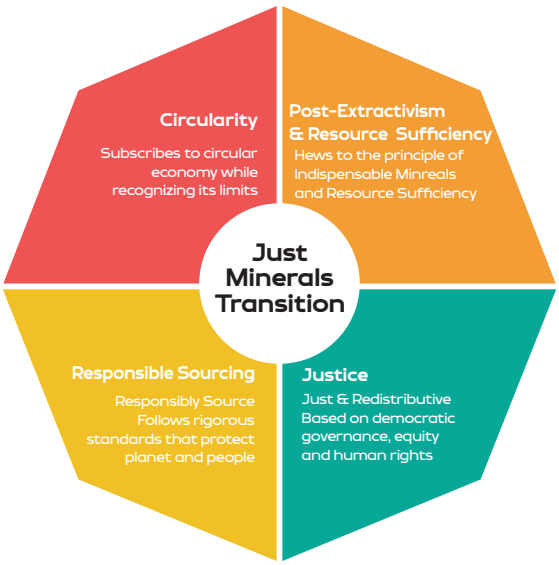

Figure 20: Proposed Elements of a Just Minerals Transition.

Post-extractivism. A just minerals transition begins with the recognition that mining is essentially extractivist:

> *There is no good extractivism or bad extractivism. Extractivism is what it is: a set of activities to massively extract primary resources for export, which, within capitalism, becomes a fundamental element of the modality of primary-export accumulation. In this sense, extractivism is essentially predatory, like capitalism.*[161]

As such, just minerals transition works toward a post-extractivist future. Post-extractivism as a proposal is a reference to a way of doing — the conduct of economic and political activities that divest dependency from the exploitation or extraction of resources and their commodification, recognizing the finitude of resources.[162] CSOs propose a post-extractivist transition map, emphasizing the strategies of community resistance, challenging corporate power, and redistribution toward a material transition.[163, 164, 165]

While a just minerals transition recognizes the role of transition minerals, it does not decontextualize mining and absolve it of its role in the neocolonial, capitalist, and extractive global economic order. Instead, it firmly situates a discussion of transition minerals within the larger discourses of political economy. Thus, a just minerals transition, at its core, is premised on the foundational concept of "indispensable extraction" developed by Eduardo Gudynas.

Where the mining of transition (and critical) minerals is concentrated in poor nations, mining for renewable energy will be a neocolonialist undertaking sustaining an imperial mode of living in the Global North.[166] A just minerals transition traverses from "predatory extractivism" to "sensible extractivism," wherein "each country's social and environmental laws are fully complied with, under effective and rigorous controls, and where the impacts are internalized."[167] Eventually, this leads to indispensable extractivism or extraction, "which proposes only the extraction of resources necessary to ensure wellbeing, while operating within ecological limits."[168] This is the complete trajectory of post-extractivism:

Figure 21: The Trajectory of Post-Extractivism.

Post-extractivism then does not mean prohibiting industries involved in extraction but limiting and anchoring these in: what are genuinely necessary; social and environmental standards; and a direct link to national and regional economic needs.[169]

Post-extractivism is necessarily tethered, not in "alternative development," but in "alternatives to development," which "challenge the whole conceptual basis of development, its ways of understanding Nature and society, its institutions, and its discursive defenses."[170] It follows the earlier discussions on regenerative economy and economic justice versus neoliberal fundamentalism as well as mainstream sustainable development.

A just minerals transition must also be grounded in the broader framework of resource sufficiency, which "creates wealth and quality of life, or a 'sufficient psychic income', from the resources we can fairly and sustainably use."[171] It is about having a ceiling for unsustainable patterns, especially overconsumption, while promoting distributional justice where resources can meet everyone's needs.[172]

In contrast, resource efficiency is about "achieving higher outputs with lower inputs and can be reflected by indicators such as resource productivity (including GDP/resource consumption)."[173] In terms of the global economy, efficiency means optimizing systems of production and consumption relevant to the use of resources, including dematerialization and re-materialization approaches,[174] or technological advancements.

But, thus far, there is no credible evidence which shows "that absolute decoupling from resource use can be achieved on a global scale against a background of continued economic growth,"[175] through these advancements.

Concretely, a just minerals transition is anchored in the principle of energy sufficiency, which prioritizes peoples' energy needs for climate resiliency. Energy sufficiency is premised on equal and equitable use of energy and on ecological limits. This is a departure from the concept of energy efficiency. (In the Philippines, this is enshrined in law through Republic Act No. 11285, or the Energy Efficiency Act of 2018). The shift to renewable energy also offers an opportunity to shift to the aforementioned regenerative economy.

A post-extractivist lens thus includes the setting of "no-go" mining zones. The Alternative Minerals Management Bill (AMMB), a legislative proposal that intends to repeal the present law governing mining in the Philippines, proposes a list of no-go mining zones to protect such areas, and the ecosystem services they provide. While this instrumentalizes nature, it also at the same time recognizes the need for ensuring the sustainability of natural resource use. The list of no-go zones in the AMMB includes:

- **a)** areas declared by the Local Government Units as No-Mining Zones as specified by local ordinances and other issuances;
- **b)** densely populated areas, especially residential areas;
- **c)** prime agricultural lands, irrigable and irrigated lands as defined by Republic Act 9700;
- **d)** lands subject for agrarian reform;
- **e)** areas with potential for acid mine drainage;
- **f)** critical watersheds and critical habitats;
- **g)** geohazard and climate-vulnerable areas;
- **h)** small island ecosystems;
- **i)** cultural sites, which may include, but not limited to, sacred sites and burial grounds;
- **j)** traditional swidden farms and hunting grounds;
- **k)** cultural property enumerated under Republic Act 10066;
- **l)** key biodiversity areas;
- **m)** high conflict areas;
- **n)** military and other government reservations, except upon prior written clearance by the government agency concerned;

o) near or under public or private buildings, cemeteries, archaeological and historic sites, bridges, highways, waterways, railroads, reservoirs, dams, or other infrastructure projects, public or private works including agricultural crop plantations;

p) in areas covered by small-scale miners as defined by law unless with prior consent of the small-scale miners, in which case a royalty payment upon the utilization of minerals shall be agreed upon by the parties, with said royalty forming a trust fund for the socioeconomic development of the community concerned;

q) old growth, natural or primary forests, watershed forest reserves, wilderness area, mangrove forests, mossy forests, national parks, protection forests, provincial/municipal forests, parks, greenbelts, as well as game refuge, bird sanctuaries, and their respective buffer zones as defined by existing laws and ordinances; and

r) in areas expressly prohibited by law or ordinances.

Justice. A related and requisite principle to post-extractivism is redistribution. If economic growth in the Global North remains universally accepted, it will only "perpetuate global and local inequalities and drive the demand for energy, metals, minerals, and biomass further beyond the already breached capacity of the biosphere."[176] As previously mentioned, economic growth as an indicator is deficient, and "redistribution is the answer to both social and economic injustice and the threat that extractivism and climate breakdown pose."[177]

The premise of redistribution is to correct resource intensity which has powered the prosperity of rich nations. A 2022 study has found that 74% of global excess material use is the handiwork of high-income countries, with the US (27%) and the EU-28 member countries and the UK (25%) its principal artisans.[178]

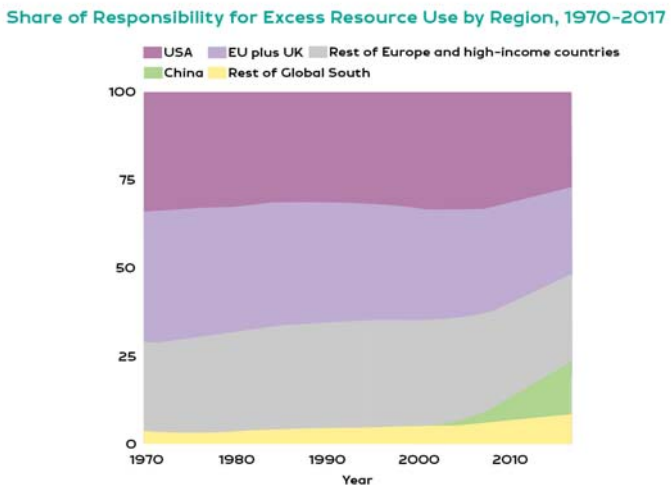

Figure 22: Share of Responsibility for Excess Resource Use by Region, 1970-2017. Source: National responsibility for Ecological Breakdown.

As such, they drive the world's ecological breakdown and must therefore reduce their use of resources.[179] Slashing their resource and energy use will propel system change, fashioning the world from the threads of social, environmental, and gender justice.[180]

Economic growth is still a relevant handle, not to poor nations per se, "but to disadvantaged groups, with redistribution of wealth between the rich and the poor in each country, between countries, and between the global consumer class and the rest of humanity."[181] Redistribution directs more energy, food, and public services to poor populations while the elite reduce their consumption.[182] It is rich nations which need to embrace degrowth because low-income countries will need to ramp up resource and energy use to fulfill their needs,[183] correcting the trend now where "resources and productive capacity in the Global South are mobilized in large part around servicing excessive Northern consumption...rather than around meeting human needs."[184]

This "intergenerational equity entails that wealthy households in all countries should consume less to free up the 'environmental space' needed for justifiable consumption increases among the poor."[185] The figure below illustrates how "contraction" in wealthy countries will result in a "convergence" in the environmental space to allow developing countries to catch up.[186] In effect, the recipe being suggested is to decrease excess throughput in the North while increasing that of the South.[187]

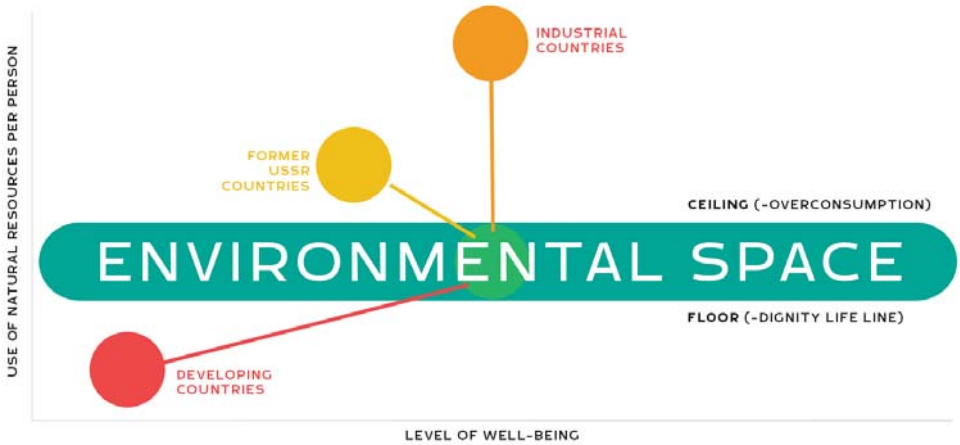

Figure 23: Distributive Justice. Source: Friends of the Earth.[188]

Under a just minerals transition, democratic minerals governance is vital: decision-making on mining rests with mining-affected communities. In Africa, for example, the concept of the "Right to Say No" puts "consent as a central aspect of intersectional resistance against capitalism and patriarchy, as well as challenging colonial views of nature as a resource for the market." [189]

Employing the ridge-to-reef concept, this means LGUs and communities from the highest point down to the coast shall form part of decision-making on mining proposals in each of its major phases. This characteristic is predicated on the principle that local communities and governments are in the best position to determine land use, considering the hazards that they will be exposed to due to mining.

Finally, a just minerals transition must be rights-based, upholding the entitlements of mining-affected communities. This early, companies engaged in mining transition minerals are repeating the same patterns of human rights violations for which the mining industry in general has racked up in disturbing abundance. The Business and Human Rights Center (BHRC) recorded 459 allegations of human rights violations from 2010 to 2021 involving six minerals for clean energy transition, where 61 cases were posted in 2021 alone.[190]

A just minerals transition should not replicate the mining rush which has decimated entire indigenous populations, destroying their sacred resources and lands.[191] In the Philippines, where large amounts of mineral deposits can be found in indigenous peoples' ancestral domains,[192] many human rights violations have been committed against indigenous peoples resisting large-scale metallic mining projects. Violence is often not the result of but the state in which extractivism is made possible, a reprehensible "necessary condition to engage in the appropriation of natural resources."[193]

With post-extractivism and justice established as basic premises for a just minerals transition, circularity and responsible minerals sourcing can be contemplated.

Circularity. Circularity has emerged as a possible route for reducing the need for minerals. Circular economy is based on the elimination of waste and pollution, the circulation of products and materials, and the regeneration of nature.[194]

As "technical nutrients," minerals and materials are allegedly "infinitely recyclable" and their "inherent characteristics such as durability, strength, and anticorrosive properties...improve the sustainability of the products in which they are used."[195] The industry also contends that there is presently substantial infrastructure for the reuse of minerals.[196]

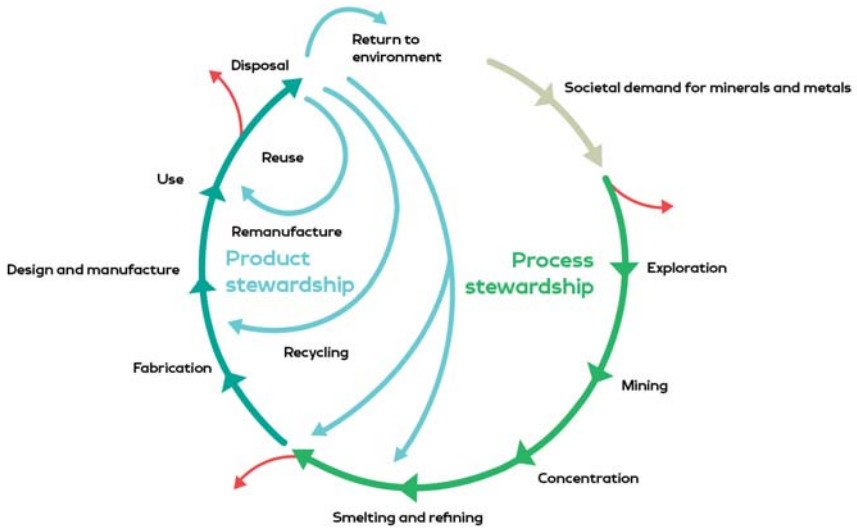

Figure 24: Main Life Cycle Stages for Minerals and Metals. Source: ICMM, Maximizing Value, London, ICMM, 2007.

Circular economy could "halve global demand for certain minerals, like cobalt, lithium, and nickel, key to the clean energy transition."[197] It has been shown that it is 13 times cheaper to extract copper or gold from e-waste than it was to mine them, and, in China, a recycling company has been able to produce more cobalt in a year than all of its mines combined. [198]

But the circularity of minerals is overstated: presently only 36% of the yearly demand for raw metal can be supplied by recycled metals, and at 70% if the metal has a high recycling capacity. [199]

In fact, the concept of circular economy has been criticized as a shiny but empty shell which "seemingly provides a new framing able to resolve many problems, but it comes under increased scrutiny when attempts at operationalization bring to the surface unresolved issues regarding its definition."[200] Such that, ultimately, a future with no waste, where products are recycled indefinitely, the closing of material loops, is practically impossible.[201]

The efficiency which circular economy hopes to engender could also be a lost cause because of Jevon's paradox, where gains in efficiency merely pave the way to increase production and consumption, which in turn intensify the extraction of resources and the generation of wastes.[202] It thus merely reboots capitalism and does not facilitate system change.[203]

Circularity isn't by itself without use when integrated within a broader movement for transforming the global economy. What is needed are "solutions to the problem of economic growth and wasteful consumerism, as well as to the undemocratic power structures in the global economy."[204] Circularity in the minerals values chains is only, thus, a part of a broader just minerals transition, in much the same way responsible sourcing of minerals, while important, cannot be a stand-alone approach to rationalizing the role of minerals in the energy transition.

Accountability in Minerals Sourcing. A standard for "responsible minerals sourcing" is a requisite to ensuring a just minerals transition.

The idea of responsible minerals sourcing suggests the practice of procuring raw minerals in a manner that respects human rights and protects human and environmental health. Various standards have been developed by the mining industry, and of late by NGOs, with businesses. This was a response to the criticism against the industry for committing human rights violations and environmental degradation.

Such a standard, at the minimum, must provide safeguards and thresholds (protection of human rights, environmental protection, positive legacies, etc.) paired with the concept of indispensable mining.

Civil society, communities, and the state can reclaim responsible minerals sourcing, or its popular shorthand, responsible mining, and embed it in ecological and sociological principles.

Current standard-setting mechanisms, however, are limited by their voluntary nature, often awarded through certifications of compliance or good practice. The standards are, thus, directive rather than mandatory, and the repercussions for companies are mostly reputational rather than operational. Standard-setting mechanisms must be situated within the frame of accountability. State legislation is needed to provide teeth, ensuring accountability and genuine responsible mineral sourcing.

Every care must be undertaken to prevent mining companies from greenwashing responsible sourcing for transition minerals. In this sense, a just minerals governance must also be anchored in communities' right to self-determination and environment. Responsible sourcing cannot exist outside the social and ecological realms. When people's decisions and ecological limits are breached, responsible sourcing ceases to be. In no case shall responsible mineral sourcing be an end in and of itself. It cannot be divorced from all the other facets of a just minerals transition. Responsible mineral sourcing which conceals an exploitative and purely profit-centric impulse is, in effect, a corporate oxymoron.

It must be stressed that the industry has effectively colonized responsible mining as a term for advancing an export- and profit-oriented minerals regime, especially in the Philippines. It remains to be seen if the concept can be wrested away from mining entities, since they coopted it in the first place.

Given the complexity of the value chain in transition minerals, where "supply chains extend to numerous tiers and to thousands of suppliers, for components containing multiple metals mined across the globe,"[205] a due diligence mechanism(s) in terms of human rights also must be established. The most promising of many such mechanisms is the ongoing negotiations for an internationally legally binding instrument on transnational corporations.[206]

Recommendations: Philippines

Just minerals transition is an important lens in articulating minerals governance in the Philippines, which has been identified in various critical and transition minerals mapping reports. The following specific recommendations chart practical and paradigmatic shifts to prepare the country for seismic shifts in transition minerals.

- **Adopt a just minerals transition in the country's policy regulatory framework.**

Legislation in support of a just minerals transition is necessary. Congress should pass the Philippine Mineral Resources Act (PMRA), also known as the Alternative Minerals Management Bill (AMMB), which proposes a transformation of the present minerals regime by balancing the need for minerals with environmental, social, and economic considerations. The bill is anchored in the climate justice discourse and rationalizes mining under a national industrialization framework, where only strategic minerals will be mined. It has an exhaustive list of no-go mining zones and puts decision-making in the hands of the community and local government units (LGUs).

A just minerals transition can be adopted by the AMMB to harmonize it with the principles of climate and redistributive justice. Among such principles would be a stringent supply chain transparency, including an integrity requirement, and accountability in mineral sourcing. Its decision-making process shall ensure the right to free, prior, and informed consent (FPIC) and rights of redress for affected communities as well as being informed by an assessment of the true costs and benefits of minerals extraction. It could also be supplemented by the development of climate-safe, locally appropriate, and low-impact mining technologies that reduce the harmful effects of mining.

The AMMB contests the chief policy covering minerals extraction presently, the 1995 Mining Act, which is not rationalized within a low-carbon development pathway, nor within just energy transition. Having been passed in 1995, the present Mining Act is not anchored, for example, in the climate discourse. As such, minerals extraction in the country primarily serves an export-oriented regime of unprocessed low-value mineral ores.

- **Integrate just minerals transition in existing policy blueprints.**

Government policy blueprints such as the Philippine Development Plan and the Philippine Energy Plan could be updated to include a just minerals transition. The proposed sunset review of the Renewable Energy Act could also interrogate the role of transition minerals. In including a just minerals transition, which proceeds from an "alternative to development" framework, the development or economic frameworks used by such blueprints would also need to be reconstituted. Such that not only energy security but demand reduction interventions are considered, in line with the principles of energy sufficiency and efficiency. An efficient energy system would imply greater material efficiency, and therefore, demand less energy minerals. This assures the fair and balanced use of energy, and minimum energy waste.

- **Legislate local no-go zones.**

Several no-go zone bills have been filed in Philippine Congress. In any case, there is another route, one that is perhaps even more promising, because it does not need an act of Congress. This is the creation of local ordinances that ban aspects of mining inimical to environmental considerations. No-go zones are a logical result of reconstituting the world away from extractivism.

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