



Mining for Energy Transition Minerals in the Philippines – Risks Involved and Solutions Needed



Foto: Michael Reckordt

I. Introduction

Progressive movements, environmental groups and local communities resisting large scale mining operations have been consistently challenging government's aggressive push for the revitalization of the mining industry. However, the damaging consequences of mining to the environment and human rights of mining-affected communities do not seem to be compelling enough for mining players to ease up on extractive activities.

Notwithstanding their false claims about "responsible mining," the Philippine government and the mining industry have

now found a relatively novel justification for more rampant mining: the need for transition minerals or critical minerals for renewable energy.

During the 42nd ASEAN Summit in May 2023, President Ferdinand "Bongbong" Marcos, Jr stated: "Recognizing that a cleaner energy future is anchored on the supply of critical minerals, ASEAN should now start enhancing regional cooperation towards boosting the region's strategic industrial metals and minerals value chain."¹

The President further added: "The Philippines will take bold steps to transition to renewable and alternative energy technologies in a secure and sustainable manner."² This shift toward

¹ Atienza, K. A. (2023)

² Ibid



renewable energy entails the use of minerals. Energy transition minerals or critical minerals, in particular, are needed to manufacture electric vehicles (EVs), solar panels, wind turbines, among others.³ However, it is important to distinguish between the requirements of electric vehicles and solar / wind energy. Apparently, the transition minerals requirement for electric vehicles is much greater than what is needed for renewable energies, like wind and solar.

In Europe, for instance, around 60% of the forecasted raw material consumption is expected to go to the transport sector. In particular, the forecast for the consumption of lithium, cobalt and nickel is primarily due to the requirements of “electric mobility and individual, electrified automobility.”⁴

To illustrate, PowerShift looked into the metal requirements in the production of battery-powered cars by Volkswagen. It found out that the batteries made by this single company alone could require around eight times more aluminum and nickel in 2030 than the entire planned expansion of wind power plants in Germany. PowerShift asserts that “renewable energies are not the driver for the very high, partly unrealistic forecasts for material consumption.”⁵

Alyansa Tigil Mina (ATM) has earlier asserted that mining for ETMs is a tricky issue. While there is a need to transition energy systems in the context of climate change, and this in turn requires the extraction of transition minerals, mining ETMs must be done cautiously as there are harmful environmental consequences and negative impacts on communities.⁶

Furthermore, widespread mining of transition minerals and critical minerals must not be undertaken mainly to satisfy the mobility requirements of the Global North, especially that their overconsumption remains unquestioned.

Definition of Energy Transition Minerals

According to the Legal Rights and Natural Resources Center (LRC), energy transition minerals (ETMs) “is a collective term used to refer to minerals that are needed for the production and use of clean energy technologies”. ETMs have also been called critical minerals: “critical as inputs into transition technologies and critical to maintain energy supply for the world’s growing population and economies.”⁷

Meanwhile, War on Want defines transition minerals in the context of energy transition as “those minerals which are vital to renewable energy replacing fossil-fuels, either for extracting, storing or transmitting that energy.”⁸

On the other hand, critical minerals are defined as “metals and nonmetals that are considered vital for the economic well-being of specific economies, yet whose supply may be at risk and for which there is not existing or commercially viable substitutes.”⁹

According to the United Nations Environment Programme (UNEP) transition minerals are “naturally occurring substances, often found in rocks that are ideal for use in renewable technology.” For example, lithium, nickel and cobalt are used in batteries that power electric vehicles, rare earth elements form part of the

³ Zaplan, M., Taqueban, E., & Quirino, M. (2023)

⁴ Tshin Ilya Chardayre, Michael Reckordt, Hendrik Schnittker (2022)

⁵ Ibid

⁶ Mayuga, J. L. (2023)

⁷ Zaplan, M., Taqueban, E., & Quirino, M. (2023)

⁸ War on Want (2021)

⁹ Ibid



magnets used in wind turbines and electric motors.¹⁰

Meanwhile, the U.S. Geological Survey, states: “Critical minerals are necessary for the manufacture of high technology devices, national defense applications, and green growth-related industries. A critical commodity is one that is important for these specialized applications yet is at risk for supply disruption. Numerous elements that are defined as critical are recovered as by-products of the production of other mineral commodities.”¹¹



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II. Pertinent Facts and Figures

Indeed, the climate crisis has precipitated the global shift to renewable energy and the transition mineral boom. According to Bantay Kita, the transition mineral boom is “characterized by the explosive demand for the mining of transition minerals as required for the development of technologies for carbon-neutral economies and a digitizing world”.¹²

Bantay Kita’s report cites the International Energy Agency, which estimates that three

billion tons of transition minerals must be extracted if the targeted goal of less than 1.5 degrees temperature increase were to be realized.¹³ However, there is no calculation about the chance to reduce the extraction through shifts in mobility or other sectors. The cited IEA study further states that the trend in energy transition will result in a total demand rise for copper and rare-earth elements (over 40%), nickel (60% to 70%), cobalt (around 40%) and lithium (almost 90%) over the next two decades.¹⁴

Given the growing demand for transition minerals, the spotlight is currently on the Philippines. This is because the country has the fifth-largest nickel and fourth-largest cobalt and copper reserves in the world.¹⁵

Yet, it is also among the countries most at risk to climate change, while contributing only 0.48% to global GhG emissions in 2019.¹⁶

Philippines and the ETMs, by LRC¹⁷:

- The Philippines has recently emerged as a major supplier of some ETMs in the global trade market. These minerals include copper, nickel, cobalt, manganese, and silver.
- Nickel, cobalt, silver, and copper are among the most significantly used ETMs in renewable energy (RE) technologies which are currently produced in the Philippines.
- Nickel and cobalt are used to manufacture EV batteries. Silver is used in solar panels and EVs, and many other RE technologies. Copper is used in wind turbines, electrical wires, and in almost every RE technology.

¹⁰ United Nations Environment Programme (2024)

¹¹ U.S. Geological Survey (2024)

¹² Asuncion, A. M., & Ubaldo, J. E. (2023)

¹³ Ibid

¹⁴ Ibid

¹⁵ Ibid

¹⁶ Zaplan, M., Taqueban, E., & Quirino, M. (2023)

¹⁷ Ibid.



- As of 2023, there are 165 active large-scale metallic mineral production sharing agreements (MPSAs). Of these, 35% include nickel, and 30% include copper.
- Of the total MPSAs, 37 are under commercial production or some parts under commercial production, 115 are under exploration or some parts under exploration, 16 are under development and construction, and two are under rehabilitation or maintenance.
- Among those under commercial production, 26 involve nickel, four involve copper, and three involve silver.
- Nickel is currently extracted in nine provinces (Agusan del Norte, Davao Oriental, Dinagat Islands, Eastern Samar, Isabela, Palawan, Surigao del Norte, Surigao del Sur and Zambales). Copper is processed in three provinces (Benguet, Nueva Vizcaya and Cebu), while cobalt is processed in two (Palawan and Surigao del Norte). Silver is processed alongside gold in seven provinces (Agusan del Sur, Benguet, Davao de Oro, Masbate, Nueva Vizcaya, South Cotabato and Zamboanga del Sur).
- Of the country's metallic mineral production valued at Php 181 billion in 2021, nickel made up 31% of total production, followed by nickel-cobalt sulfide (18%), copper concentrate (10%), and silver (1%).
- In 2021, the country exported a total of USD 6.6 billion worth of minerals. This accounts for 9% of total exports that year or a 29% increase from 2020 figures.
- The country's 2021 mineral export earnings came mainly from nickel ore and concentrates (USD 1.5 billion), copper concentrates (USD 300 million), and cobalt ore and concentrates (USD 238,000).
- Globally, the country's nickel exports accounted for 34% of total, while both cobalt ores and concentrates and copper ores and concentrates accounted for less than 1% of the global total.
- While the country has substantial reserves of ETMs, it has traditionally been more focused on upstream activities, primarily mining and extraction.
- The country's ETMs are consumed primarily by countries with robust electronics and clean energy industries. China, Japan and South Korea are among our ETM consumers.
- In 2021, Japan accounted for 40% total exports of copper concentrates, while China accounted for 28%. In the same year, China accounted for 95% of total nickel ore and concentrates exports and 100% of cobalt ores and concentrates exports.

According to LRC, the Philippine ETM industry is "dominated by a few, mostly locally owned corporations engaged in the upstream and midstream phases."¹⁸ These companies are registered with the Philippines' Securities and Exchange Commission (SEC) and the Department of Environment and Natural Resources.

In 2021, a total of 30 companies were engaged in the upstream production of nickel. The top producers of nickel in the country include: Taganito Mining Corporation (17% of total production volume) in Surigao del Norte, Rio Tuba Nickel Mining Corporation (11%) in

¹⁸ Ibid



Palawan, Platinum Group Metals Corporation (9%) in Surigao del Norte, Carrascal Nickel Corporation (8%) in Surigao del Sur, CTP Construction and Mining Corporation in Surigao del Sur (8%).¹⁹

For silver production in 2021, there were 14 mining companies involved. Among them are: Apex Mining Company in Davao de Oro, Philippine Gold Processing and Refining Corporation in Masbate, Philex Mining Corporation in Benguet, Lepanto Consolidated Mining in Benguet, and FCF Minerals in Nueva Vizcaya.²⁰

On the other hand, production of copper ore and concentrates is carried out by only three mining companies, namely, Carmen Copper Corporation, Philex Mining Corporation, and OceanaGold Philippines Inc.²¹

III. Critical Issues Surrounding ETMS

A. Social and Ecological Impacts of Mining ETMs in the Philippines

Mining ETMs comes with devastating consequences and involves dire social and ecological impacts. The following are just some of the impacts of mining in the communities.

a. Forests and watersheds are at risk of being destroyed by large-scale mining projects.

The Sagittarius Mines Inc. (SMI) Tampakan mining project, which is located in southern Mindanao, illustrates the danger of mining operations to forests and watersheds. The project involves the exploitation of one of the world's largest undeveloped copper-gold



Foto: Alyansa Tigil Mina

deposits. The mine is estimated to yield an average of 375,000 tons of copper and 360,000 ounces of gold per annum over 17 years.²² It covers four provinces, six watersheds, five ancestral domains and 8,000 hectares of forest, including over 2,000 hectares of primary forest and 4,000 hectares of secondary forest. It will affect about 40,000 hectares of prime agricultural land and at least 20,000 farming households.²³

The Tampakan project is situated at the heart of the Cotabato watershed system. The mining area covers three major watersheds (958,730 has.) namely the Padada River Watershed, Marbel Watershed and Catisan Allah Valley River Watershed. Low lying areas, including Ligawasan Marsh, are projected to be affected by the mining operations. Ligawasan Marsh is one of the largest wetlands comprising about 10% of the Mindanao River Basin. The National Economic Development Board-Region XII has recommended the inclusion of Ligawasan as a protected area (PA) under the National Integrated Protected Area System (NIPAS). It counts as among 15 biogeographic regions identified to be distinct and unique due the presence of significant varieties of flora and fauna.²⁴

¹⁹ Ibid

²⁰ Ibid

²¹ Ibid

²² IUCN (2023)

²³ Ibid.

²⁴ Davao Association of Catholic Schools, Inc. (DACs). (2021)



According to a primer by the Davao Association of Catholic Schools, Inc. (DACs), the SMI Tampakan Project will deprive irrigators, farmers and households in the downstream communities of water supply. In its Environmental Impact Statement²⁵, the SMI Tampakan Project estimates a water requirement rate of 908 liters per second to fully operate the gold-copper extraction project. This will result in drawing down the capacity of catchments that supply drinking and irrigation water to irrigation systems that sustain 200,000 hectares of agricultural land for 80,000 farmers in South Cotabato alone.²⁶

The SMI Tampakan Project is also expected to have forests cleared as the mining company requires 10,000 has. of land for their project facility for their operations. The mountainous areas where they will operate will more likely have less absorption of rainwater. Clearing thousands of hectares of forests puts the provinces at higher risk of flashfloods and landslide.²⁷

b. Fragile island ecosystems are directly threatened and marine ecosystems are destroyed.

On March 24, 1996, the worst mining disaster in Philippine history occurred, proving that people's fears about mining were real and not just some baseless doomsday forecast. On that tragic day, the drainage tunnels of Marcopper Mining Corporation's open pit ruptured, spilling millions of tons of mine waster in the Boac River in Marinduque. Villages were inundated, crops and vegetable gardens were destroyed and marine life were killed – virtually devastating the whole island ecosystem.²⁸

At present, mining threatens Sibuyan Island, one of the last ecological frontiers in the Philippines. Dubbed as the “Galapagos of Asia”, Sibuyan boasts of a rich biodiversity. It is known for being one of the world's densest forests, covering 1,551 trees per hectare. It has a variety of flora and fauna: 700 species of vascular plants, 144 species of trees, 54 of which are endemic in Sibuyan and 120 species endemic in the Philippines, 64 species of birds, 10 species of amphibians, 25 species of reptiles, and 18 species of mammals.²⁹

The mining operations of Altai Philippines Mining Corp. (APMC) has strengthened the resolve of many residents in the island in opposing mining activities. In February 2023, residents organized a rally and human barricade to protest the illegal mining by APMC. They opposed the deforestation and the construction of a causeway that could potentially disrupt the natural habitat of marine species.

Without obtaining the necessary permits, APMC constructed a causeway on the shores of San Fernando in order to transport the nickel overseas. Environmental activists were concerned that the construction could damage marine life, such as the seagrass, and coral reefs in the coastal area where the causeway was built. This prompted the Ecosystems Research and Development Bureau (ERDB), in collaboration with Coastal Resources and Ecotourism Research, Development and Extension Center (CREDDEC), to investigate the alleged damages. According to the findings, the causeway did not directly affect or bury any coral reef due to its proximity to the river mouth, where corals do not thrive.³⁰

²⁵ Sagittarius Mines Inc. (2011)

²⁶ Davao Association of Catholic Schools, Inc. (2021)

²⁷ Ibid

²⁸ De la Cruz, G. (2017)

²⁹ Living Laudato Si' Philippines (2023)

³⁰ Flores, J. (2023)



However, the causeway construction can still significantly impact the coastal area. The analysis suggests that the speed and direction of water currents can be affected as the flow of water and sediments are altered. The causeway may also disrupt the natural patterns of longshore drift or the movement of sediments along the coastline, which may potentially cause changes in the shape and form of the beaches. These effects could lead to more significant issues, such as: coastal erosion, instability of coastline, coastal flooding, surges, and extreme tidal inundations.³¹

c. Water is polluted and food production is affected.

In Aroroy, Masbate, where Filminera Resources Corporation has been conducting open-pit mining operations, the livelihoods of residents have been gravely affected by the mining company's waste products, e.g. toxic mine tailings. In its petition for a Writ of Kalikasan to the Court of Appeals, Ang Aroroy ay Alagaan Inc. (4As) noted: "The bodies of water i.e., Bangon, Guinobatan, Panique, Samoyao, Bagaguining, Lanang and Port Barrera which used to produce in profusion healthy aquatic resources, are now deathbeds for dying and sickly marine life. The once unsoiled and healthy sources of food and sustenance for the petitioners are now mere memories of the past."³² The petition further asserted that the destruction of Masbate's environment resulted in the destruction of the "very source of livelihood of the fisher folks/fishermen of Aroroy, Masbate, and its neighboring municipalities too."³³

According to 4As, the mining company constructed spillways, dams and tailings ponds which facilitated the contamination of the bodies of water of Bangon, Guinobatan,

Panique, Samoyao, Bagaguining, Lanang and Port Barrera. The farm lands and cattle ranches, which use the rivers and bodies of water as sources of fresh water, were contaminated too. This means that the livestock, which end up in people's tables, were contaminated also.³⁴

The petitioners also stated that Filminera illegally constructed a spillway along the national road as well as dams on various bodies of water. This worsened and hastened the contamination of the bodies of water resulting in "massive fish kills and the ubiquitous threats to the life and health of the petitioners, let alone to the livestock, who rely on these waters as sources of drinking water."³⁵

d. Peace and security problems intensify, as conflicts in mining-affected communities increase, and environment rights defenders are harassed, threatened and even killed.

For the past ten years, Global Witness has named the Philippines as the most dangerous country in Asia for environmental human rights defenders. In its 2023 report, the organization documented 16 killings in Asia in 2022, 11 of which took place in the Philippines. Since 2012, 281 environmental activists have been killed, a third of which were linked to



Foto: Michael Reckardt

³¹ Ibid

³² Ang Aroroy ay Alagaan Inc. etal vs Filminera Resources Corp. (2016)

³³ Ibid

³⁴ Ibid

³⁵ Ibid



“defenders speaking out against company operations linked to the mining sector.”³⁶

Global Witness reports that the “criminalisation of defenders and rights advocates is widespread, with ‘red-tagging’ - the government practice of accusing activists of communist insurgency – commonly used to silence critics and communities.”³⁷

In many communities, environment and human rights defenders, including IP leaders are being red-tagged or accused as communists or terrorists. One such victim of red-tagging is an IP woman leader, aka Alice de los Reyes. In the midst of the Covid 19 crisis, she was advised by an alleged civilian asset to surrender to the government. She was accused of being a terrorist because of her active engagement in activities led by ATM and other environmental and human rights groups. There was a threat to arrest her because of a Facebook post. It has also been confirmed that she was a subject of police surveillance.³⁸

In other communities such as Brooke’s Point (Palawan), Sibuyan Island (Romblon), Aroroy (Masbate), environmental defenders are slapped with harassment cases by mining companies. In protesting the illegality and damage of mining operations, mining firms charge resisters with various cases, such as libel and trespassing, in order to cow them into silence.

e. Women, young persons and indigenous peoples experience marginalization and differentiated impacts on their livelihoods and lives.

According to Judith Pasimio, Overall Coordinator of LILAK (Purple Action for Indigenous Women’s Rights), due to the pursuit of mining in the communities, rural and indigenous women become more vulnerable to violations and abuse of women human rights, and they experience different forms of violence.³⁹

Meanwhile, community leader Marylou Verano narrates that in mining-affected communities, women resisting against mining face threats and intimidations from security personnel of mining firms and from state agents like the police and military. They are accused of being communist insurgents because they allegedly oppose development in their localities. Moreover, women no longer feel safe and secure in their areas because of the coming of outsiders in their communities brought about by mining projects.⁴⁰

Women also have to deal with either water shortage or contaminated water. They can no longer do their laundry in streams and have to walk miles in order to source clean water. They are forced to buy mineral water for cooking, and especially to care for their babies. Many women even have to forego eating just so they could prioritize buying water for their families.⁴¹

Meanwhile, young people have to stop their schooling due to displacement from their communities. Many displaced families are compelled to move to the cities and start their

³⁶ Global Witness. (2023)

³⁷ Ibid

³⁸ Alyansa Tigil Mina. (2021)

³⁹ Pasimio, J.A. (2017)

⁴⁰ Rhoda Viajar’s Online Interview with Marylou Verano, member of ATM Council of Leaders’. April 4, 2024.

⁴¹ Ibid



lives from scratch. In the cities, they have to contend with urban poverty.⁴²

On the other hand, indigenous peoples lose their livelihoods as farmlands are converted into mining sites and they experience forced evictions from their lands. Also, their socio-political systems are disrupted and their communities' sense of unity weakened - leading to loss of their culture and identity.⁴³

f. Mining increases the risk of landslides and similar disasters, causing death and injuries among people in the communities.

The impact of natural disasters is made more severe as mining is believed to contribute to landslides and floods. This has prompted Philippine Senator Risa Hontiveros to file a Senate Resolution 989, "calling for the appropriate Senate Committee to conduct an investigation in aid of legislation into recent widespread reports regarding the adverse environmental and social impact of mining and quarrying activities in the Philippines."⁴⁴

The Senate Resolution cites the massive landslide that hit Maco, Davao de Oro on February 6, 2024, and caused at least 35 deaths, 32 injured and 77 missing. While the landslide was attributed to the combined effects of the northeast monsoon and low-pressure area affecting Mindanao, the Mansaka Indigenous People claim that the mining operations of Apex Mining Company Inc. "contributed to the landslide and increased the risk of similar disasters occurring in the future, and disrupted the Mansaka's traditional way of life", according to the Resolution."⁴⁵

The Resolution also points out the residents of Brgy. Taguilos, Cadiocan, Romblon "claim that

⁴² Ibid

⁴³ Wetzlmaier, M. (2012)

⁴⁴ P.S.R No. 989 Introduced by Senator Risa Hontiveros (2024)



Foto: Alyansa Tigil Mina

unrestrained large-scale quarrying has caused heavy siltation in local rivers, affected the quality of the tap water in the area, and increased the risk of flooding".⁴⁶ It also needs to be underscored that the climate crisis will most likely result in more landslides as heavy rains become more frequent and typhoons and storms become stronger.

g. Local autonomy and democracy are undermined.

Many local governments in the mining sites of struggles are against the destruction of their forests, water and marine resources and agricultural lands. Through various resolutions and ordinances, which are a result of the persistent advocacy efforts and democratic protests against mining, they have articulated their opposition to mining in their respective localities. These resolutions enumerate the violations of the mining companies, and the impact on the communities.

Yet, despite the position of the local government and populace against mining, mining companies pursue their operations in the areas. For example, in Sibuyan Island,

⁴⁵ Ibid

⁴⁶ Ibid



Romblon and Brooke's Point, Palawan, the mining corporations continue to operate even without the necessary Mayor's permit and other requirements. The residents themselves have put up barricades protesting the illegal mining operations. These have put pressure on government agencies, like the Department of Environment and Natural Resources (DENR), to act on the demands of the residents.

Still, it cannot be denied that mining undermines local autonomy since mining corporations openly defy local regulations. This disrespect and disregard for local autonomy is unacceptable.

Section 2 of the Local Government Code (LGC) of the Philippines stipulates that "territorial and political subdivisions of the State shall enjoy genuine and meaningful local autonomy to enable them to attain their fullest development as self-reliant communities and make them more effective partners in the attainment of national goals."⁴⁷

Concerning the maintenance of ecological balance, the LGC further requires the national government to conduct consultations with local government units, nongovernmental organizations and other sectors concerned and "explain the goals and objectives of the project or program, its impact upon the people and the community in terms of environmental or ecological balance, and the measures that will be undertaken to prevent or minimize the adverse effects thereof."⁴⁸

The Code also states that no program or project shall be implemented without compliance with the required consultations and prior approval of the local council

(sanggunian).⁴⁹ The law, in effect, recognizes that the local governments are in the best position to pursue development programs as well as enforce the will of the people.

B. False Solutions to Climate Crisis

Shifting to renewable energy as a way to address climate change seems to be unproblematic at the surface. But when scrutinized at a deeper level, the energy transition reveals unchanged and unchallenged assumptions about the way the world uses resources and the degree of consumption.

According to War on Want, the current renewable energy transition adopts a resource-intensive approach that focuses almost exclusively on replacing fossil fuel powered cars with electric vehicles. It says that the RE transition attempts to keep the structure and scale of the current fossil fuel economy, but only this time, it is powered by renewables.⁵⁰

The UK based organization further says that "this approach doesn't question the intense energy-use of the wealthiest societies or address unequal energy distribution: whereby 3.5 billion people do not have access to electricity or clean cooking, and billions more only have enough electricity for a single household light bulb or to charge a mobile phone."⁵¹

It argues that while it is critical to address the climate crisis, and rapidly transition away from fossil fuels, the energy transition cannot be done by expanding reliance on other materials.

⁴⁷ An Act Providing for a Local Government Code of 1991. Retrieved from The LawPhil Project: https://lawphil.net/statutes/repacts/ra1991/ra_7160_1991.html

⁴⁸ Ibid

⁴⁹ Ibid

⁵⁰ War on Want. (2021)

⁵¹ Ibid



Meanwhile, PowerShift recognizes that “the shift away from fossil fuels, and the global expansion of renewable energies are inevitable” and that societies will continue to need metallic raw materials in the future.⁵² It analyzed the consumption of raw materials and identified potential areas where metal consumption can be reduced. It asserts that the potential needs to be maximized or “exploited to address the social and environmental challenges associated with the extraction of metallic raw materials.”⁵³

The potential areas identified by PowerShift include: 1) reduction potential in the transport sector, 2) potential for reduction in the construction sector, 3) metal recycling potential, 4) increasing recycling of new technologies, and 5) reduction potential by extending the life of goods.⁵⁴

At present, mining corporations are “cashing in on transition minerals” as it is being compelled to divest from coal mining. This is because the threats of climate change have turned coal into “a stranded asset with rapidly diminishing economic value.”⁵⁵

According to Transnational Institute (TNI) and London Mining Network (LMN), the mining industry has been rebranding itself as minerals



Foto: Michael Reckordt

solutions or materials solutions companies, which is consistent with its efforts of previously rebranding mining as “sustainable” and a “vehicle for development”.⁵⁶

“In the case of BHP, the world’s largest miner, the company website is rife with pictures of wind turbines, electric vehicles and solar panels and visitors are met with messages of how BHP’s ‘products help build a better, clearer future’,“ TNI and LMN report.⁵⁷ According to the report, the mining companies are represented as suppliers or deliverers of “products” instead of mainly corporations that undertake mining operations.⁵⁸

Clearly, under the current resource-intensive renewable energy transition, mining for transition minerals can therefore be considered as part of the “false solutions” to the climate crisis. As pointed out by War on Want, the transition agenda is problematic on two counts:

First, it is driven by profits, alongside green extractivism, rather than the desire to guarantee the safest and most just transition. Green Extractivism is defined as the “the idea that human rights and ecosystems can be sacrificed to mining in the name of ‘solving’ climate change, while at the same time mining companies profit from an unjust, arbitrary and volatile transition.”⁵⁹

Second, mining companies will use the energy transition to justify their expansion and will attempt to “green-wash” their reputations by using green credentials.⁶⁰ Already, there are such buzzwords as “climate-smart mining”, which the World Bank initiated towards a low-carbon future powered by technologies such

⁵² Wilke, M and Reckordt M. (2024)

⁵³ Ibid

⁵⁴ Ibid

⁵⁵ War on Want. (2021)

⁵⁶ Barbesgaard, M. & Whitmore. A. (2022)

⁵⁷ Ibid

⁵⁸ Ibid

⁵⁹ Ibid

⁶⁰ Ibid



as wind, solar and batteries. The problem with climate-smart mining, however, is that it does not address the overconsumption of energy by North countries. It makes no case for the need to curb energy consumption.

LRC also makes a case against climate smart mining. It says that “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.”⁶¹

C. The Need for Reduction of Consumption in the Global North

War on Want asserts that “any transition that focuses only on switching fossil fuels with renewable energies, without addressing the undemocratic and unequal ways energy is produced and accessed, will do little to address the structural issues at the heart of the climate crisis.”⁶²

“Already, the EU consumes 25 to 30% of metals produced globally, while the EU makes up only 6% of the world’s population,” a position paper of European civil society organisations states.⁶³ War on Want posits that the climate crisis is part of a deeper ecological crisis that is characterized by loss of biodiversity, widespread pollution, land and water shortages. It underscores the following:

→ Humankind’s increased use of natural resources, which has more than tripled since 1970, is closely linked with the various environmental crises.

→ According to the International Resource Panel, “90% of biodiversity loss and water stress are caused by resource extraction and processing. These same activities contribute to about half of global greenhouse gas emissions.”

→ On the other hand, material consumption is estimated to double by 2060 from 2011 levels. Material consumption in high-income countries is around 27 tons per person, which is 13 times that of low-income countries.

→ Annually, the extraction of metals and minerals has risen significantly, from 11.6 billion tons in 1970 to 53.1 billion tons in 2017, accounting for 20% of climate impacts.

→ The World Bank points out that “the mining industry consumes up to 11% of global energy use, while 70% of mining projects from the six largest mining companies operate in water-stressed regions”.

The report warns that a rapid, unplanned and unjust transition towards renewable energy could enable a new wave of intensive extraction of minerals, resulting in widespread ecological destruction and human right abuses.

In order to ensure that carbon reduction does not come at the expense of climate-critical ecosystems, communities, or respect for human rights, one of the considerations it proposes is that the consumption of transition minerals “needs to be carefully considered and reduced, where possible, to lessen the predicted impacts.”⁶⁴

On the other hand, a report by the United Nations Environment Programme⁶⁵ reveals

⁶¹ Taqueban, E., & Quirino, M. (2023)

⁶² War on Want. (2021)

⁶³ EU Raw Materials Coalition (2023)

⁶⁴ War on Want. (2021)

⁶⁵ United Nations Environment Programme (2024)



that provisioning of food, built environment, mobility and energy contributes around 70% to total global climate change impacts and a significant amount of biodiversity loss. It shows that the consumption of high-income countries accounts for most environmental impacts.

According to UNEP, “income is the main driver of consumption, and the wealthiest part of the global population contributes to more GHG emissions than the world’s poorest 50%.”⁶⁶

Among other organizations, UNEP calls for a “fair consumption space that reduces consumption in higher income contexts, while also acknowledging the need to increase consumption for those who have yet to reach basic life standards.”⁶⁷

D. Degrowth

Another idea that could be considered in the energy transition is the concept of degrowth. War on Want cites Jason Hickel, who argues for the concept of degrowth, which is described as “a theory of radical abundance.”

According to Hickel, “Proponents of degrowth argue that a planned reduction of throughput can be accomplished in high-income nations while at the same time maintaining and even improving people’s standards of living. Policy proposals focus on redistributing existing income, shortening the working week, and introducing a job guarantee and a living wage, while expanding access to public goods.”⁶⁸

A ‘steady state economy’ is a degrowth vision that seeks to transform an economy to “a stable size, within ecological limits, and with

the aim of having a balanced, stabilized populations and per capita consumption.”⁶⁹

According to War on Want, degrowth is about balancing or “scaling down the material and energy use of the global economy, particularly high-income nations with high levels of per capita consumption.”⁷⁰

Degrowth wants to reduce waste and shrink economic sectors that are ecologically destructive, and which only offer little or no social benefit. Areas of the economy that are not environmentally or socially harmful can balance out the shrinking part of the economy. The theory of degrowth is based on the concept of a good life, underscoring that “when a certain level of development is reached that more GDP growth does not necessarily correlate to greater well-being.”⁷¹

E. Circular Economy

A concept closely associated with energy transition and transition minerals is the circular economy. According to War on Want, the United Nations defines it as “an economy where the value of products, materials and resources is maintained in the economy for as



Foto: Michael Reckordt

⁶⁶ Ibid

⁶⁷ Ibid

⁶⁸ War on Want. (2021)

⁶⁹ Ibid

⁷⁰ Ibid

⁷¹ Ibid



long as possible, and the generation of waste minimized”.⁷²

Circularise, which is a software platform that provides end-to-end traceability for complex industrial supply chains, states: “Circular economy redefines what is considered waste, with hallmark processes that could not only reduce waste produced, but also diminish the quantity of virgin materials we need.”⁷³

In the Philippines, a proposed bill in the House of Representatives (House Bill 7609) filed in 2020 defines circular economy as “a system approach wherein products are designed for durability, reuse and recyclability, and materials for new products come from old products. It minimizes waste and maximizes the use of natural resources.”⁷⁴

Some quarters believe that the circular economy concept, however, has become contested and co-opted such that the term circular society is instead proposed. War on Want tackles the following practical elements that make up the circular economy or society:⁷⁵

1. Recycling - Recycling of metals is important in order to replace the need for mining. It also requires much lower energy costs than mining. Urban mining is another term used to refer to metals recycling. It is specifically centered on recycling high-cost metals and electronic and electrical waste.

2. Enhanced landfill mining or mining old landfill sites – Discarded metals can be recovered while conducting environmental remediation work.

3. Increased resource efficiency – There is a set of proposals that center on “increased

resource efficiency: maximizing the use of resources to minimize waste; and the potential for substituting key minerals, where scarce minerals would be substituted by materials with similar characteristics that are more readily available.”

4. Extension of life-cycle of renewable products – Another set of proposals assert that the “life-cycle of renewable energy products could be extended through responsible end-of-life production, curbing planned obsolescence and aiming for a ‘cradle-to-cradle’ manufacturing cycle, i.e., product design that is cyclically designed to ensure it can be re-absorbed into the circular economy.

As an example, PowerShift looked into extending the life cycle of smartphones in Germany from two to four years. It found that the “total annual metal demand for the base metals analysed is halved from 33,534 tonnes of RME (Raw Material Equivalents) to 16,767 tonnes of RME: 14,661 tonnes of RME copper, 1,814 tonnes of RME aluminium, and 291 tonnes of RME steel are saved.” By extending its useful life, there is therefore a substantial savings potential from smartphones and similar ICT equipment.⁷⁶

5. Reduction of consumption, and ownership issues - Communal ownership, sharing or renting, could extend the use of products, particularly in regard to transport.

Because there are many benefits that can be derived from a circular economy, “policymakers and businesses are working to increase resource recovery, extend the life of products, and shift away from the cheapest waste-management solutions such as landfill and incineration.”⁷⁷ The 10 R-Strategies are

⁷² Ibid

⁷³ Malooly, L. and Daphne, T. (2023).

⁷⁴ House Bill No. 7609. Introduced by Rep. Loren Legarda (2020)

⁷⁵ War on Want. (2021)

⁷⁶ Wilke, M and Reckardt M. (2024)

⁷⁷ Malooly, L. and Daphne, T. (2023)



utilized and serve as a guide in circular design and manufacturing. They are sometimes also referred to as the R-Hierarchy or the R-Ladder and is a “useful tool for visualising and understanding the different stages of resource use and waste management in a circular economy.”⁷⁸

Briefly, these 10 R-Strategies⁷⁹ are:

- R0: Refuse, because consumers can do without it
- R1: Rethink, because sharing is caring, and scalable
- R2 Reduce: because less is more (efficient)
- R3: Reuse, because trash is treasure
- R4: Repair, because it has life in it yet
- R5 Refurbish: because it can be updated
- R6: Remanufacture, because parts can make a whole
- R7: Repurpose, because the original can be reborn
- R8: Recycle, because trash is treasure
- R9: Recovery, because organic waste is hot

F. Questionable Economic Contributions of Mining

The Philippine government is pushing for the revitalization of the mining industry, arguing that it could boost the country’s economic recovery. However, government figures itself show that the mining industry’s contribution to gross domestic product remains measly.

⁷⁸ Ibid

⁷⁹ Ibid

The Philippine EITI reports that in 2021 the extractive industries’ contribution to Gross Domestic Product (GDP) fell from its usual 0.9% level to only 0.8%. When it comes to employment, the mining industry also does not perform well. In 2021, there were 202,000 people employed in the mining and quarrying industry (MAQ), which accounted for only 0.49% of the total employed persons. This is a reduction by 16.64% from the previous year’s MAQ employment of 242,836 people (0.59% of the total employed persons) in 2020.⁸⁰



Foto: Alyansa Tigil Mina

According to PH-EITI employment data, 49 EITI-reporting companies employed a total of 29,368 persons in 2021. Of the entire workforce, 56.31% were permanent employees, while the rest were employed on a contractual, seasonal, project-based, or probationary basis. Only 14% of the employees are female, showing a significant gender disparity in employment within the extractive industries.⁸¹ The employment data is based on a total of 65 extractive companies which submitted validated data to PH-EITI’s online reporting in the extractives (ORE) tool.

Overall, the economic contribution of mining is miniscule. Compared against the destruction brought about by mining – razed forests,

⁸⁰ Philippine Extractive Industries Transparency Initiative (PH-EITI). (2021)

⁸¹ Ibid



polluted water, loss of biodiversity, human rights violations, among others – mining vast tracks of land for minerals is questionable, at the very least. It doesn't make much sense that mining is being prioritized when its contribution is less than 1% of GDP while it threatens the other combined 14% to 17% of GDP from agriculture, forestry and tourism.

Moreso, in the context of climate change and weather events, which exacerbates the impact of mining, government and mining corporations should instead undertake mining operations with much prudence. The important question that ultimately needs to be asked is: "Who benefits from mining, both during the mine life and the generation after the mine is closed down?"

IV. Recommendations for a Just Energy Transition

There is definitely a need for a just energy transition considering the urgency and severity of the climate crisis. Energy systems must be transformed, and in the process, minerals must be made available. However, there must be guidelines and principles that must be strictly followed for the transition to be truly responsive to the planetary problem.

The following are some recommendations:

1. Local affected communities must be part of the decision on accessing, managing and benefiting from the resources they have. They must be informed of the costs and benefits of doing the investment or the project, whether it involves minerals, timber, water or food. More importantly, communities must give their consent on how these resources are extracted and used.
2. The true costs of extractive projects must be clearly illustrated through a cost-benefit analysis. However, the cost-benefit analysis of a mining project should not be simply about the cost of operating the mines and how much profit is expected from selling the minerals. The more significant costs, such as environmental, social, cultural and health costs, must be included. More importantly, clear values must be placed on ecosystem services, such as "how much value is lost when forests are destroyed or rivers are diverted?".
3. Laws on mining, energy and land use management must be updated to capture the current reality of climate change and extreme weather events. Investments and development projects should be made accountable for its contribution to climate change. Their climate impact, greenhouse gas (GHG) emissions or carbon footprint, must be recorded and taken into consideration when crafting laws and enforcing policies.
4. There should be no "sacrifice zones", where more mining is justified to deliver the requirements of electronic vehicles and renewable energy technologies even if this means more deforestation or displacement of indigenous communities. There should be more "no-go zones", in recognition of planetary boundaries.
5. The circular economy must be boosted and the programs meant to curb consumption must be implemented. There must be a serious consideration of the concept of degrowth and a push for fundamental societal changes that would reduce unsustainable material consumption.
6. All countries and the international community must never rush into undertaking deep sea mining. As long as we have less knowledge about the surface of the ocean than we have of the moon, deep sea mining must not be allowed.



7. A fair global consumption of metals and minerals is urgently needed. In particular, the Global North must reduce its consumption of metals for the mobility or transport sector, among others.

8. The United Nations Development Program's core principles on JET must be considered, but using higher standards of social justice. The UNDP, through the Alliance of Just Energy Transition outlined eight core principles of a just energy transformation:⁸²

(1) be guided by science and realize the urgency of cutting emissions;

(2) be fair and must consider every group's needs, especially the most affected though least responsible;

(3) be sustainable, ambitious, and holistic in limiting global temperature increases;

(4) be comprehensive and where strategies developed nationally are co-designed locally;

(5) observe social dialogue;

(6) be anchored in climate justice and work toward supporting local jobs and communities and achieving wellbeing;

(7) recognize energy access as being part of the larger goals of sustainable development, economic growth, etc.; and,

(8) uphold community and indigenous peoples' rights in pursuing investments, including compensation and meaningful participation for stakeholders.

By upholding these principles, the transition to clean energy technologies is ensured at the same time that the welfare of communities, workers and the environment is prioritized.



Foto: Michael Reckardt

LRC sums up the JET principles by stating: "These core principles provide a comprehensive framework that prioritizes science, fairness, and inclusivity, while also giving importance to addressing climate change. By promoting these principles, the ETM value chain can contribute to a just and sustainable transition to clean energy technologies, while prioritizing the welfare of communities, workers, and the environment."⁸³

⁸² United Nations Development Program

⁸³ Zaplan, M., Taqueban, E., & Quirino, M. (2023)



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Alyansa Tigil Mina, Quezon City, Philippines.
Contact: +63 (02) 917-3794 /
alyansatigilmina.net/

PowerShift, Greifswalder Str. 4, 10405 Berlin.
Contact: info@power-shift.de / power-shift.de



Power
Shift

Authors:

Rhoda Viajar (Alyansa Tigil Mina)

Editors:

Jaybee Garganera, Michael Reckordt

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