

Energy Transition Minerals: Digging Out The Critical Issues



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by



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A Briefing Paper

I. Introduction

Progressive movements, environmental groups, and local communities have consistently challenged the Philippine government's aggressive push to revitalize the mining industry.

The industry's continued operations have damaged the environment and have led to human rights violations in extraction sites.



But these atrocities do not seem to be compelling enough for mining companies to ease up on their activities.

Despite false claims about “responsible mining,” the Philippine government and the mining industry have now found a relatively novel justification to intensify their activities further: the need for transition minerals or critical minerals for renewable energy.

During the 42nd ASEAN Summit in May 2023, President Ferdinand “Bongbong” Marcos, Jr. himself lent credence to this fabrication.



*“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 he said.

The President 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 renewable energy entails the use of minerals. Energy transition minerals (ETMs) also known as **critical minerals** are needed to manufacture electric vehicles (EVs), solar panels, and wind turbines, among others.³

In short, ETMs are seen as one of several crucial components to help the planet transition to clean energy.

But the truth is more complicated than that.

After all, it is important to distinguish between the requirements of EVs and solar/wind energy. Apparently, the transition minerals requirement for EVs is much greater than what is needed for renewable energies, like wind and solar.

In Germany, for instance, around 60 percent of raw material consumption is expected to go to the transport sector. Power Shift Network notes that the demand forecast for lithium, cobalt, and nickel is primarily driven by the requirements of **“electric mobility and individual, electrified automobility.”**⁴

¹ Atienza, K. A. (2023, May 10). Marcos rallies ASEAN towards alliance in mineral resource management, green energy transition. Retrieved from BusinessWorld: <https://www.bworldonline.com/the-nation/2023/05/10/522158/marcos-rallies-asean-towards-alliance-in-mineral-resource-management-green-energy-transition/>

² Ibid.

³ Zaplan, M., Taqueban, E., & Quirino, M. (September 2023). Energy Transition Minerals: Quezon City, Philippines: Legal Rights and Natural Resources Center (LRC).

⁴ Tshin Ilya Chardayre, Michael Reckordt, Hendrik Schnittker (November 2022). Metals for the energy transition - why we should address a raw materials transition together with the energy transition: Berlin, Germany: PowerShift – Verein für eine ökologisch-solidarische Energie- & Weltwirtschaft e. V.: p. 21.



To illustrate, the organization looked into the metal requirements in the production of battery-powered cars by Volkswagen. It found out that the batteries alone could require around eight (8) times more aluminum and nickel in 2030 than the entire planned expansion of wind power plants in Germany.⁵

Power Shift asserts that *“renewable energies are not the driver for the very high, partly unrealistic forecasts for material consumption.”*⁶

Alyansa Tigil Mina (ATM) has earlier asserted that mining for ETMs is a tricky issue.

While the climate crisis has underscored the need for cleaner energy systems, which, in turn, require the extraction of transition minerals, mining ETMs must be undertaken cautiously as there are harmful environmental consequences and negative impacts on communities.⁷

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.

⁵ Ibid.

⁶ Ibid.

⁷ Mayuga, J. L. (2023, October 11). Examining the ‘tricky’ terrain: Anti-mining group warns against hasty mining expansion for energy transition. Retrieved from BusinessMirror: <https://businessmirror.com.ph/2023/10/11/a-tricky-issue/>



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.”*⁸

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.”*⁹

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.”*¹⁰

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. Meanwhile, rare earth elements form part of the magnets used in wind turbines and electric motors.¹¹

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.”*¹²

⁸ Zaplan, M., Taqueban, E., & Quirino, M. (September 2023). Energy Transition Minerals: Quezon City, Philippines: Legal Rights and Natural Resources Center (LRC).

⁹ War on Want. (2021). A Material Transition: Exploring supply and demand solutions for renewable energy minerals. London: War on Want.

¹⁰ Ibid.

¹¹ United Nations Environment Programme (2024, February 19). What are energy transition minerals and how can they unlock the clean energy age? Retrieved from <https://www.unep.org/news-and-stories/story/what-are-energy-transition-minerals-and-how-can-they-unlock-clean-energy-age>

¹² U.S. Geological Survey. (2024) Retrieved from: <https://www.usgs.gov/science/critical-minerals>

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”.¹³

Bantay Kita’s report cites the International Energy Agency (IEA), which estimates that three billion tons of transition minerals must be extracted if the targeted goal of less than a 1.5-degree temperature increase is to be realized.¹⁴ However, no calculation has been made 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.¹⁵

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.¹⁶ Yet, it is also among the countries most at risk to climate change, while contributing only **0.48** percent to global GhG emissions in 2019.¹⁷



¹³ Asuncion, A. M., & Ubaldo, J. E. (2023). Unearthing Transition Mineral Accountability in the Philippines at the Intersection of the Climate Crisis, Energy Transition Landscapes, and the Extractives Industries. Bantay Kita-Publish What You Pay Philippines. p. 7

¹⁴ Ibid. page 7

¹⁵ Ibid. page 7

¹⁶ Ibid. page 11

¹⁷ Zaplan, M., Taqueban, E., & Quirino, M. (September 2023). Energy Transition Minerals. Quezon City, Philippines: Legal Rights and Natural Resources Center (LRC).



A paper produced by LRC¹⁸, further provides the following information and data:

- 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 and electrical wires and in almost every RE technology.
- 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 in 2021 worth Php 181 billion, nickel made up **31%** of the total, 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.

¹⁸ Ibid.



- 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 the Philippines' 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.”¹⁹ These companies are registered with the Philippines’ Securities and Exchange Commission (SEC) and the Department of Environment and Natural Resources (DENR).

In 2021, a total of **30** companies were engaged in the upstream production of nickel.

The Philippines’ top producers of nickel include: Taganito Mining Corporation in Surigao del Norte (**17%** of total production volume), Rio

¹⁹ Ibid.



Tuba Nickel Mining Corporation in Palawan (**11%**), Platinum Group Metals Corporation in Surigao del Norte (**9%**), Carrascal Nickel Corporation in Surigao del Sur (**8%**), CTP Construction and Mining Corporation in Surigao del Sur (**8%**).²⁰

Silver was produced by **14** mining companies in 2021. 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.²¹

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.²²

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 large-scale mining in the communities:

a. Forests and watersheds are at risk of being destroyed.

The Sagittarius Mines Inc. (SMI) Tampakan mining project, 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 deposits. The mine is estimated to yield an average of **375,000** tons of copper and **360,000** ounces of gold per annum for a period of more than 17 years.²³

²⁰ Ibid.

²¹ Ibid.

²² Ibid.

²³ IUCN. (2023, October 31). The human rights impact of mining transition minerals in the Philippines. Retrieved from IUCN - National Committee of the Netherlands: <https://www.iucn.nl/en/story/the-human-rights-impact-of-mining-transition-minerals-in-the-philippines/#:~:text=The%20mining%20project%20would%20dislocate,8%20Indigenous%20people%20were%20killed.>

The project covers four provinces, six watersheds, five ancestral domains, and 8,000 hectares of forest, (or roughly the size of 8,000 sports stadiums), 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.²⁴



Situated at the heart of the Cotabato watershed system, the mining area covers three (3) major watersheds, namely the Padada River Watershed, the Marbel Watershed, and the Catisan Allah Valley River Watershed. Low lying areas, including the Ligawasan Marsh, are projected to be affected by the mining operations.²⁵

Ligawasan Marsh is one of the largest wetlands comprising about **10%** of the Mindanao River Basin. The National Economic Development Board (NEDA)-Region XII has recommended the inclusion of Ligawasan as a protected area under the National Integrated Protected Area System (NIPAS). It counts as among the 15 biogeographic regions identified to be distinct and unique due the presence of significant varieties of flora and fauna.²⁶

According to the Davao Association of Catholic Schools, Inc. (DACs), the Tampakan mining project will deprive irrigators, farmers, and households in the downstream communities of water supply.

²⁴ Ibid.

²⁵ Davao Association of Catholic Schools, Inc. (DACs). (2021). Tampakan Mines Mindanao. Retrieved from Davao Association of Catholic Schools, Inc. (DACs): http://dacsceapxi.org/wp-content/uploads/2021/03/Tampakan-2021-Primer.pdf?fbclid=IwAR0HuVa9-AaXNLHAIYfw8bN13PCVGSKTnFvllbb5WJOEDGvckgXCX3670l_aem_AWAlCc08vaug0JdnArVpmy-maGv7GrEWYoUvLUjOZhdJTZFCqK1iixrRkKQZKqII8zEA7_B_OSI_m_DcXc753H07q

²⁶ Ibid.



In its Environmental Impact Statement,²⁷ the project estimates a water requirement rate of 908 liters per second to fully operate its gold-copper extraction activities. 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.²⁸

The project is also expected to have forests cleared as the mining company requires 10,000 hectares of land for their operational facilities. The mountainous areas where they will operate will more likely have less absorption of rainwater. Clearing thousands of hectares of forests is expected to put provinces at higher risks of flashfloods and landslide.²⁹

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

On March 24, 1996, the worst mining disaster in Philippine history took place, proving that fears about mining were real and not just some baseless doomsday fabrication.

On that tragic day, the drainage tunnels of Marcopper Mining Corporation's open pit broke apart, spilling millions of tons of mine waste in the Boac River in Marinduque. Villages were inundated, crops and vegetable gardens were destroyed, and marine life were killed — it practically exterminated the whole island's ecosystem.³⁰

²⁷ Sagittarius Mines Inc. (2011). Tampakan Copper Gold Mine Project Environment Impact Statement. Retrieved from: <https://www.slideshare.net/slideshow/tampakan-mine-project-eis-main-report-april-2011-8480064/8480064>. Page ES-9

²⁸ Davao Association of Catholic Schools, Inc. (DACs). (2021). Tampakan Mines Mindanao. Retrieved from Davao Association of Catholic Schools, Inc. (DACs): http://dacsceapxi.org/wp-content/uploads/2021/03/Tampakan-2021-Primer.pdf?fbclid=IwAR0HuVa9-AaXNLHAIYfw8bN13PCVGSKTnCFvllbb5WJOEDGvckgXCX367ol_aem_AWAICc08vaug0JdnArVpmy-maGv7GrEWYoUvLUjOZhdJTZFCqK1iixrRkKQZKqII8zEA7_B_OSIIm_DcXc753H07q

²⁹ Ibid.

³⁰ De la Cruz, G. (2017, March 24). Look Back: The 1996 Marcopper mining disaster. Retrieved from Rappler: <https://www.rappler.com/environment/disasters/165051-look-back-1996-marcopper-mining-disaster/>



At present, mining threatens Sibuyan Island, one of 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 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, ten species of amphibians, 25 species of reptiles, and 18 species of mammals.³¹

The mining operations of Altai Philippines Mining Corp. (APMC) has strengthened the resolve of many residents in opposing mining activities on the island. In February 2023, they organized a rally and human barricade to protest the illegal mining by APMC. The community 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

³¹ Living Laudato Si’ Philippines. (2023). Everything you need to know on the Sibuyan Island mining issue. Living Laudato Si’ Philippines





could damage marine life, such as the seagrass, and coral reefs in the area where the causeway was built.³²

This prompted the Ecosystems Research and Development Bureau (ERDB), in collaboration with Coastal Resources and Ecotourism Research, Development and Extension Center (CRERDEC), to investigate the alleged damages.

Based on 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.³³

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 the shape and form of the beaches to change. As a result, these could lead to coastal

³² Flores, J. (2023, August 21). A Peril in Paradise: The Threat and Consequences of Mining in Sibuyan Island, Philippines. Retrieved from Plastic Education: <https://plastic.education/the-threat-and-consequences-of-mining-in-sibuyan-island-philippines/#mining-timeline>

³³ Ibid.

erosion, coastline instability, coastal flooding, surges, and extreme tidal inundations.³⁴

c. Water is polluted and food production is affected.

In Aroroy, Masbate, where Filminera Resources Corporation has been conducting open-pit mining operations, residents have been deprived of their livelihoods because of the mining company's waste products, such as 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."*³⁵

The petition further asserted that the damage to 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."³⁶

According to 4As, the mining company constructed spillways, dams, and tailings ponds, which led to the contamination of the bodies of water of several barangays. The farm lands and cattle ranches, which use the rivers and bodies of water as sources of fresh water, also became polluted. In turn, the livestock, which ended up in people's tables, were likewise contaminated.³⁷

The petitioners further stated that Filminera illegally constructed a spillway along the national road as well as dams on various bodies of water. These worsened and hastened the contamination of the bodies of water resulting in "massive fishkills and the ubiquitous threats to the life and

³⁴ Ibid.

³⁵ Ang Aroroy ay Alagaan Inc. et al vs Filminera Resources Corp. (Court of Appeals July 1, 2016).

³⁶ Ibid.

³⁷ Ibid.



health of the petitioners, let alone to the livestock, who rely on these waters as sources of drinking water.”³⁸

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** Filipino environmental activists have been killed, a third of which were linked to “defenders speaking out against company operations linked to the mining sector.”³⁹

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.”⁴⁰

In many areas, environment and human rights defenders, including leaders of indigenous peoples’ (IP) groups are being red-tagged or accused as communists/terrorists.

One such victim is Alice de los Reyes, a female IP leader.



³⁸ Ibid.

³⁹ Global Witness. (2023, September 15). Standing firm: The Land and Environmental Defenders on the frontlines of the climate crisis. Retrieved from Global Witness: <https://www.globalwitness.org/en/campaigns/environmental-activists/standing-firm/>

⁴⁰ Ibid.

In the midst of the Covid 19 crisis, she was advised by an alleged civilian asset to surrender to the government. Due to her active engagement in activities led by ATM and other environmental and human rights groups, Alice was accused of being a terrorist. Also, a threat to arrest her was made because of a Facebook post. Later, it was confirmed that she was a subject of a police surveillance.⁴¹

In other communities such as Brooke's Point (Palawan), Sibuyan Island (Romblon), Aroroy (Masbate), mining companies file harassment cases to cow environmental defenders into silence.

Due to protests against illegal mining operations and the consequent damages to the environment and community life, companies charge critics with various cases, such as libel and trespassing.

c. Women, young persons, and indigenous peoples experience marginalization and differentiated impacts on their lives and livelihoods.⁴²

According to Judith Pasimio, Overall Coordinator of LILAK (Purple Action for Indigenous Women's Rights), mining has rendered rural and indigenous women more vulnerable to violations and abuse of their human rights, even as they experience different forms of violence.⁴³

Community leader Marylou Verano reveals that women against mining face threats and intimidation from security personnel of mining firms and from state agents, such as the police and military. Women anti-mining advocates are accused of being communist insurgents because they allegedly oppose development in their localities.

Moreover, women no longer feel safe and secure in their communities because of the arrival of outsiders as a result of mining.⁴⁴

⁴¹ Alyansa Tigil Mina. (2021). Covid 19 Pandemic and its Impacts on the Livelihoods and Struggles of Mining-Affected Communities in the Philippines. Quezon City: Alyansa Tigil Mina.

⁴² Pasimio, J.A. (2017). Policy study on women human rights and the mining industry in the Philippines. Quezon City: LILAK (Purple Action for Indigenous Women's Rights)

⁴³ Ibid.

⁴⁴ Rhoda Viajar's Online Interview with Marylou Verano, member of ATM Council of Leaders'. April 4, 2024.



It is the women who also bear the brunt of having to deal with either a shortage or contamination of water.

Since they can no longer do their laundry in flowing streams, they are forced to walk miles in order to source clean water. They are also prompted to buy mineral water for cooking, and especially to take care of their babies. Many have even gone without meals just so the little money they have left would go to paying for clean water for their families.⁴⁵

Women aren't the only victims. Their kids are too.

Young people have to stop their schooling as mining activities have displaced them from their localities. Displaced families are compelled to move to the cities and start their lives from scratch. In the cities, they have to contend with the realities of urban poverty.⁴⁶

Indigenous peoples lose their livelihoods as farmlands are converted into mining sites and they experience forced evictions from their locations. Moreover, their socio-political systems are disrupted and their communities' sense of unity weakened, resulting in the loss of their culture and identity.⁴⁷

d. 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 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."⁴⁸

⁴⁵ Ibid.

⁴⁶ Ibid.

⁴⁷ Wetzlmaier, M. (2012). Cultural Impacts of Mining in Indigenous Peoples' Ancestral Domains in the Philippines. ASEAS - Austrian Journal of South-East Asian Studies.

⁴⁸ P.S.R No. 989 Introduced by Senator Risa Hontiveros (April 2024). Resolution 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. Retrieved from https://legacy.senate.gov.ph/press_release/2024/PSRN%20989.pdf



The Resolution cites the massive landslide that hit Maco, Davao de Oro on February 6, 2024, and left at least **35** dead, **32** injured, and **77** missing.⁴⁹

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.”⁵⁰

The Resolution also points out the residents of Brgy. Taguilos, Cadiocan, Romblon claim that “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.”⁵¹

Furthermore, it 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.

e. 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 several resolutions and ordinances, which are the result of persistent advocacy efforts and democratic protests, they have articulated their opposition to mining. These resolutions enumerate the violations of the mining companies, and the impact on the communities.

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Ibid.



Yet despite the resistance of local governments and their communities against mining, companies continue to their operations practically unencumbered. On Sibuyan Island in Romblon and Brooke's Point in Palawan, mining corporations have proceeded with their extractive activities even without the necessary Mayor's permit and other requirements.

The residents themselves have put up barricades, protesting the illegal mining operations. They have put pressure on government agencies, like the DENR, to cancel mining contracts in their respective areas.

Mining undermines local autonomy as corporations openly defy local regulations, indicating disrespect and disregard for local autonomy.

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."⁵²

Regarding 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 to "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."⁵³

The Code also states that no program or project shall be implemented without compliance with the required consultations and prior approval of the local councils (sanggunian).⁵⁴

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.

⁵² 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

⁵³ Ibid.

⁵⁴ Ibid.



B. False Solutions to the Climate Crisis

Shifting to renewable energy as a way to address climate change seems to be ideal at the surface.

But scrutinized profoundly, the energy transition reveals unchanged and unchallenged assumptions about the way the world uses resources and the extent of how these are consumed.

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.⁵⁵

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.”*⁵⁶

⁵⁵ War on Want. (2021). A Material Transition: Exploring supply and demand solutions for renewable energy minerals. London: War on Want.

⁵⁶ Ibid.



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.

Power Shift has a slightly different take.



While it recognizes that **“the shift away from fossil fuels, and the global expansion of renewable energies are inevitable,”** the group still pointed out that societies will continue to need metallic raw materials in the future.⁵⁷

It analyzed the consumption of raw materials and identified potential areas where metal consumption can be reduced. It asserted that the potential needs to be maximized or “exploited to address the social and environmental challenges associated with the extraction of metallic raw materials.”⁵⁸

The potential areas identified by Power Shift 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.⁵⁹

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.”⁶⁰

⁵⁷ Wilke, M and Reckordt M. (March 2024). Reducing metal consumption: Practical suggestions for the raw materials transition. Berlin, Germany: PowerShift – Verein für eine ökologisch-solidarische Energie- & Weltwirtschaft e. V.

⁵⁸ Ibid.

⁵⁹ Ibid.

⁶⁰ War on Want. (2021). A Material Transition: Exploring supply and demand solutions for renewable energy minerals. London: War on Want.

According to Transnational Institute (TNI) and London Mining Network, the mining industry has been rebranding itself as minerals solutions or materials solutions companies, which is consistent with its efforts of previously rebranding mining as “sustainable” and a “vehicle for development”.⁶¹

“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 London Mining Network said.⁶²

According to the report, the mining companies are represented as suppliers or deliverers of “products” instead of mainly corporations that undertake mining operations.⁶³

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.”⁶⁴

Second, mining companies will use the energy transition to justify their expansion and will attempt to “green-wash” their reputations by using green credentials.⁶⁵

⁶¹ Barbesgaard, M. & Whitmore. A. (2022). Smoke and Minerals: How the mining industry plans to profit from the energy transition. Amsterdam/London. Transnational Institute and London Mining Network. P. 12

⁶² Ibid.

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ Ibid.



Already, buzzwords have emerged such as “climate-smart mining,” which was initiated by the World Bank in its thrust to support a low-carbon future powered by technologies such 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.

For its part, the Manila-based Legal Rights and Natural Resources Center is highly critical of climate smart mining, saying that “the environmental and social costs of renewable energy, under climate smart mining, will be absorbed by poor nations, which are already absorbing the impacts of the climate crisis.”⁶⁶



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.”⁶⁷

“Already, the EU consumes 25 to 30 percent of metals produced globally, while the EU makes up only 6 percent of the world’s population,” a position paper of European civil society organizations states.⁶⁸

⁶⁶ Taqueban, E., & Quirino, M. (2023). Towards a Just Minerals Transition in the Philippines. Quezon City: Legal Rights and Natural Resources Center.

⁶⁷ War on Want. (2021). A Material Transition: Exploring supply and demand solutions for renewable energy minerals. London: War on Want.

⁶⁸ EU RawMaterials Coalition (2023). A Turning Point: The Critical Raw Material Act’s needs for a Social and Just Green Transition. Retrieved from PowerShift: <https://power-shift.de/wp-content/uploads/2023/07/CRMA-Position-Pa-per-Final-1.pdf>

Meanwhile, 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.
- Resource extraction and processing, which contribute to about half of GHG emissions, cause 90% of biodiversity loss and water stress, according to the International Resource Panel.
- Material consumption is estimated to double by 2060 from 2011 levels. Material consumption in high-income countries is around 27 tons per person, or 13 times that of low-income countries.
- The yearly 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 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, according to the World Bank.

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.

It proposes that the consumption of transition minerals “needs to be carefully considered and reduced, where possible, to lessen the predicted impacts.”⁶⁹ This would ensure that carbon reduction does not come at the expense of climate-critical ecosystems, communities, or respect for human rights.

On the other hand, a report by the United Nations Environment Programme ⁷⁰ reveals that provisioning of food, built environment,

⁶⁹ Ibid.

⁷⁰ United Nations Environment Programme (2024): Global Resources Outlook 2024: Bend the Trend – Pathways to a liveable planet as resource use spikes. International Resource Panel. Nairobi. Retrieved from <https://wedocs.unep.org/20.500.11822/44901>





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 account 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%.”*⁷¹

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.”⁷²

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, 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.”*⁷³

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.”⁷⁴

⁷¹ Ibid.

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Ibid.

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.”⁷⁵

Degrowth wants to reduce waste and shrink economic sectors that are ecologically destructive, and those 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.⁷⁶

The theory of degrowth is based on the concept of a good life, underscoring that “when a certain level of development is reached, more GDP growth does not necessarily correlate to greater well-being.”⁷⁷

E. Circular Economy

An idea closely associated with energy transition and transition minerals is the concept of 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 long as possible, and the generation of waste minimized.”⁷⁸

Circularise, 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.”⁷⁹

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

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Ibid.

⁷⁹ Malooly, L. and Daphne, T. (2023, November 9). R-Strategies for a Circular Economy. Retrieved from Circularise: <https://www.circularise.com/blogs/r-strategies-for-a-circular-economy>





materials for new products come from old products. It minimizes waste and maximizes the use of natural resources.”⁸⁰

Some claim that the concept of a circular economy has become contested and co-opted and, as a result, have proposed to replaced it with the term circular society.

War on Want⁸¹ tackles the following practical elements that make up the circular economy or society.

1. Recycling. Recycling of metals is considered important in order to replace the need for mining. It requires much lower energy costs than mining. Urban mining, which is another term used to refer to metals recycling, is specifically centered on recycling high-cost metals and electronic and electrical waste.
2. Enhance landfill mining or mining old landfill sites — Discarded metals can be recovered while conducting environmental remediation work.
3. Increased resource efficiency — This is a set of proposals that center

⁸⁰ House Bill No. 7609. Introduced by Rep. Loren Legarda (2020, September 8). An Act to Promote Circular Economy and a Whole-of-Nation Transition Toward a Sustainable Future. Retrieved from: https://hrep-website.s3.ap-southeast-1.amazonaws.com/legisdocs/basic_18/HB07609.pdf

⁸¹ War on Want. (2021). A Material Transition: Exploring supply and demand solutions for renewable energy minerals. London: War on Want.

on maximizing the use of resources to minimize waste; and the potential for substituting key minerals with other 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, Power Shift 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 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.”⁸²

In short, extending the useful lives of smartphones and similar IT equipment will result in a substantial savings potential.

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

Since many benefits can be derived from a circular economy, Circularise asserts that “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.”⁸³

The 10 R-Strategies are utilized and serve as a guide in circular design and manufacturing. They are sometimes also referred to as the R-Hierarchy

⁸² Wilke, M and Reckordt M. (March 2024). Reducing metal consumption: Practical suggestions for the raw materials transition. Berlin, Germany: PowerShift – Verein für eine ökologisch-solidarische Energie- & Weltwirtschaft e. V.

⁸³ Malooly, L. and Daphne, T. (2023, November 9). R-Strategies for a Circular Economy. Retrieved from Circularise: <https://www.circularise.com/blogs/r-strategies-for-a-circular-economy>





or the R-Ladder and is useful for visualising and understanding the different stages of resource use and waste management in a circular economy.⁸⁴

Briefly, these **10 R-Strategies**⁸⁵ 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

⁸⁴ Ibid.

⁸⁵ Ibid.

F. Questionable Economic Contributions of Mining

The Philippine government is pushing to revitalize the mining industry, arguing that it could boost economic recovery.

However, government figures itself show that the mining industry's contribution to Gross Domestic Product (GDP) remains measly. The Philippine EITI reports that in 2021 the extractive industries' contribution to GDP fell from its usual **0.9%** level to only **0.8%**.⁸⁶

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, which accounted for **0.59%** of the total employed persons in 2020.⁸⁷

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.⁸⁸

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 contributions of mining to the economy is miniscule.

Compared to the destruction brought about by mining — razed forests, polluted water, loss of biodiversity, human rights violations, among others — mining vast tracks of land for minerals is questionable, at the very least.

⁸⁶ Philippine Extractive Industries Transparency Initiative (PH-EITI). (2021). Recovery: Regaining Ground and the Need to Expand Civic Spaces, FY 2021 Country Report. PH-EITI.

⁸⁷ Ibid.

⁸⁸ Ibid.





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%-17%** of GDP from agriculture, forestry and tourism.

In the context of climate change and extreme 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 years 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, guidelines and principles 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** regarding access, management, and benefits derived from the resources they have. They must be informed of the upsides and downsides of 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. A mechanism must be set to put an actual monetary amount on the benefits provided by the ecosystem (i.e., “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 contributions to climate change. Their climate impact, greenhouse gas (GHG) emissions, or carbon footprint must be recorded and considered when crafting laws and enforcing policies.
4. **There should be no “sacrifice zones”**, where more mining is justified to deliver the requirements of electric 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 supported** and the programs meant to curb consumption must be implemented. The concept of degrowth should be seriously considered as well as 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 adopted.**



The UNDP, through the Alliance of Just Energy Transition outlined eight core principles of a just energy transformation.⁸⁹

These principles should

- (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.

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."*⁹⁰

⁸⁹ United Nations Development Program. The 8 core principles of a Just Energy Transformation. Retrieved from <https://www.undp.org/energy/dialogues-and-alliances/alliance-just-energy-transformation>

⁹⁰ Zaplan, M., Taqueban, E., & Quirino, M. (September 2023). Energy Transition Minerals. Quezon City, Philippines: Legal Rights and Natural Resources Center (LRC).

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Kung Puno ng Puno

ni **Maryjane Puno**

Photography Grand Winner during ATM Anti Mining Solidairty Week 2024



Mula sa tuktok ng bundok hanggang sa bahura, ang lupa ay umiiyak,
habang gumuguho ang mga bundok, nananatili ang kanilang katahimikan.

Ang pagmimina ay sumisira sa lupa, walang humpay na paghabol,
binubura ang mga kayamanan, hindi nag-iiwan ng bakas.
Sa mga dalisdís na dating malago, napupuno ng alikabok ang hangin,
ang mga ugat ng kalikasan ay naputol, isang malalim na kawalan ng pag-
asa.

Sa ilalim ng dagat, ang buhay ay nawawala,
habang gumagapang ang dilim kung saan naglalaro ang sikat ng araw.

Ang mga pangarap na kaakibat ng kalikasan ngayon ay nagkakagulo,
bawat pang-industriya na hakbang ay nangangailangan ng isang presyo
upang bayaran.

Para sa isang hinaharap na hindi nasisira, dapat nating piliin na lumaban,
mula bundok hanggang bahura, bawiin natin ang liwanag.



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