

Task Force 02

SUSTAINABLE CLIMATE ACTION AND INCLUSIVE JUST ENERGY TRANSITIONS

Brazil Presidency Must Lead G20 to Mitigate Environmental and Social Spillovers of the Energy Transition

Simon Høiberg Olsen, Institute for Global Environmental Strategies (Japan)

Nandakumar Janardhanan, Institute for Global Environmental Strategies (Japan)

Eri Ikeda, Indian Institute of Technology-Delhi (India)

Maria Cândida Mousinho, IFBA/PGENAM-UFBA/Office of the Special Advisor to the President (Brazil)



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Abstract

This policy brief focuses on the international collaboration necessary to equitably progress towards the sustainable energy transition. In that context, it addresses SDG 12 - responsible consumption and production, and in particular SDG target 12.2 - achieving sustainable management and efficient use of natural resources. Based on recent research, this policy brief summarises the negative social and environmental impacts resulting from international value chains of energy-related commodities that are essential for countries' transition towards circular and low-carbon economies. In this transition, developing countries tend to provide the natural resources necessary for developed countries' circular economy aspirations. On the surface, this approach offers social and economic co-benefits to developing countries in exchange for the exported natural resources, but the resource extraction also causes social and environmental changes and risks, that together result in an unbalanced distribution of social and environmental costs and benefits across the value chain and across countries. This, in effect, helps only some countries progress towards meeting their SDG and climate change commitments, while other countries are left behind. The authors of the policy brief argue that G20 is well-positioned to propose solutions to this international challenge. Among others, the G20 Brazilian presidency can lead the improvement of international natural resource governance in order to address the negative environmental and social spillovers resulting from global commodity value chains. The brief makes initial proposals to that end - ensuring also continuity and synergies with existing G20 work and initiatives.

Diagnosis of the Issue: Internationalized Ecological and Social Costs of Tte Energy Transition

Brazil's G20 presidency focuses on building a fair world and a sustainable planet to reduce hunger, poverty and inequality. Brazil also promotes an inclusive ecological transition, reflecting its political values and linking to previous G20 presidencies. India, for example, emphasised poverty eradication and social inclusion in the context of sustainable development. Indonesia's G20 presidency advocated policies to reduce economic inequality and promote social inclusion. By linking to previous G20 efforts, Brazil can strengthen the group's collective commitment to fairer, more equitable and sustainable global development. This not only reinforces the legitimacy and relevance of the G20 as a platform for constructive dialogue and cooperation but also signals a shared vision of a more harmonious future through innovative and effective solutions to global challenges such as climate change.

The current energy system represents approximately 75% of CO₂ emissions globally (International Energy Agency 2024). To meet the mitigation targets of the Paris Agreement requires decarbonising the energy sector across all countries. However, new energy systems must be secure, reliable and sustainable. Additionally, it is paramount to tackle the negative impacts of the energy transition on biodiversity, pollution, avoid backsliding on the SDGs, and address negative environmental and social spillovers. This is recognised across global forums such as the recent UNEA 6, which produced a resolution on the environmental aspects of mining and minerals (United Nations Environment Programme 2024b). Also, the G20 and similar governance 'clubs' are crucial and powerful agents for a sustainable energy transition.

Minerals and materials are necessary for the energy transition (Janardhanan et al. 2023). But their availability and competing use (defence, digitalisation), requires collaboration across countries to reduce risks and negative impacts. Global demand for critical minerals is expected to grow up to 500 percent for certain minerals (World Bank 2020b). For example, electrifying transportation will require 135 million electric vehicles by 2030 (World Bank 2020a). The International Renewable Energy Agency underscores the material intensity of this transition, requiring 160 million tons of aluminium and 20 million tons of copper by 2050 (International Renewable Energy Agency 2019). The needed minerals are often sourced internationally, impacting value chains and increasing asymmetric environmental and social impacts between producing countries (often in the global south) and consuming countries (often in the global north).

Patterns of Critical Minerals' Trade

Product All critical minerals



Source: ITC Trade Briefs (tradebriefs.intracen.org), using data from ITC Trade Map and national sources (2023)
 Note: The left and right axes display exporters and importers, respectively, of All critical minerals. Asterisks denote G20 countries. Critical minerals are defined as per the OECD list, and include raw, semi-processed, and processed products.

FIGURE 1 – Patterns of critical mineral’s trade. Source: Trade Briefs (International Trade Centre 2023).

Figure 1 above illustrates the critical minerals produced and traded internationally by G20 countries - revealing that a proportion of the minerals produced are traded within G20, and a smaller part (about 1 third) is traded with the rest of the world (RoW). Because all countries need to decarbonise their energy sectors, this co-dependence requires cooperation and collaboration to ensure the benefits and burdens of production, processing and consumption of mined materials are shared in an equitable and transparent manner across G20 and beyond.

Mineral extraction and processing create diverse environmental, social, and economic challenges. Biodiversity loss and water and air pollution are prevalent in many resource-rich regions in the global south. Socially, mining disrupts communities, displacing indigenous peoples and altering livelihoods, which can have adverse long-lasting impacts. Economically, countries reliant on mining revenue face instability due to the lack of adequate domestic governance measures as well as production disruptions by vested interest groups. In addition, inefficient processing and recycling exacerbate resource inefficiencies, which leads to excess demand, exploration, and mining. Cross-cutting issues, including equity, gender disparities, and impacts on agri-food systems, further complicate impacts on society and the environment. Businesses also face transition risks due to the evolving environmental regulations and market demands.

Recommendations

Figure 2 (below) illustrates the challenges across sectors and geographies that governments will face in the clean energy transition and which have been described in the previous section. However, the figure also proposes ways to address these challenges, which are further elaborated below.

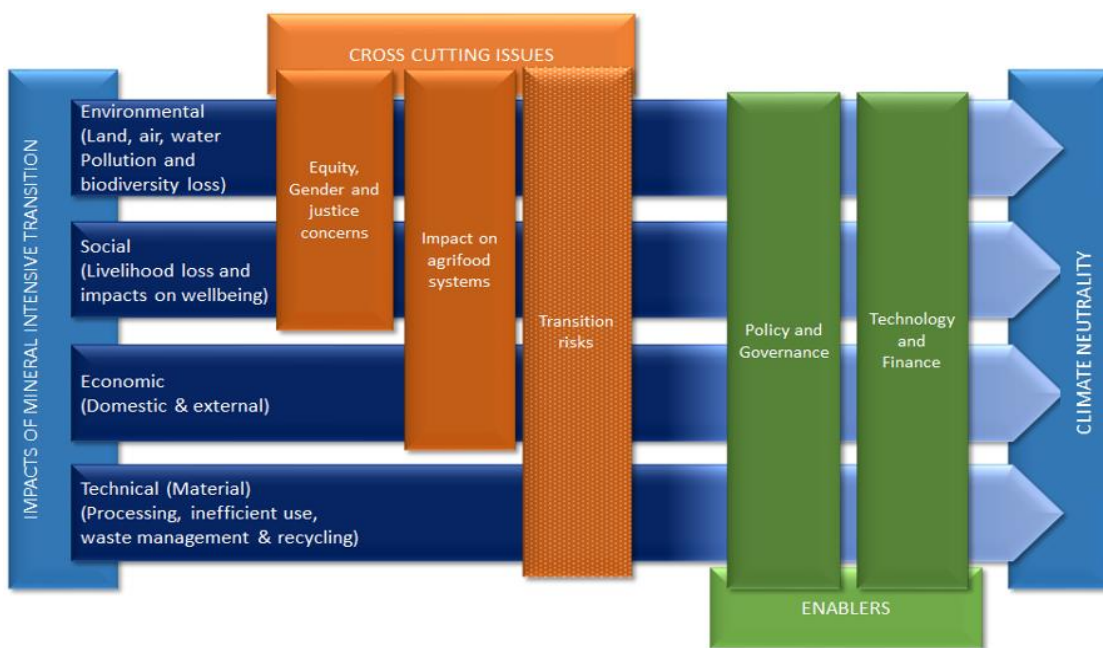


FIGURE 2 - Challenges to the energy transition and ways to tackle them. Source: (Janardhanan and Tamura 2024).

Addressing the challenges of the energy transition requires a strategic and global level governance approach, aimed at integrating objectives around environmental sustainability, social equity, and economic resilience into the CRM value chain involving countries that produce, export, process, import, consume and recycle materials that contain CRMs.

Impacts from the transition to climate neutrality are going to happen across sectors and countries. In terms of the environment, mineral exploration, extraction, and processing are bound to have environmental impacts in producing countries, alongside social implications of mineral extractions causing displacement of people or loss of livelihoods and impacts on peoples' well-being. Economic impacts are also envisioned both domestically and internationally as are technical (material) impacts related to the use, waste management and recycling of products that require the minerals. Closing the loop in the trade of materials critical for energy transition is critical. For example, existing patterns of production and consumption of critical minerals present a linear supply chain with relatively less attention on efficient reprocessing, recycling and reuse.

Mainstreaming recycling and reuse governed by strict guidelines is critical in this regard. Research suggests that roughly 20% of the total demand for critical minerals can be supplied by efficient recycling between 2022 and 2050 (Simas, Aponte, and Wiebe 2022). To draw attention to that, The Brazilian presidency can promote the adoption of green public contracts/procurement internally and preferably in international cooperation projects and agreements as and when related to critical minerals and energy transition.


The above is relevant because the environmental and social impacts of the energy transition are dispersed geographically and sectorally. Moreover, since it is in the interest of every country to enable its own transition to a climate neutral society by not causing other countries to struggle with environmental and social impacts from the transition, collaboration is important. This can be done on two tracks – namely policy and governance on the one hand, and technology and finance, on the other.

Such concerted efforts to mitigate environmental degradation while protecting social welfare and promoting responsible resource management will require international collaboration on equal terms to allow all countries to move towards a more sustainable

and just future. Under Brazil's Presidency, the G20 member countries may consider taking this agenda forward by proposing language and initiative that can work to shape an international (G20+) framework for mitigating social and environmental challenges of critical minerals and materials mining in the context of meeting internationally agreed goals and targets.

It is recommended for the G20 to set in motion a process for drafting a Terms of Reference TOR for a working group of concerned governments and stakeholders which among others contains activities around stakeholder mapping to ensure all concerned stakeholders can be identified and involved and a list of concerned minerals and materials that concerned parties can agree on. Among others, the G20 Energy Transitions Working Group emphasises energy security and diversified supply chains, energy efficiency and responsible consumption (Government of India 2023a), hence it might be suitable for taking forward the concerns raised in this policy brief with the aim to work to increase the coordination needed for a sustainable transition to zero carbon energy.

In terms of outcome language, the Brazilian G20 presidency can aptly build on the 2023 G20 New Delhi Leaders' Declaration (Government of India 2023b), which emphasises the importance of a 'just' energy transition, highlighting sustainability, affordability and inclusivity, recognising the challenges for developing countries, and seeking support from the international community, especially for innovation, technology transfer, and low-cost financing. It can also consider adopting or building on language recently agreed upon at the 6th UNEA, particularly from resolutions on the environmental aspects of minerals and metals, and the resolution on promoting synergies, cooperation, or collaboration for national implementation of multilateral environmental agreements and other relevant environmental instruments (United Nations Environment Programme 2024a; 2024b).



Anchoring intentions and outcome language in agreed resolutions and other agreements such as Agenda 2030 is important to get all relevant actors on board, some of which may not be part of the G20 but whose energy transition will have spillover impacts on G20 countries caused by the increased demand for minerals and metals. Referring to the international dimensions of progressing towards SDG 12 targets would be one important area to highlight, especially regarding the need for developed countries to take the lead (12.1) and achieving the sustainable management of natural resources (12.2), including those traded internationally. The two resolutions mentioned above can also be helpful anchors here, with language that emphasises the need for cooperation among and beyond G20 countries to achieve more fair and equitable sharing of costs and benefits of the clean energy transition, particularly in the area of mining and minerals extraction and their potential social and environmental impacts.

The need for a synergistic approach also has to do with the fact that spillovers are not just geographical but also represent a risk in terms of potential negative impacts on biodiversity and livelihoods from mining for critical minerals. In that way a strategic approach is called for that can help governments and stakeholders anticipate and reduce the potential risks associated with the clean energy transition.

A more equitable governance model that considers the above for G20 and beyond requires a systemic approach with language that can be adopted by a G20 communique. Here it would be important to focus on making the links and recommending ways to take such a synergistic approach as described in Figure 2 above.

Scenario of Outcomes

Scenario A: Not taking an integrated approach

Lack of continuity of past initiatives: Without building upon existing momentum and initiatives, the G20 may lose an opportunity to build consensus among member countries which can eventually lead to fragmented efforts. Without leveraging the advances laid by the predecessors, global efforts toward sustainable transition would not be inclusive. There could also be duplicated efforts with a lack of cohesive strategy and missed opportunities for collaboration.

Failure to build international synergies: If member countries prioritise individual interests, it can lead to a lack of sharing of costs and benefits associated with the clean energy transition. This can result in uneven burdens on economically weaker countries, hindering global efforts towards sustainability. As the mineral supply chain demands collective action, a lack of coordination among countries can exacerbate resource inequalities and environmental degradation. G20's intervention is critical in shaping a platform for the members where a framework for governance can be built.

Ignoring spillover risks: Not recognising spillover risks can lead to failure in designing measures that can protect biodiversity and livelihoods. Such a lack of strategic planning can eventually lead policy makers to abandon relevant policy initiatives and be ill-prepared to address environmental degradation and social unrest in affected regions (Truelove et al. 2014).

Maintaining status quo in governance: If the G20 communique does not adopt a systemic approach or integrate specific language promoting synergy and equity, the communique will only facilitate the continuity of the current governance architecture which prioritises individual interests over collective action. As a result, efforts towards

energy transition and climate mitigation remain fragmented and inadequate. Without a shift towards more equitable governance, global efforts could fail to fulfil its potential as a platform for driving sustainability initiatives, perpetuating inequalities and presenting serious obstacles to SDG targets.

Scenario B: Taking an integrated approach

The G20 Presidency will need to recognise the importance of building upon past initiatives to accelerate progress toward a just sustainable energy transition. By integrating international synergies into its agenda, the G20 can emphasise cooperation and collaboration, and work towards a more equitable distribution of costs and benefits, particularly in mining and minerals, but the same principle may extend to other sectors where production and consumption and their impacts are dispersed across sectors and geographies. Such collective action is needed to recognise and work to mitigate environmental risks and facilitate a smoother transition to a clean energy economy. The section below suggests benefits the G20 members can gain by adopting the proposed recommendations.

Embracing existing momentum: As the material value chain spreads across upstream, midstream and downstream activities in different geographies, collaboration is essential.

If the G20 Presidency embraces the opportunity to build upon existing momentum generated by previous presidencies, this can open up avenues for strengthening collaboration and exchange among all the previous Presidencies.

Addressing spillover Risks: One of the most critical areas that demand action is to address impacts on biodiversity and livelihoods due to mining and material value chain. Specific initiatives to address these spillover impacts along with the promotion of sustainable mining practices can present an equitable transition pathway.

Promoting equitable governance: The global architecture to address the challenges in the material value chain for energy transition is urgently needed. Such a framework will need to prioritise collective action to respond to the impact on society and the people, especially in the developing and least developed economies. Lessons can be drawn, among others, from existing frameworks that govern conflict minerals. Examples include the Kimberly process (Borsky and Leiter 2022), and OECD due diligence initiatives and their significance for SDG achievement (Dou et al. 2023).

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