IV. GEOLOGY, GEOPOLITICS AND TRADE: UNEARTHING THE FAULT-LINES IN EXPORT RESTRICTIONS ON CRITICAL MINERALS

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ABSTRACT

Critical Mineral Resources have been called the 'oil' of the 21st century, given their indispensable role in the global clean energy transition. However, the geographic concentration of these minerals, coupled with complex supply chains, exposes the world to geopolitical risks, trade restrictions, and supply disruptions. Several resource-rich nations have imposed export restrictions to safeguard domestic industries and assert economic sovereignty, raising concerns over the legality of such measures under World Trade Organization rules. This paper examines the legal framework governing export restrictions on CMR under the General Agreement on Tariffs and Trade, focusing on quantitative restrictions under Article XI and general exceptions under Article XX. Additionally, it assesses the role of export duties and their implications for global trade governance. A key challenge for the WTO is balancing the competing interests of resource-endowed nations seeking control over their critical minerals and resource-dependent nations relying on stable supply chains. The paper explores how WTO policy can mediate these tensions, ensuring a legally sound yet pragmatic approach to CMR trade regulation. In light of emerging trends in international trade law, this study also evaluates India's position as a resource-dependent economy vulnerable to supply shocks. By analysing global best practices and recent WTO disputes, the paper provides policy recommendations for India to enhance its trade resilience, mitigate geopolitical risks, and secure critical mineral supply chains. Ultimately, this paper contributes to the broader discourse on sustainable, legally coherent trade policies for CMR in an increasingly fragmented global economy.

Keywords: CMR, World Trade Organisation, Tariffs, Trade and Policies.

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I. INTRODUCTION: ASSESSING THE 'CRITICALITY' OF MINERALS IN GEOLOGY AND GEOPOLITICS

"*The response from policy makers and companies will determine whether critical minerals remain a vital enabler for clean energy transitions or become a bottleneck in the process.*"

– Dr. Fatih Birol, Executive Director, International Energy Agency[1]

Critical Mineral Resources **("CMR")** have been called the 'oil' of the 21st century.[2] With resources like lithium, cobalt, and rare earths serving as the foundation of future economies,[3] the global competition for vital minerals is fuelled by changing political, economic, and technical environments.[4] From the development of the "continental shelf" theory, which permits offshore oil

[1] International Energy Agency, *The Role of Critical Minerals in Clean Energy Transitions* (World Energy Outlook Special Report, May 2021).
[2] C H M Schmitt, *The Geopolitics of Critical Minerals* (2019).
[3] ibid.
[4] Annie Lee, 'China Jumps Ahead in the Rush to Secure Lithium from Africa', (*Bloomberg,* July 3, 2023) <https://www.bloomberg.com/news/articles/2023-07-03/china-jumps-ahead-in-the-rush-to-secure-lithium-from-africa> accessed 22 December 2025.

drilling,[5] to land rules that support large-scale farming,[6] law has long influenced resource extraction and commerce.[7] With trade regulations, national laws, and international agreements controlling important mineral markets, legal frameworks are still changing today. The legal framework supporting key minerals reflects not just economic need but also the rising geopolitical stakes of resource ownership as countries negotiate supply chain security and economic strategy.[8]

This section looks at *first*, how the assessment of 'criticality' may be made on demand and supply factors, and *second*, the linkages between this criticality and the geopolitical rush and tumult to either acquire or gatekeep these resources, and further introduces the issues dealt with in this paper.

A. Identification of CMRs based on Demand & Supply Determinants

Presently, there is no universally accepted definition of critical materials. To reduce import dependence for CMRs, industrialized nations have emphasised efforts towards their identification.[9] The United States took the lead in 2008 when a committee under the National Research Council developed a '*criticality matrix*,' outlining key minerals essential to its

[5] Surabhi Ranganathan, 'Ocean Floor Grab: International Law and the Making of an Extractive Imaginary' (2019) 30 EJIL 573.
[6] Lorenzo Cotula, 'Land Grabbing and International Investment Law: Toward a Global Reconfiguration of Property?' in (eds) *Yearbook on International Investment Law & Policy 2014–2015* (Oxford University Press 2016) 177–214.
[7] Weihuan Zhou and others, 'Demystifying China's Critical Minerals Strategies: Rethinking "De-risking" Supply Chains' (2023) UNSW L & Just Rev 23 <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4578882> accessed 22 December 2025.
[8] 'The 21st Century Gold Rush: Will There be a New Cold War over Lithium?', *(Foreign Policy,* 16 April 2023), <https://foreignpolicy.com/2023/04/16/lithium-rush-critical-minerals-mining-energy-transition-south-america/> accessed 22 December 2025.
[9] I Espa, *Export Restrictions on Critical Minerals and Metals: Testing the Adequacy of WTO Disciplines* (CUP 2016) ch 1.

economy.[10] Following this, the European Commission established an Ad-hoc Working Group under the Raw Materials Initiative, tasked with defining critical raw materials for the EU.[11] The group released its first report in 2010 and updated the list in 2014, which was later approved by the European Commission.[12] Reflecting growing concerns over potential supply shortages, the OECD also identified a set of 'strategically' important minerals.[13]

This 'criticality' is a result of both supply and demand factors. Mineral criticality may be measured using the supply risk factor, determined by geological, technological, social, and political availability.[14] The US Committee considers mine exploration, production, and national political impacts.[15] The EU Ad-hoc Working Group factors in, *first*, primary production concentration in poorly governed countries, *second*, substitutability, and *third*, recycling rates.[16] The first determinant combines geological and political availability, significantly affecting supply risk, while the second and third indicators reduce risk.[17]

In the short to medium term, the demand for critical minerals is inelastic owing to limited substitutability without a detrimental effect on the quality of

[10] National Research Council, *Minerals, Critical Minerals, and the U.S. Economy* (The National Academies Press, Washington DC 2008).
[11] European Commission, *On the Implementation of the Raw Materials Initiative* COM(2013) 442 final.
[12] Espa (n9).
[13] J Korinek and J Kim, 'Export Restrictions on Strategic Raw Materials' (2010) OECD Trade Policy Papers No 95, 104 <https://www.oecd.org/content/dam/oecd/en/publications/reports/2010/03/export-restrictions-on-strategic-raw-materials-and-their-impact-on-trade_g17a1e30/5kmh8pk441g8-en.pdf> accessed 22 December 2025.
[14] Espa (n 9).
[15] ibid.
[16] European Commission (n 11).
[17] Sophia Kalantzakos, 'The Race for Critical Minerals in an Era of Geopolitical Realignments' (2020) 55(3) *Intl Spectator* 1, 7, 8, 10.

the goods produced. So, the demand reacts slowly to any change in mineral prices.[18]

The demand for these minerals comes from various sources. On one hand, the global energy landscape is undergoing a profound shift toward cleaner alternatives.[19] This skyrocketing demand for clean energy technologies is in line with the mandate of the Paris Agreement, which requires countries to commit to net-zero emissions.[20] This gradual move towards cleaner energy sources is not achievable without resilient supply chains for CMRs.[21] Low-carbon intensive energy sources such as EV-batteries, wind & solar energy parks necessitate the usage of CMRs like copper, nickel, rare earths, graphite, antimony, lithium, and cobalt, among others.[22]

A critical perspective that analyses this energy transition questions the overemphasis on energy transition rather than on a shift in the patterns of production and consumption.[23] From this perspective, the global surge in the demand for CMRs represents the refurbishing of an economic model that is based on extracting exhaustible resources, albeit a transition away from more harmful fossil fuels.[24]

Beyond the energy transition, these minerals are also key components in industrial sectors such as metallurgy, building, communication, electronic gadgets, automotive sector, aeronautics, optical technologies, glass industry,

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[18] European Commission, Critical Raw Materials for the EU COM (2014) <https://rmis.jrc.ec.europa.eu/uploads/crm-report-on-critical-raw-materials_en.pdf> accessed 22 December 2025.
[19] International Energy Agency, *World Energy Outlook 2023* (IEA 2023) 37-42.
[20] *Paris Agreement* (adopted 12 December 2015) UNTS I-54113.
[21] IEA (n 1).
[22] ibid.
[23] Lorenzo Cotula, 'Critical Minerals: International Economic Law in a Global Resource Rush', (2023) 15(2) *Trade Law & Development* 19.
[24] Breno Bringel and Maristella Svampa, Del "Consenso de los Commodities" al "Consenso e la Descarbonización" (2023) 306 *Nueva Sociedad* 51, 52.

and plastic, among others.[25] According to the EU Ad-hoc Working Group, the mega-sectors identified where CMRs are key, formed approximately 90% of the total value added in the manufacturing sector of the European Union.[26]

Rare earth elements like indium and tantalum are integral to the manufacturing of portable computers, plasma screens, handheld electronics, and military technologies.[27] Gallium plays a crucial role in integrated circuits for wireless communication, smartphones, and aerospace and defence applications, while also being a key component in LEDs and laser diodes.[28] Copper and silver facilitate radio-frequency identification ("**RFID"**) technology, whereas germanium is indispensable for fibre optics, infrared optics, and space-based solar cells.[29] Additionally, several critical materials contribute to the development of alloys and superalloys essential for metallurgical applications, particularly in the nuclear, defense, and aviation industries—these include manganese, molybdenum, beryllium, niobium, rhenium, tantalum, and platinum-group metals ("**PGMs"**).[30] Furthermore, many of these elements are vital in medical technology, with materials like beryllium, chromium, molybdenum, silver, tantalum, titanium, and vanadium commonly used in orthopaedic implants and diagnostic equipment.[31]

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[25] Korinek and Kim (n13).

[26] European Commission, *Critical Raw Materials* <https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en> accessed 22 December 2025; European Commission, *Critical Raw Materials for the EU* COM (2014) <http://ec.europa.eu/enterprise/policies/raw-materials/critical/index_en.htm> accessed 22 December 2025.

[27] European Commission, *Critical Raw Materials Profiles* <https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en> accessed 22 December 2025; US Geological Survey, *Mineral Commodity Summaries 2014* (US Government Printing Office, Washington DC 2014).

[28] US Geological Survey (n 27).

[29] US Department of Energy, *Critical Minerals Strategy*, (US DOE 2010).

[30] ibid.

[31] Cotula (n 23).

To reiterate, critical minerals and metals are those essential to industrial economies yet highly vulnerable to supply disruptions. Their significance stems from their indispensable role in key industries, limited global production concentrated in specific regions, and challenges in substitution and recycling.[32] These factors heighten the risk of shortages, making any supply shock, whether from demand surges or production constraints, potentially disruptive to economic stability.

B. Understanding the Geopolitical Rush for CMRs

The global supply of critical minerals is highly concentrated, with a handful of countries dominating both extraction and processing.[33] Lithium is primarily sourced from Australia and Chile,[34] rare earth elements from China,[35] nickel from Indonesia,[36] and cobalt from the Democratic Republic of Congo **("DRC").**[37] However, China maintains a commanding role in refining key minerals, including graphite, rare earths, cobalt, and lithium.[38]

China's dominance in mineral processing is the result of decades of government-driven industrial policies and heavy investments.[39] Since the 1980s, the country has implemented measures to strengthen its rare earth sector, requiring foreign investors to form partnerships with domestic companies and share technological expertise.[40] Over time, these policies

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[32] ibid.
[33] IEA (n1) 13-16.
[34] International Energy Agency, *Critical Minerals Market Review* 2023 (IEA 2023) 11-14.
[35] ibid.
[36] ibid.
[37] ibid.
[38] Kalantzakos (n17).
[39] Christoph Nedopil, *China Belt and Road Initiative (BRI) Investment Report 2023 H1*, (FISF Fudan University 2023), <https://greenfdc.org/wp-content/uploads/2023/07/Nedopil-2023_China-Belt-and-Road-Initiative-BRI-Investment-Report-2023-H1-1.pdf> accessed 22 December 2025.
[40] Zhou and others (n7).

expanded to include a broader range of essential raw materials, culminating in the official designation of "strategic minerals" in 2016.

To meet the demands of its rapidly growing economy, China has also facilitated financial backing for both state-owned and private enterprises to acquire mineral assets overseas. Through initiatives like the Belt and Road Initiative, Chinese companies have significantly expanded their mining and processing operations beyond national borders, securing vital resources while reinforcing China's influence over global supply chains.[41]

As a result, China has increasingly turned to imports, not only for minerals it lacks, like chromium and cobalt, but even for those in which it already holds a strong position, such as gallium, fluorspar, germanium, and graphite. This trend reflects the rapid expansion of China's metals industry and resource-intensive sectors like construction, further reinforcing its influence over global supply chains.[42]

At the same time, industrialized economies that have long depended on imports now face heightened competition from emerging players like China. This rivalry plays out in two key ways. *First*, countries are competing for direct access to critical raw materials in an increasingly contested marketplace.[43] *Second*, traditional industrial powers are struggling to maintain their competitive edge as newly industrializing nations expand their share of high-value exports.[44] The European Union is particularly exposed, as only 3% of the world's critical raw materials originate within its borders. It remains

[41] Nedopil (n 39).
[42] Cotula (n 23).
[43] IEA (n 34) 32-34.
[44] World Trade Organization, *World Trade Report 2023: Adapting to a Changing Global Economy* (WTO 2023) 78-84.

heavily dependent on imports for more than half of the minerals essential to its economy, many of which are at risk of supply disruptions.[45]

Geopolitical tensions have only intensified these concerns. Strategic competition between major economies—particularly between the United States and China—has pushed 'resource security' to the forefront of policy discussions.[46] The U.S. has responded by seeking to reduce its reliance on Chinese imports, embracing a more interventionist approach to securing critical mineral supply chains.[47] Meanwhile, the European Union, spurred by the disruption of Russian gas supplies following the war in Ukraine, has begun to frame its economic policies through the lens of 'economic security.'[48] In both cases, the goal is to assert greater control over mineral sourcing, processing, and distribution.[49]

While the U.S. and EU strategies differ, they share common elements. Both have developed critical raw materials lists and strategic action plans aimed at ensuring long-term supply.[50] They have also introduced policies – ranging from subsidies[51] to regulatory incentives[52] – to promote domestic extraction and processing. These measures reflect a broader effort to reshape global trade patterns, moving away from traditional models that outsourced extraction and refining to the Global South.[53] However, many resource-rich

[45] European Commission, 'Critical Raw Materials Act: Securing the EU's Supply of Critical Raw Materials' COM (2023) 160 final 4-6.
[46] James Guild, 'The Geopolitics of Critical Minerals' (*The Diplomat*, 5 March 2025) < https://thediplomat.com/2025/03/the-geopolitics-of-critical-minerals/> accessed 22 December 2025.
[47] ibid.
[48] Espa (n 9).
[49] ibid.
[50] NRC (n 10); European Commission (n 11).
[51] Kalantzakos (n 17).
[52] ibid.
[53] Thea Riofrancos, *The Security–Sustainability Nexus: Lithium Onshoring in the Global North* (2023) 23 Global Environmental Politics 20

nations are pushing back, seeking to use their mineral wealth to fuel domestic industrialization rather than simply exporting raw materials.[54]

As a result, export restrictions on critical minerals have been on the rise. Countries are imposing duties, quotas, and outright bans to encourage local processing and retain more economic value from their resources.[55] While often justified as policies to support domestic industry, these measures are also part of a broader shift toward resource nationalism.[56] As global competition intensifies, export controls are becoming a central tool in the struggle for supply chain dominance.

Building on this, this paper examines the WTO legal framework on export restrictions on CMRs. The paper, inclusive of the Introduction and Conclusion, is divided into five parts. Part II examines the legality of export restrictions on critical minerals, focusing on GATT's Article XI (quantitative limits) and Article XX (exceptions), along with export duties. Part III proposes WTO reforms to strengthen global supply chains, balancing resource-rich and resource-dependent nations' interests. Part IV takes the analysis home by looking into India's CMR trade strategy, its vulnerabilities, and policy measures to enhance supply security and resilience. Ultimately, this research paper contributes to the broader discourse on sustainable and legally coherent trade strategies in an increasingly fragmented global economy.

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[54] Cotula (n 23).

[55] P Kowalski and C Legendre, 'Raw Materials Critical for the Green Transition: Production, International and Export Restrictions' (2023) OECD Trade Policy papers No 269, 35-51 < https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/04/raw-materials-critical-for-the-green-transition_85a69007/c6bb598b-en.pdf> accessed 22 December 2025.

[56] ibid.

II. QUESTIONING THE LEGAL VALIDITY OF EXPORT RESTRICTIONS ON CRITICAL MINERAL RESOURCES

Within the multilateral trading system, all commodities, including essential raw materials, fall within the purview of the WTO's legal framework.[57] A fundamental tenet of the WTO is the eradication of biased treatment in cross-border commerce.[58] In this context, the Most-Favoured-Nation (**"MFN"**) principle, enshrined in Article I of the General Agreement on Tariffs and Trade 1994 ("**GATT 1994"**), explicitly forbids preferential treatment among equivalent goods originating from or destined for different nations.[59] Similarly, the National Treatment principle in Article III of GATT 1994 prohibits differential treatment of imported goods when compared to domestically produced equivalents.[60] These stipulations extend to transactions involving critical minerals.

Trade restrictions on key raw materials predominantly take the form of export limitations and outright bans. As reported by the Organisation for Economic Co-operation and Development ("**OECD"**), the global prevalence of export constraints on critical raw materials has surged fivefold over the past ten years.[61] The OECD reports that at least one export restriction measure has been enforced on 10% of the total global trade value of CMRs.[62] By 2022,

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[57] International Centre for Trade and Sustainable Development (ICTSD), *Raw Materials and the WTO: Addressing a Disconnect between Trade and Development Policy*, Issue Paper No 18 (2010), <https://ictsd.iisd.org/sites/default/files/review/2010/06/raw-materials-and-the-wto-addressing-a-disconnect-between-trade-and-development-policy.pdf>

[58] Marrakesh Agreement Establishing the World Trade Organization (adopted 15 April 1994) 1867 UNTS 154 (Preamble).

[59] General Agreement on Tariffs and Trade (adopted 30 October 1947) 55 UNTS 194 art I.

[60] ibid art III.

[61] OECD, *Raw Materials Critical for the Green Transition: Production, International Trade and Export Restrictions* (2023) <https://www.oecd.org/content/dam/oecd/en/publications/reports/2023/04/raw-materials-critical-for-the-green-transition_85a69007/c6bb598b-en.pdf>

[62] ibid.

nearly 30% of the worldwide trade in such resources, by monetary value, was subject to restrictive measures – an exponential rise from just 5% in 2019.[63]

While WTO rules aim to promote free trade, countries frequently impose restrictions on critical mineral exports through various mechanisms. Article XI of GATT 1994 generally prohibits quantitative restrictions[64], but exceptions under Article XI and Article XX allow for justified trade barriers in specific circumstances. Additionally, export duties, which fall outside the scope of Article XI, have become a strategic tool for regulating resource flows.

A. Quantitative Restrictions Under Article XI of GATT

As a general rule, quantitative restrictions on exports are prohibited under Article XI of GATT 1994, reflecting the fundamental principle of free trade.[65] A quantitative restriction **("QR")** is any measure that limits the quantity of a product that may be imported or exported, encompassing outright bans, quotas (both global and country-specific), and licensing requirements.[66] Article XI:1 prohibits such measures unless they fall within recognized exceptions, ensuring that members do not impose arbitrary trade barriers beyond duties, taxes, or charges.[67]

The broad scope of this provision was confirmed in *Japan – Semi-Conductors* (1988), where even non-mandatory government measures restricting the export of certain semi-conductors at below-cost price were nevertheless deemed restrictive.[68] It was said in that case that:

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[63] ibid.
[64] *General Agreement on Tariffs and Trade* (adopted 30 October 1947) 55 UNTS 194 art XI.
[65] World Trade Organization, *Quantitative Restrictions* <https://www.wto.org/english/tratop_e/markacc_e/qr_e.htm>.
[66] ibid.
[67] ibid.
[68] *Japan – Trade in Semi-Conductors*, GATT Panel Report L/6309 (adopted 4 May 1988).

> "*…it applied to all measures instituted or maintained by a contracting party prohibiting or restricting the importation, exportation or sale for export of products other than measures that take the form of duties, taxes, or other charges…*"[69]

Similarly, in *China – Raw Materials* (2012), the Appellate Body clarified that 'restrictions' is a broad term that refers generally to something that limits trade volume, reinforcing the comprehensive reach of Article XI:1.[70]

QRs on the export of CMRs have been a contentious issue in international trade, frequently challenged before the WTO Dispute Settlement System. Consistent case law has ruled against such restrictions, reaffirming the general prohibition under Article XI:1 of GATT 1994.[71] This primarily includes:

a) *China – Raw Materials (2009)*, where export restrictions on bauxite, manganese, yellow phosphorus, zinc, coke, etc. were challenged by the U.S., European Union, and Mexico.[72]
b) *China – Rare Earths (2012)*, where export restrictions, including export duties, export quotas and certain limitations on the enterprises permitted to export the products were imposed on several rare earths, tungsten, and molybdenum. The restrictions were challenged by the U.S., European Union, and Japan.[73]
c) *China – Raw Materials II (2016)*, where duties and other alleged restrictions on the export of various forms of antimony, chromium,

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[69] ibid.
[70] *China – Measures Related to the Exportation of Raw Materials,* WTO Appellate Body Report WT/DS394/AB/R (adopted 30 January 2012).
[71] WTO, *WTO Analytical Index*, *General Agreement on Tariffs & Trade* (GATT) 1994, Art. XI (DS Reports) <https://www.wto.org/english/res_e/publications_e/ai17_e/gatt1994_art11_jur.pdf>.
[72] *China – Raw Materials* (2009), WTO Appellate Body Report WT/DS394/AB/R (adopted 30 January 2012).
[73] *China – Rare Earths* (2012), WTO Appellate Body Report WT/DS431/AB/R (adopted 29 March 2012).

cobalt, copper, graphite, indium, lead, magnesia, talc, tantalum, and tin were challenged by the U.S. and European Union.[74]

d) *Indonesia – Raw Materials (2019)*, where the European Union lodged a complaint against restrictions imposed by the Indonesian Government on exports of nickel, including an actual prohibition to export, domestic processing requirements for nickel, iron ore, chromium and coal, domestic marketing obligations for nickel and coal products, export licensing requirements for nickel and a prohibited subsidy scheme.[75]

These cases underscore the WTO's strict stance against export curbs, limiting the ability of resource-rich nations to control CMR outflows for economic or strategic reasons. This is more than strict fidelity to the text of GATT, and it reflects a deeper institutional logic, which is rooted in preserving negotiated tariff bargains and preventing disguised restrictions on trade. Panels and the Appellate Body, particularly in *China – Raw Materials (2009)* and *China – Rare Earths (2012)* have consistently sought to frame the QR prohibition as a structural cornerstone of the multilateral trading system. This approach signals judicial reluctance to broaden the scope of permissible export restrictions in ways that could allow WTO Members to reintroduce non-tariff barriers through industrial or resource policies.

The result is a jurisprudence that recognises only narrow justifications for export restrictions, even where states face long-term developmental constraints or structural vulnerabilities in their resource sectors.

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[74] *China – Raw Materials II* (2016), WTO Appellate Body Report WT/DS516/AB/R (adopted 7 September 2016).
[75] *Indonesia – Raw Materials* (2019), WTO Dispute Settlement Panel Report WT/DS592/R (adopted 12 November 2019).

B. Exceptions to Article XI

While Article XI:1 of the GATT 1994 generally prohibits quantitative restrictions on exports and imports,[76] Article XI:2(a) allows for an exception in cases where export restrictions are *temporarily applied to prevent or relieve critical shortages* of foodstuffs or other essential products.[77] However, WTO jurisprudence has interpreted this exception narrowly, setting a high threshold for its application one that typical export restrictions on CMRs do not meet.

The WTO Panel in *China – Raw Materials (2009)* clarified that although the language of Article XI:2(a) refers to what is "essential to the exporting Member," this does not mean that Members can unilaterally designate products as essential without scrutiny.[78] The Panel emphasised that:

> "*The Panel does not consider that the terms of Article XI:2, nor the statement made in the context of negotiating the text of Article XI:2 that the importance of a product 'should be judged in relation to the particular country concerned', means that a WTO Member may, on its own, determine whether a product is essential to it.*"[79]

The Panel contrasted this with Article XXI, which does permit unilateral determination, suggesting that had the drafters intended such broad discretion in Article XI:2(a), they would have adopted similar language:

> "*If this were the case, Article XI:2 could have been drafted in a way such as Article XXI(b) of the GATT 1994, which states: 'Nothing in this Agreement shall be construed ... to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests.*'"[80]

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[76] WTO (n 71).
[77] ibid.
[78] *China – Raw Materials* (2009), WTO Appellate Body Report WT/DS394/AB/R (adopted 30 January 2012).
[79] ibid.
[80] ibid.

Further, WTO rulings have repeatedly held that a mere reduction in supply or desire to preserve resources does not rise to the level of a *critical shortage*. In *Indonesia – Raw Materials*, the Panel held that:

> "*A critical shortage within the meaning of Article XI:2(a) cannot simply be a situation of short supply. It cannot also merely be a situation of needing to secure essential quantities for a domestic industry to meet demand. A critical shortage must be of decisive importance or at a turning point and capable of being resolved.*"[81]

This means that routine efforts to manage domestic consumption or encourage downstream value addition, common justifications for mineral export restrictions, do not meet the criteria. The emphasis is on responding to a temporary and urgent crisis of supply, not long-term industrial planning.[82]

The Appellate Body in China – Raw Materials further reinforced this interpretation by defining "critical shortage" as:

> "*Those deficiencies in quantity that are crucial, that amount to a situation of decisive importance, or that reach a vitally important or decisive stage, or a turning point*."[83]

Most restrictions on CMRs are neither applied temporarily nor aimed at averting an immediate crisis. Instead, they are often driven by policy goals such as conserving non-renewable resources, enhancing export value through domestic processing, or ensuring strategic control—all of which fall outside the narrow scope of Article XI:2(a). For instance, in *Indonesia – Raw Materials*, the Panel noted that Indonesia's nickel-ore restrictions had been applied almost continuously since 2014, with no credible end-point or

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[81] *Indonesia – Raw Materials* (2019), WTO Dispute Settlement Panel Report WT/DS592/R (adopted 12 November 2019).
[82] *China – Rare Earths* (n 73).
[83] *China – Raw Materials* (2009), WTO Appellate Body Report WT/DS394/AB/R (adopted 30 January 2012).

triggering criteria for lifting them, and were tied to long-term goals such as conserving reserves and expanding domestic processing capacity.[84] Third parties (Brazil, Japan, US, UK, Canada) further emphasised that measures maintained until depletion of reserves or until structural industrial objectives are achieved cannot "bridge a passing need" and therefore fall outside Article XI:2(a)'s temporary, crisis-relief scope.[85]

In fact, the WTO has consistently warned against an expansive reading of this exception, noting that, "the prohibition on the use of quantitative restrictions forms one of the cornerstones of the GATT system."[86] In sum, the tightly drawn contours of the XI:2(a) exception make it clear that most export restrictions on critical minerals cannot be justified under the guise of relieving a "critical shortage."

Such an interpretation illustrates an intentional judicial restraint. Panels have required an acute, temporary shortage supported by concrete evidence, rejecting broader claims, grounded in long-term developmental or industrial vulnerabilities. In the China disputes, the Panel emphasised that Members cannot unilaterally deem particular minerals "essential" because they serve strategic purposes domestically. Adjudicators thus signal that any systemic rebalancing must come from political negotiation, not case law.

However, this doctrinal rigidity also means the WTO framework struggles to accommodate structural realities of critical minerals markets, such as concentrated supply, inadequate domestic processing capacity, or exposure to oligopolistic pricing, conditions widely documented in OECD and WTO monitoring analyses.[87] These long-term vulnerabilities fall outside the scope

[84] *Indonesia – Raw Materials* (2019), WTO Dispute Settlement Panel Report WT/DS592/R (adopted 12 November 2019).
[85] ibid 7.107-7.110.
[86] *Turkey – Restrictions on Imports of Textiles and Clothing Products*, GATT Panel Report L/6621 (adopted 7 November 1991) BISD 38S/245.
[87] P Kowalski and C Legendre (n 55).

of what current jurisprudence treats as a "critical shortage," even though they are precisely the types of risks that shape contemporary resource governance.

C. Exceptions in Article XX

To justify restrictions on CMRs, Members may invoke the general exceptions under Article XX. In the context of CMRs, two sub-clauses are particularly relevant:

A) Article XX(b) allows measures "necessary to protect human, animal or plant life or health;"

B) Article XX(g) allows measures "relating to the conservation of exhaustible natural resources" if made effective in conjunction with restrictions on domestic production or consumption.[88]

These exceptions operate within a carefully structured legal framework, clarified over successive disputes. Under the order of analysis affirmed by the Appellate Body in *Indonesia – Import Licensing Regimes* (para. 5.96),[89] a panel must first assess whether the challenged measure satisfies the requirements of a specific sub-paragraph (such as XX(b) or XX(g)), and only thereafter determine whether it complies with the chapeau of Article XX. This sequencing underscores that even if a measure is *prima facie* justified under XX(b) or XX(g), it must still avoid "arbitrary or unjustifiable discrimination" or "disguised restrictions on international trade."[90]

Jurisprudence has further tightened the conditions for invoking XX(g). In 2009, in the case of *China – Raw Materials*,[91] China attempted to justify its

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[88] *General Agreement on Tariffs and Trade* (adopted 30 October 1947) 55 UNTS 194 art XX.
[89] *Indonesia – Import Licensing Regimes* (2017), WTO Appellate Body Report, WT/DS477/AB/R; WT/DS478/AB/R (adopted 22 January 2018).
[90] Espa (n 9) ch 6.
[91] *China – Raw Materials* (2009), WTO Appellate Body Report WT/DS394/AB/R (adopted 30 January 2012).

export restrictions under both clauses. However, the WTO Panel and Appellate Body rejected these arguments. It held that China had not imposed equivalent restrictions domestically, rendering the measures ineffective under Article XX(g). Similarly, under Article XX(b), China failed to demonstrate that its export duties were the least trade restrictive means to achieve its environmental goals.[92]

This jurisprudence clarifies that export restrictions for conservation or environmental protection must be part of a consistent domestic framework. For instance, if a state imposes duties on the export of lithium to conserve resources for green technologies, it must also regulate domestic extraction and consumption in a comparable manner.

Ultimately, the Article XX framework shows that although environmental and conservation goals are acknowledged as acceptable foundations for regulating trade in CMRs, the legal bar for doing so is high. A structural preference for regulatory coherence over unilateralism is indicated by the jurisprudence: Members may pursue public health or conservation objectives, but only by implementing policies that are calibrated to minimise distortions to global trade and integrated into a fair domestic system. Resource-rich nations wishing to use export restrictions as instruments of industrial strategy or environmental stewardship are severely constrained by this. Simultaneously, it reveals a more profound conflict within the WTO system, which recognises the environmental consequences of finite resources while directing them through a legal framework that was initially created for a different period of international trade.

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[92] Appellate Body Report, *Brazil – Measures Affecting Imports of Retreaded Tyres* WT/DS332/AB/R (3 December 2007).

D. Export Duties

Export duties, or taxes imposed on goods leaving a country, are a central tool used by resource-rich states to control the outflow of CMRs. These duties are often justified on grounds of resource conservation, economic development, or securing domestic supply chains.[93] However, their operation within the WTO system presents three intertwined challenges: first, the absence of comprehensive WTO rules disciplining export taxes; second, the **ris**k of conflict with the WTO's broader liberalisation principles, particularly when duties distort access to essential minerals; and third, the difficulty of reconciling such duties with Article XX jurisprudence, which demands domestic regulatory consistency and non-discrimination.

Unlike import tariffs, export duties are not comprehensively regulated under the GATT 1994. Article XI:1 prohibits quantitative restrictions on exports, but it does not explicitly prohibit export taxes.[94] This has created a legal vacuum where WTO members, unless specifically bound by accession commitments (as in the case of China and some former Soviet states), retain policy space to impose export duties, even on essential commodities like CMRs.[95]

The WTO Secretariat acknowledges this gap, noting that "*[t]here are no general WTO rules disciplining export taxes*."[96] This legal lacuna allows major exporters to impose export duties on CMRs without violating GATT per se—unless such measures are shown to be disguised restrictions on international trade, thereby violating Article XX chapeau.

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[93] Espa (n 9) ch 4.
[94] *General Agreement on Tariffs and Trade* (adopted 30 October 1947) 55 UNTS 194 art XI.
[95] Espa (n 9) ch 6.
[96] ibid.

Export restrictions, including duties, run counter to the WTO's liberalization ethos, particularly when they distort global supply chains for critical inputs like rare earths, lithium, cobalt, and nickel. When a resource-rich country leverages its market dominance through export duties—especially in situations where global alternatives are scarce—it undermines the predictability and fairness of trade.

This has been reflected in WTO disputes. In *China — Raw Materials*[97] and *China — Rare Earths*,[98] WTO panels found that China's export duties and quotas on rare minerals violated its accession commitments, which included specific bindings on export duties. These cases, however, do not create general disciplines for other members not bound by such commitments, illustrating the patchwork nature of current WTO rules.

Countries use export duties on CMRs for several purposes, *first*, encouraging downstream processing (e.g., refining lithium or cobalt domestically), *second*, discouraging over-extraction of non-renewable resources, and *third*, ensuring strategic reserves of essential minerals.[99]

While such goals might align with Article XX exceptions (e.g., for environmental protection or conservation of exhaustible resources), the challenge lies in proving that such duties are non-discriminatory and not a means of arbitrary or unjustifiable restriction on trade, a high bar under WTO jurisprudence.

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[97] *China – Raw Materials* (2009), WTO Appellate Body Report WT/DS394/AB/R (adopted 30 January 2012).
[98] *China – Rare Earths* (2012), WTO Appellate Body Report WT/DS431/AB/R (adopted 29 March 2012).
[99] Cotula (n 23).

III. RECOMMENDATIONS FOR GLOBAL CRITICAL MINERAL SUPPLY-CHAIN RESILIENCE

A key challenge for the WTO lies in navigating the delicate balance between two competing imperatives: the right of resource-endowed nations to exercise sovereign control over their critical minerals and the dependence of other nations on uninterrupted, predictable supply chains.[100]

The WTO's current legal structure, especially its rules on QRs under Article XI of GATT and the narrow interpretation of exceptions under Article XX, often constrains the policy space of mineral-rich countries, even when their restrictions are motivated by legitimate environmental, developmental, or strategic concerns.

WTO jurisprudence in cases like *China – Raw Materials* and *Indonesia – Raw Materials* has reaffirmed a restrictive reading of these provisions, disproportionately benefiting import-reliant economies.[101] This imbalance risks deepening global inequalities and undermining cooperative sustainability efforts. It is therefore imperative that the WTO adapt its framework to accommodate both ends of this spectrum—preserving the open trade regime while recognising differentiated responsibilities and strategic constraints.

A. Defining "Critical Shortages"

The narrow interpretation of "critical shortages" under Article XI:2(a) of the GATT, as adopted in cases like *China – Raw Materials* and *Indonesia – Raw Materials*, reflects a historically contingent understanding of shortages, one premised on emergency-like scarcities rather than long-term strategic

[100] ibid.
[101] *China – Measures Related to the Exportation of Various Raw Materials*, WT/DS394/R, WT/DS395/R, WT/DS398/R (adopted 5 July 2011); *Indonesia – Raw Materials* (2019), WTO Dispute Settlement Panel Report, WT/DS592/R, (adopted 12 November 2019).

dependencies.[102] While such a reading may have been defensible in the post-war era, it is increasingly ill-suited for a 21st-century global economy in which critical minerals serve not merely as inputs, but as strategic enablers of decarbonisation, industrial catch-up, and digital infrastructure.

The current interpretive framework rests on the assumption that Members cannot unilaterally designate what is "essential" for the purposes of Article XI:2(a). This was justified in *China – Raw Materials* on the grounds that such a move would effectively allow self-judging exceptions, thereby undermining the objectivity of GATT 1994 obligations. However, this logic overlooks the complex economic functions of critical minerals, particularly for developing and resource-rich countries attempting to move up global value chains.[103] In contrast to food or petroleum, where short-term availability concerns dominate, critical minerals raise long-term questions of *technological sovereignty*, *environmental stewardship*, and *industrial resilience*.

A development-sensitive reinterpretation of "critical shortages" could be articulated not by altering treaty text (a politically infeasible solution), but through *soft law instruments*, such as an interpretive note adopted by the General Council under Article IX:2 of the WTO Agreement,[104] or by guidance from the Committee on Trade and Environment. These tools have been previously used to clarify ambiguous treaty language – e.g., the Doha Ministerial Declaration's affirmation of Members' rights to protect public health under the Trade-Related Aspects of the Intellectual Property Rights (TRIPS) Agreement.[105] In a similar fashion, an authoritative clarification could recognise that critical shortages may also include *structural deficiencies*

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[102] Espa (n 9) ch9.
[103] ibid.
[104] *Marrakesh Agreement Establishing the World Trade Organization* (adopted 15 April 1994) 1867 UNTS 154.
[105] World Trade Organization, *Doha Declaration on the TRIPS Agreement and Public Health* WT/MIN(01)/DEC/2 (2001).

in access that endanger a country's industrial or green transition, even if immediate physical scarcity is absent.

Such an approach is not antithetical to WTO jurisprudence. The Appellate Body in *US – Gasoline*[106] and *EC – Asbestos*[107] has embraced *evolutionary interpretation* in areas like health and the environment. Reinterpreting "critical shortages" to include development-linked vulnerabilities, such as persistent lack of mineral processing capacity or exposure to export cartels, would be consistent with this trajectory. It would also operationalise the WTO's development mandate under the Marrakesh Agreement, particularly when export restrictions are used as part of *targeted industrial policy* aimed at reducing dependency and mitigating the "resource curse."[108]

Moreover, such a reading could incorporate clear procedural safeguards—such as transparency requirements, proportionality assessments, and defined time limits—to avoid abuse and ensure compatibility with multilateral trade norms. In this way, sovereignty concerns of mineral-rich states can be accommodated without compromising the WTO's core commitments.

C. Institutionalizing Transparency through Structured Notifications and a WTO-Administered CMR Repository

While WTO disciplines traditionally aim to promote liberalisation, a more urgent priority in the context of critical minerals is *predictability*. Export restrictions on CMRs are not inherently trade disruptive, rather, their unpredictability, whether due to sudden bans, opaque justifications, or arbitrary durations, creates disproportionate volatility in downstream sectors

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[106] *United States – Standards for Reformulated and Conventional Gasoline* WTO Appellate Body Report WT/DS2/AB/R, pt 17.
[107] *European Communities – Measures Affecting Asbestos and Asbestos-Containing Products* WTO Appellate Body Report WT/DS135/AB/R, para 177.
[108] Richard M Auty, *Sustaining Development in Mineral Economies: The Resource Curse Thesis* (Routledge 1993).

such as clean energy, electronics, and defence.[109] The WTO, rather than mandating blanket liberalisation, can play a constructive role by requiring structured notifications of export restrictions on CMRs. Such notifications should go beyond the often-perfunctory disclosures under current practice and include detailed justifications, specific policy objectives, and estimated timeframes, subject to periodic review.

This would align with existing obligations under Article XI:2(c) of the GATT, which allows Members to temporarily apply export restrictions to prevent or relieve critical shortages but presumes a good faith, transparent, and limited use of such measures.[110]

However, enforcement of notification duties has historically been weak, as seen in the WTO's own Trade Policy Review Mechanism (**TPRM**) reports, where many export restrictions go unreported or under-explained.[111] By introducing a structured, standardised template for CMR notifications, perhaps endorsed by the Committee on Market Access or a specialised sub-body, Members could bring a degree of *legal formality and procedural discipline* to what are currently ad hoc measures.

To further institutionalise this effort, the WTO could establish a Critical Minerals Transparency Repository, which would be a publicly accessible, centralised database compiling all notifications related to CMR export measures. This would function similarly to the Integrated Trade Intelligence Portal (**I-TIP**) or the SPS/TBT Notification Alert System,[112] and could serve multiple functions: enhancing trust among trading partners, enabling better

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[109] Nisha Taneja and others, *Critical Mineral Supply Chains: Risks, Vulnerabilities, and Policy Gaps* (ICRIER Working Paper No 421, 2023) 5–6.
[110] *General Agreement on Tariffs and Trade* (adopted 30 October 1947) 55 UNTS 194, art XI.
[111] WTO Secretariat, *Trade Policy Review: China 2021* WT/TPR/S/415 paras 3.39–3.41.
[112] WTO, *Integrated Trade Intelligence Portal (I-TIP)* and *Notification Alert Systems*, <https://www.wto.org/english/res_e/statis_e/itip_e.htm>.

risk assessments by importing countries, and reducing the frequency of dispute-triggering surprises.

The establishment of such a repository does not require a renegotiation of treaty texts. It can be enabled through a Ministerial Conference or General Council decision under Article IV:1 and IX:1 of the WTO Agreement,[113] which would provide sufficient institutional cover to mandate such notifications and create the database infrastructure. Additionally, it would be consistent with WTO jurisprudence promoting transparency and good faith—principles recognised in *US – Shrimp*[114] and *EC – Hormones*[115] as foundational to the stability of the multilateral trading system.

D. Reimagining the Role of CTE in Environmental Export Restrictions

Given the centrality of CMRs to clean energy transitions, strategic manufacturing, and digital infrastructure, trade in such resources has become highly politically charged. Varying national strategies, from domestic beneficiation mandates to export bans and price floors, have made it difficult to craft a unified multilateral solution within the WTO's consensus-based framework. In this context, a plurilateral agreement among a coalition of "willing" WTO Members could provide a more agile and politically realistic path forward.

Such an agreement, tentatively termed a "Critical Minerals Trade and Sustainability Agreement" (**CM-TSA**) would not aim to liberalize trade in CMRs indiscriminately, but rather to coordinate regulatory frameworks,

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[113] *Marrakesh Agreement Establishing the World Trade Organization* (adopted 15 April 1994) 1867 UNTS 154.
[114] *United States – Import Prohibition of Certain Shrimp and Shrimp Products* WTO Appellate Body Report WT/DS58/AB/R, paras 180–181.
[115] *European Communities – Measures Concerning Meat and Meat Products (Hormones)* WTO Appellate Body Report WT/DS26/AB/R, para 123.

reduce friction, and embed shared sustainability norms into mineral value chains.

Drawing inspiration from the Information Technology Agreement (**ITA**) and Joint Statement Initiatives (**JSIs**) on services domestic regulation and e-commerce, this plurilateral would be open to accession and function under WTO auspices, ensuring coherence with core obligations.[116]

Rather than banning export restrictions altogether, which would impinge on sovereignty, the agreement could list *legitimate justifications* (e.g., environmental conservation, industrial upgrading, or national security) and require disciplines such as transparency, proportionality, and time-limited application.[117] A carveout for development-linked restrictions could be negotiated, subject to notification and review. This would help curb the misuse of opaque or politically-motivated restrictions while preserving policy space.

The agreement could articulate core sustainability norms, such as those found in OECD Due Diligence Guidance, Environmental, Social and Governance (**ESG**) standards, and MEA-aligned extraction protocols.[118] By embedding these into trade rules, the agreement would align mineral supply chains with climate and biodiversity goals while reassuring consumers and investors of ethical sourcing.

One of the key asymmetries in CMR trade is the concentration of processing and refining infrastructure in a handful of countries.[119] To correct this, the CM-TSA could include investment facilitation measures, technology

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[116] Robert Wolfe, 'Letting the Sun Shine in at the WTO: How Transparency Brings the Trading System to Life' (2010) 9(4) *World Trade Review* 631; Joost Pauwelyn and others, *Plurilateral Trade Agreements: A New Paradigm?* (EUI RSCAS Working Paper No 2014/24, European University Institute 2014).

[117] *China – Measures Related to the Exportation of Raw Materials* WTO Appellate Body Report WT/DS394/AB/R, paras 307–309.

[118] OECD, *Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*, (3rd ed, 2016); UNEP, *IRP Global Resources Outlook* (2019).

[119] IEA, *The Role of Critical Minerals in Clean Energy Transitions* (2021) at pts 73–75.

transfer frameworks, and policy space for local content requirements, provided they are transparent and targeted.[120] These rules could promote equitable value distribution across the supply chain and reduce over-dependence on a few processing hubs.

To operationalize the principle of common but differentiated responsibilities, the agreement could establish a Critical Minerals Development Fund, financed primarily by resource-consuming economies such as the US, EU, Japan, and South Korea.[121] This Fund could support geo-surveying, environmental safeguards, mining rehabilitation, and downstream infrastructure in developing countries, especially in Africa and South Asia. By linking market access to sustainable development, the Fund would help address the resource curse while fostering long-term supply resilience.

Such a plurilateral initiative would not fragment WTO law but would *build upon its architecture*, similar to how the ITA succeeded in liberalizing trade in technology products without a formal multilateral mandate.[122] By offering a club-based, opt-in framework, the CM-TSA would lower the cost of consensus while encouraging regulatory convergence, trust-building, and institutional innovation. Over time, as confidence builds, the agreement could expand into a "critical minerals pillar" of WTO law or be incorporated into a broader Sustainability Trade Framework under WTO auspices.

Moreover, such an initiative would help pre-empt resource nationalism, reduce geo-economic tensions, and foster South–South cooperation—as resource-rich developing countries gain from both strategic exports and structured international support for value addition.

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[120] UNCTAD, *World Investment Report 2023: Investing in Sustainable Energy for All* at pts 91–95.

[121] IMF, *Resource Revenue Management and Fiscal Rules for Sustainable Development* (2022); Global Battery Alliance, *Battery Passport Initiative* (2021).

[122] See WTO, *Implementation of the Ministerial Declaration on Trade in Information Technology Products* WT/L/956 (2015).

E. Development Sensitive and Environmentally Grounded Flexibilities

To address the historical asymmetries embedded in the global trade regime, the WTO must recognize that export restrictions on CMRs are often not protectionist manoeuvres, but developmental or environmental imperatives. Many resource-endowed developing countries impose such measures to foster domestic value addition, employment generation, and industrial upgrading: goals consistent with the right to development enshrined in international law.[123]

However, under current WTO jurisprudence, these objectives receive limited deference. For instance, while Article XVIII of GATT 1994 allows developing countries to adopt trade measures in support of economic development, it remains both underutilized and ambiguously interpreted.[124]

To remedy this, the WTO could adopt an interpretive note or waiver mechanism affirming that carefully tailored export restrictions aimed at escaping the "raw material trap" are consistent with Article XVIII. Such guidance would operationalize the WTO's development mandate and provide legal certainty to countries seeking to avoid being perpetual exporters of unprocessed commodities.

Simultaneously, export restrictions are increasingly deployed to serve legitimate environmental goals—such as preventing over-extraction, mitigating carbon leakage, or ensuring compliance with MEAs like the Paris Agreement or the Convention on Biological Diversity.[125]

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[123] UN Declaration on the Right to Development UNGA Res. 41/128 (1986); Dani Rodrik, *Straight Talk on Trade* (PUP 2017).
[124] *GATT* 1994, Article XVIII; WTO Secretariat, *Special and Differential Treatment in WTO Agreements and Decisions* WT/COMTD/W/66 (2001).
[125] UNEP, *Mineral Resource Governance in the 21st Century* (2020); OECD, *Trade and Environment: The Environmental Impacts of Export Restrictions on Natural Resources* (2010).

However, WTO panels currently adjudicate the legality of such measures solely through ex post litigation, evaluating exceptions under Article XX(b) or (g) in a binary, adversarial setting. This approach limits flexibility and may disincentivize early cooperation.

A promising alternative lies in empowering the Committee on Trade and Environment (**CTE**) to provide non-binding, ex ante assessments of proposed export restrictions on CMRs, especially those justified on environmental or developmental grounds.[126] By functioning as a deliberative rather than adjudicative body, the CTE could bring greater transparency, dialogue, and legitimacy to contentious restrictions before they escalate into disputes.

Integrating these two strands, regulatory flexibility for development under Article XVIII, and proactive environmental governance through an empowered CTE, would allow the WTO to move from a model of reactive enforcement to one of 'cooperative rule evolution'.[127]

IV. INDIAN PERSPECTIVE ON THE GEOPOLITICS & TRADE OF CRITICAL MINERAL RESOURCES

India's critical minerals strategy cannot be a reaction to geopolitical volatility; it must be a deliberate exercise in rule-shaping, resource governance, and economic sovereignty. While much commentary focuses on India's mineral dependencies,[128] this paper contends that India is uniquely placed to recalibrate global trade governance on CMR by aligning its domestic policy with WTO reform initiatives. Rather than remaining a passive demander of stability, India should become an active norm entrepreneur in the emerging mineral order.

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[126] WTO, *Committee on Trade and Environment (CTE): Functions and Mandate* WT/CTE/1.
[127] Joost Pauwelyn, 'The Role of Public International Law in the WTO: How Far Can We Go?' (2001) 95(3) *AJIL* 535.
[128] Sparsha Janardhan, Aparna Bhattacharya, 'Critical Allies and Core Geopolitics in Minerals Trade: Deving a Strategy for India' (2024) 19(3) *Global Trade and Customs Journal* 143.

A. From Dependency to Leverage: Redefining India's Position

India's vulnerabilities in CMR supply chains are well-documented: a high import dependency on lithium from Latin America,[129] cobalt from the DRC,[130] and rare earths from China[131] renders its green transition precarious. However, this binary framing of India as merely a "resource-dependent" country fails to acknowledge the latent strength India holds, as a *demand driver* for critical minerals and as a *potential steward* of untapped reserves across its own geological basins and those of the Global South.

By 2030, India's electric vehicle, solar, and semiconductor sectors are projected to multiply mineral demands several-fold.[132] This exponential demand gives India a unique form of trade leverage: while it may not control mineral deposits, it influences where value is captured in the supply chain. India's negotiating power, then, must be exercised not in resistance to trade rules, but in reshaping them, particularly around export restrictions, technology transfers, and sustainability standards.

A useful comparative frame emerges when India's position is contrasted with that of other major demand-intensive economies. The EU and Japan, for example, have responded to mineral supply insecurity by embedding their strategies within legally dense trade and investment frameworks, such as the EU's Critical Raw Materials Act,[133] which explicitly ties domestic industrial goals to external partnerships and WTO-compliant subsidy structures. Similarly, Japan's 2010 rare earths shock prompted a structural shift toward

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[129] ibid.
[130] ibid.
[131] ibid.
[132] Manah Popli and Melissa Cyrill, 'India's EV Production Capacity and Domestic Auto Market Trends' (*India Briefing*, 5 February 2024) <https://www.india-briefing.com/news/indias-prospects-as-an-ev-hub-consumer-market-and-production-capacity-30157.html/> accessed 22 December 2025.
[133] European Commission (n 45).

coordinated stockpiling and plurilateral rule-shaping through forums like the G7 and the Minerals Security Partnership (**MSP**).[134] India, by contrast, has articulated ambitious domestic targets but has not yet integrated its mineral strategy into a wider legal or institutional trade framework.

This disparity reveals a deeper strategic gap: while other demand economies are shaping rules ex ante to protect long-term industrial competitiveness, India remains reliant on ad hoc diplomatic arrangements and bilateral offtake agreements. The comparative experience therefore underscores that India's vulnerability is not merely geological, but is institutional, stemming from its limited participation in shaping the normative architecture governing global mineral flows.

B. Mineral Strategy as Trade Strategy: Domestic Reforms Are Not Enough

India has taken commendable steps to secure overseas mineral assets, most notably through the *KABIL joint venture (Khanji Bidesh India Ltd.)* which is a joint venture of three state-owned companies, and issued a domestic Critical Minerals List.[135] However, these efforts remain siloed from its trade policy. Without integrating its mineral diplomacy into WTO engagement, India risks being bound by rules that do not account for its developmental priorities.

This paper argues that India should lead the call for a reinterpretation of WTO disciplines to allow export restrictions for developmental upgrading and environmental conservation. For instance, if India discovers and seeks to reserve graphite or lithium for downstream processing (e.g., battery

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[134] Tatsuya Terazawa, 'How Japan Solved Its Rare Earth Minerals Dependency Issue' (*World Economic Forum* 2023) <https://www.weforum.org/stories/2023/10/japan-rare-earth-minerals/> accessed 22 December 2025.

[135] Khanij Bidesh India Limited, Ministry of Mines, Government of India, <https://mines.gov.in/webportal/content/kabil>.

manufacturing), current GATT rules may expose it to challenges under Article XI. Yet such restrictions, if transparently notified and linked to industrial policy, serve a legitimate objective: avoiding the 'resource curse' and escaping the colonial pattern of exporting raw materials for minimal gains.

This calls for a reinterpretation of Articles XI and XVIII of GATT, as well as India's proactive participation in drafting plurilateral understandings on export discipline exceptions for developmental purposes.

India has long been a vocal advocate for Special and Differential Treatment (SDT) provisions as well under the WTO.[136] Yet SDT remains underutilized in the domain of export restrictions and critical mineral trade.[137] India can, and should, push for two strategic reforms at the WTO, whereby *firstly*, Article XVIII is operationalized to justify development-oriented export restrictions, *secondly*, CTE is institutionally empowered to make ex-ante assessments and there can be a plurilateral compact on critical minerals among resource-endowed and resource dependent countries. Crucially, it would offer a counterweight to mineral-exporting cartels and avoid regulatory fragmentation.

A robust domestic policy framework must complement these multilateral efforts. Measures such as extending Minimum Support Prices for domestically extracted minerals, reforming auction processes to reduce entry barriers, and creating strategic stockpiles for high-risk minerals are essential.[138] These steps would reduce volatility, attract private capital, and signal India's long-term seriousness in securing critical resources.

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[136] World Bank, *India and the WTO* (2003), <https://openknowledge.worldbank.org/handle/10986/15082>.
[137] Janardhan and Bhattacharya (n 128).
[138] Federation of Indian Chambers of Commerce (FICCI) *Ensuring India's Mineral Security: Policy Recommendations* (2022).

V. CONCLUSION

In conclusion, the WTO faces a complex challenge in balancing the interests of resource-rich nations and those dependent on critical minerals for their economic and industrial needs. The current WTO legal framework, particularly under Article XI of GATT, restricts the ability of resource-endowed countries to implement export restrictions based on legitimate developmental, environmental, or strategic considerations.

This results in a skewed trade regime that disproportionately favors import-reliant nations, potentially deepening global inequalities. Therefore, there is an urgent need for the WTO to evolve, acknowledging the unique role of critical minerals in contemporary economies and adopting more nuanced interpretations of "critical shortages" that reflect long-term industrial and environmental priorities.

One possible solution lies in reinterpreting the concept of "critical shortages" to include structural vulnerabilities, such as lack of mineral processing capacity or exposure to exploitative export cartels, which threaten the developmental aspirations of resource-rich countries. This can be achieved through soft law mechanisms like interpretive notes or guidance from relevant WTO bodies, thus providing greater flexibility for these nations to pursue sustainable economic development.

Alongside this, enhancing transparency in trade policies by institutionalizing structured notifications and creating a Critical Minerals Transparency Repository would offer predictability and reduce the disruptive effects of unpredictable export restrictions. Such steps could help build trust among nations and mitigate trade tensions in this vital sector.

Further, the WTO should support the creation of a plurilateral agreement on critical minerals, similar to the ITA, which would allow for greater regulatory coordination and shared sustainability norms among nations.

Additionally, empowering the Committee on Trade and Environment (CTE) to provide proactive, non-binding assessments of such restrictions could enhance dialogue and reduce the risk of disputes, contributing to a more cooperative approach to global resource governance.

Looking home, India, with its growing demand for critical minerals and its leadership in advocating for the rights of developing nations, is well-positioned to play a pivotal role in reshaping the global trade governance of critical mineral resources. By aligning its domestic policies with WTO reform efforts, India can foster greater trade stability while protecting its developmental and environmental interests.

By redefining trade rules to align with both sustainability and development, we can transform critical minerals from a source of geopolitical tension into a foundation for global cooperation and shared prosperity.