

Lorenzo Cotula, *Critical Minerals: International Economic Law in a Global Resource Rush*
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‘CRITICAL MINERALS’: INTERNATIONAL ECONOMIC LAW IN A GLOBAL RESOURCE RUSH

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Growing demand for ‘critical minerals’ – such as lithium, cobalt, and nickel – and strategic rivalries between large economies have prompted a scramble to secure control of such minerals and the supply chains that organise their processing and distribution. Public policies have sustained these processes, producing new types of international instruments – from standalone agreements, such as the Japan-US Critical Minerals Agreement; to tailored provisions in trade treaties, such as the ‘energy and raw materials’ chapter of the Chile–EU trade agreement; all the way to soft instruments that provide a shared framework and roadmap for cooperation, such as the strategic partnerships the EU has negotiated with several mineral-rich states. Through the prism of critical minerals supply chains, these instruments cut across different areas of law and policy: trade, investment, aid, labour rights, the environment and collaboration in research and innovation. Critical minerals have also featured in international dispute settlement processes, including a dispute at the World Trade Organization over Indonesia’s restrictions on unprocessed nickel ore exports. An initial appraisal of these developments highlights the role of law in sustaining and regulating commodity production and trading, while the widespread use of soft instruments points to the limits of legal processes in the context of rapidly evolving economic and geopolitical realities. The developments reflect both continuities and ruptures in international economic law, particularly in relation to the roles of states and markets. They also illustrate the interrelatedness of climate imperatives, territorial governance, international investment and trade, and the need to more effectively integrate ecological sustainability and ‘just transition’ principles into the fabric of the global economic order.

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I. INTRODUCTION

Business and government efforts to secure control over the mining and processing of ‘critical’ minerals increasingly display the contours of a global resource rush – a delineation sharpened by a flurry of media headlines highlighting the pace of deal-making and its possible geopolitical implications.¹ Surges in demand for raw materials often respond to changes in economies, politics, and technologies. Central to this race for critical minerals is the growing importance of the commodities that are considered the foundation of future economies – from lithium to cobalt, nickel, graphite, copper, manganese, and rare earths.

The law sustains and regulates commodity production and trading. In the 1940s and 1950s, when technological innovation made deep-sea oil extraction technically and economically feasible, new legal constructs such as the ‘continental shelf’ enabled states to claim large portions of the seabed, paving the way for offshore oil and gas operations.² During the global land rush of 2005–2015, the establishment of export-oriented agribusiness plantations relied on land legislation, concession contracts, and international treaties that facilitated market access and protected foreign investment.³

¹ E.g., *The 21st Century Gold Rush: Will There be a New Cold War over Lithium?*, FOREIGN POLICY (Apr. 16, 2023), <https://foreignpolicy.com/2023/04/16/lithium-rush-critical-minerals-mining-energy-transition-south-america/>; 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>; Frik Els, *The Global Lithium Rush is Only at the Beginning*, MINING (July 7, 2023), <https://www.mining.com/the-global-lithium-rush-is-only-at-the-beginning/>.

² Surabhi Ranganathan, *Ocean Floor Grab: International Law and the Making of an Extractive Imaginary*, 30 EURO. J. INT’L L. 573 (2019); Lorenzo Cotula, *Oil, “Modernity” and Law: Revisiting the Abu Dhabi Arbitration in the Age of the Climate Crisis*, THIRD WORLD APPROACHES TO INT’L L. (TWAAIL) REV.: REFLECTIONS (Mar. 9, 2022), <https://twailr.com/oil-modernity-and-law-revisiting-the-abu-dhabi-arbitration-in-the-age-of-the-climate-crisis/>.

³ Lorenzo Cotula, *“Land Grabbing” and International Investment Law: Toward a Global Reconfiguration of Property?*, in YEARBOOK ON INTERNATIONAL INVESTMENT LAW & POLICY

It is not surprising, then, that the interest in critical minerals has been accompanied by extensive normative production. This ranges from intergovernmental negotiations to develop international rules on deep-sea bed mining in areas beyond national jurisdiction,⁴ to national legislation aimed at expanding domestic mining and processing capabilities, such as through fast-tracking approval.⁵

The international rules governing investment and trade are a key part of this legal architecture, reflecting the economic nature of the activities at play and, often, their inherently transnational dimensions. Governments have concluded agreements on critical minerals and integrated relevant provisions into wider trade agreements, developing new models of international deal-making. They have released memoranda of understanding (MOUs), joint statements, and political declarations that, while not legally binding, exemplify shifts in the policy thinking that underpins international economic law.⁶ Critical minerals have also been featured in international proceedings to settle trade and investment disputes.

Although these developments are ongoing, an initial appraisal can provide preliminary insights not only on the legal modalities of the race for critical minerals but also, at a deeper level, on the changing rules of economic globalisation. This requires a closer examination of patterns in the critical minerals rush (Part II); of developments affecting international treaties, soft instruments, and dispute settlement mechanisms (Part III); and of the overlapping, intersecting, and competing policy paradigms that sustain these developments (Part IV). The findings

2014-2015 (Andrea K. Bjorklund ed., Oxford Univ. Press 2016) [hereinafter Cotula]; see also Godfrey E. Massay, *Compensating Land Holders in Tanzania: Law and Practice*, 1 J. LAND & SOC'Y 43 (2014); FRANCESCA ROMANIN JACUR, ANGELICA BONFANTI & FRANCESCO SEATZU, *NATURAL RESOURCES GRABBING: AN INTERNATIONAL LAW PERSPECTIVE* (Brill 2015); Jacobo Grajales, *Land Grabbing, Legal Contention and Institutional Change in Colombia*, 42 J. PEASANT STUD. 541 (2015); Tomaso Ferrando, *Land Rights at the Time of Global Production: Leveraging Multi-Spatiality and "Legal Chokeholds"*, 2 BUS. HUM. RTS. J. 275 (2017); Ntina Tzouvala, *A False Promise? Regulating Land-Grabbing and the Post-Colonial State*, 32 LEIDEN J. INT'L. L. 235 (2019); Federica Violi, *Contracting in Land and Natural Resources: A Tale of Exclusion*, 17 INT'L. J. L. CONTEXT 145 (2021).

⁴ INT'L INST. FOR SUSTAINABLE DEV., SUMMARY OF THE TWENTY-EIGHTH ANNUAL SESSION OF THE INTERNATIONAL SEABED AUTHORITY (SECOND PART): 10-28 JULY 2023 (2023), <https://enb.iisd.org/sites/default/files/2023-07/enb25253e.pdf>.

⁵ See United States' Infrastructure Investment and Jobs Act, Pub. L. No. 117-58, § 40206(c), 135 Stat. 429 (2021) (this legislation directs the Secretary of the Interior to "complete the Federal permitting and review processes with maximum efficiency and effectiveness", through adopting a range of specified measures with respect to applications for critical mineral production on federal land) [hereinafter Infrastructure Investment and Jobs Act].

⁶ See *infra* Part III.

highlight both continuities and ruptures in international economic law, particularly regarding the roles of states and markets in shaping economic governance.

II. ANATOMY OF A RESOURCE RUSH

The rise of renewable energy technologies has gradually increased the demand for metals over the past few decades.⁷ But as climate action becomes a higher policy priority, the transition to lower-carbon energy sources – from electric vehicle batteries to wind and solar power – is expected to sustain a sharp surge in the need for lithium, cobalt, copper, nickel, graphite, manganese, rare earths, and other minerals.⁸ Projections suggest that, under current energy policies, mineral demand for electric vehicles will grow nearly tenfold by 2040, while meeting the Paris Agreement climate goals is expected to increase demand for lithium by over 40 times over the same period.⁹

That said, several factors qualify the connections between environmental imperatives and the quest for critical minerals. Breno Bringel and Maristella Svampa noted that, in moving from scientific and activist circles to mainstream economic policy, the comprehensive socioecological transitions needed to address climate change have tended to translate into narrower framings, such as the ‘energy transition’, that do not necessarily question production and consumption patterns.¹⁰ Seen through this prism, the critical minerals rush reproduces an economic model premised on resource extraction, albeit of lower-carbon feedstocks rather than fossil fuels.

⁷ Hanna Vikström, *Risk or Opportunity? The Extractive Industries’ Response to Critical Metals in Renewable Energy Technologies, 1980-2014*, 7 *EXTRACTIVE INDUS. & SOC’Y* 20 (2020).

⁸ INT’L ENERGY AGENCY, *CRITICAL MINERALS MARKET REVIEW 2023* 63-64 (2023), <https://iea.blob.core.windows.net/assets/afc35261-41b2-47d4-86d6-d5d77fc259be/CriticalMineralsMarketReview2023.pdf> [hereinafter IEA – Critical Mineral Market Review]; see also ENERGY TRANSITIONS COMMISSION, *MATERIAL AND RESOURCE REQUIREMENTS FOR THE ENERGY TRANSITION* 21 (2023), https://www.energy-transitions.org/wp-content/uploads/2023/07/ETC-Material-and-Resource-Requirements_vF.pdf [hereinafter Energy Transitions Commission]; INTERNATIONAL RENEWABLE ENERGY AGENCY, *THE GEOPOLITICS OF THE ENERGY TRANSITION: CRITICAL MINERALS* (2023), <https://www.irena.org/Publications/2023/Jul/Geopolitics-of-the-Energy-Transition-Critical-Materials> [hereinafter IRENA].

⁹ See INT’L ENERGY AGENCY, *THE ROLE OF CRITICAL MINERALS IN CLEAR ENERGY TRANSITIONS* (2021), <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>; see also Energy Transitions Commission, *supra* note 8, at 21; IRENA, *supra* note 8, at 22; see INT’L ENERGY F. & PAYNE INST. PUB. POL’Y, *CRITICAL MINERALS OUTLOOK COMPARISON* (2023), https://www.ief.org/_resources/files/reports/critical-mineral-report.pdf (for a comparative analysis of projections from different reports).

¹⁰ Breno Bringel & Maristella Svampa, *Del “Consenso de los Commodities” al “Consenso e la Descarbonización”*, 306 *NUEVA SOCIEDAD* 51, 52 (2023) [hereinafter Bringel & Svampa].

There are also uncertainties around the shape of the energy transition.¹¹ For example, advances in technology can change raw material requirements, shifting demand between commodities.¹² In addition, as fossil fuels still provide the backbone of the world economy,¹³ developments are inconsistent — illustrated by the government of Norway opening its waters to deep-sea mining for ‘transition metals’ while also awarding new oil and gas exploration licences,¹⁴ and Indonesia’s ‘green’ nickel processing facilities relying on electricity generated from coal.¹⁵ Critical commentators, therefore, argue that we live in a time of energy expansion rather than genuine transition.¹⁶

Meanwhile, commodities such as nickel, copper, cobalt, lithium, and rare earths are important in industries other than renewable energy, including electronics, robotics, communication technologies, defence, and aerospace.¹⁷ The diversity of concerns

¹¹ See IEA – Critical Mineral Market Review, *supra* note 8, at 14 (these are partly reflected in commodity price fluctuations for several critical minerals. This is for an overview of price patterns for selected commodities); see also Frik Els, *And the Winner for Most Volatile Commodity This Decade Goes to ... Lithium*, MINING (Jan. 12, 2023), <https://www.mining.com/and-the-winner-for-most-volatile-commodity-this-decade-goes-to-lithium/>.

¹² See, e.g., IRENA, *supra* note 8, at 29, 30.

¹³ INT’L ENERGY AGENCY, WORLD ENERGY BALANCES: OVERVIEW (2021), <https://www.iea.org/reports/world-energy-balances-overview>.

¹⁴ Gwladys Fouche & Nerijus Adomaitis, *Norway moves to open its waters to deep-sea mining*, REUTERS (June 20, 2023), <https://www.reuters.com/sustainability/climate-energy/norway-moves-open-its-waters-deep-sea-mining-2023-06-20/>; *Norway Awards 47 Oil and Gas Exploration Permits*, REUTERS (Jan. 10, 2023), <https://www.reuters.com/business/energy/norway-awards-47-oil-gas-exploration-permits-2023-01-10>.

¹⁵ Angela Tritto, *How Indonesia Used Chinese Industrial Investments to Turn Nickel into the New Gold*, CARNEGIE ENDOWMENT INT’L PEACE (Apr. 2023), https://carnegieendowment.org/files/Tritto_Indonesia_Nickel.pdf.

¹⁶ Sean Sweeney et al., *Energy Transition or Energy Expansion?*, TRANSNAT’L INST. / TRADE UNIONS ENERGY DEMOCRACY (Oct. 21, 2021), <https://www.tni.org/en/publication/energy-transition-or-energy-expansion>.

¹⁷ See, e.g., EUROPEAN COMMISSION, CRITICAL RAW MATERIALS FOR STRATEGIC TECHNOLOGIES AND SECTORS IN THE EU: A FORESIGHT STUDY (2020), <https://ec.europa.eu/docsroom/documents/42881/attachments/1/translations/en/renditions/native>; GOVERNMENT OF INDIA / MINISTRY OF MINES, CRITICAL MINERALS FOR INDIA: REPORT OF THE COMMITTEE ON IDENTIFICATION OF CRITICAL MINERALS 36-41 (2023), <https://mines.gov.in/admin/storage/app/uploads/649d4212cceb01688027666.pdf> [hereinafter Critical Minerals for India]; Benedetta Girardi et al., *Strategic Raw Materials for Defence: Mapping European Industry Needs*, HAGUE CENT. STRATEGIC STUD. (Jan. 2023), <https://hcss.nl/wp-content/uploads/2023/01/Strategic-Raw-Materials-for-Defence-HCSS-2023-2.pdf>.

underlying the demand for minerals is reflected in the commodities' variable descriptors: while 'green' or 'transition' minerals highlight the energy transition links, 'critical raw materials' have formed the object of legislated definitions and official lists, which vary by country but tend to emphasise supply risk and economic importance for key business sectors.¹⁸ From this perspective, the interest in critical minerals reflects concerns about sustaining production and consumption, ensuring national security, and maintaining or achieving global economic leadership.

Available studies suggest that, over the longer term, the world has enough mineral deposits to meet growing global demand.¹⁹ But two structural factors have prompted both business and government action. First, limited capacity in extraction and processing and the time required to bring new mines into production are expected to create supply bottlenecks in the short to medium term.²⁰ The prospect of commercial returns associated with this projected (if temporary) scarcity has fuelled investments not only in new explorations,²¹ but also in existing operations: in 2022, the value of mergers and acquisitions linked to critical minerals increased by 151% from 2021.²² Meanwhile, car manufacturers concerned about their raw material supplies have concluded long-term offtake agreements or invested directly in extraction.²³

¹⁸ See, e.g., Critical Raw Materials Resilience: Charting a Path towards greater Security and Sustainability, at 1, COM (2020) 474 (Sept. 2, 2020) (defining critical raw materials by reference to their high economic importance and their high supply risk. A comparable approach has been adopted in some other countries as well; the term 'critical raw materials' is broader than critical minerals, in that it can include agricultural commodities, namely rubber) [hereinafter European Commission - Critical Raw Materials Resilience]; see also Critical Minerals for India, *supra* note 17, at 13.

¹⁹ IRENA, *supra* note 8, at 12–13; Energy Transitions Commission, *supra* note 8, at 7, 22–23.

²⁰ IRENA, *supra* note 8, at 12, 27–28; Energy Transitions Commission, *supra* note 8, at 7, 22–23.

²¹ IEA Critical Minerals Market Review 2023, *supra* note 8, at 21.

²² *Mine 2023: The Era of Reinvention*, PwC (2023), <https://www.pwc.com/gx/en/industries/energy-utilities-resources/publications/mine.html#deals> (the figure considers 'Top 40' mergers and acquisitions in the mining sector).

²³ Harry Dempsey & Peter Campbell, *Carmakers Switch to Direct Deals with Miners to Power Electric Vehicles*, FIN. TIMES (Nov. 25 2022), <https://www.ft.com/content/a8e0f1bb-f69a-4a77-b762-02f957e47f5c>; Chris Thompson, *Vertical Integration is All the Rage in the EV Industry, Is Musk the New Ford?*, INVESTOR INTEL (Feb. 23, 2023), <https://investorintel.com/critical-minerals-rare-earths/vertical-integration-is-all-the-rage-in-the-ev-industry-is-musk-the-new-ford/>; see also Ernest Scheyder, *Stellantis Invests More Than \$100 Million in California Lithium Project*, REUTERS (Aug. 17, 2023), <https://www.reuters.com/business/autos-transportation/stellantis-invests-more-than-100-million-california-lithium-project-2023-08-17/>.

Second, the available mining and processing capabilities for several critical minerals are heavily concentrated in a few countries. For example, most lithium is extracted in Australia and Chile, rare earths in China, nickel in Indonesia, and cobalt in the Democratic Republic of Congo (DRC); and China controls most of the graphite, rare earth, cobalt, and lithium processing.²⁴

China's extensive processing capabilities are the result of substantial investments and state support over the years.²⁵ Since the 1980s, China's policies have supported the development of a national rare earths industry, with joint-venture and technology-access requirements on foreign investment ultimately boosting domestic processing.²⁶ More recently, China's policy support has broadened to a wider range of raw materials — a shift exemplified by the adoption, in 2016, of a list of 'strategic minerals'.²⁷

Driven by the need to secure commodities for China's fast-growing economy, these strategies also involved providing financial support to state-owned and private enterprises investing in resource extraction abroad.²⁸ As part of the state-sponsored Belt and Road Initiative, China has seen its businesses expand mining and processing operations overseas, securing access to raw materials needed for its domestic industry and further consolidating its global position.²⁹ As a result, China has come to exert significant control over critical mineral supply chains.

²⁴ IEA Critical Minerals Market Review 2023, *supra* note 8, at 68.

²⁵ See, e.g., Gilmar Masiero et al., *Electric Vehicles in China: BYD Strategies and Government Subsidies*, 13 REVISTA DE ADMINISTRAÇÃO E INOVAÇÃO 3 (2016); Sophia Kalantzakos, *The Race for Critical Minerals in an Era of Geopolitical Realignment*, 55(3) INT'L SPECTATOR 1, 7, 8, 10 (2020); Chang Liu et al., *The Capital Market Responses to New Energy Vehicle (NEV) Subsidies: An Event Study on China*, 105 ENERGY ECON. 105677 (2022); Weihuan Zhou et al., *Demystifying China's Critical Minerals Strategies: Rethinking "De-risking" Supply Chains*, UNSWL & JUST. RSCH. SERIES 23 (2023), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4578882 [hereinafter Zhou, Crochet & Wang]; NATIONAL PLAN FOR MINERAL RESOURCES (2016–2020), <https://www.iea.org/policies/15519-national-plan-for-mineral-resources-2016-2020> (2016) [hereinafter China's National Plan for Mineral Resources] (including an official list of 'strategic' minerals).

²⁶ Zhou, Crochet & Wang, *supra* note 25, at 4–5.

²⁷ *Id.* at 7–9; China's National Plan for Mineral Resources, *supra* note 25.

²⁸ Zhou, Crochet & Wang, *supra* note 25, at 18.

²⁹ Christoph Nedopil, *China Belt and Road Initiative (BRI) Investment Report 2023 H1*, FISF FUDAN UNIVERSITY (July 2023), https://greenfdc.org/wp-content/uploads/2023/07/Nedopil-2023_China-Belt-and-Road-Initiative-BRI-Investment-Report-2023-H1-1.pdf; see also Zhou, Crochet & Wang, *supra* note 25, at 17–18, 20–21.

Geographic concentration can make supply chains more vulnerable to disruptions, such as those caused in 2021 by the obstruction of the Suez Canal.³⁰ But global geopolitics characterised by strategic competition between large economies exacerbated concerns about such vulnerability. Geopolitical rivalry prompted the United States (US) to take measures to reduce its reliance on Chinese imports as part of a policy shift towards a greater role for the state in steering the economy.³¹ Meanwhile, the severing of Russian gas supplies to the European Union (EU), connected to the war in Ukraine, highlighted the relationship between the economy and security, reflected in concepts such as ‘economic security’.³² In this more divisive geopolitics, US and EU concerns about supply bottlenecks and vulnerabilities instigated policies to secure greater control of both the minerals and the supply chains that organise their processing and distribution.

These EU and US policies involve somewhat different approaches, partly reflecting diverse domestic circumstances and specificities in relations with trading partners. Broadly speaking, however, they include varying combinations of — critical raw materials lists and strategic action plans for meeting domestic demand;³³ legislation, guidance, and incentives (e.g. subsidies) to increase domestic production and processing, thereby expanding the ‘internal’ extraction frontier and reversing (neo)colonial divisions of labour that outsourced environmentally harmful mining activities to countries in the Global South;³⁴ policies to promote reuse and recycling

³⁰ *Ever Given: Ship that Blocked Suez Canal Sets Sail after Deal Signed*, BBC NEWS (July 7, 2021), <https://www.bbc.co.uk/news/world-middle-east-57746424>; see LALEH KHALILI, *SINews OF WAR AND TRADE: SHIPPING AND CAPITALISM IN THE ARABIAN PENINSULA* 31–37 (2021) (this provides a longer-term historical perspective).

³¹ Anthea Roberts et al., *Toward a Geoeconomic Order in International Trade and Investment*, 22 J. INT’L ECON. L. 655 (2019) [hereinafter Roberts, Moraes & Ferguson]; Henrique Choer Moraes, *Decoupling by Discrimination? Strategic Competition and the Limits of Trade Law*, 51 GA. J. INT’L COMPAR. L. 671, 671–710 (2023) [hereinafter Moraes].

³² See, e.g., European Commission Press Release, *An EU approach to enhance economic security* (June 20, 2023); see also Mona Pinchis-Paulsen, *The Past, Present, and Potential of Economic Security*, SSRN (Oct. 17, 2023), <https://ssrn.com/abstract=4604958>.

³³ See, e.g., Exec. Order No. 13953, 85 FR 62539 (2017–2021); Exec. Order No. 14017, 86 FR 11849 (2021–Present); see European Commission - Critical Raw Materials Resilience, *supra* note 18.

³⁴ Thea Riofrancos, *The Security–Sustainability Nexus: Lithium Onshoring in the Global North*, 23 GLOB. ENV’T POL. 20 (2023); see, e.g., Infrastructure Investment and Jobs Act, *supra* note 5, § 40206; see also European Commission - Critical Raw Materials Resilience, *supra* note 18, at 11–14; *Proposal for a Regulation of the European Parliament and of the Council Establishing a Framework for Ensuring a Secure and Sustainable Supply of Critical Raw Materials*, COM (2023) 160 final (Mar. 16, 2023).

of waste materials;³⁵ and initiatives to diversify, ‘friendshore’, or secure international supplies, including through partnerships with mineral-rich countries.³⁶

Other large economies and critical mineral importers, including India and the United Kingdom (UK), have also taken steps to secure their supplies.³⁷ After announcing a joint venture between three state-owned entities to identify, acquire, explore, extract, and process minerals overseas,³⁸ the Indian government supported deals and negotiations in Australia and Argentina.³⁹

The growing demand for critical minerals has also been associated with policy developments to sustain the expansion of mining in mineral-rich countries, including in the Global South, where mainstream narratives primarily locate mining-sector

³⁵ This aspect has received particular emphasis in the EU; *see* European Commission - Critical Raw Materials Resilience, *supra* note 18, at 8–11.

³⁶ *Id.* at 15–17 (referring to the EU’s strategy for securing and diversifying international supplies. The language of ‘friendshoring’ has been mainly discussed in connection with US policy; it refers to the practice of geographically reconfiguring supply chains so as to source from countries that are geopolitical allies).

³⁷ U.K., RESILIENCE FOR THE FUTURE: THE UNITED KINGDOM’S CRITICAL MINERALS STRATEGY (2022), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1097298/resilience_for_the_future_the_uks_critical_minerals_strategy.pdf; U.K., CRITICAL MINERALS REFRESH: DELIVERING RESILIENCE IN A CHANGING GLOBAL ENVIRONMENT (2023), <https://www.gov.uk/government/publications/uk-critical-mineral-strategy/critical-minerals-refresh-delivering-resilience-in-a-changing-global-environment-published-13-march-2023>; Critical Minerals for India, *supra* note 18 (containing India’s list of critical minerals).

³⁸ INDIA / MINISTRY OF MINES, KABIL SET UP TO ENSURE SUPPLY OF CRITICAL MINERALS (Aug. 1, 2019), <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1581058>.

³⁹ *See* MINISTRY OF MINES, INDIA’S EFFORTS TO ATTAIN SELF-RELIANCE IN CRITICAL AND STRATEGIC MINERALS: INDIA AND AUSTRALIA TO COLLABORATE IN LITHIUM AND COBALT IDENTIFICATION PROJECTS (Mar. 29, 2022), <https://pib.gov.in/PressReleaseDetail.aspx?PRID=1810948> (on the Memorandum of Understanding concluded in 2022 with Australia’s Critical Minerals Facilitation Office, following a government-to-government deal in 2020); *India and Australia Partner on Lithium and Cobalt Identification Projects*, MINING TECHNOLOGY (Mar. 30, 2022), <https://www.mining-technology.com/news/india-australia-lithium-cobalt/>; *see Indian State-Owned Firm to Sign Lithium Pact with Argentina*, REUTERS (June 29, 2023), <https://www.reuters.com/markets/commodities/indian-state-owned-firm-sign-lithium-pact-with-argentina-source-2023-06-28/> (on negotiations with Argentina); *see* Kirtikumar Randive & Sanjeevani Jawadand, *Strategic Minerals in India: Present status and Future Challenges*, 32 MIN. ECON. 337 (2019) (on the considerations underpinning India’s policy on critical minerals).

‘underinvestment’.⁴⁰ Many mineral-rich states have taken steps not only to promote exploration and extraction but also to leverage mineral endowments in national industrialisation strategies, seeking a decisive rupture with trading relations that have long positioned them as exporters of unprocessed raw materials.

In this context, restrictions on the export of raw materials – from export duties to outright prohibitions – have steadily increased over the years, often under policies to promote domestic processing.⁴¹ Indonesia is a well-documented case: regulations implementing the mining law of 2009 prohibited the export of unprocessed nickel ore.⁴² Coupled with domestic processing requirements, these measures have been credited with promoting industrial investments, mainly from China, and fostering the development of the nickel processing sector in Indonesia.⁴³

Other mineral-rich countries have also adopted policies to maximise local benefits. These include mineral extraction through public-private partnerships with a state-owned enterprise, as in Chile’s lithium sector;⁴⁴ export restrictions on unprocessed minerals, as in Namibia;⁴⁵ and cross-border industrialisation initiatives, such as the

⁴⁰ See James Cust & Albert Zeufack, *Africa’s Resource Future: Harnessing Natural Resources for Economic Transformation during the Low-Carbon Transition* 60, WORLD BANK (2023), https://openknowledge.worldbank.org/entities/publication/5b962927-b2d3-4ea3-a884-971c2b11bbd3?cid=pub_fb_wbpublications_en_ext (arguing that Africa holds “huge untapped and unrealized mineral and petroleum resource potential and remains relatively underexplored by global benchmarks”, an observation that echoes longstanding perceptions of abundant and untapped resources on the continent).

⁴¹ Org. Econ. Coop. & Dev., *Raw Materials Critical for the Green Transition: Production, International Trade and Export Restrictions*, at 35-51 (Apr. 11, 2023), <https://www.oecd.org/publications/raw-materials-critical-for-the-green-transition-c6bb598b-en.htm>; see Ha-Joon Chang, *Kicking Away the Ladder: An Unofficial History of Capitalism, Especially in Britain and the United States*, 45(5) CHALLENGE 63 (2002) (for a historical discussion of the place of trade restrictions in industrialisation processes in Europe and North America).

⁴² Mineral and Coal Mining Law, No. 4 of 2009, Articles 95(c), 102, 103; Minister of Energy and Mineral Resources Regulation No. 11 of 2019; Minister of Trade Regulation No. 96 of 2019 (as will be discussed further below, these measures have formed the object of a dispute at the World Trade Organization (WTO)).

⁴³ IRENA, *supra* note 8, at 113–115.

⁴⁴ *Estrategia Nacional del Litio*, GOBIERNO DE CHILE (2023), <https://www.gob.cl/litioporchile/>.

⁴⁵ Nyasha Nyaungwa, *Namibia Bans Export of Unprocessed Critical Minerals*, REUTERS (June 8, 2023), <https://www.reuters.com/markets/commodities/namibia-bans-export-unprocessed-critical-minerals-2023-06-08/>.

DRC–Zambia agreement to establish an electric battery value chain,⁴⁶ with battery precursor plants planned near mining sites in both countries.⁴⁷

Critical minerals developments may be associated with initiatives to develop large transport infrastructure; for example, the Lobito Corridor, which connects production and potentially processing sites in Zambia and the DRC to Angola’s Atlantic coast.⁴⁸ In advancing these economic policies, mineral-rich countries face challenges linked to the ultimately precarious demand for their commodities: shifts in technologies, such as a possible move away from nickel-manganese-cobalt batteries as the dominant battery chemistry for electric vehicles, could lead to a collapse in demand not only for a given commodity, such as cobalt, but also for the industry built on it.⁴⁹

Meanwhile, research suggests that the majority of existing or possible mines are on or near lands claimed by groups who have a deep connection to their surrounding territory, such as indigenous peoples and small-scale farmers,⁵⁰ amid increasingly evident social and environmental impacts and disputes over land, water, labour

⁴⁶ GOVERNMENT OF ZAMBIA, MINISTERIAL STATEMENT BY THE MINISTER OF COMMERCE, TRADE AND INDUSTRY ON THE ZAMBIA-DEMOCRATIC REPUBLIC OF CONGO JOINT INITIATIVE TO ESTABLISH A VALUE CHAIN IN THE ELECTRIC BATTERY AND CLEAN ENERGY SECTOR (Mar. 31, 2023), <https://www.parliament.gov.zm/node/11004>.

⁴⁷ *Id.*

⁴⁸ WHITE HOUSE, JOINT STATEMENT FROM THE UNITED STATES AND THE EUROPEAN UNION ON SUPPORT FOR ANGOLA, ZAMBIA AND THE DEMOCRATIC REPUBLIC OF THE CONGO’S COMMITMENT TO FURTHER DEVELOP THE LOBITO CORRIDOR AND THE U.S.-EU LAUNCH OF A GREENFIELD RAIL LINE FEASIBILITY STUDY (Sept. 9, 2023), <https://www.whitehouse.gov/briefing-room/statements-releases/2023/09/09/joint-statement-from-the-united-states-and-the-european-union-on-support-for-angola-zambia-and-the-democratic-republic-of-the-congos-commitment-to-further-develop-the-lobito-corridor-and-the/>; European Commission Press Release, Global Gateway: EU Signs Strategic Partnerships on Critical Raw Materials Value Chains with DRC and Zambia and Advances Cooperation with US and Other Key Partners to Develop the “Lobito Corridor” (Oct. 26, 2023), https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_23_5303/IP_23_5303_EN.pdf [hereinafter European Commission - Global Gateway].

⁴⁹ See, e.g., David Manley et al., *No Time to Waste: Governing Cobalt Amid the Energy Transition*, NAT. RES. GOVERNANCE INST. (2022), https://resourcegovernance.org/sites/default/files/documents/no_time_to_waste_governing_cobalt_amid_the_energy_transition.pdf.

⁵⁰ John R. Owen et al., *Energy Transition Minerals and Their Intersection with Land-Connected Peoples*, 6 NAT. SUSTAINABILITY 203 (2022) (‘land-connected’ are defined as the people whose rights are protected by the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas (UNDROP)).

rights, and pollution around mining sites.⁵¹ In this way, critical minerals projects can entail deep ecological, social, economic, and cultural transformations in the territories they integrate into global supply chains. This highlights questions not only about economic governance but also about arrangements to protect human rights and environmental sustainability, such as those reflected in international jurisprudence on the rights of indigenous peoples.⁵²

Overall, the flurry of state-supported initiatives reflects a policy rush as much as a resource rush.⁵³ Policies in consumer, processing and mineral-rich countries present areas of both convergence and divergence.⁵⁴ Expanding exploration, extraction, and processing is a recurring objective, supported, to varying degrees, by deliberate state intervention to promote and guide economic activities. But framings differ, and supply chain terms emerge as a site for contestation.

⁵¹ See, e.g., Amnesty Int'l, *This is What We Die For: Human Rights Abuses in the Democratic Republic of the Congo Power the Global Trade in Cobalt* (2016), <https://www.amnesty.org/en/documents/afr62/3183/2016/en/> (on cobalt in the DRC); Emmanuel Nkumba-Umpula et al., *Islands of Responsibility? Corporate Sourcing of Artisanal Cobalt in the Democratic Republic of Congo*, INT'L INST. ENV'T & DEV. (2021), <https://www.iied.org/20436iied>; see Bambang Hidayana et al., *Communal Violence as a Strategy for Negotiation: Community Responses to Nickel Mining Industry in Central Sulawesi, Indonesia*, 7 EXTRACTIVE INDUS. & SOC'Y. 1547 (2020) (on nickel in Indonesia); see Gabriela Quijano, *Lithium Might Hold the Key to our Clean Energy Future, But Will This Star Metal Fully Deliver on its Green Potential?*, 5 BUS. HUM. RTS. J. 276 (2020) (on lithium in Latin America); Pia Marchegiani et al., *Indigenous Peoples' Rights to Natural Resources in Argentina: The Challenges of Impact Assessment, Consent and Fair and Equitable Benefit-Sharing in Cases of Lithium Mining*, 24 INT'L. J. HUM. RTS. 224 (2020); Bárbara Jerez et al., *Lithium Extractivism and Water Injustices in the Salar de Atacama, Chile: The Colonial Shadow of Green Electromobility*, 87 POL. GEOGRAPHY 102382 (2021); Melisa Escosteguy et al., *"We Are Not Allowed to Speak": Some Thoughts about a Consultation Process around Lithium Mining in Northern Argentina*, 11 EXTRACTIVE INDUS. & SOC'Y. 101134 (2022).

⁵² See, e.g., *Saramaka People v. Suriname*, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 185, at 129 (Nov. 28, 2007); *Saramaka People v. Suriname*, Interpretation of the Judgment, Inter-Am. Ct. H.R., at 41 (Aug. 12, 2008); *Kichwa Indigenous People of Sarayaku v. Ecuador*, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 245, at 157, 160, 177, 187, 204, 206 (June 27, 2012).

⁵³ See IEA, *Critical Minerals Market Review 2023*, *supra* note 8, at 28 (identifying nearly 200 new policy instruments adopted around the world).

⁵⁴ The categories of 'consumer', 'processing' and 'minerals-rich' countries are used here as shorthand for differences in economic and geological realities as well as in policy emphases. In practice, border lines are blurred and overlaps exist. For example, some countries both look to secure critical minerals supplies and have significant endowments of certain critical minerals, while some minerals-rich countries are looking to use the commodities as well as exporting them.

For example, the critical mineral framing seems more prevalent among governments in consumer countries and large economies concerned about the security of their supplies. In these contexts, criticality reflects an assessment of economic and geopolitical factors related to the supply chains and the end uses of the mineral, rather than the properties inherent to it. On the other hand, several mineral-rich states have adopted commodity-specific measures such as on lithium in Chile and on nickel in Indonesia, primarily to maximise local economic benefits.⁵⁵

Highlighting the distributive dimensions of criticality in commodity supply relations (critical for whom, and to be fulfilled by whom), and ultimately of ‘energy transition’ framings (whose transition, and with whose resources), such nuances crystallise in competing goals around the structure of critical minerals supply chains. For example, while several consumer countries are looking to develop their processing capabilities, partly in response to China’s control over key supply chains, mineral-rich states seek to promote domestic processing as a route to industrialisation.

The shared policy drive to expand critical mineral production and the need to reconcile diverse economic and strategic interests have been at the centre of evolutions in international economic law, an issue to which this exploration now turns.

III. THE INTERNATIONAL ECONOMIC LAW INFRASTRUCTURE

From international treaties on trade and investment to national legislation on mining, land, labour, the environment, and territorial governance, a web of legal instruments regulates raw material extraction and trading.⁵⁶ China’s rise as the ‘world’s factory’ in several critical mineral supply chains illustrates the complexity and interrelatedness of legal instruments, including domestic legislation on foreign investment,⁵⁷ China’s accession protocol to the World Trade Organization (WTO),⁵⁸ and bilateral and regional treaties that facilitate cross-border trade and protect foreign investment.

⁵⁵ See *supra* notes 42 & 44.

⁵⁶ See generally Lorenzo Cotula, *(Dis)integration in Global Resource Governance: Extractivism, Human Rights, and Investment Treaties*, 23 J. INT’L ECON. L. 431 (2020); Oliver Hailes, *Lithium in International Law: Trade, Investment, and the Pursuit of Supply Chain Justice*, 25 J. INT’L ECON. L. 148 (2022) [hereinafter Hailes].

⁵⁷ Zhou, Crochet & Wang, *supra* note 25, at 16–17.

⁵⁸ WORLD TRADE ORG., PROTOCOL ON THE ACCESSION OF THE PEOPLE’S REPUBLIC OF CHINA (Nov. 10, 2001), <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/WT/L/432.pdf&Open=True>.

For example, trade and investment agreements between China and the Association of Southeast Asian Nations (ASEAN),⁵⁹ and the Regional Comprehensive Economic Partnership (RCEP),⁶⁰ would in principle cover Chinese investments in Indonesia's nickel processing industry and nickel trading between Indonesia and China.⁶¹ At the same time, the expansion of China's mining and processing activities overseas, including in the context of the Belt and Road Initiative, has been facilitated by government-to-government 'soft' MOUs as well as transnational contracts to advance strategic projects.⁶²

In line with this legal complexity, the rush for critical minerals has been associated with evolutions in diverse legal arenas, illustrating the role of law and legal change in sustaining complex processes of socioeconomic adjustment, such as the energy transition and the search for the raw materials it requires. These developments cut across regulatory areas such as trade, investment, innovation, labour, and the environment. They also highlight strong connections between international negotiations and national law reforms, particularly in large economies with significant influence.

The US Inflation Reduction Act of 2022 (IRA) illustrates this interplay of national and international legal instruments. The law modified a tax credit for electric vehicles, adding a requirement that incrementally larger percentages of the critical minerals contained in the battery are extracted or processed in the US or 'in any country with which the United States has a free trade agreement'.⁶³ Vehicles with batteries containing critical minerals extracted, processed, or recycled by a 'foreign entity of concern' – including those owned or controlled by the Chinese government – are excluded from the incentives.⁶⁴

⁵⁹ Agreement on Trade in Goods of the Framework Agreement on Comprehensive Economic Co-Operation between the People's Republic of China and the Association of Southeast Asian Nations, Nov. 29, 2004; Agreement on Investment of the Framework Agreement on Comprehensive Economic Co-Operation between the People's Republic of China and the Association of Southeast Asian Nations, Aug. 15, 2009.

⁶⁰ Regional Comprehensive Economic Partnership, Nov. 15, 2020.

⁶¹ See Zhou, Crochet & Wang, *supra* note 25, at 18–19.

⁶² See Henry Gao & Gregory Shaffer, *The Role of Law in Chinese Value Chains*, 19 J. CHINESE ECON. BUS. STUD. 197 (2021) (on the diverse legal instruments associated with China's economic diplomacy); see Zhou, Crochet & Wang, *supra* note 25, at 16–25 (discussing WTO commitments, the RCEP, trade treaties with Australia, Chile and Peru, and MOUs concluded in the context of the Belt and Road Initiative).

⁶³ Inflation Reduction Act, Pub. L. 117-169 § 13401(e)(1), 136 Stat. 1818 (2022) [hereinafter Inflation Reduction Act].

⁶⁴ I.R.C. § 30D(d)(7) (amended by the Inflation Reduction Act); Infrastructure Investment and Jobs Act, *supra* note 5 § 18741(a)(5)(C) (this provides a definition of "foreign entity of

Using trade agreements as a proxy for geopolitical alignment raised concerns among US allies such as Japan, the EU, and the UK, which have no comprehensive trade agreements with the US.⁶⁵ The practice of negotiating international ‘trade agreements’ on critical minerals, such as the one concluded between the US and Japan,⁶⁶ and those being discussed with the EU and the UK,⁶⁷ partly responds to this problem.⁶⁸

On the international plane, existing multilateral rules establish important parameters, with WTO rules governing trade in commodities,⁶⁹ and bilateral and regional treaties liberalising trade and protecting investments.⁷⁰ At the same time, critical minerals have become a bargaining chip in wider trade negotiations.⁷¹ Meanwhile, efforts by consumer countries to secure and diversify supplies, along with industrialisation policies in mineral-rich countries, have paved the way for new forms of legal instruments or provisions tailored to critical minerals issues.

To some extent, the development of these new instruments responds to perceived gaps in existing rules. Critical minerals policies in large economies primarily reflect concerns about securing imports. From this viewpoint, export restrictions in mineral-rich countries are seen as a source of supply chain disruption. WTO rules

concern” that includes entities “owned by, controlled by, or subject to the jurisdiction or direction of a government of a foreign country that is a covered nation”); *see* U.S.C., §2533(c), Title 10 (Armed Forces), §2533(d)(2) (Section 2533(c) of the United States Code identifies China as a ‘covered nation’).

⁶⁵ Moraes, *supra* note 31, at 689, 696.

⁶⁶ Agreement between the Government of the United States of America and the Government of Japan on Strengthening Critical Minerals Supply Chains, U.S.-Japan, Mar. 28, 2023 [hereinafter US Japan – Agreement on Strengthening Critical Minerals Supply Chains].

⁶⁷ Jenny Leonard et al., *US and EU Discuss Deal to Widen Access to Inflation Reduction Act*, BLOOMBERG (Jan. 25, 2023), <https://www.bloomberg.com/news/articles/2023-01-25/us-and-eu-discuss-minerals-deal-to-widen-scope-of-green-credits#xj4y7vzkg> [hereinafter Leonard, Nardelli & Valero]; *US and UK Back New “Atlantic Declaration” for Economic Cooperation*, REUTERS (June 8, 2023), <https://www.reuters.com/world/us-uk-back-new-atlantic-declaration-economic-cooperation-2023-06-08/> [hereinafter Reuters Article on Atlantic Declaration].

⁶⁸ *Id.*

⁶⁹ Fiona Smith, *Natural Resources and Global Value Chains: What Role for the WTO?*, 11 INT’L J. L. CONTEXT 135–152 (2015).

⁷⁰ Hailes, *supra* note 56, at 162, 163.

⁷¹ Lewis Jackson & Kirsty Needham, *Australia Wants EU Investment in Critical Minerals, But First a Free Trade Agreement*, REUTERS (Aug. 24, 2023), <https://www.reuters.com/markets/commodities/australia-wants-eu-investment-critical-minerals-first-free-trade-agreement-2023-08-24/>.

do offer some response to this problem: Article XI of the General Agreement on Tariffs and Trade (GATT) prohibits quantitative restrictions on both imports and exports, with some exceptions.⁷² But while multilateral negotiations have gradually reduced import tariffs, WTO rules are thinner on export duties, for example.⁷³

In addition, securing raw material supplies may involve accessing investment opportunities in extraction and processing, yet the interface between trade and investment has only limited treatment under existing multilateral rules. Issues surrounding export restrictions and the trade and investment interface feature prominently in international instruments related to critical minerals.

Binding instruments include standalone treaties and provisions in wider trade agreements. The ‘energy and raw materials’ (ERM) provisions included in some recent EU trade treaties provide an example of the latter. These clauses complement other treaty provisions, such as those prohibiting discrimination in trade, which apply to raw materials as much as any other goods, and those governing investment across sectors. In their most recent versions, the ERM provisions expand on the more general provisions with sector-specific rules, for example, to prohibit measures that can indirectly restrict exports and to ensure transparency in licencing for trade and investment activities.⁷⁴

⁷² General Agreement on Tariffs and Trade, art. XI (Oct. 30, 1947), 61 Stat. A-11, 55 U.N.T.S. 194 [hereinafter GATT] (article XI(2) of the GATT provides for exceptions concerning export prohibitions or restrictions temporarily applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting contracting party; and import and export prohibitions or restrictions necessary to the application of standards or regulations for the classification, grading or marketing of commodities in international trade).

⁷³ HENRY GAO & WEIHUAN ZHOU, *XI.26 Export Taxes and Raw Materials*, in ELGAR ENCYCLOPAEDIA OF ENVIRONMENTAL LAW 232-234 (Michael Faure ed., Edward Elgar 2023) (Henry Gao and Weihuan Zhou note that, while WTO treaties provide little regulation on export duties, the accession schedules of several states that have joined the WTO in recent years include commitments on export duties); *see also* ILARIA ESPA, *Export Restrictions on Critical Minerals and Metals: Testing the Adequacy of WTO Disciplines*, 16(1) *WORLD TRADE REV.* 149 (2017).

⁷⁴ Enhanced Partnership and Cooperation Agreement, Eur.-Kaz., art. 148, Dec. 21, 2015 (an early example of these provisions); *see Draft provisions in Relation to Trade in Goods Already Included in the EU Text Proposal for the Trade in Goods Chapter* (July 18, 2022), <https://circabc.europa.eu/ui/group/09242a36-a438-40fd-a7af-fe32e36cbd0e/library/26847620-d033-4b8b-8171-3e33a15e4c97/details> (besides the ERM chapter included in the trade agreement between the EU and Chile, discussed more fully in this section, draft ERM chapters are publicly available for some trade agreements currently under negotiations, such as that between the EU and Indonesia).

Negotiations to ‘modernise’ the Chile–EU trade agreement provided an opportunity to develop this approach.⁷⁵ The ERM chapter of the new treaty reaffirms each party’s sovereign right to decide whether to open parts of its territory for exploration and production, as well as each party’s right to regulate such activities.⁷⁶ At the same time, the text prohibits import or export monopolies,⁷⁷ and proscribes imposing a higher price for exports compared to the price charged on the domestic market.⁷⁸ These clauses expand on the chapter on trade in goods, which prohibits export duties,⁷⁹ as well as quantitative export restrictions.⁸⁰

The restriction on differential pricing comes with an exception that allows Chile to introduce or maintain measures aimed at fostering value addition by supplying raw materials to industrial operators at preferential prices. In turn, the exception is subject to certain conditions, such as ensuring that the measures do not adversely affect the EU’s capacity to source raw materials from Chile.⁸¹ The practical

⁷⁵ Advanced Framework Agreement (AFA), Eur.-Chile, Dec. 13, 2023 [hereinafter Chile-EU Agreement]; Interim Agreement on Trade, Eur.-Chile, Dec. 13, 2023 (at the time of writing, neither agreement had come into force. The Interim Trade Agreement is designed to remain in force only until the more comprehensive AFA comes into effect. Citations in subsequent footnotes refer to the Interim Trade Agreement); see *Proposal for a Council Decision on the Conclusion on behalf of the European Union, of the Advanced Framework Agreement between the European Union and its Member States, of the one part, and the Republic of Chile, of the other part*, COM (2023) 432 final (July 5, 2023) (this document provides additional background on the history of this negotiation. Once in force, the agreement will replace the existing Association Agreement between Chile and the EU, which was concluded in 2002); see *Agreement Establishing an Association*, Eur.-Chile, Nov. 18, 2002.

⁷⁶ *Id.* art. 8.2.

⁷⁷ *Id.* art. 8.4 (the article further clarifies that “import or export monopoly means the exclusive right or grant of authority by a Party to an entity to import energy goods or raw materials from, or export energy goods or raw materials to, the other Party”).

⁷⁸ *Id.* art. 8.5 (the article covers the imposition of a differential price “by means of any measure” and provides non-exhaustive examples (“such as licenses or minimum price requirements”).

⁷⁹ *Id.* art. 2.7(1).

⁸⁰ *Id.* art. 2.11.

⁸¹ *Id.* art. 8.5(2), Annex II (Chapter 8) (according to Annex II, the measures must: “not result in an export restriction for the other Party”, as per Article 2.11 of the chapter on trade in goods; “not adversely affect the capacity of the European Union to source raw materials from Chile”; “if the raw material is supplied at that preferential price to any economic operator in any other country, be accorded immediately and unconditionally to economic operators in like situations in the European Union”; and “not result in a preferential price that is below the lowest price for exports of the same good realized during the preceding 12 months”. The annex also prescribes public disclosure of the measures and of the way they will be implemented, alongside specified parameters concerning product scope, production volume, and domestic sales and pricing aspects).

application of the differential pricing provisions remains to be seen; advocacy organisations have raised concerns about the strictures the clauses can create for Chile's industrialisation ambitions.⁸² At a more general level, such rules, exceptions, and provisos highlight the complexity of interests in the negotiation, including the EU's interest in sourcing raw materials and Chile's interest in promoting domestic processing.

On the investment side, the Chile–EU ERM chapter requires both parties to ensure that they grant any authorisations for exploration or production through a public and non-discriminatory process.⁸³ For activities that may have significant social or environmental impacts, the parties must require an impact assessment before granting authorisations.⁸⁴ These provisions complement a separate chapter on investment liberalisation, which entitles each party's businesses to invest in the other party's territory without discrimination,⁸⁵ and prohibits performance requirements such as restricting exports or achieving a given level or percentage of domestic content.⁸⁶

The parties also agree to cooperate on issues such as reducing or eliminating measures that can distort ERM trade and investment, promoting responsible business conduct and mutually beneficial value addition, and collaborating on research and innovation.⁸⁷ In addition, the new Chile–EU treaty includes a chapter on trade and sustainable development, with extensive provisions particularly on the environment and labour rights — though not on other issues associated with critical

⁸² See, e.g., *A Partnership of Equals? How to Strengthen the EU's Critical Raw Materials Strategic Partnerships*, FERN, at 10 (2023), https://www.fern.org/fileadmin/uploads/fern/Documents/2023/A_Partnership_of_Equals_01.pdf; see Alejandro González, *Ten Reasons Why the European Commission's Proposed Critical Raw Materials Regulation is Not Sustainable – And How to Fix It*, CTR. RSCH. ON MULTINATIONAL CORP. (SOMO) 1 (May, 2023), <https://www.somo.nl/nl/wp-content/uploads/sites/2/2023/05/SOMO-position-paper-on-Critical-Raw-Materials-Regulation.pdf>. (presenting a critique of the EU's critical minerals policies on the ground that they reinforce “an economic framework where resource-rich third countries are pushed to remain as suppliers of raw materials that feed the consumer demands and unsustainable lifestyles of global powers”).

⁸³ Chile-EU Agreement, *supra* note 75, art. 8.7.

⁸⁴ *Id.* art. 8.8.

⁸⁵ *Id.* arts. 10.6, 10.8 (requiring national treatment and most-favoured-nation treatment in relation to establishment).

⁸⁶ *Id.* art. 10.9; see also *id.* art. 10.11 (establishing exceptions to the national treatment, most-favoured-nation and performance requirements clauses, with regard to listed reservations and listed existing non-conforming measures as renewed or modified over time).

⁸⁷ *Id.* arts. 8.13, 8.14.

minerals projects, such as respect for the land and indigenous peoples' rights or the principle of free, prior and informed consent.⁸⁸

Another approach involves concluding agreements that are solely focused on critical raw materials. This creates new and more agile instruments in international economic law, partly reflecting the ambitious timeframes associated with critical minerals policies, compared with the complexities of establishing comprehensive trade agreements. The Japan-US Critical Minerals Agreement illustrates this approach.⁸⁹ The agreement aims to strengthen and diversify critical minerals supply chains by facilitating trade, promoting fair competition, setting labour and environmental standards, and enabling cooperation “to ensure secure, sustainable, and equitable critical minerals supply chains.”⁹⁰

In practice, Japan and the US commit not to impose quantitative import or export restrictions, in line with Article XI of the GATT.⁹¹ Each party also commits to “maintain its current practice not to impose export duties on critical minerals” exported to the other party.⁹² In addition to reiterating the obligation to not discriminate against goods originating from the other party, in line with the GATT,⁹³ the text contains broadly worded provisions on environmental and labour standards (but not, for example, on land rights or territorial governance issues).⁹⁴ It also

⁸⁸ *Id.* Chapter 26 (however, Article 26.3 of the Chile–EU treaty includes general provisions on responsible supply chains, which could apply to wide-ranging situations. As regards the protection of biodiversity, Article 26.13(3) “recognise(s) the importance of respecting, preserving and maintaining knowledge and practices of indigenous and local communities embodying traditional lifestyles that contribute to the conservation and sustainable use of biological diversity, and the role of international trade therein”).

⁸⁹ US Japan – Agreement on Strengthening Critical Minerals Supply Chains, *supra* note 66.

⁹⁰ *Id.* art. 1.

⁹¹ *Id.* art. 3:1.

⁹² *Id.* art. 3:2.

⁹³ *Id.* art. 3:3; GATT, *supra* note 72, art. III.

⁹⁴ US Japan – Agreement on Strengthening Critical Minerals Supply Chains, *supra* note 66, arts. 4, 5 (under Article 4, for example, each party “confirms its intention to ensure that its environmental laws and policies provide for, and encourage, high levels of environmental protection with respect to critical minerals”; “confirms its intention to establish and maintain appropriate procedures for assessing the environmental impacts of proposed projects”; “affirms its commitment to implement the multilateral environmental agreements to which it is a party”; and recognises the importance of taking into consideration relevant environmental best practices and international guidelines. On labour, each party “confirms its intention”, e.g., to adopt and maintain labour rights in its statutes and regulations; “not to waive or otherwise derogate from, or offer to waive or otherwise derogate from, their respective statutes and regulations related to a right stated in the International Labor Organization Declaration on Fundamental Principles and Rights at Work”, or related to other rights under specified circumstances; and to effectively enforce its labour laws (art. 5)).

contains a security exception,⁹⁵ and a clarification that the agreement does not modify international obligations, including under WTO law.⁹⁶ The parties further commit to ‘confer’ on issues related to trade and investment, including “measures to address non-market policies and practices of non-parties affecting trade in critical minerals”;⁹⁷ a veiled reference to the rise of export restrictions and the role of China in critical minerals supply chains.

While legally binding, this treaty seems to establish few new enforceable obligations. Its text reiterates existing WTO obligations while also defining standards and encouraging cooperation in broad, largely hortatory language.⁹⁸ However, the commitment not to introduce export restrictions hardens an existing unilateral practice into an international obligation. The treaty seems mostly aimed at enabling Japanese car businesses to qualify for the US clean vehicle tax credit as revised by the IRA, which links eligibility to the existence of a trade agreement with the US.⁹⁹ More generally, it signals political alignment in global geopolitics characterised by strategic competition and policy efforts to onshore or friendshore supply chains.

In addition to binding treaties, government-to-government deals on critical minerals also include an array of non-binding instruments. The EU, for example, has concluded ‘strategic partnerships’ on critical raw materials with Ukraine,¹⁰⁰

⁹⁵ *Id.* art. 8(b) (the security exception is formulated in self-executing terms: “Nothing in this Agreement shall be construed to: . . . (b) preclude a Party from applying any measure that *it considers* necessary for the fulfilment of its obligations with respect to the maintenance or restoration of international peace or security or for the protection of its own essential security interests” (emphasis added)).

⁹⁶ *Id.* art. 10.

⁹⁷ *Id.* arts. 3:4, 3:5, 3:6.

⁹⁸ For example, the formulation of social and environmental provisions is in terms of the parties “recognising the importance” of certain approaches or “confirming their intention” to adopt a specified conduct.

⁹⁹ Leonard, Nardelli & Valero, *supra* note 67; Reuters Article on Atlantic Declaration, *supra* note 67.

¹⁰⁰ Memorandum of Understanding on a Strategic Partnership on Raw Materials, Eur.-Ukr., July 13, 2021) [hereinafter EU-Ukraine MoU].

Kazakhstan,¹⁰¹ Namibia,¹⁰² Chile,¹⁰³ the DRC, and Zambia.¹⁰⁴ On the EU side, these partnerships fulfil policies to secure and diversify international supplies.¹⁰⁵ Policy considerations for partner countries vary, but typically include attracting investment and promoting local economic benefits.¹⁰⁶

These partnerships take the form of MOUs, which expressly do not create legal obligations,¹⁰⁷ and typically emphasise establishing a framework for cooperation and developing a roadmap with concrete actions. While the frameworks affirm principles that are broadly aligned with existing trade and investment law – such as predictability, non-discrimination, and non-trade distortion¹⁰⁸ – the MOUs also outline more deliberate actions to develop and integrate supply chains.¹⁰⁹

These include facilitating business collaborations to explore critical mineral deposits and ‘modernise’ mining and refining processes;¹¹⁰ preparing a portfolio of viable projects in partner countries and ‘matchmaking’ these with European businesses;¹¹¹ and supporting research and innovation through participation by partner country research institutions in the EU framework programme Horizon Europe.¹¹² The EU–Kazakhstan MOU envisages the “examination of possibilities and promotion of cooperation in the manufacturing of battery components/sub-components in

¹⁰¹ Memorandum of Understanding on a Strategic Partnership on Sustainable Raw Materials, Batteries and Renewable Hydrogen Value Chains, Kaz.-Eur., Nov. 7, 2022 [hereinafter EU-Kazakhstan MoU].

¹⁰² Memorandum of Understanding on a Partnership on Sustainable Raw Materials Value Chains and Renewable Hydrogen, Eur.-Namib., Nov. 8, 2022 [hereinafter EU-Namibia MoU].

¹⁰³ Memorandum of Understanding on a Strategic Partnership on Sustainable Raw Materials Value Chains, Eur.-Chile, July 18, 2023 [hereinafter EU-Chile MoU].

¹⁰⁴ European Commission - Global Gateway, *supra* note 48 (at the time of writing, the texts of the partnerships with Zambia and the DRC were not publicly available).

¹⁰⁵ European Commission - Critical Raw Materials Resilience, *supra* note 18.

¹⁰⁶ EU-Namibia MoU, *supra* note 102, § 1.

¹⁰⁷ *E.g.*, EU-Namibia MoU, *supra* note 102, § 4; EU-Chile MoU, *supra* note 103, § V.

¹⁰⁸ *E.g.*, EU-Kazakhstan MoU, *supra* note 101, § I(3); EU-Chile MoU, *supra* note 103, § III.

¹⁰⁹ *E.g.*, EU-Kazakhstan MoU, *supra* note 101, § II(1); EU-Namibia MoU, *supra* note 102, § 2.

¹¹⁰ EU-Ukraine MoU, *supra* note 100, § II(2); EU-Kazakhstan MoU, *supra* note 101, § II(1).

¹¹¹ EU-Ukraine MoU, *supra* note 100, § III; *see also* EU-Kazakhstan MoU, *supra* note 101, § III.

¹¹² EU-Kazakhstan MoU, *supra* note 101, § II(4) (section V of the Memorandum clarifies that “nothing in this Memorandum represents a commitment of financing on the part of either Side”).

Kazakhstan for use in the European Union”.¹¹³ The MOUs place significant emphasis on addressing ‘environmental, social and governance’ (ESG) issues in both mining and processing.¹¹⁴

While the EU has developed a distinctive approach to strategic partnerships with mineral-rich countries, the use of MOUs, joint statements, political declarations, and other soft instruments is widespread in critical minerals diplomacy. For example, the US and Australian governments announced a statement of intent and a compact on critical minerals and energy transformation,¹¹⁵ while the UK–US Atlantic Declaration envisages cooperation in diverse economic areas, including critical minerals, and clean energy.¹¹⁶ These non-binding instruments do not create rights or obligations, but they may envisage negotiating follow-on treaties, such as critical minerals agreements,¹¹⁷ and can illustrate evolutions in policy thinking with parallels in binding international economic law.¹¹⁸

¹¹³ EU-Kazakhstan MoU, *supra* note 101, § II(1); EU-Namibia MoU, *supra* note 102, § 1 (this provision states: “Namibia can capitalize on her unique competitive advantage of a range of critical raw minerals and attract investment to diversify mineral production and increase mineral processing and recycling activities”).

¹¹⁴ EU-Ukraine MoU, *supra* note 100, §§ II(1), III; EU-Kazakhstan MoU, *supra* note 101 §§ II(1), III; *see also* EU-Namibia MoU, *supra* note 102, § 2; EU-Chile MoU, *supra* note 103, § III.

¹¹⁵ *United States–Australia Statement of Intent: Climate, Critical Minerals, and the Clean Energy Transformation*, WHITE HOUSE (May 20, 2023), <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/australia-united-states-statement-of-intent-climate-critical-minerals-and-the-clean-energy-transformation/> (the Compact identifies areas for cooperation such as accelerating the expansion and diversification of clean energy supply chains, and promoting responsible, sustainable and stable supply of critical minerals. It also envisages the two sides preparing an action plan and identifying concrete measures for closer industrial collaboration. The closing sentence of the Compact clarifies that the document “represents the political commitments of both Governments and does not give rise to rights and obligations under international law”); *Australia–United States Climate, Critical Minerals and Clean Energy Transformation Compact*, WHITE HOUSE (May 20, 2023), <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/20/australia-united-states-climate-critical-minerals-and-clean-energy-transformation-compact/>.

¹¹⁶ Atlantic Declaration for a Twenty-First Century U.S.–UK Economic Partnership, WHITE HOUSE (June 8, 2023), <https://www.whitehouse.gov/briefing-room/statements-releases/2023/06/08/the-atlantic-declaration-aframework-for-a-twenty-first-century-u-s-uk-economic-partnership/> [hereinafter UK-US Atlantic Declaration].

¹¹⁷ *See, e.g.*, UK – US Atlantic Declaration, *supra* note 116, § 1.

¹¹⁸ As discussed, the integrated approach to considering both trade and investment aspects in critical minerals supply chains also emerges in critical minerals treaties and chapters, as does the coexistence of commercial dimensions with ESG considerations.

Governments have also used soft instruments to advance specific projects. For example, the US signed an MOU with the DRC and Zambia, and a separate one with Zambia, supporting the DRC–Zambia initiative to establish processing facilities on both sides of the border.¹¹⁹ These MOUs illustrate an approach that supports domestic processing plans in mineral-rich countries; that calls for an open, non-discriminatory level playing field,¹²⁰ and for tackling corruption and ensuring compliance with internationally recognised labour rights;¹²¹ and that outlines opportunities for US businesses to participate in value chain development.¹²²

Besides international diplomacy, the critical minerals rush has also seen the activation of international dispute settlement mechanisms. The WTO has provided a space for challenging restrictions on critical mineral exports, with a panel in 2014 finding that China’s export restrictions on rare earths and other materials were inconsistent with Article XI of the GATT.¹²³ More recently, the EU challenged

¹¹⁹ Memorandum of Understanding Concerning Support for the Development of a Value Chain in the Electric Vehicle Battery Sector, Dec. 13, 2022, § III(3) [hereinafter USA, Congo & Zambia MoU]; Memorandum of Understanding Concerning the Development and Implementation of Strategic Priority Commercial Projects in Zambia, U.S.-Zam., Mar. 30, 2023, § 1(c),1(e),7(d)(iv) [hereinafter US - Zambia MoU].

¹²⁰ See, e.g., US - Zambia MoU, *supra* note 119, § 5 (“[t]he Government of the Republic of Zambia is committed to providing a conducive business environment for the effective implementation of commercial projects and for the private sector to thrive, including an investment framework that is open and non-discriminatory, presents a level playing field, protects investors and investments, incorporates fair and binding dispute settlement, follows robust transparency and public participation rules, promotes responsible business conduct, and bases any reviews of foreign investments on genuine national security risks”).

¹²¹ USA, Congo & Zambia MoU, *supra* note 119, § III; US - Zambia MoU, *supra* note 119, §§ 11(a), 11(b).

¹²² See e.g., USA, Congo & Zambia MoU, *supra* note 119, §§ II, III (the tripartite MoU refers to cooperation “in feasibility studies, consultancies, and technical assistance opportunities to facilitate transparent, competitive tenders”, in order “to find the best and most cost-effective contractors and partners’ for implementing the value chain project”; it also contains provisions on facilitating the participation of US businesses in the value chain initiative); US-Zambia MOU, *supra* note 119, §§ 7(d)(iv), 9, 10(b)(i), 10(c), 10(d), 10(h)(vi) (whereby the US government expresses its intention to promote awareness about trade and investment opportunities in Zambia among US businesses, to connect Zambian to US businesses, to leverage aid for market-driven initiatives and business-friendly policy reform, and to consider investment support for private sector projects).

¹²³ Panel Report, *China — Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum*, ¶ 7.601, WTO Doc. WT/DS431/R (adopted Mar. 26, 2014) (the panel rejected China’s argument that the restrictions were necessary for the conservation of natural resources, and thus justified under the GATT general exceptions clause (particularly Article XX(g) of the GATT, on “the conservation of exhaustible natural resources”), finding the restrictions to be mainly aimed at securing supplies for domestic use).

Indonesia's nickel export restrictions and domestic processing requirements – a deliberate and largely successful policy effort to develop a domestic processing industry. The WTO panel found that by prohibiting nickel ore exports, the Indonesian regulations were inconsistent with Article XI of the GATT.¹²⁴ It also rejected Indonesia's use of exceptions to the prohibition in Article XI – such as aiming to prevent or relieve critical shortages of essential products – to justify the measures.¹²⁵

The stalemate affecting the appointment of WTO Appellate Body members has made implementing WTO rulings more uncertain. After Indonesia filed an appeal “into the void”, in effect paralysing the WTO dispute settlement process, the EU initiated unilateral enforcement proceedings.¹²⁶ But the Panel's ruling and the earlier decision on China's export restrictions provide insights into how WTO panels are likely to address tensions between critical minerals policies and multilateral trade rules. Discursive practices outside of legal proceedings have also mobilised WTO rules. For example, prospective importers, such as the EU, have invoked WTO rules when raising concerns about export restrictions in mineral-rich countries, such as Namibia.¹²⁷

¹²⁴ Panel Report, *Indonesia — Measures Relating to Raw Materials*, ¶¶ 7.41-7.75, WTO Doc. WT/DS592/R (adopted Nov. 30, 2022) (in addition, the panel found that the domestic processing requirements also involved export restrictions in breach of Article XI, as they required nickel ore to be sold to domestic processors “who would then transform it into something other than nickel ore”).

¹²⁵ *Id.* at ¶¶ 8.2, 8.3 (as discussed, Article XI(2)(a) of the GATT states that the prohibition of export restrictions “shall not extend to . . . [e]xport prohibitions or restrictions temporarily applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting contracting party”).

¹²⁶ European Commission Press Release, EU Launches Consultation on Use of Enforcement Regulation on Indonesian Nickel Export Restrictions (July 7, 2023) (Indonesia is not a party to the Multi-Party Interim Appeal Arbitration Arrangement (MPIA)); *see also* Elisa Baroncini, *The EU Approach to Overcome the WTO Dispute Settlement Vacuum: Article 25 DSU Interim Appeal Arbitration as a Bridge between Renovation and Innovation*, in A POST-WTO INTERNATIONAL LEGAL ORDER: UTOPIAN, DYSTOPIAN AND OTHER SCENARIOS 115–132 (Meredith Kolsky et al. eds., 2020) (on the MPIA); Joost Pauwelyn, *The WTO's Multi-Party Interim Appeal Arbitration Arrangement (MPIA): What's New?*, 22 WORLD TRADE REV. 693, 693 - 701 (2023); *Multi-Party Interim Appeal Arbitration Arrangement (MPIA)*, GENEVA TRADE PLATFORM, https://wtoplurilaterals.info/plural_initiative/the-mpia/.

¹²⁷ Kim Harrisberg et al., *No More Plundering: Can Africa Take Control in Green Mineral Rush?*, CONTEXT (July 19, 2023), <https://www.context.news/just-transition/no-more-plundering-can-africa-take-control-in-green-mineral-rush> (the article cites comments attributed to a EU official, whereby export restrictions on unprocessed critical minerals announced by the government of Namibia “may violate bilateral trade instruments and World Trade Organization (WTO) law”).

The expansion of mining activities has been associated with investor-state arbitrations as well. Investment protection treaties typically cover investments in the mining sector,¹²⁸ and investor-state contracts and domestic legislation can also provide the basis for mining-related arbitration claims.¹²⁹ An initial survey found that the arbitral caseload related to mining increased substantially over time, with the decade between 2013 and 2022 accounting for 60% of the aggregate caseload and Latin America and Africa presenting the largest number of arbitrations.¹³⁰ While investors initiated most of the publicly known arbitrations, some state-owned entities have filed contract-based arbitrations against foreign investors, including in relation to critical mineral projects.¹³¹

IV. DISCUSSION: SHIFTS IN THE GLOBAL ECONOMIC ORDER?

Growing demand for critical minerals and geopolitical rivalries between large economies have prompted concerns about supply chain bottlenecks and vulnerabilities and a scramble to control both extraction and processing. The critical minerals rush partly responds to expectations of commercial returns and business efforts to secure raw material supplies. Fundamentally, it responds to a wave of public policies that mobilise state action to restructure business incentives and develop and reconfigure supply chains. While policy objectives and approaches vary, consumer and processing countries often aim to secure and diversify supplies, while several mineral-rich countries have sought to promote industrialisation. This trend illustrates the extensive role of deliberate state action in the race for critical minerals,

¹²⁸ See ANA ELIZABETH BASTIDA, THE LAW AND GOVERNANCE OF MINING AND MINERALS: A GLOBAL PERSPECTIVE 96-105 (2020); see also, Jorge E. Viñuales, *Foreign Direct Investment: International Investment Law and Natural Resource Governance*, in EDWARD ELGAR, RESEARCH HANDBOOK ON INTERNATIONAL LAW AND NATURAL RESOURCES 26-45 (Elisa Morgera & Kati Kulovesi eds., 2016); see Hailes, *supra* note 56, at 162, 163 (on the investment treaty coverage of lithium extraction projects).

¹²⁹ See JEAN HO, STATE RESPONSIBILITY FOR BREACHES OF INVESTMENT CONTRACTS (2018); Julien Chaisse & Georgios Dimitropoulos, *Domestic Investment Laws and International Economic Law in the Liberal International Order*, 22 WORLD TRADE REV. 1 (2023); Kehinde Folake Olaoye & Muthucumaraswamy Sornarajah, *Domestic Investment Laws, International Economic Law, and Economic Development*, 22 WORLD TRADE REV. 109, 125–126 (2023).

¹³⁰ Charles River Associates, *Disputes Involving Mineral Assets: Statistics and Trends* 5-9 (2023), <https://media.crai.com/wp-content/uploads/2023/06/20085712/Disputes-involving-mineral-assets-Statistics-and-trends.pdf> (the study is not limited to critical minerals; gold was found to account for 36% of past cases).

¹³¹ See, e.g., Lisa Bohmer, *DRC's State-Owned Mining Company Lodges Arbitration Claim Against Australian Miner Over Lithium Venture*, INV. ARB. REPORTER (May 15, 2023), <https://www.iareporter.com/articles/drcs-state-owned-mining-company-lodges-arbitration-claim-over-lithium-mining-venture/>.

outlining a complex tapestry of both commercial and political considerations that finds parallels in earlier resource rushes.¹³²

On the international plane, these public policies have relied on existing legal instruments, such as those that constitute the multilateral trading system, and produced new types of instruments, from standalone agreements and tailored provisions in wider trade treaties to softer frameworks, roadmaps, and dialogue processes. Through the prism of critical minerals supply chains, these instruments cut across different areas of law and policy: trade, investment, aid, labour rights, the environment, and collaboration in research and innovation. Recourse to international law also features in dispute settlement proceedings to contest supply chain regulations, while wielding WTO rules in discussions between states points to the more indirect ways in which law can organise economic and political relations.

Rather than a coherent body of law, these developments reflect a patchwork of legal arrangements grounded in diverse policy approaches. For example, the US response centres on unilateral measures (such as the IRA tax credit) driving the negotiation of critical minerals agreements; on the other hand, the EU has integrated critical minerals issues into bilateral trade treaties and WTO processes while also developing its own domestic legislation.

Beyond supporting the policy drive to expand critical mineral production, these negotiation and adjudication processes exemplify channels to address open or latent tensions between the interests of different large economies and of consumer and mineral-rich countries. The heavily caveated provisions of the Chile–EU trade treaty and the activation of WTO proceedings to settle trade disputes over restrictions on unprocessed raw material exports illustrate how legal arrangements are deployed, for example, to address competing interests as regards the location and control of processing activities.

Taken together, these diverse legal developments highlight the role of law in sustaining and regulating the production and trading of commodities. In this sense, they reflect continuities with a policy paradigm that considers mineral extraction as an engine of economic growth and law as an enabler of resource extraction

¹³² See Cotula, *supra* note 3, at 181, 182 (discussing the role of public policies in the global land rush of 2005–2015, particularly concerns about security of agricultural commodity supplies that led several states, particularly in East Asia and the Middle East, to enact policies promoting investments overseas; and the role of private sector concerns about reliability of commodity markets in prompting ‘vertical integration’ strategies, whereby agro-processors secured greater control over primary production).

strategies, albeit with different commodities ('transition minerals'), geographies, and supply chain configurations.¹³³

At the same time, the widespread use of soft instruments – including as a stepping-stone towards binding treaties – highlights a concern about the rapidity of policy action against the long timeframes and complex politics that are often associated with negotiating treaties, particularly comprehensive trade agreements. This circumstance outlines the limits of legal processes in the face of rapidly evolving economic and geopolitical realities, and creates space for other forms of cooperation to fill the gap.

The developments present both continuities and ruptures with the principles that have characterised international economic law since the surge in trade liberalisation after the end of the Cold War. On the one hand, critical minerals instruments reaffirm and enhance established principles such as non-discrimination and non-distortion in trade relations. The cross-references to WTO rules in the Japan-US Critical Minerals Agreement illustrate this, alongside clauses that extend prohibiting export restrictions from quantitative measures alone to export duties. The prohibition of export duties, export monopolies, and differential pricing in the Chile–EU trade agreement also deepens a policy paradigm oriented towards expanding markets, and several soft instruments emphasise creating a level playing field.¹³⁴

In addition, both binding and non-binding instruments highlight ESG aspects, from environmental impact assessments, in the critical raw materials provisions of the Chile–EU trade treaty;¹³⁵ to environmental and labour standards in the Japan–US Critical Minerals Agreement; to tackling corruption in the US–DRC–Zambia MOU. This trend presents continuities with recent practice in trade and investment treaties, which engage more deeply with social and environmental issues.¹³⁶ The more limited

¹³³ Bringel & Svampa, *supra* note 10, at 64, 65.

¹³⁴ See, e.g., US–Zambia MoU, *supra* note 119 (particularly the clauses concerning “transparent, competitive tenders” and several provisions of the strategic partnerships the EU has negotiated with minerals-rich countries).

¹³⁵ As noted, the Chile–EU agreement also includes a separate chapter on trade and sustainable development.

¹³⁶ See, e.g., Tarcisio Gazzini, *Bilateral Investment Treaties and Sustainable Development*, 15 J. WORLD INV. & TRADE 929 (2014); James Harrison, *The Labour Rights Agenda in Free Trade Treaties*, 20 J. WORLD INV. & TRADE 705 (2019); Gracia Marín Durán, *Sustainable Development Chapters in EU Free Trade Agreements: Emerging Compliance Issues*, 57 COMMON MKT. L. REV. 1031 (2020); Desirée LeClercq, *The Disparate Treatment of Rights in U.S. Trade*, 90 FORDHAM L. REVIEW 1 (2021); Lorenzo Cotula, *EU–China Comprehensive Agreement on Investment: An Appraisal of its Sustainable Development Section*, 6 BUS. HUM. RTS. J. 360 (2021).

consideration of other issues such as land rights is also in line with earlier treaty practice.¹³⁷

These ‘continuity’ features are not just the product of juridical inertia: they respond to specific concerns affecting supply chains, particularly from the viewpoint of large consumer countries. For example, ESG provisions on corruption, labour, and the environment resonate with official analyses of vulnerabilities in critical minerals supply chains, which identified these issues as sources of reputational risk and supply disruption.¹³⁸ Meanwhile, curbs on export duties, differential pricing, and performance requirements, as found in the Chile–EU treaty, respond to the EU’s concerns about accessing raw materials; cumulatively, they can involve significant restrictions on regulatory space in mineral-rich countries, including initiatives to promote industrialisation and economic benefits.

While these aspects illustrate the continuity and even deepening of approaches to economic governance, the emergence of critical minerals instruments also represents a shift, in line with wider governance evolutions, towards a greater focus on competition between states based on strategic as well as economic considerations – placing more significance, for example, on where capabilities are located and who controls them.¹³⁹ In such competitive geopolitics, state intervention plays a more prominent role in shaping supply chains, as seen in US tax incentives to onshore or friendshore electric vehicle battery supply chains and in the supply chain integration channels envisaged in the EU’s strategic partnerships.

These types of state intervention can involve departures from multilateral trade rules, and some domestic measures are explicitly trade-distortive or even discriminatory.¹⁴⁰ In this context, the IRA’s linking of tax incentives to trade agreements has raised questions: while WTO rules enable preferential treatment through free trade areas,¹⁴¹ it is unclear whether this applies to a narrow critical minerals agreement with few concrete obligations, such as the Japan-US treaty, and whether a domestic tax incentive can differentiate between states parties to a preferential trade agreement

¹³⁷ See Lorenzo Cotula, *Climate Justice in Trade: Environment, Rights and the Palm Oil Dispute between Indonesia and the European Union*, INT’L INST. ENV’T & DEV. (Aug. 30, 2023), <https://www.iied.org/climate-justice-trade>.

¹³⁸ WHITE HOUSE, BUILDING RESILIENT SUPPLY CHAINS, REVITALIZING AMERICAN MANUFACTURING, AND FOSTERING BROAD-BASED GROWTH: 100-DAY REVIEWS UNDER EXECUTIVE ORDER 14017 180-182 (2021), <https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain-review-report.pdf>.

¹³⁹ Roberts, Moraes & Ferguson, *supra* note 31; Moraes, *supra* note 31, at 678.

¹⁴⁰ *E.g.*, US legislation that excludes critical minerals extracted or processed in China from clean vehicle incentives seems at odds with WTO rules; See Moraes, *supra* note 31, at 675.

¹⁴¹ See, *e.g.*, GATT, *supra* note 72, art. XXIV (this provision requires free trade agreement to cover ‘substantially all the trade’ between the states parties).

and other WTO member states.¹⁴² More generally, the growing use of subsidies to support the energy transition in large economies and unequal ‘fiscal space’ across different polities inherently distort global markets, with senior United Nations officials voicing concerns that lower-income countries may find it more difficult to compete.¹⁴³

In terms of legal form, the extensive use of non-binding instruments in critical minerals diplomacy resonates with recent shifts in global economic governance, as large economies looking to deepen integration while sidestepping the politics of comprehensive treaty-making have convened policy initiatives that rely heavily on more flexible frameworks for dialogue and cooperation (for example, the US-led Indo-Pacific Economic Framework for Prosperity).¹⁴⁴

This coexistence of different paradigms, in both substance and form, creates contradictions in critical minerals policies. For example, the EU challenged Indonesia’s measures aimed at promoting domestic processing at the WTO, and it developed ERM chapters that expand on WTO rules governing export restrictions. But besides advancing its own industrial strategy, the EU is also pursuing a critical minerals agreement with the US that would allow its businesses to tap into US domestic tax incentives premised on friend-shoring rather than open markets.

From a methodological standpoint, trends in critical minerals policies offer fertile arenas to develop approaches for examining the law in its economic and political context: it is only possible to properly assess the rationale and practical import of legal provisions on critical minerals by considering the evolutions in the international political economy that gave rise to those provisions. This contextual depth can illuminate the significance of treaties such as the Japan-US Critical Minerals Agreement, which, based on a narrow juristic reading, would appear to add little in terms of legal rights and obligations.

Beyond the aspects crystallised in legal rules, the trends also prompt questions about how discursive practices shape public governance and about the gaps that the patchwork of policy initiatives leaves in applicable regulatory frameworks. Indeed, while the drivers of the critical minerals rush are commercial and geopolitical,

¹⁴² Moraes, *supra* note 31, at 696.

¹⁴³ Andy Bounds & Javier Espinoza, *Rich World Uses Green Policies to Hold Back the Poor, Says UN Trade Chief*, FIN. TIMES (Dec. 24, 2023), <https://www.ft.com/content/e8b9d884-a210-46a7-9ad2-00cb07cfb08e> (interviewing Rebeca Grynspan, Secretary-General of the United Nations Conference on Trade and Development, who commented that developed countries have “more fiscal space to subsidise” energy transition sectors and that industrial policies in developed countries “could affect developing countries’ ability to compete”).

¹⁴⁴ Indo-Pacific Economic Framework, US DEPT. OF COMMERCE, <https://www.commerce.gov/ipef>.

discursively framing state action in climate terms lends new ‘green’ legitimacy to resource extraction strategies, and to an industry – mining – often associated with extensive social and environmental harm. Having long faced accusations of being ‘anti-development’, those who question resource extraction risk come under further pressure for delaying projects that are deemed necessary for the global climate.¹⁴⁵

Coupled with the far-reaching transformations that mining projects can engender in the territories they integrate into critical mineral supply chains, this situation highlights the need not only to regulate supply chain activities, such as through labour rights and environmental provisions, but also to affirm, respect, and protect the rights of environmental defenders and people whose lives stand to be affected – including indigenous peoples and other groups with a strong connection to the land. Ultimately, critical mineral developments illustrate the interrelatedness of climate imperatives, territorial governance, and international investment and trade, and the need to more effectively integrate ecological sustainability and ‘just transition’ principles into the fabric of the global economic order.

¹⁴⁵ See also Bringel & Svampa, *supra* note 10, at 5; see, e.g., Mary Lawlor (Special Rapporteur on the Situation of Human Rights Defenders), *Final Warning: Death Threats and Killings of Human Rights Defenders*, UN Doc A/HRC/46/35 (Dec. 24, 2020) (on the repression and intimidation faced by human rights and environmental defenders in many countries); Ali Hines, *Decade of Defiance: Ten Years of Reporting Land and Environmental Activism Worldwide*, GLOBAL WITNESS (Sept. 9, 2022), <https://www.globalwitness.org/en/campaigns/environmental-activists/decade-defiance/> (finding mining to have “consistently been the most dangerous sector for defenders” since tracking began); Christen Dobson & Ana Zbona, *Human Rights Defenders & Business in 2022: People Challenging Corporate Power to Protect Our Planet*, BUS. & HUM. RTS. RES. CTR. (2022), <https://www.business-humanrights.org/en/from-us/briefings/hrds-2022/human-rights-defenders-business-in-2022-people-challenging-corporate-power-to-protect-our-planet/>.