

Towards a Coherent Trade-Environment Nexus? The EU's Critical Raw Materials Policy

Sieglinde GSTÖHL* & Jonathan SCHNOCK**

This article contributes to the debate on the policy coherence of the trade-environment nexus by analysing the recent critical raw materials (CRM) policy of the European Union (EU). Critical raw materials are crucial for the green and digital transitions but face significant risks in their supply. This raises the question to what extent the EU can ensure a coherent approach in an era of geopolitics. The analysis proceeds in three steps: what does coherence mean (problem definition), how coherent are the EU's policy objectives, and how coherent are its policy instruments designed for CRMs? The article finds that the EU's problem definition of the trade-environment nexus has over the past two decades become more coherent. However, the rise of geopolitics has added foreign policy considerations to the understanding of this nexus. As the case of CRMs shows, open strategic autonomy, which aims to reduce strategic dependencies, generates incoherence among the policy objectives. The many existing or proposed EU policy instruments can, so far, be assessed as being relatively more coherent yet also with a mixed record. Future research will have to confirm this preliminary finding and also address the coherence of the policy implementation and outcomes of the EU's CRMs policy.

Keywords: critical raw materials, European Union, geopolitics, Green Deal, open strategic autonomy, policy coherence, sustainability, trade-environment nexus, trade policy, twin transition

1 INTRODUCTION

The health crisis triggered by the COVID-19 pandemic in 2020 and the energy crisis in Europe following Russia's invasion of Ukraine in 2022, which among others led to a food crisis in parts of the world, have shown the vulnerability of today's global supply chains. These crises, to which the climate crisis needs to be added, have revealed new challenges for the European Union (EU) and how it handles the increasingly important trade-environment nexus in an era of geopolitics. On the one hand, the EU seeks to achieve climate neutrality by 2050 and promotes the 'greening' of trade as well as digitalization. The flagship project of the current European Commission, the European Green Deal (EGD), states that

* Prof., Department of EU International Relations and Diplomacy Studies, College of Europe, Bruges. This paper was submitted in July 2023. Email: sieglinde.gstoehl@coleurope.eu.

** Academic Assistant (2021-23), Department of EU International Relations and Diplomacy Studies, College of Europe, Bruges. Email: jonathan.schnock@coleurope.eu.

Gstöhl, Sieglinde & Schnock, Jonathan. 'Towards a Coherent Trade-Environment Nexus? The EU's Critical Raw Materials Policy'. *Journal of World Trade* 58, no. 1 (2024): 35-60.

‘[t]rade policy can support the EU’s ecological transition’ and ‘needs to ensure undistorted, fair trade and investment in raw materials that the EU economy needs for the green transition’.¹ On the other hand, the 2021 Trade Policy Review refers to the resilience of supply chains as ‘a pillar of the EU’s drive towards open strategic autonomy’ and calls for more assertiveness since the growing tensions between major powers have highlighted strategic dependencies.² The case of critical raw materials (CRMs) encapsulates these seemingly opposing trends of increased import dependence on raw materials and the search for more autonomy. Securing access to CRMs – raw materials that are considered most important economically while facing a high supply risk – is essential for the green and digital transitions (as well as for the defence and space sectors), but a diversification of supply is often difficult since these raw materials are scarce and few countries in the world can provide them. The challenge is aggravated by the fact that not only the EU but also other major players such as the US and China are actively seeking to increase the resilience and diversify their CRMs supply chains, while resource-rich developing countries are eager to develop their own green industries, limiting the export of such materials.³

While the EU’s first list of CRMs in 2011 comprised fourteen materials, the current list designates thirty-four materials.⁴ The EU is heavily dependent on a very limited number of suppliers at various stages of the value chains, both upstream (mining, smelting/refining) and downstream (industrial processing, recycling). For example, the EU sources 97% of its magnesium in China, heavy rare earth elements are exclusively refined in China, and 63% of the world’s cobalt is extracted in the Democratic Republic of Congo.⁵ For the production of digital equipment, the EU’s own production accounts for only 4% of the global supply chains of CRMs, and it lacks an adequate mining, processing and recycling industry.⁶ A recent foresight study expects, for instance, that compared to 2020, the lithium demand for batteries in the EU will grow twelve times as large in 2030 and twenty-one times as large in 2050, and globally eighteen times in 2030 and ninety times in 2050.⁷ The combination of dependence and a growing global

¹ European Commission, *The European Green Deal*, 21, COM (2019) 640.

² European Commission, *Trade Policy Review – An Open, Sustainable and Assertive Trade Policy*, 6, COM (2021) 66 final.

³ Economist Intelligence Unit, *EU Acts to Secure Access to Critical Raw Materials* (17 Apr. 2023), <https://www.eiu.com/n/eu-acts-to-secure-access-to-critical-raw-materials> (accessed 1 May 2023).

⁴ European Commission, *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 and Amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020*, COM (2023) 160, Annex II.

⁵ *Ibid.*, at 1.

⁶ European Commission, *2022 Strategic Foresight Report: Twinning the Green and Digital Transitions in the New Geopolitical Context*, 8, COM (2022) 289.

⁷ Joint Research Centre, *Supply Chain Analysis and Material Demand Forecast in Strategic Technologies and Sectors in the EU: A Foresight Study*, 8, JRC132889, European Commission (2023).

demand significantly increases the risk of disruptions. Besides the geological concentration, the CRM industry is often characterized by high entry barriers and investment costs as well as high risks.

This contribution examines to what extent the EU can ensure a coherent approach to the trade–environment nexus in an era of geopolitics. Geopoliticization involves ‘the discursive construction of an issue as a geopolitical problem’, for instance when ‘trade policies come to be embedded in power rivalries’.⁸ Coherence between policies is a permanent quest in EU external action. It is not only of high political relevance, but it lacks – despite a considerable and still growing literature – ‘a more intensive engagement with theory’.⁹ The article addresses both aspects by proposing a conceptual framework to study policy (or horizontal) coherence and by applying it to a highly relevant case.

The article argues that over the past two decades, a broader and increasingly more integrated, coherent understanding of the trade–environment nexus can be observed, largely due to a ‘greening’ of trade policy. However, as the case study shows, policy coherence is in fact partly undermined by the recent objective of open strategic autonomy. Open strategic autonomy requires the EU to reduce its strategic dependencies regarding CRMs, whereas the green and digital transitions are likely to skyrocket the demand for such materials. These incoherences can so far mainly be seen in the policy objectives of the EU’s CRM policy and less so in the policy instruments, yet the jury is still out on the latter since most of them are awaiting implementation.

The next section first clarifies the key concepts before outlining the conceptual framework, which is then applied to the EU’s CRM policy, followed by conclusions.

2 CONCEPTUAL FRAMEWORK FOR A POLICY COHERENCE ANALYSIS

Policy coherence is usually considered a crucial ingredient of the EU’s effectiveness as well as its credibility as an international actor. It has been, and still is, the subject of policy and scholarly debates, especially regarding the EU’s external action.¹⁰

⁸ Sophie Meunier & Kalypso Nicolaïdis, *The Geopoliticization of European Trade and Investment Policy*, 57 (S1) J. Common Mkt. Stud. 107 (2019), doi: 10.1111/jcms.12932.

⁹ Clara Portela, *Conceptualizing Coherence in EU External Action*, in *The External Action of the European Union: Concepts, Approaches, Theories* 97 (Sieglinde Gstöhl & Simon Schunz eds, Red Globe Press 2021).

¹⁰ Leonhard den Hertog & Simon Stroß, *Coherence in EU External Relations: Concepts and Legal Rooting of an Ambiguous Term*, 18(3) Eur. Foreign Aff. Rev. 373–388 (2013), doi: 10.54648/EERR2013023; Anne-Claire Marangoni & Kolja Raube, *Virtue or Vice? The Coherence of the EU’s External Policies*, 36(5) J. Eur. Integration, 473–489 (2014), doi: 10.1080/07036337.2014.883505.

The Lisbon Treaty reaffirmed the crucial importance of coherence, both in its legal provisions (such as Article 21:3 TEU) and through institutional reforms like the double-hatted High Representative.¹¹ Den Hertog and Stroß define ‘policy consistency as the *absence of contradictions within and between individual policies* while policy coherence refers to *the synergic and systematic support towards the achievement of common objectives within and across individual policies*’.¹²

A well-known example of horizontal coherence is the concept of ‘policy coherence for development’ which was introduced in the Treaty of Maastricht and strengthened in the Treaty of Lisbon. Policy coherence for development asks that ‘[t]he Union shall take account of the objectives of development cooperation in the policies that it implements which are likely to affect developing countries’.¹³ In EU trade policy, the trade–development nexus has been studied for quite some time, as have a few other ‘trade and’ concerns such as human rights or security issues.¹⁴ By contrast, the trade–environment nexus – or, more narrowly, the trade–climate nexus – has attracted scholarly attention only more recently.¹⁵ The Lisbon Treaty also explicitly recognizes the interaction between the common commercial policy and environmental policies.¹⁶

In EU internal policies, concepts such as ‘mainstreaming’ (e.g., gender mainstreaming) or ‘policy integration’ – most prominently environmental policy integration – have been more commonly used than policy coherence. The principle of environmental policy integration, introduced with the Treaty of Amsterdam, states today in Article 11 TFEU that ‘environmental protection requirements must be integrated into the definition and implementation of the Union’s policies and activities, in particular with a view to promoting sustainable development’.¹⁷ This obligation does not prescribe a precedence of environmental protection over other EU policy objectives, but the EU institutions enjoy a margin of discretion and need to balance the goals in case of conflict.¹⁸ As argued by Dupont and Jordan, a weak interpretation of environmental policy integration

¹¹ European Union, *Consolidated version of the Treaty on European Union*, Art. 21:3, 2012/C 326/01 [hereafter TEU].

¹² Den Hertog & Stroß, *supra* n. 10, at 376–377.

¹³ European Union, *Consolidated Version of the Treaty on the Functioning of the European Union*, Art. 208, 2012/C 326/01 [hereafter TFEU].

¹⁴ Maurizio Carbone & Jan Orbie, *The Trade-Development Nexus in the European Union: Differentiation, Coherence and Norms* (Routledge 2015); Ingo Borchert, Paola Conconi, Mattia Di Ubaldo & Cristina Hergehelegiu, *The Pursuit of Non-Trade Policy Objectives in EU Trade Policy*, 20(5) *World Trade Rev.* 623–647 (2021), doi: 10.1017/S1474745621000070.

¹⁵ Jean-Baptiste Velut, *Environmental Allies and Trade Competitors: A Comparative Analysis of US and EU Governance Models for the Trade-and-Climate Nexus*, in *Understanding the EU as a Good Global Actor* 74–90 (Elaine Fahey & Isabelle Mancini eds, Edward Elgar 2022).

¹⁶ TFEU, *supra* n. 13, Art. 205 & 207:1.

¹⁷ *Ibid.*, Art. 11.

¹⁸ Gracia Marín Durán & Elisa Morgera, *Environmental Integration in the EU’s External Relations: Beyond Multilateral Dimensions*, at 32–33, 54–55 (Hart 2012).

would only examine whether environmental concerns were considered in the process, whereas a strong interpretation would suggest 'ensuring integration in the policy making *process*, leading to more coherent policy *outputs* that, in turn, result in *outcomes* that have a positive impact on environmental quality'.¹⁹ Such a strong interpretation would correspond to the three types of analyses identified by Nilsson et al.: integration analysis (weak interpretation of policy integration), coherence analysis, and impact analysis.²⁰ The notions of policy integration (dominant in the environmental field) and policy coherence (prevalent in trade policy) can thus be brought together. This article uses the latter term, in line with the coherence analysis outlined below.

Open strategic autonomy – or the 'capacity to act autonomously when and where necessary and with partners wherever possible' – was imported into trade policy from the EU's foreign and security policy debate about 'strategic autonomy'.²¹ The Trade Policy Review understands open strategic autonomy as 'the EU's ability to make its own choices and shape the world around it through leadership and engagement, reflecting its strategic interests and values'.²² In short, the concept is meant to guide the EU to find a balance between the opportunities generated by international trade and the risks of economic (inter)dependence which geopolitical rivalries have exacerbated.

Drawing on the work of Nilsson et al. as well as Kurze and Lenschow, this article puts forward a three-step framework to analyse policy coherence: (1) problem definition, (2) policy objectives, and (3) policy instruments. Each step may embody a different degree of coherence.²³

As a first step, the problem needs to be defined since the analysis of policy coherence depends on how a problem is framed and understood, and this may well change over time.²⁴ The problem definition then arguably shapes the policy objectives and choice of instruments while revealing the perceptions of the

¹⁹ Claire Dupont & Andrew Jordan, *Policy Integration*, in *Environmental Policy in the EU: Actors, Institutions and Processes* 206 (Andrew Jordan & Vivian Gravey eds, Routledge 2021).

²⁰ Måns Nilsson et al., *Understanding Policy Coherence: Analytical Framework and Examples of Sector–Environment Policy Interactions in the EU*, 22(6) *Envtl. Pol'y & Governance* 397 (2012), doi: 10.1002/eet.1589.

²¹ Council of the EU, *Council Conclusions on Implementing the EU Global Strategy in the Area of Security and Defence*, 14149/16, 14 Nov. 2016; Niklas Helwig & Ville Sinkkonen, *Strategic Autonomy and the EU as a Global Actor: The Evolution, Debate and Theory of a Contested Term*, 27(SI) *Eur. Foreign Aff. Rev.* 1–20 (2022), doi: 10.54648/EERR.2022009.

²² European Commission, *supra* n. 2, at 4.

²³ Nilsson et al., *supra* n. 20; Kristina Kurze & Andrea Lenschow, *Horizontal Policy Coherence Starts with Problem Definition: Unpacking the EU Integrated Energy–Climate Approach*, 28(5) *Envtl. Pol'y & Governance* 329–338 (2018), doi: 10.1002/eet.1819.

²⁴ Kurze & Lenschow, *supra* n. 23.

actors adopting them.²⁵ Definitions can become wider and lead policies to spread to adjacent fields, or narrower and limit the understanding of a problem and the ways to approach it. At the same time, different problem definitions relating to interconnected issues across policy fields can lead to incoherence.

As a major contextual factor, the discourse on the relationship between trade and the environment is likely to have been affected by the growing geopoliticization, that is, the construction of an issue as a geopolitical matter, in recent years. This geopoliticization has become quite visible in the ‘trade wars’ and the recent emphasis on resilience, ‘de-risking’ and ‘friend-shoring’ of critical supply chains to trusted countries.²⁶ Even before the pandemic and the Russian invasion of Ukraine, the branding of the von der Leyen Commission as a ‘geopolitical Commission’ in late 2019 reflected the increasing salience of economic instruments in the intensification of global power competition.²⁷ In environmental policy, geopoliticization has been less visible. Schunz argues that the EU has ‘for a long time privileged planning over strategizing’ and strategic thinking about foreign policy, but that its environmental foreign policy ‘is becoming better informed by geopolitical considerations’.²⁸ This is primarily the case in climate policy where ‘intensified climate geopolitics has reinforced demand for the EU to enhance its capabilities for a proactive “grand climate strategy”’.²⁹

An analysis of the EU’s discourse on the trade–environment nexus over the past two decades will help grasp the perception of what counts as coherence between the two policies. For this purpose, a keyword search (trade, environment, green, sustain*, climate*, coheren*, geopoliti*, resilien*, digital, critical raw materials) was carried out in the key strategic policy documents listed in Table 1. ‘Documents and document analysis are no doubt the most commonly used data and research techniques in uncovering political discourse’, and the study of problem perceptions typically focuses on the ‘word-in-context’ dimension.³⁰ This part will draw on what Hajer calls ‘argumentative discourse

²⁵ Simon Schunz, *The ‘European Green Deal’ – A Paradigm Shift? Transformations in the European Union’s Sustainability Meta-Discourse*, 4(1) *Pol. Res. Exch.* 5 (2022).

²⁶ Björn Fägersten et al., *Controlling Critical Technology in an Age of Geoeconomics: Actors, Tools, and Scenarios*, Swedish Institute for International Affairs (Jan. 2023), <https://www.ui.se/globalassets/buti/ken/ui-report/2023/ui-report-no.1-2023.pdf> (accessed 1 May 2023).

²⁷ Pierre Haroche, *A ‘Geopolitical Commission’: Supranationalism Meets Global Power Competition*, 61(4) *J. Common Mkt. Stud.* 970–987 (2022), doi: 10.1111/jcms.13440.

²⁸ Simon Schunz, *The European Union’s Environmental Foreign Policy: From Planning to a Strategy?*, 56(3) *Int’l Pol.* 354 (2019), doi: 10.1057/s41311-017-0130-0.

²⁹ Sebastian Oberthür & Claire Dupont, *The European Union’s International Climate Leadership: Towards a Grand Climate Strategy?*, 28(7) *J. Eur. Pub. Pol’y* 1095 (2021), doi: 10.1080/13501763.2021.1918218.

³⁰ Kennet Lynggaard, *Discourse Analysis and European Union Politics* 49, 59 (Palgrave Macmillan 2019).

analysis'.³¹ Analysing the argumentative structure of discourses, embodied in policy documents and strategies, makes it possible to ascertain how the EU assigns meaning and relevance to some topics and defines a problem, and how and why this problem definition may have changed over time.

Table 1 Strategic Policy Documents Analysed

<i>Trade</i>	<i>Environment</i>
Trade Policy Review (2021)	European Green Deal (2019) Review of the
Trade for All Strategy (2015) Trade, Growth and World Affairs Strategy (2010)	Sustainable Development Strategy (2005)
Global Europe Strategy (2006)	Strategy for Sustainable Development (2001)

Following the analysis of the problem definition, the coherence analysis turns to the policy outputs, that is, the policy objectives and the instruments for reaching them.³² Therefore, the second step examines what the goals of each policy are and how they relate to each other. The third step then analyses which policy instruments the EU has designed or already used to achieve these goals, and how sectoral or transversal they are. Assessing how the objectives or instruments of two policies interact or are likely to interact is a challenging task. This part of the analysis will draw on primary sources and secondary literature.

As set out in Table 2, the strength of the relationships is gauged on a scale that ranges from positive (synergy) over neutral to negative (trade-off). At the bottom of the scale, an antagonistic interaction is theoretically possible but can be excluded on the assumption of rational decision-making. In other words, the EU is not expected to adopt policy objectives and tools that would be detrimental to both policy fields at the same time. As quite a number of the policy instruments have not been applied yet, the focus is on the coherence of the instruments' design and not on their actual effectiveness.

³¹ Maarten Hajer, *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process* (Oxford University Press 1995).

³² Nilsson et al., *supra* n. 20, at 397.

Table 2 *Degrees of (In)coherence*

<i>Type of Relationship</i>		<i>Explanation</i>
coherence	strong synergy	mutually reinforcing relationship, i.e., making both better off
	weak synergy	one enabling the other, i.e., making one better off while the other is not affected
	neutrality (consistency)	no significant interactions, i.e., making none better or worse off
incoherence	weak trade-off	one constraining the other, i.e., making one worse off while the other is not affected
	strong trade-off	positive achievement of one has a negative impact on the other, i.e., making one better, one worse off
	antagonism	mutually undermining relationship, i.e., making both worse off

The next section delves into the problem definition by analysing how the EU's discourse on the trade-environment nexus has developed over time since the first Strategy for Sustainable Development was launched in 2001.³³

3 PROBLEM DEFINITION: THE EU DISCOURSE ON THE TRADE-ENVIRONMENT NEXUS

The problem definition is analysed per decade, which juxtaposes the EU trade and environmental strategies against the background of the same events.

³³ European Commission, *A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development*, COM (2001) 264.

3.1 2000S: PARTIAL ACKNOWLEDGEMENT OF THE TRADE-ENVIRONMENT NEXUS

During the first decade of the new millennium, the interconnection between trade and environment was not clearly recognized in the relevant policy documents. While the Strategy for Sustainable Development does not refer to trade at all, a change in the discourse is apparent in the Review of the Sustainable Development Strategy four years later.³⁴ The European Commission states that the EU 'will step up its efforts to ensure that international trade is used as a tool to achieve genuine global sustainable development, both in socioeconomic and environmental terms', in the multilateral World Trade Organization (WTO) as well as in its regional and bilateral trade relations.³⁵

This nascent awareness is only partially reflected in the 2006 Global Europe trade strategy which vaguely admits that '[t]he pursuit of economic growth through trade can have environmental implications, particularly for biodiversity and our climate'.³⁶ However, these implications remain unspecified and '[t]he links between trade policy and climate change in particular will require further examination'.³⁷ The narrower topic of climate is set in relation to trade when the Commission argues that the integrating global economy 'is also putting new pressures on natural resources, in particular our climate, and on traditional industries and livelihoods'.³⁸ In fact, two discourses on the impact of trade on the environment exist in parallel: policy documents focused on the environment see trade policy as a vehicle to attain the larger goal of environmental protection, whereas trade policy documents do not clearly establish this relationship. Instead, the discourse in trade narrowly delimits it as a question of economics and largely discards its externalities by focusing on growth based on international competitiveness through liberalization.³⁹ The trade instruments mentioned in the Global Europe strategy reflect this problem definition as they do not refer to environmental protection.⁴⁰

Whereas the 2006 EU trade strategy had simply mentioned tackling restrictions on access to raw materials as a priority because 'Europe needs to import to export', the discourse subsequently shifted towards resource efficiency and sustainable development.⁴¹ In its 2008 raw materials strategy, the European Commission

³⁴ *Ibid.*

³⁵ European Commission, *Review of the Sustainable Development Strategy – A Platform for Action*, 13, COM (2005) 658.

³⁶ European Commission, *Global Europe: Competing in the World. A Contribution to the EU's Growth and Jobs Strategy*, 6, COM (2006) 567.

³⁷ *Ibid.*

³⁸ *Ibid.*, at 3.

³⁹ *Ibid.*, at 2.

⁴⁰ *Ibid.*, at 4–11.

⁴¹ *Ibid.*, at 6.

for the first time sought ‘to develop a more coherent EU policy response’ by setting out its approach to secure supply of raw materials, including those facing high supply risks, for EU companies.⁴² It aimed to define CRMs, guarantee undistorted access to raw materials on world markets, increase supply from European sources and reduce the EU’s consumption.

Overall, an emerging discourse on the trade–environment nexus can be witnessed in the 2000s. Arguably, this arises from a problem definition that does not fully encompass the evident overlap of these policy fields.

3.2 2010S: MARKET-BASED PROBLEM DEFINITION

In the 2010s, the interconnection between trade and the environment was increasingly addressed. The 2010 Trade, Growth and World Affairs strategy contains a subchapter dedicated to ‘Sustainable growth in the EU and abroad’, in which the European Commission maintains that its priority regarding climate change remains a global agreement, where emissions reduction goals are set for all countries, and ‘[t]rade policy’s support for action against climate change should be pursued through the elimination of barriers to trade in environmental goods and services’.⁴³ In the same vein of market-based reasoning, growth and climate protection are not seen as being negatively juxtaposed, instead, it is argued that ‘[t]rade policy should continue to support green growth and climate change objectives, in particular reduced carbon emissions’.⁴⁴ Hence, a positive relationship between the two policy areas is explicitly acknowledged, indicating a change in discourse.

The 2015 EU trade strategy, Trade for All, states that ‘[t]he EU is also in the lead on using trade policy to promote the social and environmental pillars of sustainable development’.⁴⁵ This is done, inter alia, through free trade agreements (FTAs) which aim at maximizing ‘the potential of increased trade and investment to decent work and to environmental protection, including the fight against climate change’.⁴⁶ Other instruments to this end are investment agreements or the EU’s Special Incentive Arrangement for Sustainable Development and Good Governance, also known as Generalized System of Preferences (GSP+), and the Trade and Sustainability Development (TSD) chapters in FTAs.⁴⁷

⁴² European Commission, *The Raw Materials Initiative: Meeting our Critical Needs for Growth and Jobs in Europe*, 2, COM (2008) 699.

⁴³ European Commission, *Trade, Growth and World Affairs: Trade Policy as a Core Component of the EU’s 2020 Strategy*, 8, COM (2010) 612.

⁴⁴ *Ibid.*

⁴⁵ European Commission, *Trade for All: Towards a More Responsible Trade and Investment Policy*, 16, COM (2015) 497.

⁴⁶ *Ibid.*, at 17.

⁴⁷ *Ibid.*

In 2010, the European Commission's industrial policy stresses the need to 'reduce the critical dependence of the EU on primary raw materials, and improve the environmental balance'.⁴⁸ In the environmental strategic documents, the EGD has been the first to view CRMs as 'a strategic security question'; and it calls on trade policy to support the EU's ecological transition because '[e]nsuring the supply of sustainable raw materials, in particular of critical raw materials necessary for clean technologies, digital, space and defence applications, ... is ... one of the pre-requisites to make this transition happen'.⁴⁹

The market-based problem definition and instruments outlined above fit a prevalent discourse that 'claims synergistic aspects among trade and environment, while sidelining detrimental ones'.⁵⁰ While the discourse in the 2010s is still focused on market-based solutions for the negative impact of trade on the environment, awareness of the challenges and the necessary instruments increased. This has led to a convergence of the discourse on the trade-environment nexus which was held separately in the previous decade. The problem definition has shifted, or rather widened, due to an increased focus on the environment. To add to this broader understanding of trade, geopolitics is mentioned for the first time in a trade strategy, with the European Commission simply stating: 'The impact of trade policy has significant repercussions on the geopolitical landscape – and vice versa'.⁵¹ Explicitly acknowledging the political implications of trade represents a shift away from what Velut describes as the 'disembedded conceptualization of international trade' that was present in the 2000s towards a more encompassing understanding which sees trade as a tool for political and environmental ambitions.⁵²

3.3 2020S: ENVIRONMENT-BASED PROBLEM DEFINITION

The EGD has fundamentally changed the conception of the discourse around the trade-environment nexus. It sets out that '[t]he ecological transition will reshape geopolitics, including global economic, trade and security interests'.⁵³ Trade policy is expected to support the EU's ecological transition and serve 'as a platform to engage with trading partners on climate and environmental action'.⁵⁴ The focus of

⁴⁸ European Commission, *An Integrated Industrial Policy for the Globalisation Era: Putting Competitiveness and Sustainability at Centre Stage*, 19, COM (2010) 614.

⁴⁹ European Commission, *supra* n. 1, at 8.

⁵⁰ Fariborz Zelli, Aarti Gupta & Harro van Asselt, *Institutional Interactions at the Crossroads of Trade and Environment: The Dominance of Liberal Environmentalism?*, 19(1) *Global Governance* 108 (2013), doi: 10.1163/19426720-01901009.

⁵¹ European Commission, *supra* n. 43, at 3.

⁵² Velut, *supra* n. 15, at 77.

⁵³ European Commission, *supra* n. 1, at 21.

⁵⁴ *Ibid.*

the discourse clearly broadens with the EGD, and trade policy is presented as one of many instruments supporting climate action.⁵⁵ The EGD even seems to identify trade as an auxiliary tool in the pursuit of the overarching goal of the ecological transition.⁵⁶

The 2021 Trade Policy Review explicitly mentions that ‘EU trade policy should help transform the EU’s economy in line with the green and digital transitions’.⁵⁷ For the first time, a more integrated and coherent understanding of the trade–environment nexus has emerged. This is in line with Velut’s finding that the EU’s ‘trade–climate policies have undergone a notable discursive shift, whereby policymakers have started to present climate issues as a policy imperative, an overarching matrix governing other domestic and international priorities as opposed to the long-held view that environmental issues are secondary linkages, negative externalities or “non-trade” issues’.⁵⁸

This more comprehensive understanding of the trade–environment nexus finds expression in a host of instruments that are addressed in the Trade Policy Review. Next to the relevance of the multilateral level (i.e., the WTO), FTAs, and the Generalized System of Preferences (GSP), the position of Chief Trade Enforcement Officer was introduced *inter alia* to ensure the proper implementation of TSD chapters. At the same time, an impetus was given to review these chapters to make their enforcement more effective.⁵⁹ Other instruments include the Carbon Border Adjustment Mechanism (CBAM), the Corporate Sustainability Due Diligence Directive and the Deforestation Regulation.⁶⁰ They show a shift away from a purely market-based approach and centre around environmental and social sustainability instead of a trade policy that only focuses on growth through international competitiveness, as was the case at the beginning of the millennium.

The shift towards a more geopolitical international context from the mid-2010s onwards has clearly impacted the discourse in trade and environmental strategies. The Trade Policy Review as well as the EDG both acknowledge this trend.⁶¹ Trade policy is even described as being ‘in support of the EU’s geopolitical interests’.⁶² Eliasson and Garcia-Duran argue that this shift represents a departure from a more liberal paradigm and embeds trade policy ‘fully with EU foreign

⁵⁵ Velut, *supra* n. 15, at 86.

⁵⁶ Schunz, *supra* n. 25, at 17.

⁵⁷ European Commission, *supra* n. 2, at 9.

⁵⁸ Velut, *supra* n. 15, at 85.

⁵⁹ European Commission, *The Power of Trade Partnerships: Together for Green and Just Economic Growth*, COM (2022) 409.

⁶⁰ European Commission, *supra* n. 2, at 13.

⁶¹ European Commission, *supra* n. 1, at 21; European Commission, *supra* n. 2, at 8.

⁶² European Commission, *supra* n. 2, at 8.

policies'.⁶³ This applies to a lesser extent to environmental policy.⁶⁴ The inclusion of geopolitics and, as a result, of open strategic autonomy, could be seen as an overall more coherent EU approach, at least on the level of problem definition.⁶⁵

Over the same time period, the discourse surrounding CRMs has notably changed. While CRMs did not feature in the EU Global Strategy, the 2022 Strategic Compass states: 'Decarbonising and making our economies more resource-efficient and circular come with specific security challenges, including access to critical raw materials, value chain management and sustainability, as well as economic and political shifts caused by the transition away from fossil fuels'.⁶⁶ In response to the geopolitical context, CRMs have within the course of a few years moved centre stage, raising the spectre of security of supply, higher costs and social and environmental risks.

Overall, it can be concluded that over the last twenty years, a clear discursive shift has occurred in the EU regarding the trade-environment nexus. The problem has not only been acknowledged but the sectoral discourses have over time become more coherent. Whereas the discourse in trade was initially solely focused on economic ends, the problem definition widened for it to become a tool for the EU's environmental goals and ultimately its geopolitical ambitions. Contributing to this increased coherence was the 'greening' of trade policy on the multilateral (WTO), bilateral (FTA), and unilateral (e.g., CBAM, GSP) levels. Furthermore, granting the ecological transition primacy has, at least discursively, clarified the relationship between environmental concerns and trade. While a broader understanding of the nexus may enhance the coherence at the definitional level, the same does not necessarily have to be the case for the policy objectives or instruments.

4 COHERENCE OF POLICY OBJECTIVES

The proposed CRM Regulation aims to strengthen the EU's resilience by reducing dependencies, increasing preparedness and promoting supply chain sustainability and circularity.⁶⁷ The following short analysis is structured according to the four trade-related objectives that can be identified – undistorted access to CRM

⁶³ Johan L. Eliasson & Patricia Garcia-Duran, *New is Old? The EU's Open, Sustainable and Assertive Trade Policy*, 14(S3) *Global Pol'y* 14 (2023), doi: 10.1111/1758-5899.13183.

⁶⁴ Oberthür & Dupont, *supra* n. 29, at 1106.

⁶⁵ Luuk Schmitz & Timo Seidl, *As Open as Possible, as Autonomous as Necessary: Understanding the Rise of Open Strategic Autonomy in EU Trade Policy*, 61(3) *J. Common Mkt. Stud.* 841 (2023), doi: 10.1111/jcms.13428.

⁶⁶ European Union, *A Global Strategy for the European Union's Foreign and Security Policy, 'Shared Vision, Common Action: A Stronger Europe'* (2016); Council of the EU, *A Strategic Compass for Security and Defence*, 12, 7371/22 (2022).

⁶⁷ European Commission, *supra* n. 4, at 2.

imports, open strategic autonomy, sustainable CRM supply chains, and digital transition – whose coherence is then briefly put in relation to the four environmental objectives – sustainable development, reduced emissions, resource efficiency, and circularity – as well as digital technologies for sustainability. This section discusses challenges to coherence that have arisen or might possibly arise.

First, the EU economy relies heavily on imports of CRMs for its economic growth and competitiveness for which it needs to maintain undistorted access abroad. As the discourse analysis on the trade–environment nexus has revealed, ‘[g]reen policies, once seen as trade–off with industrial competitiveness, are now firmly placed at the heart of Europe’s revamped industrial agenda’, in line with the EGD’s branding as Europe’s new growth strategy.⁶⁸ A recent study of the supply chains for CRMs and a demand forecast for fifteen key technologies across five strategic sectors (renewable energy, electromobility, energy-intensive industry, digital, and aerospace/defence) in the EU shows that the raw materials are systematically critical for all technologies since the EU share in global production is never higher than 7%.⁶⁹ Still, the EU’s vulnerability tends to diminish along the supply chain. The EU is stronger in the manufacturing of the final technologies, but the criticality of the upstream steps highlights the need for it to guarantee an affordable and secure supply of the necessary materials and components. The Critical Raw Materials Act aims to improve the competitiveness of the EU’s ‘net-zero’ industry (i.e., an industry with a balance between emissions and emissions reductions). It designates about half of the thirty–four CRMs as ‘strategic raw materials’ which are additionally characterized by their importance for strategic sectors, their projected demand growth and the difficulties of scaling up production.⁷⁰ They are thus very difficult to replace in the relevant technologies. Nevertheless, EU trade policy is expected to support the transformation of the economy in line with the green and digital transitions as well as the EU’s geopolitical interests.⁷¹ In 2020 the European Commission dedicated a Communication to the resilience of CRMs that emphasized the key importance of both access to resources and sustainability.⁷² The objectives of open access to CRM imports for the EU’s growth and competitiveness and (worldwide) sustainable development are prone to a trade–off even though it might have become weaker in recent years. Commissioner Šeřčovič

⁶⁸ Frédéric Simon, *Critical Raw Materials*, 17, Euractiv, Special Report (Nov. 2020), <https://en.euractiv.eu/wp-content/uploads/sites/2/special-report/Critical-raw-materials-EUMICON-Special-Report-2020-1.pdf> (accessed 1 May 2023).

⁶⁹ European Commission, *supra* n. 7, at 6.

⁷⁰ European Commission, *supra* n. 4, Annexes I and II.

⁷¹ European Commission, *supra* n. 2, at 8–9; European Commission, *supra* n. 1, at 21.

⁷² European Commission, *Critical Raw Materials Resilience: Charting a Path towards Greater Security and Sustainability*, 1, COM (2020) 474.

even claims that 'Europe is really developing the concept of competitive sustainability'.⁷³

Second, open strategic autonomy requires more CRMs from – preferably like-minded – third countries but also from within the EU. The 2021 Foresight Report listed securing and diversifying the supply of CRMs as one of ten pillars of the EU's open strategic autonomy.⁷⁴ As a result, the twin transition risks shifting the EU's dependence from fossil fuels to CRMs. Disruptions in the supply of CRMs would slow down the implementation of the twin transitions. Moreover, the majority of CRMs are geographically concentrated which makes supply sensitive to political instability or even 'weaponization' as well as a 'geopolitical race' for access in Africa and other regions.⁷⁵ In the last decade, global production of CRMs has become more concentrated amongst producing countries, and China is at the forefront of expanding export restrictions on them, most recently with regard to gallium and germanium.⁷⁶ The new industrial strategy for Europe seeks to reinforce the EU's strategic autonomy in order to avoid that its transition to climate neutrality could replace its current reliance on fossil fuels with one on raw materials.⁷⁷ Nevertheless, there is potentially a strong trade-off between strategic autonomy and sustainable development and a reduction of emissions, if the increasing imports are not mined and processed in a sustainable manner. The same applies to domestically produced CRMs which, on the other hand, would generate employment in regions that may have only limited development alternatives. Moreover, there can also be intra-policy incoherences between trade goals like strategic autonomy on the one hand and secure, sustainable supply chains and undistorted market access abroad for competitiveness on the other.

Third, CRMs supply chains should not only be resilient but also sustainable. Yet, while renewable energy might not emit CO₂, the mining of raw materials needed for green technology (such as solar panels or wind turbines) is likely to do so. Especially China has a very high share of carbon-based fuels in its energy mix. As argued by Berry, '[t]o achieve significant decarbonization and electrification goals, more, not fewer, battery raw materials will be required, and the energy used to produce these materials will almost certainly originate from fossil fuels, possibly

⁷³ Cited in Simon, *supra* n. 68, at 12.

⁷⁴ European Commission, *2021 Strategic Foresight Report*, 21, COM (2021) 750 final.

⁷⁵ Harry Dempsey & Joseph Cotterill, *How China Is Winning the Race for Africa's Lithium*, Financial Times (3 Apr. 2023), <https://www.ft.com/content/02d6f35d-e646-40f7-894c-ffcc6acd9b25> (accessed 1 May 2023); Leslie Hook & Harry Dempsey, *Citi Warns Clients about Risks of Russia 'Weaponising' Metals*, Financial Times (8 Mar. 2023), <https://www.ft.com/content/6653aaaa-f6fd-4f20-91d0-3dd37e037da8> (accessed 1 May 2023).

⁷⁶ OECD, *Synergies and Trade-offs in the Transition to a Resource-Efficient and Circular Economy*, 34 OECD Environment Policy Paper 5, 41 (2022).

⁷⁷ European Commission, *A New Industrial Strategy for Europe*, 14, COM (2020) 102.

slowing the decline of the carbon intensity of industry'.⁷⁸ The production of minerals and metals contributes not only to global warming but also to large amounts of waste as well as negative impacts on air quality, water, plants and animals.⁷⁹ It can also have negative social impacts, especially outside of the EU, such as infringements on human rights or environmental standards which undermine sustainability along the supply chain.⁸⁰ Mining and processing usually require large amounts of water and come with contamination risks. As pointed out by Månberger, '[m]any mines for critical raw materials are located in water-scarce regions, where the interests of the mining industry are incompatible with local indigenous and/or peasants groups'.⁸¹ Dou et al. identify risks to the secure supply of CRMs 'due to geopolitical threats, inequality in development, growing resource nationalism, and impacts of mining on ecology, the environment, and human rights'.⁸² Developing countries have in the past often struggled to benefit from their natural resources, trapped in a 'resource curse' that creates inequality through low labour and environmental standards, rent-seeking and a lack of adequate investments in other sectors. There are thus likely to be strong trade-offs between these objectives, unless adequate policy instruments can mitigate the negative effects. Sustainable and responsibly managed supplies of CRMs would generate weak synergy effects.

Fourth, the EU's digital and green ambitions are not necessarily complementary either. Increased digitalization tends to fuel energy consumption although digital technologies could help reduce global emissions. Digitalization could also have a negative impact on the environment and climate through the increased use and disposal of electronic equipment. Bianchini et al., for instance, find that the local development of environmental technologies reduces greenhouse gas emissions, while the development of digital technologies increases them, with big data and computing infrastructures being the most detrimental.⁸³ The interaction between the digital transition in trade and green technologies can at best be assessed as neutral with a synergy potential.

⁷⁸ Chris Berry, *The Paradox of Green Growth: Challenges and Opportunities in Decarbonizing the Lithium-Ion Supply Chain*, in *Critical Minerals, the Climate Crisis and the Tech Imperium* 108 (Sophia Kalantzakos ed., Springer 2023).

⁷⁹ Patrice Christmann, *Mineral Resource Governance in the 21st Century and a Sustainable European Union*, 34(2) *Min. Econ.* 190–193 (2021), doi: 10.1007/s13563-021-00265-4.

⁸⁰ *Ibid.*, at 193–195.

⁸¹ André Månberger, *Critical Raw Material Supply Matters and the Potential of the Circular Economy to Contribute to Security*, 58(2) *Intereconomics* 74–76 (2023), doi: 10.2478/ie-2023-0016.

⁸² Shiquan Dou et al., *Critical Mineral Sustainable Supply: Challenges and Governance*, 146 *Futures* (2023), doi: 10.1016/j.futures.2023.103101.

⁸³ Stefano Bianchini, Giacomo Damioli & Claudia Ghisetti, *The Environmental Effects of the 'Twin' Green and Digital Transition in European Regions*, 84(4) *Envtl. & Res. Econ.* 877–918 (2023), doi: 10.1007/s10640-022-00741-7.

Table 3 summarizes the findings regarding the potential interaction of policy objectives in the trade-environment nexus when it comes to CRMs.

Table 3 Interaction Between Trade- and Environment-Related Objectives

<i>Environment Trade</i>	<i>sustainable development</i>	<i>less greenhouse gas emissions & pollution</i>	<i>resource efficiency & circularity</i>	<i>digital techno- logies promoting sustainability</i>
<i>undistorted access to imported CRMs for competitiveness & growth</i>	weak trade-off	strong trade-off	strong trade-off	weak synergy
<i>open strategic autonomy & resilience</i>	strong trade-off	weak trade-off	weak synergy	neutrality
<i>sustainable & responsibly managed supply of CRMs</i>	weak synergy	neutrality	weak synergy	weak synergy
<i>support digital transition & digital trade</i>	neutrality	neutrality	neutrality	strong synergy

Overall, even if this short analysis only provides a rough assessment of the interactions between the different policy objectives, it shows that despite the increasing 'greening' of EU trade policy, there are still incoherences in the objectives of the trade-environment nexus. This is most evident in the trade-offs between, on the one hand, undistorted market access and, on the other hand, reduced emissions, increased sustainable development and circularity, but also between open strategic autonomy and sustainable development and reduced emissions. In general, resource efficiency, circularity and digital technologies promoting sustainability are more likely to benefit from more coherence with trade objectives, whereas undistorted market access for competitiveness and open strategic autonomy are likely to suffer the strongest incoherence with environmental objectives.

5 COHERENCE OF POLICY INSTRUMENTS

In 2008 the European Commission launched the Raw Materials Initiative based on three pillars: (1) ensuring a level playing field in access to resources in third countries; (2) fostering sustainable supply of raw materials from European sources; and (3) boosting resource efficiency and promoting recycling.⁸⁴ The recent CRM Act highlights the same three pillars and the European Commission expects them to ‘work together in a mutually supportive manner’, thus creating synergies: diversifying supply and partnering in support of global production; developing the CRMs value chain in the EU; and fostering sustainable sourcing and promoting circularity.⁸⁵ The three pillars come with various policy instruments. They largely tie in with the objectives identified in Table 3 above. The first two pillars are more trade-focused, stressing (open, strategic) CRM diplomacy for access abroad respectively internal preparedness (strategic autonomy), while the third pillar concentrates on sustainability. Hence, the digital transition is not as directly reflected in the instruments as in the objectives. Again, a brief qualitative assessment critically discusses the degree of coherence of these policy instruments, keeping in mind that given the complexity of the matter and the early stage, this can only be a first rough assessment.

In the first pillar, the EU aspires with an active raw materials diplomacy to promote international cooperation on CRMs in relevant multilateral fora (e.g., G7, G20, International Energy Agency, International Renewable Energy Agency) and in bilateral relations (e.g., the United States’ Minerals Security Partnership). Diversification serves to improve market access and reduce dependencies on a few suppliers, for example through the establishment of partnerships and policy dialogues with third countries regarding EU access to raw materials. The EU has in this regard developed relations with Argentina, Brazil, Canada, Chile, China, Colombia, Greenland, Japan, Mexico, Peru, the United States, Uruguay, the Euro-Mediterranean countries, and the African Union.⁸⁶ In its 2015 ‘Trade for All’ strategy, the European Commission announced the inclusion of an Energy and Raw Materials chapter in new FTAs.⁸⁷ Disciplines on export duties were already agreed upon in earlier FTAs and WTO accession negotiations.⁸⁸ The 2021 Trade Policy Review stated that bilateral FTAs help ‘ensure undistorted trade and

⁸⁴ European Commission, *supra* n. 42, at 5–6.

⁸⁵ European Commission, *A Secure and Sustainable Supply of Critical Raw Materials in Support of the Twin Transition*, 3, COM (2023) 165.

⁸⁶ European Commission, *On the Implementation of the Raw Materials Initiative*, 7–9, COM (2013) 442.

⁸⁷ European Commission, *supra* n. 45, at 9.

⁸⁸ Export taxes have remained largely unregulated under the WTO. Based on the Accession Protocol, the EU has in 2012–14 successfully challenged China’s export restrictions on certain rare earth minerals.

investment in the raw materials and energy goods that are required to secure the necessary supplies to support the transition to climate neutral economies'.⁸⁹ For example, the EU's FTAs with Mexico, Chile and New Zealand contain an Energy and Raw Materials chapter. The European Commission is also pushing for the enforcement of rules, including a more proactive use of Trade and Sustainable Development chapters in FTAs.⁹⁰

Moreover, the concept of 'friend-shoring' implies strengthening supply relations with like-minded countries, including geographically closer countries to reduce logistical risks (i.e., near-shoring).⁹¹ As part of the CRM action plan, which uses the term 'open strategic autonomy' eleven times on eighteen pages, the European Raw Materials Alliance was announced 'to increase EU resilience in the rare earths and magnets value chain' and then expand to address other CRMs over time.⁹² The Alliance wants to contribute to a more secure and sustainable access and involves relevant stakeholders from the industries along the value chain, Member States and third countries, trade unions, civil society, research and technology organizations, investors and non-governmental organizations.⁹³ Going a step further, the Green Deal Industrial Plan proposes a Critical Raw Materials Club with like-minded partners which would 'bring together raw material "consumers" and resource-rich countries and foster co-operation to allow resource-rich developing countries to move up the value chain'.⁹⁴ The EU has also started to establish strategic partnerships on (critical) raw materials with resource-rich countries such as Canada, Ukraine, Kazakhstan and Namibia in order to better integrate the value chains and cooperate on the environmental, social and governance criteria. Similar partnerships are explored in Africa, Latin America, the Western Balkans and with Australia via trade agreements or Memoranda of Understanding.⁹⁵ These partnerships should provide more access to greener CRMs. As argued by Awuah, the EU acts both as an 'economic resource diplomat' and as a 'global extractives governor', two roles that can be complementary or conflicting.⁹⁶ The 2008 Raw Materials Initiative was seen as

⁸⁹ European Commission, *supra* n. 2, at 5, 12.

⁹⁰ European Commission, *supra* n. 85, at 13–17.

⁹¹ Considering the implications of the COVID-19 crisis for the health sector, for instance, the Trade Policy Review suggested 'fostering production and investment including in neighbouring countries and Africa' (European Commission, *supra* n. 2, at 7).

⁹² European Commission, *supra* n. 72, at 8.

⁹³ <https://erma.eu> (accessed 1 May 2023). A precursor was the European Rare Earths Competency Network (ERECON) established in 2013.

⁹⁴ European Commission, *A Green Deal Industrial Plan for the Net-Zero Age*, 19, COM (2023) 62.

⁹⁵ European Commission, *supra* n. 72, at 6; European Commission and High Representative, *EU External Energy Engagement in a Changing World*, 16, JOIN(2022) 23.

⁹⁶ Michael A. Awuah, *Raw Materials Diplomacy and Extractives Governance: The Influence of the EU on the African Extractive Industry Space*, 26(2) S. Afr. J. Int'l Aff. 251–275 (2019), doi: 10.1080/10220461.2019.1608852.

too focused on short-term EU interests at the expense of the longer-term transformational needs of the supplier countries, ‘reinforcing the asymmetrical colonial EU–Africa relationship’.⁹⁷ Moreover, emerging economies like China or India have gained significant market influence in Africa without employing EU-type conditionalities like sustainability or good governance. EU partnering now also includes investments in CRM supply chains as part of development cooperation through the EU Global Gateway, for instance in the Democratic Republic of Congo. The EU is thereby trying to portray itself as a development partner and avoid any accusations of neocolonial arrogance (Financial Times 2023c). Newer Sustainable Investment Facilitation Agreements, for instance with Angola, also include provisions on sustainable development on energy and raw materials. Nevertheless, a trade-off remains between an upscaling of the EU’s domestic capabilities in refining and processing and those of the Global South.

Diversification for political reasons and ‘friend-shoring’ may lead to a trade diversion from the economically most efficient markets to more expensive, less efficient ones. Yet the new suppliers might respect higher environmental and social standards and help increase resilience. Weak trade-offs or synergy effects can thus be expected for these policy instruments. Nevertheless, in an early assessment of the policy coherence for development of the Raw Materials Initiative, Curtis criticizes the EU’s attempt to make developing countries ban or curb the use of export taxes on raw materials.⁹⁸ These taxes generate revenues which could be used to support their local industry or protect the environment. The attempt to negotiate investment rules that give European companies the same or even better access to raw materials as local businesses can also be seen critically. While ‘resource nationalism’ exacerbates the instability of supply for Europe, it can also create opportunities for less developed, resource-rich countries.⁹⁹

The CRM Act also foresees facilitating the joint purchase of strategic raw materials by pooling demand for better market leverage.¹⁰⁰ The joint purchasing would be voluntary, but it could over time become mandatory for some CRMs. The EU will also simplify access to trade finance for investments in CRM supply chains abroad, for instance through export credits. While economically beneficial, these measures can lead to weak trade-offs, if sustainability is not taken into account. Whereas the EU will benefit from cheaper CRMs and resource-rich countries might at best find a customer willing to support their sustainable development, poor countries without resources are likely to face tough competition on the world market.

⁹⁷ *Ibid.*, at 254.

⁹⁸ Mark Curtis, *The New Resource Grab: How EU Trade Policy on Raw Materials is Undermining Development* (Nov. 2010), <https://curtisresearch.org/wp-content/uploads/Raw-materials-report.pdf> (accessed 1 May 2023).

⁹⁹ Dou et al., *supra* n. 82, at 9.

¹⁰⁰ European Commission, *supra* n. 85, at 4.

The second pillar seeks to facilitate the extraction of raw materials from European deposits (or re-shoring) by setting conducive administrative conditions (e.g., speeding up the permitting procedures), promoting research projects, and providing funding (e.g., cohesion policy funding for remote areas). Already the 2010 industrial policy suggested that increased investment in the 'discovery of new EU deposits of raw materials can be promoted through the exchange of best practices in the area of land use and maritime spatial planning and administrative conditions for exploration and extraction, while ensuring sustainability'.¹⁰¹ In order to build up European capacity and preparedness, the proposed CRM Regulation is setting priorities for strategic and other CRMs and (voluntary) benchmarks for 2030 regarding EU extraction, processing, recycling, and external sources.¹⁰² The EU Member States are expected to develop national programmes for exploring their geological resources. Sweden (rare earths), Finland (nickel, cobalt) and Portugal (lithium) are likely locations for new mines but face legislative barriers and possible local opposition.¹⁰³ Europe's only graphite mine in Sweden took ten years to obtain a production licence. For Strategic Projects, it is foreseen that the process should not exceed two years. The proposed CRM Regulation also states that Strategic Projects – both in the EU and abroad – should ensure environmental protection and include comprehensive and meaningful consultations with local communities.¹⁰⁴ In light of potential strong social disapproval, Corporate Social Responsibility and Social Licences to Operate become particularly important.¹⁰⁵

Several expert groups have been set up, for instance, the European Innovation Partnership on raw materials, a stakeholder platform that aims to provide guidance on innovative approaches to the challenges related to raw materials, and EIT Raw Materials within the European Institute of Innovation & Technology (EIT), which seeks to advance Europe's transition to a sustainable economy by driving innovation to secure the supply of CRMs.¹⁰⁶ The potential contribution of the EU's mining industry is likely to be limited in the short term due to the long permitting processes, low public acceptance and difficulty in attracting investments.¹⁰⁷ Trade-offs seem unavoidable in this regard.

¹⁰¹ European Commission, *supra* n. 48, at 19.

¹⁰² European Commission, *supra* n. 4.

¹⁰³ Economist Intelligence Unit, *supra* n. 3.

¹⁰⁴ European Commission, *supra* n. 4.

¹⁰⁵ António Mateus & Luís Martins, *Building a Mineral-Based Value Chain in Europe: The Balance between Social Acceptance and Secure Supply*, 34(2) *Min. Econ.* 241 (2021), doi: 10.1007/s13563-020-00242-3 (accessed 1 May 2023).

¹⁰⁶ https://single-market-economy.ec.europa.eu/sectors/raw-materials/eip_en and <https://eitrawmaterials.eu> (accessed 1 May 2023).

¹⁰⁷ Edoardo Righetti & Vasileios Rizos, *The EU's Quest for Strategic Raw Materials: What Role for Mining and Recycling?*, 58(2) *Intereconomics* 73 (2023), doi: 10.2478/ie-2023-0015.

A Critical Raw Materials Board, composed of the European Commission and the Member States, will coordinate the monitoring of CRMs-related supply risks.¹⁰⁸ As an additional instrument, the proposed CRM Regulation also suggests strategic stockpiling of certain strategic raw materials, albeit on a voluntary basis. A joint purchasing mechanism could create trade-related synergies with strategic national reserves of CRMs.

The third pillar aims to reduce the EU's consumption of CRMs. If CRMs are becoming more expensive as a result of their scarcity and higher demand, their use is disincentivized. Whereas this may have negative consequences on economic goals, it encourages resource efficiency, and reduces environmental externalities associated with the global extraction and processing. It may also create new jobs in recycling, repair and reuse.¹⁰⁹ A circular economy can change linear resource flows by closing the loop (i.e., end-of-life recycling), narrowing the loop (reducing the use of materials, e.g., through substitution or resource efficiency) or slowing the loop (increase the lifetime of products via repairs, reuse or upgradability). This also includes better waste management and exploiting the untapped potential of 'urban mining', that is, the process of extracting useful materials from urban waste.¹¹⁰ Yet, 'the more of the Urban Mine is recovered and maintained in the cycle, the higher the costs become'.¹¹¹ The EU's Circular Economy Action Plan addresses, amongst other measures, waste exports – which 'result both in negative environmental and health impacts in the countries of destination – and in loss of resources and economic opportunities for the recycling industry in the EU', and it aims to create a well-functioning EU market for secondary raw materials.¹¹² Instruments promoting circularity would interact positively with efforts to diversify and increase internal preparedness.

Regarding recycling, it has to be kept in mind though that recycled materials are not necessarily more secure than primary extracted materials and that the EU's waste exports could shift its dependence on primary to secondary CRMs imports. As noted by Månberger, the CRM Act defines targets for domestic processing and recycling above the target for domestic extraction, making the EU's strategy 'partly inconsistent'.¹¹³ Moreover, the substitution of CRMs could result in lower

¹⁰⁸ European Commission, *supra* n. 85, at 4.

¹⁰⁹ OECD, *supra* n. 76, at 6–7.

¹¹⁰ European Commission, *Tackling the Challenges in Commodity Markets and on Raw Materials*, 18, COM (2011) 25.

¹¹¹ Luis Tercero Espinoza et al., *The Promise and Limits of Urban Mining* 6 (Fraunhofer Institute for Systems and Innovation Research 2020).

¹¹² European Commission, *A New Circular Economy Action Plan: For a Cleaner and more Competitive Europe*, 14, COM (2020) 98.

¹¹³ Månberger, *supra* n. 81, at 76.

performance. Righetti and Rizos find that the recycling targets foreseen for 2030 are based on 'fairly optimistic assumptions'.¹¹⁴

As already mentioned, domestic production of CRMs is likely to suffer from the negative image of mining, especially due to concerns about its negative local impact such as harming biodiversity and polluting groundwater.¹¹⁵ This aspect embodies a strong trade-off. To counteract, the European Commission is not only engaging with stakeholders but has also published the EU principles for sustainable raw materials to promote a common understanding of sustainable extraction and processing operations in the EU and to increase the coherence amongst emerging certification and labelling schemes.¹¹⁶ Deep-seabed mining for CRMs has been prohibited 'until scientific gaps are properly filled, no harmful effects arise from mining and the marine environment is effectively protected'.¹¹⁷ However, industry and some states are accelerating the race to mine for metals in the deep sea. The European Commission has made several legislative proposals relevant to the sustainable sourcing of CRMs; the proposed Corporate Sustainability Due Diligence Directive, for instance, will have a much broader coverage of the minerals sector than the 2017 Conflict Minerals Regulation which applied only to gold, tin, tantalum, and tungsten.¹¹⁸ In addition, the right skills for the green and digital transitions will be promoted, for instance with a Raw Materials Academy.¹¹⁹

More funding is made available for all three pillars, including for relevant research. In the aftermath of the COVID-19 pandemic, the EU has set out an unprecedented recovery plan, Next Generation EU, to kickstart the European economy and support the green and digital transitions. The Recovery and Resilience Facility is a key element of this package and, in response to Russia's war in Ukraine, the REPowerEU plan was added to encourage the diversification of energy supplies and accelerated roll-out of renewables, including CRM-relevant projects to reinforce strategic autonomy. CRMs for clean technologies could also benefit from the Invest EU Programme, the Innovation Fund and from von der

¹¹⁴ Righetti & Rizos, *supra* n. 107, at 72.

¹¹⁵ Leonie Cater & Antonia Zimmermann, *The EU Wants to Mine its Way out of Reliance on China for Raw Materials. It'll Have to Convince the Locals*, Politico (20 Oct. 2022), <https://www.politico.eu/article/the-eu-wants-to-mine-its-way-out-of-reliance-on-china-for-raw-materials-itll-have-to-convince-the-locals> (accessed 1 May 2023).

¹¹⁶ European Commission, *EU Principles for Sustainable Raw Materials* (Publications Office of the European Union 2021).

¹¹⁷ European Commission and High Representative, *Setting the Course for a Sustainable Blue Planet – Joint Communication on the EU's International Ocean Governance Agenda*, 2, JOIN(2022) 28.

¹¹⁸ The Regulation on a Carbon Border Adjustment Mechanism for certain imported goods seeks to help ensure that the EU's climate objectives are not undermined by the risk of carbon leakage and to encourage cleaner industrial production in third countries. The current, initial scope of the CBAM (cement, iron and steel, aluminium, fertilizers, electricity) does not include CRMs.

¹¹⁹ European Commission, *supra* n. 85, at 6.

Leyen's idea of a future European Sovereignty Fund.¹²⁰ Finally, CRMs can profit from important projects of common European interest and from a state-aid tool to support Strategic Projects, and they can boost the EU's strategic autonomy by making Member States invest together in technological development (e.g., on batteries).¹²¹ These financial instruments should contribute to synergy across pillars.

Table 4 provides an overview of the policy instruments discussed and their potential coherence.

Table 4 Interaction Between Trade- and Environment-Related Instruments

<i>EnvironmentTrade</i>	<i>Pillar 3: substitution & recycling of CRMs</i>	principles, standards & funding for sustainable CRMs
<i>Pillar 1:</i>		
diversifying trade partners, cooperation & 'friend-shoring'	weak synergy	weak synergy
joint purchasing of CRMs & export credits	weak trade-off	weak trade-off
<i>Pillar 2:</i>		
domestic sourcing & processing of CRMs	neutrality	weak trade-off
preparedness: monitoring & strategic stockpiling of CRMs	weak synergy	strong synergy

In sum, the coherence of the policy instruments in place or proposed is, as in the case of the objectives analysed earlier, mixed. Yet, the overall degree of coherence seems more positive than in the case of the policy objectives. Of course, this finding refers to the design of the policy instruments and not to their implementation. More specifically, diversification and 'friend-shoring' as well as internal preparedness are likely to enjoy synergies with higher recycling and standards, whereas weak trade-offs might still dominate the interaction between domestic

¹²⁰ Speech, *2022 State of the Union Address by President von der Leyen*, Strasbourg (14 Sep. 2022), https://ec.europa.eu/commission/presscorner/detail/en/speech_22_5493 (accessed 1 May 2023).

¹²¹ TFEU, *supra* n. 13, Art. 107(3)(b).

production and joint purchasing of CRMs and sustainability instruments, assuming that within the EU the production of CRMs would be more sustainable.

6 CONCLUSIONS

The aim of this article was twofold. First, it sought to introduce an analytical framework in the discussion on policy coherence, which often remains conceptually underspecified. Second, drawing on this framework, it analysed the policy coherence in the trade–environment nexus, with the EU's approach to CRMs serving as a case study. More precisely, the article examined to what extent the EU can ensure a coherent approach to the trade–environment nexus in times of geopolitics. It showed that the EU has since the early 2000s increasingly recognized the trade–environment nexus. Culminating in the 2019 EDG and 2021 Trade Policy Review, the Commission's trade and environmental strategies display a more integrated and coherent understanding of how these policy areas interact. With the ecological transition being a top priority for the EU, trade is clearly expected to contribute to this priority and to align more with environmental goals. While an increase in coherence marks the general trajectory of this nexus, the re-emergence of geopolitics has to some extent had an opposite effect.

The case of CRMs exemplifies how open strategic autonomy, the EU's response to an increasingly geopoliticized world, can amplify policy incoherences. It puts a strain on the coherence of the policy objectives by injecting strong foreign policy concerns. This is less visible in the policy instruments so far, which appear to suffer from weaker trade-offs in the way they are designed, yet most of them are still to be implemented. Policy implementation could later be added as a fourth step in the policy coherence analysis. Further research is also warranted into a possible 'trade–environment–foreign policy' triple nexus and the conditions under which synergy effects can be achieved. Overall, the case of CRMs does not bode well for the EU's general ambition to pursue a coherent external action while strengthening its open strategic autonomy.

Furthermore, a policy coherence analysis does not include an analysis of policy integration nor an analysis of the outcomes (i.e., the behavioural changes and responses of various actors) and the impacts resulting from them.¹²² These could constitute additional steps in a more comprehensive analysis. Making use of the proposed framework, future studies of policy coherence could be carried out for individual CRMs or for specific policy instruments. Going beyond CRMs, the framework could be applied to other fields of the trade–environment nexus as well as beyond this nexus to other fields of policy coherence. It could also be differentiated to encompass other types of coherence, in particular vertical policy coherence between the EU level and the Member States.

¹²² Nilsson et al., *supra* n. 20, at 397.

