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ARTICLE

Flexilateralism in EU Trade Policy: The Case of Aviation Fuels in the Hardening Environmental Trade Instruments

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Abstract
Over the past 20 years, the European Union (EU) has shifted the emphasis of its trade policy from multilateral agreements towards bilateral preferential trade agreements (PTAs) and, more recently, to unilateral policy instruments. In this article we analyze the EU's growing ambitions in promoting environmental sustainability in the context of these shifts. We advance an analytical and a conceptual argument, focusing on a product group that is highly relevant to the EU's green transition: aviation fuels. We argue that the increasing hardness and ambition of the EU's environmental policy instruments on the sustainability of aviation fuels contributes to a trend of 'unilateralization' in EU trade policy. Our analysis further illustrates how the complementary qualities of hardness and ambition in the multi-, bi-, and unilateral EU instruments lead to their flexible combination in the EU trade policy mix. Based on these findings, we propose to describe and critically analyze the EU's current approach as 'flexilateralism'. The EU has changed from prioritizing multilateralism to a more pragmatic, flexilateral approach, rather than for fully fledged bilateralism or unilateralism. This is what the EU's more assertive 'strategic autonomy' may be about: a flexilateral approach to better address issues such as environmental sustainability with the most useful combination of instruments available.

Keywords: EU; trade policy; Unilateralism; Bilateralism; Multilateralism; Flexilateralism; Aviation fuels

1. Introduction

According to many trade policy observers, over the past two decades the European Union (EU) has moved from multilateralism to (often bilateral) preferential trade agreements (PTAs).[1] The EU's trade policy review of 2021, however, triggered a

[1] See, e.g., K. Heydon & S. Woolcock, *The Rise of Bilateralism: Comparing American, European and Asian Approaches to Preferential Trade Agreements* (United Nations University Press, 2009); T. Renard, 'Partnerships for Effective Multilateralism? Assessing the Compatibility between EU Bilateralism,

new development. Under its 'more assertive' and 'strategically autonomous' trade agenda,[2] the EU increasingly enacts unilateral measures[3] – that is, policy instruments that are introduced by the EU acting alone without the formal participation of third countries.[4] The change is partly a reaction to the more adversarial geopolitical relations between the EU's two main trading partners, the United States (US) and China, and increasing state intervention in the economy.[5] Examples of such unilateral actions from the EU include the Foreign Subsidies Regulation[6] and the Anti-Coercion Instrument,[7] aimed at defending the EU's economy and security, respectively.

Alongside external drivers, this change has been driven by developments *within* the EU. Since the 1990s, the EU has taken measures to deepen its multilateral and bilateral trade agenda by incorporating new concerns beyond tariffs, quotas, services, and intellectual property rights. In particular, the objective of environmental sustainability has been proposed in multilateral and plurilateral trade agreements as a means to address the alarming state of the environment and to keep the global economy within its planetary boundaries.[8] Attempts to 'deepen' the World Trade Organization's (WTO) multilateral agreements in the Doha Round have ground to a halt,

(Inter-)Regionalism and Multilateralism' (2016) 29(1) *Cambridge Review of International Affairs*, pp. 18–35; G. Koopman & M. Wilhelm, 'EU Trade Policy in the Age of Bilateralism' (2010) 45(5) *Intereconomics*, pp. 305–12; F. Laursen & C. Roederer-Rynning (eds), *The EU and the New Trade Bilateralism: 21st Century Trade* (Routledge, 2020); J. Mortensen, 'The World Trade Organization and the European Union', in K.E. Jorgensen (ed.), *The European Union and International Organizations* (Routledge, 2008), pp. 156–99; P. Lamy, 'Stepping Stones or Stumbling Blocks? The EU's Approach Towards the Problem of Multilateralism vs Regionalism in Trade Policy' (2002) 25(10) *The World Economy*, pp. 1399–413.

2 European Commission, Communication, 'Trade Policy Review: An Open, Sustainable and Assertive Trade Policy', 18 Feb. 2021, COM(2021) 66 final (EU Trade Policy Review).

3 F. De Ville, S. Happersberger & H. Kalimo, 'The Unilateral Turn in EU Trade Policy? The Origins and Characteristics of the EU's New Trade Instruments' (2023) 28 (Special Issue) *European Foreign Affairs Review*, pp. 15–34; G. Vidigal, 'The Unilateralization of Trade Governance: Constructive, Reconstructive and Deconstructive Unilateralism' (2023) 50(1) *Legal Issues of Economic Integration*, pp. 1–12; T. Gehrke, 'EU Open Strategic Autonomy and the Trappings of Geoeconomics' (2022) 27(1) *European Foreign Affairs Review*, pp. 61–78; S. Meunier & K. Nicolaidis, 'The Geopoliticization of European Trade and Investment Policy' (2019) 57(1) *Journal of Common Market Studies*, pp. 103–13; L. Davison & D. Johnson, 'Multilateralism, Bilateralism and Unilateralism: A Critical Commentary on the EU's Triple-Track Approach to the International Dimension of Competition Policy' (2002) 14(1) *European Business*, pp. 7–19.

4 S. Brooks, 'Unilateralism', in B. Badie (ed.), *International Encyclopedia of Political Science* (SAGE, 2011), pp. 2675–77.

5 A. Roberts, H. Choer Moraes & V. Ferguson, 'Toward a Geoeconomics Order in International Trade and Investment' (2019) 22(4) *Journal of International Economic Law*, pp. 655–76; H.M. Schwartz, 'The European Union, the United States and Trade: Metaphorical Climate Change, Not Bad Weather' (2022) 10(2) *Politics and Governance*, pp. 186–97.

6 Regulation (EU) 2022/2560 on Foreign Subsidies Distorting the Internal Market [2022] OJ L 330/1.

7 Regulation (EU) 2023/2675 on the Protection of the Union and its Member States from Economic Coercion by Third Countries, OJ L 2023/2675.

8 J.-A. Monteiro & J.P. Trachtman, 'Environmental Laws', in A. Mattoo, N. Rocha & M. Ruta (eds), *Handbook of Deep Trade Agreements* (World Bank Publications, 2020), pp. 553–81.

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however.[9] In fact, environmental sustainability may be one of the complicating factors in the negotiation process.[10] Faced with such challenges at the multilateral level, PTAs present an alternative route for a powerful trade actor like the EU to leverage high environmental standards in third countries.[11] Yet, the inclusion of environmental considerations in PTAs has also run into difficulties, as negotiations are increasingly complex, politicized, and difficult to conclude, with the EU–Mercosur Agreement as the most recent example.[12] We thus observe an internal evolution towards unilateralization, as the EU is increasingly introducing unilateral instruments as part of its sustainability-related trade policies.

Our objective in this article is to advance an analytical and a conceptual argument about how and why the EU has changed its approach in promoting environmental sustainability through trade. The analytical argument is that the EU's pursuit of environmental sustainability has entailed a shift from multilateral towards bilateral and, most recently, unilateral instruments, which are mutually complementary and interrelated. The conceptual argument is to propose the notion of flexilateralism to describe the EU's current trade policy approach, where it applies the multilateral, bilateral, and unilateral instruments as a flexible combination.[13]

Our analysis of the alleged shift in EU environmental trade policy focuses on a specific category of products: 'sustainable aviation fuels' (SAF), as the EU calls aviation fuels that meet certain environmental criteria. We assess the 'hardness' and ambition of the environmental sustainability provisions of these SAF instruments under multi-, bi- and unilateral approaches. Hardness, as further defined below, is the focal point of our analysis as the EU tries to achieve its increasing environmental objectives through harder policy instruments. We analyze the hardness and ambition of each instrument type separately, following the chronological order in which the EU approach has shifted first from multilateral instruments to bilateral and then to unilateral instruments.[14]

The analysis of hardness and ambition leads to our conceptual claim on flexilateralism. If the shift from multilateral to bilateral and unilateral instruments increases the hardness and ambition of the applicable environmental sustainability provisions, the EU's pursuit of sustainability would be among the factors reinforcing the unilateralization of EU trade policies. This is noteworthy, because unilateralization is currently described mainly in geo-political, geo-economic or even protectionist

[9] K. Hopewell, 'Tumult in the Trading System: The China Paradox, Declining US Institutional Power, and the Crisis at the WTO', in H. Gao, D. Raess & K. Zeng (eds), *China and the WTO: A Twenty-Year Assessment* (Cambridge University Press, 2023), pp. 183–203, at 192–3.

[10] P. Lamy, 'Foreword', in Mattoo, Rocha & Ruta, n. 8 above, pp. ix–xi.

[11] Renard, n. 1 above, p. 26.

[12] EU–Mercosur Trade Agreement (EU–Mercosur TA), agreement in principle, Brussels (Belgium), 1 July 2019, available at: https://policy.trade.ec.europa.eu/EU–trade-relationships-country-and-region/countries-and-regions/mercosur/EU–mercosur-agreement/text-agreement_en. A political agreement on the EU–Mercosur Agreement was reached on 6 Dec. 2024; see text at: https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/mercosur/eu-mercosur-agreement/text-agreement_en. See also Section 3.2.

[13] S.B.H. Faure, 'La politique du "flexilatéralisme": Le cas de la politique française d'armement dans le contexte du Brexit' (2018) 30(1) *Les Champs de Mars*, pp. 73–101.

[14] See nn. 1 and 3 above.

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terms. Our case study on SAF teases out how unilateralization reflects the EU's attempt to increase the hardness and ambition of its trade instruments to achieve environmental objectives. Trade policy could be a means for the EU to address its environmental footprint – or, more controversially, to leverage higher environmental standards in third countries. In this sense, the EU uses unilateralization as a strategy when it deems that multilateral and bilateral trade instruments have not been sufficient in meeting its environmental objectives. We also observe that the researched multilateral, bilateral, and unilateral instruments on SAF have different complementary characteristics of hardness and ambition.

This complementarity in hardness and ambition, in turn, speaks for an overall trade policy approach where neither multilateral, bilateral nor unilateral instruments are used in isolation. While there appears to be a shift in EU trade policies from multilateral to bilateral and further to unilateral measures, this is a shift in emphasis, but does not lead to exclusivity. The EU remains active in the main multilateral forum on biofuels and continues to negotiate PTAs that cover SAF. The EU's current trade policy strategy in SAF – whereby it appears to apply the multilateral, bilateral and unilateral trade instruments simultaneously and flexibly as complements to each other – can be conceptualized as flexilateralism. Faure, who arrived at a similar finding in the context of French defence policy, defines flexilateralism as 'a policy with which a state mobilizes simultaneously different types of international cooperation to respond to a public problem'.[15] We propose this concept to analyze how and why instruments may not be considered as mutually exclusive options, nor as conforming to a hierarchy of principled preferences. This conceptualization allows distinguishing a potential change in the EU's sustainable trade policy, which hitherto has relied as a matter of principle on multilateralism, to one where the multi-, bi-, and unilateral instruments constitute a menu of interrelated and mutually complementary options that serve the strategically most useful outcome in each individual situation. Our conceptualization also leads us to propose a further exploration of the dimension of *non*-state actors, thus integrating what in diplomatic studies and some trade policy commentary has been coined as 'polylateralism'.[16] By exploring the relationship between 'flexilateralism' and the involvement of non-state actors, it seems possible to arrive at a comprehensive taxonomy of 'lateralisms'. While the analytical part of the article lays the groundwork for our conceptual contributions on flexilateralism, we do not yet aim to *test* this novel concept. That would be the next step in the research on uni-, bi- or multilateral instruments, including the role of non-state actors, in EU trade and environmental policies.

SAF are well suited as a case to analyze shifts in the EU instruments to promote environmental sustainability because alternative fuels for aviation have already been a

[15] Faure, n. 13 above, p. 75.

[16] Wisemann has defined polylateralism as 'extending the bilateral and multilateral international relationships between states to those between states and private actors': G. Wisemann, 'The Diplomatic Underpinnings of Multilateralism', in J.P. Muldoon et al. (eds), *The New Dynamics of Multilateralism: Diplomacy, International Organizations, and Global Governance* (Routledge, 2019), pp. 5–22. See Section 4.3 for an analysis of the linguistic accuracy of the concept.

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part of the EU agenda from the European Commission's 1992 strategy on Sustainable Mobility 'Green Paper on the Impact of Transport on the Environment', to the EU's current, Renewable Energy Directive,[17] revised in 2023 (RED III). SAF is the subject of multi-, bi-, and unilateral trade policies and, as a product group, also allows for a geographic delimitation of our analysis. The analysis covers all three types of policy, but pays particular attention to the latest shift from bilateral to unilateral measures, as there is already substantial scholarly attention on the shift from multilateral to bilateral approaches over the last two decades.[18] We concentrate on two countries that have globally important 'biodiversity hotspots' that the cultivation of SAF feedstock may threaten, and with which the EU is currently or has recently been (2024) in the process of concluding major PTAs: Indonesia and Brazil (as part of Mercosur), respectively. To enable a systematic analysis, only the most prominent instrument applicable to SAF in each type of instruments is covered in full detail: the multilateral Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)[19] of the International Civil Aviation Organization (ICAO), the bilateral EU–Indonesia and EU–Mercosur Trade Agreements,[20] and the unilateral Regulation on Sustainable Air Transport (ReFuelEU Regulation).[21] For each instrument, we scrutinize only the sustainability-related provisions. We also briefly discuss some of the other important instruments in the three groups.

We analyze the stringency and binding effect of the SAF instruments along a continuum of hardness/softness as a method for illustrating their potential strengths and weaknesses in pursuing the sustainability objectives.[22] This method is based on scholarship on 'soft law', 'soft' and 'hard' instruments, and normativity,[23] where an instrument's 'hardness' is assessed on the basis of four criteria: (i) 'formal status', (ii) 'obligation', (iii) 'precision', and (iv) 'means of implementation'.[24] The method shows that hardness is a combination of different independent factors. Further, we assess the instrument's 'ambition': how high the instrument's environmental targets

[17] Directive (EU) 2023/2413 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the Promotion of Energy from Renewable Sources, and repealing Council Directive (EU) 2015/652 [2023] OJ L 2023/2413 (RED III).

[18] See e.g., A. Poletti & D. Sicurelli, 'The European Union, Preferential Trade Agreements, and the International Regulation of Sustainable Biofuels' (2016) 54(2) *Journal of Common Market Studies*, pp. 249–66, at 249; Renard, n. 1 above.

[19] ICAO Assembly Resolution A39-3 (2016), paras 5–6.

[20] EU–Mercosur Agreement, n. 12 above; EU–Indonesia Trade Agreement, EU text proposal (EU–Indonesia TA Proposal), available at: https://policy.trade.ec.europa.eu/EU–trade-relationships-country-and-region/countries-and-regions/indonesia/EU–indonesia-agreement/documents_en.

[21] Regulation (EU) 2023/2405 on Ensuring a Level Playing Field for Sustainable Air Transport [2023] OJ L 2023/2405 (ReFuelEU Regulation).

[22] H. Kalimo & T. Staal, 'Softness in International Instruments: The Case of Transnational Corporations' (2015) 42(2) *Syracuse Journal of International Law and Commerce*, pp. 365–444.

[23] The primary basis for the approach is K.W. Abbott et al., 'The Concept of Legalization' (2003) 54 *International Organization*, pp. 401–19. See Kalimo & Staal, n. 22 above, pp. 387–97 for an overview of the scholarship underpinning the notion.

[24] Kalimo & Staal, n. 22 above, pp. 387–97; S. Oberthür, 'Hard or Soft Governance? The EU's Climate and Energy Policy Framework for 2030' (2019) 7(1) *Politics and Governance*, pp. 17–27.

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are, for example, on greenhouse gas (GHG) emissions or the protection of biodiversity.[25] Together, these qualities can be used to measure the instrument overall as summarized in the indicative Figures 1, 2 and 3 below.

The first quality of hardness, the *formal legal status*, assesses the binding nature of the measure: only formal sources of law create legally binding rights and obligations on the parties, and can be enforced through judicial means.[26] An instrument that is a formal source of law is 'hard', while an instrument that is not a source of law is 'soft' on a binary scale. The second quality, *obligation*, refers to the authority of the party behind the instrument and the degree to which the language of the text is mandating.[27] The third quality, *precision*, is also composed of two elements: the accuracy of the instrument in defining what the regulated conduct requires, authorizes or proscribes (*ratione materiae*), and its specificity as to who the regulated actors are (*ratione personae*).[28] The attribute of *means of implementation* refines the analysis by focusing on (i) how broadly authority to implement and enforce the instrument has been defined (scope) and (ii) how accountable, independent and powerful is an organization (institution) to which the authority to implement and enforce the instrument has been entrusted.[29] Hardness is measured for each quality on a gradual scale low (L), medium (M), and high (H), except for the (not) formal sources of law which are assessed on a binary scale of either yes (H) or no (L). Combined, the four qualities lead to an average score of hardness. The same scale is used to measure ambition. The level of hardness is defined as follows:

- Low (L): no or only some aspects of the quality present;
- Medium (M): major aspects of the quality present while important aspects are also missing;
- High (H): quality can be increased in no or only some aspects.

While our scores are only indicative, their comparison across the SAF-related multi-, bi-, and unilateral instruments supports our qualitative legal content analysis and helps to illustrate the evolution of the EU policy approach. The scores of policy measures under the multi-, bi-, and unilateral approaches are presented in Figures 1, 2 and 3 and a more detailed summary of their assessments is available in the Supplementary Materials (Annexes 1, 2 and 3), respectively. The EU's shift in emphasis towards bilateral and then unilateral instruments entails an increase in the instruments' hardness and/or their level of ambition in promoting the sustainability of

[25] Oberthür, n. 24 above; S. Oberthür & L. Groen, 'The Effectiveness Dimension of the EU's Performance in International Institutions: Toward a More Comprehensive Assessment Framework' (2015) 53(6) *Journal of Common Market Studies*, pp. 1319–35.
[26] Kalimo & Staal, n. 22 above, pp. 389–93.
[27] Ibid., pp. 393–5.
[28] Ibid., p. 395.
[29] Ibid.

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aviation fuels.[30] The EU thus appears to be complementing the multilateral and bilateral measures with novel, and in many respects harder unilateral policy instruments, leading to a flexilateral approach.

This article proceeds as follows. Section 2 describes the case of SAF. It explains the sustainability considerations of aviation biofuels and feedstock, and presents the empirical contexts in the SAF exporting countries researched, Indonesia and Brazil. In Section 3 we commence the analysis of the EU's multi-, bi-, and unilateral approaches to SAF governance with the multilateral CORSIA. We continue with the bilateral EU–Mercosur and EU–Indonesia PTAs, in particular their Trade and Sustainable Development (TSD) chapters. After outlining the limitations of CORSIA and these two PTAs in governing SAF, we turn to a key unilateral EU measure on SAF: the ReFuelEU Regulation.[31] In Section 4 we present our findings on the complementarity and the interrelationships between the uni-, bi-, and multilateral instruments, moving from our analytical argument to our conceptual argument. We conceptualize the EU's approach on the trade-environment nexus as flexilateral, using a taxonomy of different 'lateralisms'. Section 5 concludes with observations about the evolution of and prospects for the EU's environmental trade policy approaches. Given the exploratory nature of our in-depth case study of the leading instruments on SAF, it would be interesting for future research to verify our findings in relation to a wider range of instruments and sectors.

2. The Case of Sustainable Aviation Fuels

The greening of air travel is critical for the EU to reach its net-zero targets as the carbon dioxide (CO_2) and non-CO_2 climate impacts from aviation continue to increase.[32] It accounted for at least 2% of the global energy-related CO_2 emissions in 2022,[33] and 12% of GHG emissions from transport in 2019.[34] Far from plateauing, aviation CO_2 emissions are projected to increase up to 2.6 times (compared to 2021 levels) by 2050.[35] This projection stands in stark contrast to the Paris Agreement's goal to peak global emissions as soon as possible.[36] European air transport must contribute to the

[30] Abbott et al., n. 23 above; S. Karlsson-Vinkhuyzen & A. Vihma, 'Comparing the Legitimacy and Effectiveness of Global Hard and Soft Law: An Analytical Framework' (2009) 3(4) *Regulation & Governance*, pp. 400–20; Oberthür, n. 24 above.

[31] ReFuelEU Regulation, n. 21 above.

[32] R. Sacchi et al., 'How to Make Climate-Neutral Aviation Fly' (2023) 14 *Nature Communications*, article 3989.

[33] International Energy Agency (IEA), 'Aviation', available at: https://www.iea.org/energy-system/transport/aviation.

[34] M. Pathak et al., 'Technical Summary', in P.R. Shukla et al. (eds), *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC 2022), pp. 49–147, at 98.

[35] S. Gössling et al., 'COVID-19 and Pathways to Low-Carbon Air Transport until 2050' (2021) 16(3) *Environmental Research Letters*, article 034063.

[36] Paris Agreement, Paris (France), 12 Dec. 2015, in force 4 Nov. 2016, available at: https://unfccc.int/sites/default/files/english_paris_agreement.pdf; United Nations Framework Convention on Climate Change Conference of the Parties, 'Report of the Conference of the Parties on its Twenty-First Session, held in Paris from 30 November to 13 December 2015', 29 Jan. 2016, UN Doc. FCCC/CP/2015/10.

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EU's tightened 2030 carbon target of at least 55% GHG emissions savings.[37] To avoid mandating a sharp reduction in air travel and transport, the search for technological solutions to reduce the sector's emissions is in full swing. A switch to aircraft powered by renewable electricity, for example, is not thought to be feasible in the short term.[38] The European Commission presents the switch from fossil-based kerosene to SAF as one of the few short- to medium-term options available for reducing the aviation industry's carbon footprint.[39] The EU aims to lead the way in the development and commercial deployment of aviation fuels that meet high sustainability criteria.[40] The European Commission's target is to increase the market share of SAF of all aviation fuels from 2% (2025) to 6% by 2030, and 70% by 2050.[41]

2.1. The Environmental Sustainability of Aviation Fuel (Feedstock)

'Sustainable' aviation fuel generally refers to liquid hydrocarbons that can be substituted for kerosene-based jet fuel.[42] Alternative, non-fossil-based jet fuels can be produced from a variety of feedstocks, including oil crops (for example, soybean, algae, palm oil), starch crops (for example, sugarcane), lignocellulosic feedstocks (for example, wood) and by-product resources or residues (forestry and agricultural residues, municipal solid waste, waste oil, steel-off gases), using various conversion processes.[43] The most recent jet fuels include synthetic 'e-fuels'– power-to-liquid fuels produced by synthesizing (renewable) electricity, water, and (preferably captured) CO_2.[44] The precise criteria for which alternative jet fuels are considered 'sustainable' vary by jurisdiction. The most common criterion refers to the ability of the fuel to reduce GHG emissions.[45] In general, the sustainability criteria are becoming higher.[46] The EU sustainability criteria for biofuels have been updated in several cycles, notably through the EU Renewable Energy Directive,[47] and often surrounded by controversy.

[37] Regulation (EU) 2021/1119 establishing the Framework for Achieving Climate Neutrality and amending Regulations (EC) No. 401/2009 and (EU) 2018/1999 [2021] OJ L 243/1 (European Climate Law), Art. 4.

[38] European Commission, Communication, 'Sustainable and Smart Mobility Strategy: Putting European Transport on Track for the Future', 9 Dec. 2020, COM(2020) 789 final (Smart Mobility Strategy).

[39] ReFuelEU Regulation, n. 21 above, Rec. 7.

[40] See, e.g., Smart Mobility Strategy, n. 38 above.

[41] ReFuelEU Regulation, n. 21 above. Annex I.

[42] European Union Aviation Safety Agency (EASA), *European Aviation Environmental Report 2022* (EASA, 2022), Ch. 4 'Sustainable Aviation Fuels', pp. 69–81, available at: https://www.easa.europa.eu/eco/eaer.

[43] C.M. Beal, A.D. Cuellar & T.J. Wagner, 'Sustainability Assessment of Alternative Jet Fuel for the U.S. Department of Defense' (2021) 144 *Biomass and Bioenergy*, article 105881, pp. 1–2; R.S. Capaz et al., 'Mitigating Carbon Emissions through Sustainable Aviation Fuel: Costs and Potential' (2020) 15(2) *Biofuels Bioproducts and Biorefining*, pp. 502–24, at 504.

[44] ReFuelEU Regulation, n. 21 above, Art. 4(1).

[45] The emissions savings will depend on the specific type of biofuel.

[46] EASA, n. 42 above.

[47] See Directive 2003/30/EC on the Promotion of the Use of Biofuels or Other Renewable Fuels for Transport [2003] OJ L 123/42; Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC [2009] OJ L 140/16 (RED I); Directive 2015/1513 amending Directive 98/70/EC relating to the Quality

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Today, the EU criteria are among the most demanding globally.[48] To qualify as SAF, the EU imposes up to 70% lifecycle emissions savings compared to fossil fuels.[49] There are also more conservative views on the sustainability benefits of SAF.[50]

2.2. Brazil and Indonesia as Major Biofuels Producers

Brazil and Indonesia are the world's largest producers of biofuels after the US.[51] They produce significant quantities of biofuels for the domestic transport sector and for import into the EU using feedstocks predominant in each country. Brazil has applied blending mandates for bioethanol and biodiesel for more than a decade.[52] Brazilian ethanol is around 90% from sugar cane, while 70% to 90% of the country's biodiesel production is from soybean oil.[53] Indonesia, on the other hand, has a strong biofuel industry based on palm oil. The country dominates global palm oil production, currently accounting for 59% of worldwide production.[54] The EU has been the

of Petrol and Diesel Fuels and amending Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources [2015] OJ L 239/1 (ILUC Directive); Directive 2018/2001 on the Promotion of the Use of Energy from Renewable Resources [2018] OJ L 328/82 (RED II); RED III, n. 17 above. For analyses of the regulatory evolution in the EU see, e.g., N. Kupzok, 'Fragile Legitimacy: The Rise and Crisis of the EU's "Sustainable Biofuels" Policy' (2020) 18(1) *Socio-Economic Review*, pp. 235–56.

48 See International Transport Forum (ITF), 'Sustainable Aviation Fuels Policy Status Report: Case-Specific Policy Analysis', *ITF Policy Papers*, No. 116, 2023, pp. 25–6, available at: https://www.itf-oecd.org/sites/default/files/docs/sustainable-aviation-fuels-policy-status-report.pdf.

49 ReFuelEU Regulation, n. 21 above, Art. 3(7); RED III, n. 17 above, Art. 1(20) inserting Art. 29(a)(2).

50 See, e.g., G. Seber et al., 'Uncertainty in Life Cycle Greenhouse Gas Emissions of Sustainable Aviation Fuels from Vegetable Oils' (2022) 170 *Renewable and Sustainable Energy Reviews*, article 112945; V. Grewe, S. Matthes & K. Dahlmann, 'The Contribution of Aviation NOx Emissions to Climate Change: Are We Ignoring Methodological Flaws?' (2019) 14(12) *Environmental Research Letters*, article 121003.

51 Energy Institute, 'Statistical Review of World Energy 2024', p. 64, available at: https://www.energyinst.org/statistical-review.

52 Decreto (Decree) 76.593, 14 Nov. 1975, available only in Brazilian at: https://www2.camara.leg.br/legin/fed/decret/1970-1979/decreto-76593-14-novembro-1975-425253-publicacaooriginal-1-pe.html; Lei (Law) 11.097, de 13 Jan. 2005, unofficial English translation available at: https://www.global-regulation.com/translation/brazil/2928049/law-no.-11097-of-13-january-2005.html; see IEA, 'Biofuel Policy in Brazil, India and the United States: Insights for the Global Biofuel Alliance', July 2023, pp. 13–4, available at: https://www.iea.org/reports/biofuel-policy-in-brazil-india-and-the-united-states.

53 S. Barros & K. Woody, 'Corn Ethanol Production Booms in Brazil', US Department of Agriculture (USDA), Report No. BR2020-0041, 8 Oct. 2020, available at: https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Corn%20Ethanol%20Production%20Booms%20in%20Brazil%20_Brasilia_Brazil_10-04-2020; Statista, 'Volume of Soybean Oil Used in Biodiesel Production in Brazil from 2009 to 2021', 2 Sept. 2024, available at: https://www.statista.com/statistics/982564/brazil-soybean-oil-use-biodiesel-production.

54 USDA Foreign Agricultural Service, 'Palm Oil 2022 World Production', available at: https://ipad.fas.usda.gov/cropexplorer/cropview/commodityView.aspx?cropid=4243000; European Commission, 'Sustainability Impact Assessment (SIA) in support of the Free Trade Agreement (FTA) Negotiations between the European Union and the Republic of Indonesia: Final Report', Aug. 2019 (EU–Indonesia SIA Final Report), p. 175, available at: https://circabc.europa.eu/ui/group/09242a36-a438-40fd-a7af-fe32e36cbd0e/library/76dcefc4-692c-421d-8a5e-54955bb486aa/details.

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world's second largest importer of palm oil[55] and soybeans.[56] These oils have traditionally played a crucial role in meeting the demand for renewable energy in transport in the EU. In 2021, palm oil accounted for 17% of the feedstock used for biodiesel production in the EU, but this share is declining. In 2018, 64% of the total imports of palm oil into the EU were used for conversion into biofuels.[57]

Brazil and Indonesia are planning to develop their SAF industries, making use of the same feedstocks as biofuels used in road transport.[58] Indonesia has experimented with the introduction of a blending mandate for the domestic supply of palm oil-based alternative aviation fuels,[59] and has even introduced a ban on palm oil exports from April 2022.[60] Trade in aviation biofuel between Brazil, Indonesia, and the EU would have economic significance for all parties, but the environmental sustainability of the fuels remains one of the key contested issues.[61] Increased biofuel trade would be likely to pose multiple risks to the environment.[62] Cultivation of sugarcane-based ethanol in Brazil has given rise to environmental concerns.[63] Still, while the expansion of sugarcane production in Brazil has taken place mostly in degraded pasturelands in the

[55] USDA Foreign Agricultural Service, 'Palm Oil 2021 World Imports', available at: https://ipad.fas.usda.gov/cropexplorer/cropview/commodityView.aspx?cropid=4243000&sel_year=2021&rankby=Imports.

[56] M. Shahbandeh, 'Import Volume of Soybeans Worldwide in 2018/19, by Country', Statista, 19 Feb. 2024, available at: https://www.statista.com/statistics/612422/soybeans-import-volume-worldwide-by-country.

[57] D.J. Murphy, K. Goggin & R.R.M. Paterson, 'Oil Palm in the 2020s and Beyond: Challenges and Solutions' (2021) 2(39) *CABI Agriculture and Bioscience*, p. 16; B. Flach, S. Lieberz & S. Bolla, 'Biofuels Annual Report', USDA Foreign Agricultural Service, Report No. E42022-0048, 13 July 2022, pp. 26–8, available at: https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Biofuels%20Annual_The%20Hague_European%20Union_E42022-0048.pdf.

[58] D. Calçado et al., 'Brazil's Action Plan on CO_2 Emissions Reduction from Aviation', Ministério da Infraestrutura (Ministry of Infrastructure), Sept. 2019, p. 78, available at: https://www.gov.br/anac/pt-br/assuntos/meio-ambiente/arquivos/BrazilsActionPlanonCO2EmissionsReductionfromAviation3rdEditionBaseYear2018.pdf.

[59] Regulation of the Minister of Energy and Mineral Resources Republic of Indonesia No. 25/2013 amending Regulation of the Minister of Energy and Mineral Resources No. 32/2008 on Supply, Utilization and Trading Procedure of Biofuel as Alternate Fuel, 28 Aug. 2013, in force 1 Sept. 2013, unofficial English translation available at: https://leap.unep.org/en/countries/id/national-legislation/regulation-minister-energy-and-mineral-resources-ri-no-252013.

[60] Peraturan Menteri Perdagangan, Nomor 22 Tahun 2022 Tentang Larangan Sementara Ekspor Crude Palm Oil, Refined, Bleached ang Deodorized Palm Oil, Refined, Bleached and Deodorized Palm Olein, and Used Cooking Oil (Regulation of the Minister of Trade No 22 of 2022 concerning the Temporary Prohibition of the Export of Crude Palm Oil, Refined, Bleached and Deodorized Palm Oil, Refined, Bleached and Deodorized Palm Olein, and Used Cooking Oil), available only in Indonesian at: https://jdih.kemendag.go.id/peraturan/detail/2407/1. The temporary ban was revoked in May 2022.

[61] The negotiations for a PTA with Indonesia began in 2016 and are still ongoing. Meanwhile the EU commenced PTA negotiations with Mercosur as early as 1995. The latter negotiations halted in 2004 and resumed in 2016 with a political agreement concluded in June 2019. The EU–Mercosur PTA remains to be ratified at the time of writing this article (2024).

[62] See European Commission, EU–Indonesia SIA Final Report, n. 54 above. European Commission, *Sustainability Impact Assessment in Support of the Association Agreement Negotiations between the European Union and Mercosur: Final Report* (Publications Office of the European Union, 2020) (EU–Mercosur SIA Final Report), available at: https://circabc.europa.eu/ui/group/09242a36-a438-40fd-a7af-fe32e36cbd0e/library/abfa1190-59d1-4f59-93a5-9b9810d2b744/details.

[63] M. Follador et al., 'Brazil's Sugarcane Embitters the EU–Mercosur Trade Talks' (2021) 11 *Scientific Reports*, article 13768.

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past, cultivation has recently extended to the Cerrado region, one of the most threatened ecosystems in the world.[64]

In Indonesia, the conversion of tropical forests into monoculture oil palm plantations is considered the main environmental risk of increased palm oil production.[65] Deforestation as a result of palm oil production leads to significant loss of biodiversity.[66] It often occurs through the clearing of carbon-rich peat lands,[67] which releases higher levels of particulate matter and CO_2 emissions than other forests.[68] Conversion poses a risk of uncontrolled fires that may spread to and burn protected nature reserves. One cause of palm oil-related deforestation is the proliferation of smallholder palm oil farmers who are operating under unregistered or unauthorized concessions and concession holders cultivating more than their permits allow, and the lack of administrative and financial capacity in Indonesia to manage this.[69]

3. Analyzing the Shift Towards Harder Instruments for Sustainability

The EU's approach to promoting the environmental sustainability of the aviation biofuels sector has included several instruments. The emphasis has been shifting from internal to multilateral measures during the early 2000s, then to bilateral measures in the 2010s, and again towards various unilateral external instruments since the late 2010s.[70] We examine these shifts in emphasis through prominent examples from each approach and explain them by analyzing the hardness of the instruments and their environmental ambition.

3.1. The EU's Multilateral Approach on the Sustainability of Aviation Fuels: CORSIA

As a frontrunner in the development of biofuels, the EU, along with the US, was also among the first jurisdictions to confront the fact that its initial biofuels policies were not necessarily environmentally beneficial, and in several cases outright

[64] S. Filoso et al., 'Reassessing the Environmental Impacts of Sugarcane Ethanol Production in Brazil to Help Meet Sustainability Goals' (2015) 52 *Renewable and Sustainable Energy Reviews*, pp. 1847–56, at 1848.

[65] European Commission, EU–Indonesia SIA Final Report, n. 54 above, p. 182.

[66] J. Fry et al., *Study on the Environmental Impact of Palm Oil Consumption and on Existing Sustainability Standards* (Publications Office of the European Union, 2018), pp. 17, 19, 55–7.

[67] Ibid.

[68] Ibid., p. 17; European Commission, EU–Indonesia SIA Final Report, n. 54 above, p. 182.

[69] Ibid.

[70] S. Renckens, G. Skogstad & M. Mondou, 'When Normative and Market Power Interact: The European Union and Global Biofuels Governance' (2017) 55(6) *Journal of Common Market Studies*, pp. 1432–48. For key policy documents in the evolution see European Commission, Communication, 'Green Paper on the Impact of Transport on the Environment: A Community Strategy for 'Sustainable Mobility', 20 Feb. 1992; COM(92) 46 final; European Commission, Communication, 'An EU Strategy for Biofuels', 8 Feb. 2006, COM(2006) 34 final; European Commission, Proposal, 'Directive amending Directive 98/70/EC relating to the Quality of Petrol and Diesel Fuels and amending Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources', 17 Oct. 2012, COM(2012) 595 final.

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unsustainable.[71] After the turn of the millennium, the EU started to develop requirements on the net environmental impacts of this new product group,[72] and included them in its internal life-cycle assessment of biofuels. For reasons of environmental effectiveness and to establish a common framework for the EU and third country airlines, it was considered important to expand the regulation of the sustainability of biofuels towards multilateral and bilateral frameworks.

Various multilateral agreements to which the EU is a party have direct or indirect relevance for the sustainable production of biofuels.[73] For instance, the EU is party to the Kunming-Montreal Global Biodiversity Framework[74] as well as to the Paris Agreement,[75] which requires parties to undertake nationally determined contributions (NDCs) to reduce GHG emissions from domestic sources, including aviation.[76] Most importantly for SAF, in the Kyoto Protocol[77] to the United Nations Framework Convention on Climate Change (UNFCCC),[78] the ICAO was assigned the role of working on limiting GHGs from aviation in 1987. The EU has acted as an ad hoc observer and coordinated its Member States' activities within the ICAO. The EU participates in many ICAO initiatives aimed at controlling the aviation industry's GHG emissions. First and foremost, the EU has contributed to the creation of CORSIA,[79] which was established in 2016 after three decades of painstaking international negotiations.[80]

CORSIA aims for neutral carbon growth in the aviation sector. The scheme has three phases: the pilot phase (2021–23) and the first phase (2024–26) are voluntary, while the second phase (2027–35) is mandatory, except for certain exempted countries.[81] Aircraft operators from participating countries are required to offset CO_2

[71] Kupzok, n. 47 above.

[72] M.S. Jansson & H. Kalimo, 'On a Common Road Towards Sustainable Biofuels? EU and U.S. Approaches to Regulating Biofuels' (2014) 8(2) *Pittsburgh Journal of Environmental and Public Health Law*, pp. 104–59.

[73] E. Morgera, K. Kulovesi & A. Gobena, *Case Studies on Bioenergy Policy and Law: Options for Sustainability*, FAO Legislative Study 102 (Food and Agricultural Organization of the United Nations (FAO), 2009), available at: https://www.fao.org/4/i1285e/i1285e.pdf.

[74] United Nations Environmental Programme (UNEP), Conference of the Parties to the Convention on Biological Diversity, 'Kunming-Montreal Global Biodiversity Framework', Montreal (Canada), 19 Dec. 2022, UN Doc. CBD/COP/DEC/15/4, available at: https://www.cbd.int/doc/decisions/cop-15/cop-15-dec-04-en.pdf; see, e.g., Targets 1–3, 10, 14, 15.

[75] Paris Agreement, n. 36 above.

[76] Ibid., Art. 3; Climate Action Network (CAN) & International Coalition for Sustainable Aviation (ICSA), 'Joint Input to the Talanoa Dialogue on "Contribution of the Global Aviation Sector to Achieving Paris Agreement Climate Objectives"', 2018, available at: https://unfccc.int/sites/default/files/resource/156_CAN%20ICSA%20Aviation%20TD%20submission.pdf.

[77] Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto (Japan), 11 Dec. 1997, in force 16 Feb. 2005, available at: https://unfccc.int/resource/docs/convkp/kpeng.pdf.

[78] United Nations Framework Convention on Climate Change (UNFCCC), Rio de Janeiro (Brazil), 9 May 1992, in force 21 Mar. 1994, available at: https://unfccc.int.

[79] ICAO Assembly Resolution A39-3 (2016), as amended by ICAO Assembly Resolution A40-19 (2019).

[80] See European Parliament, Decision No. 377/2013, 'Derogating Temporarily from Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community' [2013] OJ L 113/1, Recs 5–6, 10.

[81] ICAO Assembly Resolution A39-3 (2016), n. 79 above, para. 9.

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emissions from international air traffic covered under CORSIA.[82] The offsetting obligations can be met by purchasing and cancelling offset or carbon credits in the carbon market or through the use of CORSIA-eligible fuel.[83] To count towards reducing offset obligations, the alternative aviation fuel must meet CORSIA's sustainability criteria, which include:[84] (i) achieving net GHG emissions reductions of at least 10% compared to the baseline emission values for aviation fuel on a life-cycle basis, and (ii) not be made from biomass obtained from ecosystems with high carbon stock (that is, obtained from land or aquatic ecosystems converted after 2008 that was for example, a forest, wetland or coral reef).[85]

Upon closer inspection, however, the EU's objective in developing CORSIA into an effective multilateral instrument to reduce emissions from aviation, protect the environment, and level the playing field through the use of SAF faces several challenges.[86] Admittedly, CORSIA scores from medium to high on all four qualities of hardness (Figure 1). As is explained in more detail in the summary in the Supplementary Materials Annex 1, CORSIA is a decision of the ICAO Assembly, a United Nations (UN) Agency with considerable authority, and thus creates a hard formal source of international law for the Member States. CORSIA defines the rules on calculating the amounts of offsets in hard, mandating language, but it applies only to emissions from airlines from 2020 onwards, is voluntary until 2027,[87] and does not prescribe the consequences of a failure of covered operators to comply with the offsetting requirements.[88] The implementation of CORSIA is delegated to the ICAO Council, which is an authoritative institution. The scope of its implementing tasks is quite broad, including updating the SAF sustainability rules.[89] Finally, the sectoral focus of CORSIA leads to highly accurate and specific rules from the viewpoint of SAF. This leads to an overall hardness score between medium and high (M–H) for CORSIA.

[82] There will be 126 states participating in CORSIA from 2024: ICAO, 'CORSIA States for Chapter 3 State Pairs', Oct. 2023, available at: https://www.icao.int/environmental-protection/CORSIA/Documents/CORSIA%20States%20for%20Chapter%203%20State%20Pairs_4Ed_rev_web.pdf.

[83] ICAO, 'Annex 16 to the Convention on International Civil Aviation: Environmental Protection', Vol. IV (ICAO, 2023), paras 2.2.4.1 and 4.2, available at: https://elibrary.icao.int/product/229739.

[84] See ICAO, 'CORSIA Sustainability Criteria for CORSIA Eligible Fuels', 2022, available at: https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Eligible-Fuels.aspx.

[85] The baseline of the EU ETS is 95% of average 2004–06 emissions, while CORSIA will require only compensation of future annual emissions based on the percentage increase of sectoral emissions on a given year vis-à-vis the 2019–20 average on the routes covered by CORSIA during the pilot phase: ICAO, n. 83 above, para. 3.2.

[86] See ICF Consulting et al., 'Assessment of ICAO's Global Market-based Measure (CORSIA) pursuant to Article 28b and for Studying Cost Pass-through pursuant to Article 3d of the EU ETS Directive', European Commission, Sept. 2020, available at: https://www.transportenvironment.org/wp-content/uploads/2021/03/Ares20211459392.pdf.

[87] ICAO Assembly Resolution A40-19, n. 79 above, paras 9–11.

[88] Ibid., para. 19f.

[89] Ibid., e.g., paras 6, 9, 17, 19, 21.

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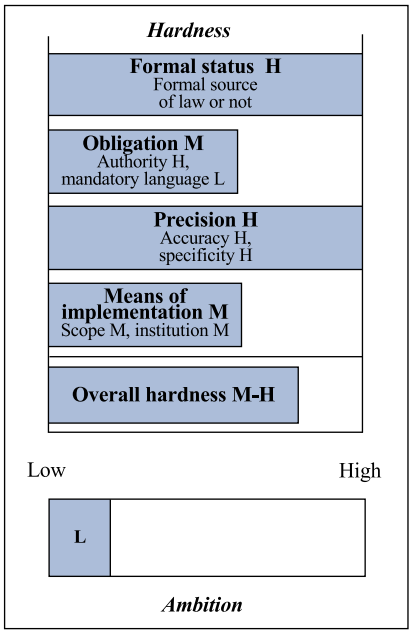

Figure 1. The Hardness and Ambition of CORSIA in Governing the Sustainability of Aviation Fuels

CORSIA's superficially high score on hardness, however, is largely undermined by the very low level (L) of ambition of this multilateral instrument. The ICAO's GHG emissions reduction threshold for CORSIA-eligible fuel is only 10%.[90] While some argue that fuels fulfilling this requirement may help to reduce aviation emissions significantly, the Intergovernmental Panel on Climate Change (IPCC) has found that it is not sufficient to meet the global climate change mitigation goals, and the threshold is very modest compared with the EU's current RED III target of up to 70%.[91] CORSIA allows for a wide range of fuels with limited GHG emissions reduction potential, such as various palm oil, sugarcane, and soybean-based production pathways.[92] The European Commission, too, recognizes CORSIA's limitations but acknowledges also that a global instrument would be needed to complement the narrow scope of the EU emissions trading system (ETS). The ETS sets price incentives for SAF but only for intra-European Economic Area (EEA), Swiss, and British flights. CORSIA offsets meanwhile will apply to emissions from EU-based airlines for international flights.[93]

[90] See n. 84 above.

[91] M. Prussi et al., 'CORSIA: The First Internationally Adopted Approach to Calculate Life-Cycle GHG Emissions for Aviation Fuels' (2021) 150 *Renewable and Sustainable Energy Reviews*, article 111398; Pathak et al., n. 34 above, pp. 132–3.

[92] M. Prussi et al., n. 91 above, pp. 5–6.

[93] See Directive (EU) 2023/958 amending Directive 2003/87/EC as regards Aviation's Contribution to the Union's Economy-Wide Emission Reduction Target and the Appropriate Implementation of a Global Market-Based Measure [2023] OJ L 130/115, Rec. 15 and Art. 1(2).

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The adequacy of CORSIA will not be reviewed before the next ICAO Assembly, in 2025.[94]

The development of multilateral policies to promote the sustainability of aviation fuels has so far proved slow and lacking in ambition. In addition to CORSIA, other multilaterals and soft instruments on forestry and nature conservation have not made progress that would significantly contribute to the sustainability of aviation fuels. There is still no international convention on forest protection today, for example, leaving the sector at a 'diffuse state of governance'.[95] The European Commission was also unable to reach an international consensus on a legal distinction between sustainable and non-sustainable biofuels in the WTO Doha negotiations.[96]

3.2. The Bilateral Approach: EU PTAs with Indonesia and Mercosur on the Promotion of the Sustainability of Aviation Fuels

The failure of the EU to make progress in multilateral fora have led it to use its economic leverage in bilateral trade and investment policy, particularly in PTAs, to promote sustainability.[97] The EU has the largest number of PTAs,[98] and a chapter dedicated to TSD has become a standard part of the EU trade agreements since the EU–Korea Agreement in 2011.[99] These 'deep' trade agreements have been thought to offer a promising avenue for promoting sustainable biofuels.[100] We next analyze the hardness and ambition of the EU PTAs with the major SAF-producing countries, Brazil (in the framework of Mercosur) and Indonesia.[101]

[94] C. Ernhede, 'EU Deal on Aviation Emissions Gives "Last Chance" to CORSIA', *ENDS Europe*, 7 Dec. 2022, available at: https://www.endseurope.com/article/1807548/EU–deal-aviation-emissions-gives-last-chance-corsia.

[95] E. Roessing Neto, 'The Relevance of Transnational Law-Making by Non-Sovereign Actors: A Study of Two Cases of Rulemaking on REDD+' (Ph.D. Thesis, Vrije Universiteit Brussels (Belgium), Sept. 2022), pp. 104, 114–8.

[96] Poletti & Sicurelli, n. 18 above, p. 257; T. Joslin, D. Bradford & J. Early, 'Biofuel and Biomass Subsidies in the U.S., EU and Brazil: Towards a Transparent System of Notification', The International Food and Agriculture Policy Council (IPC), Jan. 2010.

[97] E. Cima, 'Promoting Renewable Energy Through FTAs? The Legal Implications of a New Generation of Trade Agreements' (2018) 52(4) *Journal of World Trade*, pp. 663–95.

[98] As at Feb. 2023, 78 PTAs are in place or are provisionally applied: European Commission, 'Negotiations and Agreements', available at: https://policy.trade.ec.europa.eu/EU–trade-relationships-country-and-region/negotiations-and-agreements_en.

[99] See European Commission, 'South Korea: EU Trade Relations with South Korea. Facts, Figures and Latest Developments', available at: https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/south-korea_en. The Agreement has applied provisionally since 2011 and was formally ratified in 2015. Prior to this, the EU–Cariforum (2008) and the EU–Pacific States (2009) Economic Partnership Agreements already included a part on 'trade partnership for sustainable development'.

[100] Poletti & Sicurelli, n. 18 above, p. 258; A. Mattoo, N. Rocha & M. Ruta, 'Overview: The Evolution of Deep Trade Agreements', in Mattoo, Rocha & Ruta, n. 8 above, pp. 1–44, at 3.

[101] I. Bastiaens & E. Postnikov, 'Greening Up: The Effects of Environmental Standards in EU and US Trade Agreements' (2017) 26(5) *Environmental Politics*, pp. 847–69.

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The environmental commitments in the versions of the EU–Indonesia PTA (under negotiation) and EU–Mercosur PTA (under adoption/ratification)[102] available at the time of writing (June 2024) revolve largely around similar themes. On 6 December 2024, the EU and Mercosur did, however, conclude the discussions that had been on hold since 2019. A brief analysis of the added, substantively modest amendments is available as a postscript at the end of this article (Section 6).

The draft TSD chapters of the agreements are formal sources of law and establish a broad understanding to integrate sustainable development into the trade relationship. The provisions of the TSDs are mostly cross-cutting, with a general commitment to improve environmental protection 'so as to reach a high and effective level'.[103] Although there are multiple provisions of relevance to the sustainability of SAF and their trading and investments, the texts do not contain explicit references to biofuels or to SAF. The most relevant provisions relate, in particular, to the sustainable management of forests and deforestation,[104] biodiversity,[105] the minimization of technical barriers to trade,[106] the promotion of trade and investment in environmental goods,[107] and open-ended requirements on the parties to exchange information and cooperate on, for instance, trade-related climate issues and multilateral environmental agreements (MEAs).[108] The article on trade and sustainable management of forests[109] is important for SAF as it addresses deforestation caused by increasing cultivable land for SAF feedstock.[110] It is mandating in its language. However, the PTAs do not mandate specific targets or modifications in domestic law.[111] On the contrary, the TSD chapters leave it to the discretion of *both* parties to determine their own standards of

[102] Rumours regarding a 'Joint Agreement', which was being negotiated as a sustainability-enhancing add-on to the agreed text, emerged in 2023 (see C. Ernhede, 'Commission under Fire over Green "Add-On" to EU–Mercosur Deal', *ENDS Europe*, 13 June 2023, available at: https://www.endseurope.com/article/1826198/commission-fire-green-add-on-EU–mercosur-deal). The outcome of the negotiations includes the Annex to the TSD Chapter and the new Articles on Climate Change and on the Fulfilment of Obligations, which were published on 6 Dec. 2024 and are briefly analyzed in the Postscript (Section 6).

[103] EU–Mercosur TA, TSD Chapter, Art. 2(2); EU–Indonesia TA Proposal, Draft TSD Chapter, 29 May 2017, Art. X.2(2).

[104] EU–Mercosur TA, TSD Chapter, Arts 8, 13; EU–Indonesia TA Proposal, Draft TSD Chapter, Arts X.6(2)(c), X.7.

[105] EU–Mercosur TA, TSD Chapter, Arts 7, 13(l); EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.6.

[106] EU–Mercosur TA, TSD Chapter, Art. 10; EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.10(2)(b).

[107] EU–Mercosur TA, TSD Chapter, Art. 12(1)(b); EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.10(2)(b).

[108] EU–Mercosur TA, TSD Chapter, Arts 5(4)–(5), 7(3), 8(3)(a)–(b), 12(b)–(c); EU–Indonesia TA Proposal, Draft TSD Chapter, Arts A.4(3)–(4), X.5(2)(c), X.6(2)(d)–(e), X.7(2)(c)–(d), X.9(4), X.10(2)(d).

[109] EU–Mercosur TA, TSD Chapter, Art. 8; EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.7.

[110] EU–Mercosur TA, TSD Chapter, Art. 8(2)(c); EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.7(2)(b).

[111] J. Orbie et al., 'Promoting Sustainable Development or Legitimising Free Trade? Civil Society Mechanisms in EU Trade Agreements' (2016) 1(4) *Third World Thematics: A TWQ Journal*, pp. 526–46, at 530.

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protection when striving 'towards higher levels of environment protection', as long as they are consistent with the commitments of MEAs that the parties have ratified.[112]

Article 8(2)(a) of the EU–Mercosur PTA, on the other hand, sets in mandating terms a requirement to encourage trade in products from sustainably managed forests, natural resource-based products contributing to the conservation of biodiversity,[113] and more generally products 'that contribute to enhanced … environmental conditions'.[114] These provisions would concern SAF,[115] but Article 8(2)(a) defines the sustainable management of forests on the basis of 'the law of the country of harvest'. The level of ambition in the domestic standards in some respects may be considered lower than those in the EU.[116] The precision of the provision thus works *against* the objective of sustainability, potentially with the unintended consequence of promoting alternative fuels of poorer environmental quality defined in the domestic law of the exporter. Indeed, as EU PTAs aim at promoting trade, their TSD chapters do not tend to contain market access restrictions on unsustainable products such as the results of illegal forest conversion. Parties are encouraged only to cooperate in transparent private or public certification schemes,[117] such as the International Roundtable on Sustainable Palm Oil (RSPO) or the Indonesian Sustainable Palm Oil (ISPO),[118] which have been criticized by environmental civil society organizations (CSOs) for not being effective in combating deforestation and loss of forest cover in peatlands.[119]

The EU–Mercosur and EU–Indonesia PTAs are softer in terms of their accuracy and specificity. Their approach is cooperative and does not define a particular conduct or

[112] EU–Mercosur TA, TSD Chapter, Art. 2(1)–(2); EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.2(1)–(2).

[113] The phrase 'which contribute to combatting deforestation' is in the EU–Indonesia TA Proposal only; EU–Mercosur TA, TSD Chapter, Art. 7(2)(c); EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.6(c).

[114] EU–Mercosur TA, TSD Chapter, Art. 12(1)(b).

[115] Ibid., Art. 12(1)(b).

[116] Roessing Neto, n. 95 above. See M. Sotirov et al., 'Policy Options to Regulate Timber and Agricultural Supply-Chains for Legality and Sustainability: The Case of the EU and Brazil' (2022) 144 *Forest Policy and Economics*, article 102828. E.g., private forested areas can be deforested legally under Brazil's 2012 Native Vegetation Protection Law (Lei no 12.651, 25 May 2012, unofficial English translation available at: https://www.gov.br/mj/pt-br/acesso-a-informacao/atuacao-internacional/legislacao-traduzida/lei-no-12-651-de-25-de-maio-de-2012-senasp_eng-docx.pdf), while the EU Deforestation Regulation (n. 143 below) precludes access to products even from legally deforested areas.

[117] EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.13(i); EU–Mercosur TA, TSD Chapter, Art. 13(o).

[118] Z. Anderson et al., 'Green Growth Rhetoric versus Reality: Insights from Indonesia' (2016) 38 *Global Environmental Change*, pp. 30–40.

[119] See R. Kusumaningtyas, 'External Concerns on the RSPO and ISPO Certification Schemes', Profundo: Research & Advice, 21 Jan. 2018, available at: https://www.foeeurope.org/sites/default/files/EU–us_trade_deal/2018/report_profundo_rspo_ispo_external_concerns_feb2018.pdf; Environmental Investigation Agency (EIA), 'Indonesia's President Halts Signing of Weak Palm Oil Regulation and Stops New Plantations', *EIA*, 28 Sept. 2018, available at: https://milieudefensie.nl/actueel/report-rspo-ispo-external-concerns.pdf.

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result *ratione materiae*, which differs significantly from the sanction-based trade agreements of the US.[120]

As for the means of implementation as a quality of hardness in our taxonomy, PTAs delegate enforcement authority through the establishment of a TSD sub-committee.[121] Other implementation measures include the establishment of Contact Points and Expert Panels for dispute settlement.[122] The enforcement mechanisms in the EU–Indonesia and EU–Mercosur PTAs do not include the suspension of trade concessions or the use of economic sanctions.[123] This is in line with the EU's general approach, which so far has been different from most trade agreements of the US, which contain sanctions for non-compliance with environmental provisions.[124] Thus far, in EU PTAs the settlement of environmental disputes has remained confined to diplomatic means (such as amicable settlements and conciliation).[125] However, based on the TSD review,[126] the EU approach may be changing. The EU's most recent trade agreement (with New Zealand)[127] enables the use of sanctions to enforce its environmental provisions, such as those related to the Paris Agreement on Climate Change.

In the absence of sanctions in the TSD chapters of the Mercosur and Indonesia PTAs, CSOs are a particularly important group in the implementation of PTAs.[128] Civil society groups can mobilize and exert political pressure on their governments to step up the implementation of environmental standards, thus directly influencing the hardness of the commitments through a form of delegated authority. Local and global

[120] See Trade Promotion Agreement between the United States of America and Peru, in force 1 Feb. 2009, Annex 18.3.4, available at: https://ustr.gov/trade-agreements/free-trade-agreements/peru-tpa/final-text. See also M. Condon, 'The Integration of Environmental Law into International Investment Treaties and Trade Agreements: Negotiation Process and the Legalization of Commitments' (2015) 33(1) *Virginia Environmental Law Journal*, pp. 102–52, at 113; S. Jinnah & F. Morin, *Greening Through Trade: How American Trade Policy is Linked to Environmental Protection Abroad* (The MIT Press, 2020), p. 163.

[121] EU–Mercosur TA, TSD Chapter, Art. 14(3)(a). See a similar provision in EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.14. The Sub-Committee has the dedicated task of monitoring and facilitating the implementation of the TSD chapter, to settle disputes, and to address any other issues as may be agreed by the parties.

[122] EU–Mercosur TA, TSD Chapter, Art. 14(5); EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.14(4).

[123] P. Van den Bossche & M. Lewis, 'What To Do When Disagreement Strikes? The Complexity of Dispute Settlement under Trade Agreements', in S. Frankel & M. Kolsky Lewis (eds), *Trade Agreements at the Crossroads* (Routledge, 2014), pp. 9–25.

[124] Bastiaens & Postnikov, n. 101 above, p. 848. The effectiveness and desirability of the sanctions is also contested; see, e.g., K. Hradilová & O. Svoboda, 'Sustainable Development Chapters in the EU Free Trade Agreements: Searching for Effectiveness' (2018) 52(6) *Journal of World Trade*, pp. 1019–42.

[125] S. Jinna & E. Morgera, 'Environmental Provisions in American and EU Free Trade Agreements: A Preliminary Comparison and Research Agenda' (2013) 22(3) *Review of European, Comparative & International Environmental Law*, pp. 324–39.

[126] European Commission, Communication, 'The Power of Trade Partnerships: Together for Green and Just Economic Growth', 22 June 2022, COM(2022) 409 final.

[127] Free Trade Agreement between the European Union and New Zealand [2024] OJ L 2024/866, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202400866#page=1.

[128] M. Bronckers & G. Gruni, 'Retooling the Sustainability Standards in EU Free Trade Agreements' (2021) 24(1) *Journal of International Economic Law*, pp. 25–51.

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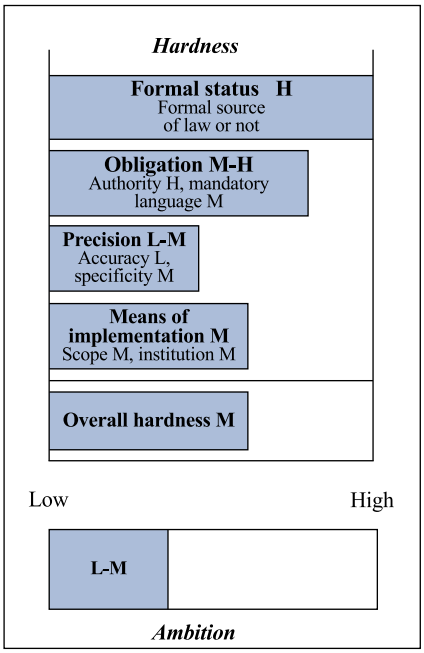

Figure 2. The Hardness and Ambition of the EU–Mercosur PTA in Governing the Sustainability of Aviation Fuels

CSOs drew critical attention to environmental issues relating to biofuels during the EU–Mercosur and EU–Indonesia PTA negotiations.[129] Both the EU–Indonesia and EU–Mercosur agreements[130] include CSOs in the consultations of the TSD sub-committees and through the domestic advisory groups,[131] although impediments remain, such as direct access to the complaints.[132] The limited role delegated to civil society in the PTAs continues to be criticized.[133]

All in all, the hardness of the TSD chapters of the analyzed bilateral PTAs is only at medium level (M) as regards promoting the sustainability of SAF (Figure 2). Our findings are in line with the European Commission's own review of the EU's TSD.[134] PTAs are hard in terms of the authority of the parties, but only moderately mandating and precise regarding the fulfilment of the provisions on sustainability objectives of MEAs[135] or new commitments relating to the sustainability of aviation fuels, such as

[129] See, e.g., Civil Society Statement on the EU–Indonesia Comprehensive Economic Partnership Agreement Statement, 16 Apr. 2018, available at: https://igj.or.id/2018/04/06/civil-society-statement-on-the-eu-indonesia-comprehensive-economic-partnership-agreement-cepa/?lang=en.

[130] EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.14. The EU–Indonesia TA Proposal, Draft TSD Chapter also contemplates establishing a body with similar functions.

[131] EU–Mercosur TA, TSD Chapter, Arts 16, 17.

[132] EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.14(3)(e); EU–Mercosur TA, TSD Chapter, Art. 14(3)(c).

[133] D. Potjomkina, J. Orbie & J. Shahin, 'Forging Their Path in the Brussels Bubble? Civil Society Resistance within the Domestic Advisory Groups Created under the EU Trade Agreements' (2020) 36(3) *Cambridge Review of International Affairs*, pp. 352–71.

[134] Ibid.

[135] EU–Mercosur TA, Draft TSD Chapter, Arts 4–8, 11.

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addressing the challenges of cultivating feedstock and processing aviation fuels. SAF-specific rules might be economically and environmentally justifiable, but prescriptive requirements for the dynamic sector of SAF[136] do not seem workable in the PTA framework. The hardening of the requirements may also be precisely what Indonesia and Mercosur have been resisting to accept as, in their view, extraterritorial measures.[137] The hardness of the means of implementation is also only moderate, with gaps in the participation of societal stakeholders and with no access to the PTAs' general dispute settlement system or sanctions as a penultimate tool.[138] All this leaves PTAs with an overall hardness (M) that is slightly below that of multilateral CORSIA (M– H), while the level of ambition (L–M) is slightly higher than that of CORSIA (L). The moderate scores on multilateral and bilateral instruments on SAF are indicative of the shift in EU trade policy to seek harder and more ambitious measures through unilateral instruments.

3.3. Towards a Unilateral Approach on More Sustainable Aviation Fuels: ReFuelEU

Given the shortcomings of the multi- and bilateral instruments on SAF, the EU is shifting its focus in SAF from multi- and bilateral instruments towards unilateral trade measures. Although the EU has taken unilateral policy measures relevant for aviation fuels since the emergence of the sector,[139] recently there has been a surge in such measures. The increase resonates with the unilateral undertone in the European Commission's 'assertive and sustainable trade policy' strategy announced in early 2021,[140] which extends to proposals that address environmental sustainability beyond EU borders. Examples of environmental policies with extraterritorial reach include the Carbon Border Adjustment Mechanism (CBAM),[141] the Corporate Sustainability Due Diligence Directive (CSDD Directive),[142] the Deforestation Regulation,[143] as well as the ReFuelEU Regulation.[144] We focus here on the latter two.

The ReFuelEU Regulation is a formal source of EU law. Its main aim is to 'level the playing field' in aviation fuels[145] and, relying on the sustainability criteria in

[136] Consider, e.g., the completely new generation of 'e-fuels'; see P. Schmidt et al., 'Power-to-Liquids as Renewable Fuel Option for Aviation: A Review' (2018) 90(1–2) *Chemie Ingenieur Technik*, pp. 127–40; ReFuelEU Regulation, n. 21 above.

[137] Interview with Commission Official, Directorate General International Partnerships, 5 Mar. 2021; I. Borchert et al., 'The Pursuit of Non-Trade Policy Objectives in EU Trade Policy' (2021) 20(5) *World Trade Review*, pp. 623–47.

[138] Bronckers & Gruni, n. 128 above.

[139] See n. 69 above.

[140] European Commission, EU Trade Policy Review, n. 2 above.

[141] Regulation (EU) No. 2023/956 establishing a Carbon Border Adjustment Mechanism (CBAM) [2023] OJ L 130/52.

[142] Directive (EU) 2024/1760 on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859 (CSDD Directive), OJ L 2024/1760.

[143] Regulation (EU) No. 2023/1115 on the Making Available on the Union Market as well as Export from the Union of Certain Commodities and Products Associated with Deforestation and Forest Degradation and repealing Regulation (EU) No. 995/2010 (Deforestation Regulation) [2023] OJ L 150/1.

[144] ReFuelEU Regulation, n. 21 above.

[145] Ibid., Rec. 13.

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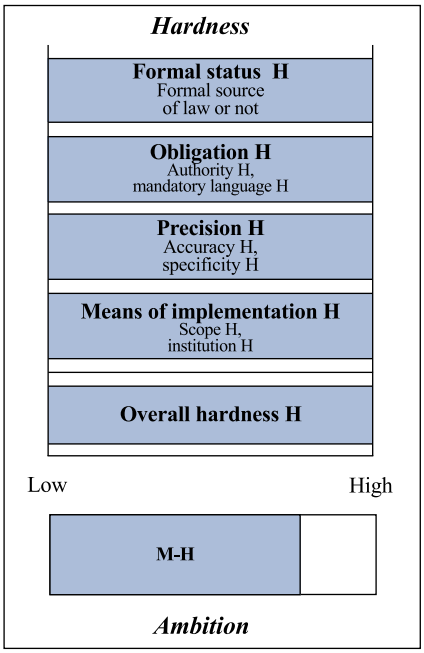

Figure 3. The Hardness and Ambition of the ReFuelEU Regulation in Governing the Sustainability of Aviation Fuels

RED II,[146] to ambitiously increase the share of SAF for airlines refuelling in the EU from the current very modest 0.05% to 70% by 2050.[147] The Regulation excludes some feedstocks, including palm and soy-derived materials.[148] The mandatory requirements of the ReFuelEU Regulation extend beyond the sustainability criteria of the fuels and cover, for example, aircraft refuelling to prevent the unsustainable practice of 'fuel tankering',[149] as well as SAF infrastructure that is to be made available.[150] The ReFuelEU Regulation thus is hard in terms of its obligation and precision. The Regulation is also hard in its means of implementation, assigning various supervisory tasks[151] to the European Union Aviation Safety Agency, which was established for this sector.[152] The ReFuelEU Regulation imposes multiple mandating unilateral requirements that affect third-country SAF producers as well as airlines operating from EU airports, reaching a very high level of hardness (see Figure 3).

[146] RED II, n. 47 above, Art. 2(2)(34); as well as biofuels produced from feedstock listed in Annex IX, Part B in compliance with RED II, Art. 29(2)–(7). The logic remains similar in RED III, n. 17 above, which amends RED II.
[147] ReFuelEU Regulation, n. 21 above, Art. 4.
[148] Ibid., Art. 4(5).
[149] Ibid., Art. 5. On 'fuel tankering' see Recs. 5, 28.
[150] Ibid., Recs. 32–3, Arts 6(1), 7.
[151] Ibid., Rec. 27, Arts 5–11, 13.
[152] Regulation (EU) No. 2018/1139 of the European Parliament and of the Council on Common Rules in the Field of Civil Aviation and Establishing a European Union Aviation Safety Agency ('EASA') [2018] OJ L 212/1.

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The Deforestation Regulation is another illustrative unilateral measure. Unlike RED II and the ReFuelEU Regulation, which promote the sales of certain (sustainable) aviation fuels, it sets general sustainability requirements that forestry-related products need to fulfil to access the EU market. It would further tighten and broaden the rules of the EU Timber Regulation regarding sustainable supply chains in forestry-related products.[153] The Deforestation Regulation targets selected deforestation-related commodities, including feedstock that are sources of aviation biofuels, namely palm oil and soy. Because the Regulation also covers products derived from these commodities, it could in principle apply to SAF. However, only the derivates specifically listed in Annex I fall within the scope of the Regulation. At the end of the political process, SAFs made from soy or palm oil were not included in the list, but the European Commission is to 'pay specific attention to the potential inclusion of biofuels … in Annex I' during the mandatory review of the law by July 2025.[154] Companies importing into the EU face a hard *obligation* to conduct due diligence and risk evaluations and to apply certification standards for forest-risk commodities.[155] They will also have to mitigate negative impacts through audits, satellite monitoring, and isotope testing.

Should the prospect of adding SAF to Annex I of the Deforestation Regulation materialize, the specificity and accuracy of the rules would be very high, albeit substantively somewhat narrow as they focus on the cultivation and harvesting phases and ignore various sustainability aspects along the value chain. A digital system is being put in place to record relevant information, such as the satellite-monitored geographical location of each plot of land where the products have been produced,[156] which is provided by the companies themselves.[157] The Member States' competent authorities have been designated with specific tasks in implementing the law in conducting inspections and penalizing offenders.[158] The European Commission unilaterally assesses and ranks the countries importing into the EU as constituting a low, standard or high risk for forest degradation and deforestation.[159] In sum, the unilateral Deforestation Regulation is a hard instrument. It is worded somewhat narrowly but precisely in accurate and mandating terms, and it delegates multiple

[153] European Commission, 'Deforestation and Forest Degradation: Reducing the Impact of Products Placed on the EU Market', available at: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12137-Deforestation-and-forest-degradation-reducing-the-impact-of-products-placed-on-the-EU–market_en. The initiative originates from a Resolution of the European Parliament: European Parliament, 'Recommendations to the Commission on Corporate Due Diligence and Corporate Accountability' (Resolution on CSDD) 2020/2129(INL)), and a legislative initiative report by its ENVI Committee: European Parliament, 'An EU Legal Framework to Halt and Reverse EU–Driven Global Deforestation', 10 Sept. 2020, available at: https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/658207/IPOL_BRI(2020)658207_EN.pdf.

[154] Deforestation Regulation, n. 143 above, Art. 34 and Annex I, which thus currently does not include the 'CN' (Combined Nomenclature) code 382600 of SAF. See also European Commission, 'Guidance Document for Regulation (EU) 2023/1115 on Deforestation-Free Products', available at: https://green-business.ec.europa.eu/deforestation-regulation-implementation/scope_en.

[155] Deforestation Regulation, n. 143 above, Arts 3–5, 8–10.

[156] Ibid., Art. 9.

[157] Ibid., Arts 9, 33.

[158] Ibid., Arts 16–9, 23–5.

[159] Ibid., Art. 29.

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implementation tasks on competent authorities. This leads to an overall score of H. The Regulation aims at a level of protection that approaches high (M–H).

The CSDD Directive is another unilateral measure on human rights and the environment.[160] Although not specific to SAF feedstock, it would increase the hardness of SAF governance in many respects. The CSDD Directive imposes EU due diligence requirements[161] on the environment extraterritorially, and with specificity and accuracy. The requirements apply to EU and third-country companies that meet certain financial thresholds as regards their operations and the operations of their subsidiaries and supply chains.[162] Member States are given various supervisory and enforcement tasks in implementing the law, including the power to carry out investigations and impose penalties[163]

4. Conceptualizing the EU's Current Approach to Flexilateralism

Our analysis of the SAF case study illustrates a trend in EU trade policy from multilateral and bilateral measures of moderate hardness and low environmental ambition towards harder and more ambitious unilateral measures. The observations provide initial insights into the instruments' complementarity and underpin their conceptualization.

4.1. Complementarity of the Unilateral, Bilateral, and Multilateral Instruments

The eventual unilateralization of EU policies is, in fact, unlikely to pre-empt multilateral and bilateral approaches. Because the instruments' level of hardness and ambition vary, combining the uni-, bi-, and multilateral instruments in appropriate policy mixes can complement their hardness and ambition in the aggregate. Sometimes this complementarity is explicitly provided for in the instruments. For example, the ReFuelEU Regulation specifically refers to CORSIA and multilateral and bilateral air transport agreements, although the latter do not contain binding requirements on the use of SAF.[164] In other words, the unilateral measure is presented as complementary to the multi- and bilateral approaches.

Instruments can be interrelated as well as complementary. As shown, PTAs can consolidate the role of domestic law (such as RED II[165] and III[166]) in the international context by confirming the regulatory autonomy of the parties. The binding nature of the EU's internal environmental requirements and the right to base them on the precautionary principle[167] are explicitly supported by the language of the PTAs, even if there were no explicit agreement on sustainability criteria for biofuels, nor specific

[160] CSDD Directive, n. 142 above.
[161] Ibid., Arts 5–16.
[162] Ibid., Arts 1–2.
[163] Ibid., Arts 24–6.
[164] ReFuelEU Regulation, n. 21 above, Rec. 11.
[165] RED II, n. 47 above.
[166] RED III, n. 17 above.
[167] EU–Mercosur TA, TSD Chapter, Art. 10(2); EU–Indonesia TA Proposal, Draft TSD Chapter, Art. X.11.

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preference for advanced biofuels in the PTAs. SAF imported from the PTA partner country into the EU must meet the EU's unilateral sustainability criteria. Otherwise, they will not count towards the EU's renewable energy targets, which would make the SAF considerably less attractive as imports, despite the PTA. In this sense, the unilateral instrument serves to harden the bilateral instrument. Similarly, domestic EU measures as well as PTAs can be made more precise as regards the sustainability of aviation fuels by coordinating them with multilateral instruments. International standards[168] and voluntary partnership agreements are a practical example:[169] The agreements between the EU and its trading partners under the Timber Regulation[170] offer benchmarks for the sustainability of biofuels feedstocks.

Interaction in the opposite direction is also possible. For instance, the draft EU–Mercosur PTA includes a requirement for Brazil to cooperate in the implementation of the multilateral CORSIA.[171] The explicit reference to the ability of a party (the EU) to determine the level of protection domestically reinforces such party's right to adopt its desired level of protection under the WTO dispute settlement system.[172]

All in all, we observe that unilateral, bilateral, and multilateral instruments do not evolve in isolation; they complement and influence one another. The bar charts in Figure 4 visualize the divergence in the qualities of hardness and ambition between them, while the arrows illustrate the interactions between the approaches.

4.2. Flexilateralism in State-to-State Relations

The observations on the coexistence and interrelationships between unilateral, bilateral, and multilateral measures move us from the analytical argument to our conceptual argument: we propose calling the simultaneous application of unilateral, bilateral, and multilateral instruments 'flexilateralism'. Our conceptualization of the EU trade instruments on SAF as flexilateralist aligns with Faure's study on French defence policy.[173] We thus extend Faure's application of flexilateralism vertically from the national to the EU level and horizontally from defence to trade and environmental policy.

We also propose to further refine the concept of flexilateralism. The concept denotes an approach where neither multilateralism nor bilateral or unilateral actions are given initial priority. Flexilateralism thus differs from emphasis on multilateralism, where – as a matter of principle – priority is given to multilateral measures, including

[168] K. Heyl et al., 'Free Trade, Environment, Agriculture, and Plurilateral Treaties: The Ambivalent Example of Mercosur, CETA, and the EU–Vietnam Free Trade Agreement' (2021) 13(6) *Sustainability*, article 3153.

[169] A. Marx, N. Brando & B. Lein, 'Strengthening Labour Rights Provisions in Bilateral Trade Agreements: Making the Case for Voluntary Sustainability Standards' (2017) 8(S3) *Global Policy*, pp. 78–88.

[170] Regulation (EU) No. 995/2010 on Laying Down the Obligations of Operators Who Place Timber and Timber Products on the Market [2010] OJ L 295/23.

[171] EU–Mercosur TA, TSD Chapter, Arts. 6(2)–(3). See also Bronckers & Gruni, n. 128 above, pp. 26–9.

[172] See *European Communities – Measures Affecting Asbestos and Asbestos-Containing Products*, Report of the Appellate Body, WT/DS135/AB/R, 12 Mar. 2001, para. 101.

[173] Faure, n. 13 above.

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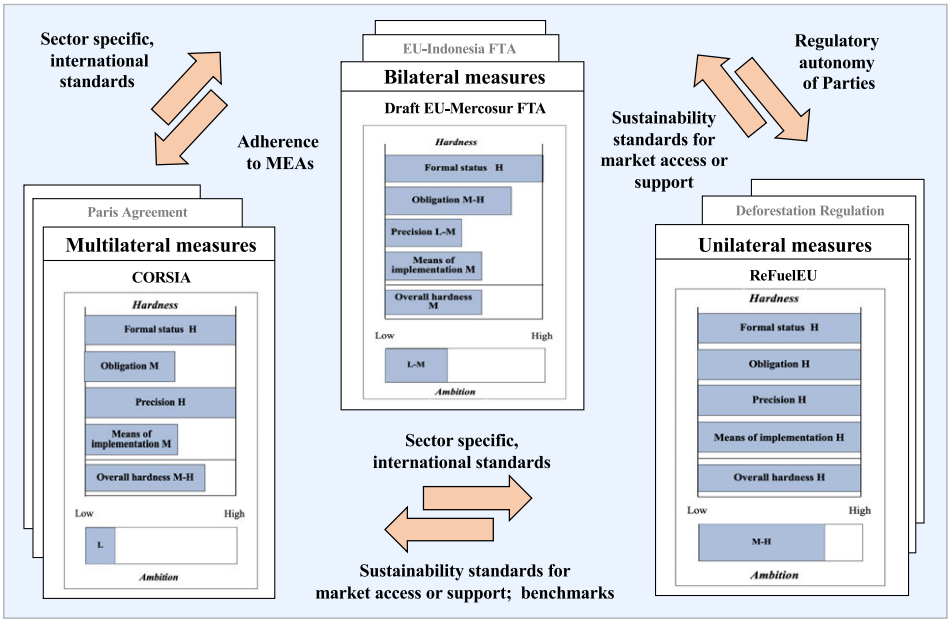

Figure 4. Multi-, Bi-, and Unilateral Approaches Complementing Each Other's Softness in Policies Governing the Sustainability of Aviation Fuels

the elements of coordination and adherence to common principles of conduct, or bilateralism where – as a matter of principle – priority is given to bilateral means.[174] Conversely, flexilateralism is based on the actor's ability and desire to reach their policy objective in the best possible way. The concept therefore covers any combination of multi-, bi-, and unilateralist instruments, provided that such a combination is most likely to achieve the desired outcome.

This conceptualization of flexilateralism is visualized as a triangle in Figure 5. The corners of the triangle represent the number of collaborating states in their external relations – that is, the unilateral, bilateral, and multilateral emphases. The external policy approach of a flexilateral actor is not restricted to any of the triangle's corners, which represent approaches as mutually exclusive. Nor is the flexilateral approach limited to moving along the edges between the corners, as the shift from multilateralism (CORSIA) towards bilateralism (PTAs) (Figure 5, Arrow 1), or from bilateralism towards unilateralism (ReFuelEU Regulation) (Figure 5, Arrow 2) might suggest at first glance. A flexilateral approach, over time, is close to the centre, consisting of a pragmatic combination of available uni-, bi-, and multilateral instruments.[175] The variety in the combinations reflect the effectiveness of alternative governance structures and policy priorities in changing political-economic

[174] J. Ruggie, 'Multilateralism' (1992) 46(3) *International Organization*, pp. 561–98, at 566–7; A. Nollkaemper, 'Unilateralism/Multilateralism' (2011) *Max Planck Encyclopedia of Public International Law*, para. 38.

[175] F. Hoffmeister, 'Strategic Autonomy in the EU's External Relations Law' (2023) 60(3) *Common Market Law Review*, pp. 667–700.

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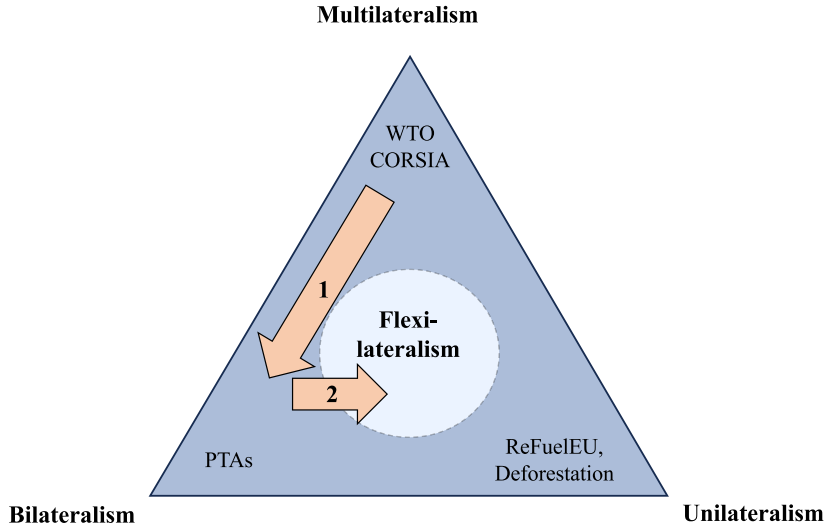

Figure 5. The EU Policy Approach in Aviation Fuels: Towards a Flexilateral Trade Policy

circumstances. In fact, we suppose that purely unilateral, bilateral or multilateral approaches are rather rare in complex policy fields, while flexilateralism is a frequent phenomenon.

This flexilateral framing expands the literature, which has mainly described the EU's external policies at bilateral, regional, and multilateral levels, but excludes the unilateral level from the analysis.[176] Flexilateralism also differs from the views of EU authorities and observers, who define unilateral instruments as a part of the multilateral approach, but are used as a last resort if multilateral attempts fail.[177] Flexilateralism could engage unilateral instruments at any stage. The difference between multilateralism and flexilateralism is subtle, but important.

4.3. The Role of Non-state Actors: A Future Research Agenda

We also see an important future research agenda in the 'lateralisms', in particular, regarding what in diplomatic studies and in some trade policy commentaries has been defined as 'polylateralism'.[178] These authors conceptualize polylateralism as the engagement of civil society in external trade relations, a terrain previously monopolized by sovereign states.

[176] Renard, n. 1 above; J. Scott & L. Rajamani, 'EU Climate Change Unilateralism' (2012) 23(2) *European Journal of International* Law, pp. 469– 94.

[177] Hoffmeister, n. 175 above; EU Trade Policy Review, n. 2 above, p. 9; Ruggie, n. 174 above.

[178] Wisemann, n. 16 above; Y.K. Spies, 'Polylateral Diplomacy: Diplomacy as Public–Private Collaboration', in Y.K. Spies (ed.), *Global South Perspectives on Diplomacy* (2019), pp. 153–99; P. Lamy, 'Answering the Crisis of Multilateralism with Polylateralism' (2021) 2(1) *Governing Globalization*, pp. 26–9.

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The involvement of civil society is of great importance for environmental policies.[179] The EU's Better Regulation Agenda[180] aims specifically to engage stakeholders,[181] and it succeeded in facilitating active stakeholder involvement in the legislative processes leading to the unilateral ReFuelEU Regulation.[182] In the multilateral context of the ICAO, the participation of civil society organizations is also institutionalized, but very limited. Only a few non-governmental organizations (NGOs), most of them industry associations, have been granted observer status in the ICAO Committee on Environmental Protection (CAEP), without the right to vote.[183] The International Coalition on Sustainable Aviation (ICSA) – the work of which contributed to CORSIA on technical issues[184] – is the only environmental civil society organization accredited to the CAEP.[185] ICSA has been critical of how the poor transparency of CORSIA limits opportunities for broader public participation.[186]

The lack of CSO involvement has received substantial criticism in the context of bilateral PTAs. In the absence of proper means of implementation powers, dispute settlement, and sanctions for non-compliance, extending the institutional role of CSOs would be essential for monitoring and follow-up actions on sustainability. The European Commission has recommended[187] the promotion of best practices on the civil society forums and domestic advisory groups in EU PTAs.[188]

Thus, CSOs have had a role in the development of each of the researched instruments. However, our observations regarding how the involvement of CSOs relates to the hardness of SAF instruments were limited to PTAs. Further research on the role of CSOs in unilateral, bilateral, and multilateral instruments and their interactions therefore

[179] Directive 2003/4 /EC on Public Access to Environmental Information and repealing Council Directive 90/313/EEC [2003] OJ L 41/26; Directive 2003/35/EC providing for Public Participation in respect of the Drawing Up of Certain Plans and Programmes related to the Environment and amending with regard to Public Participation and Access to Justice Council Directives 85/337/EC and 96/61/EC [2003] OJ L 156; Regulation (EC) No. 1367/2006 of the European Parliament and of the Council on the Application of the Provisions of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters to Community Institutions and Bodies [2006] OJ L 246/13.

[180] European Commission, Communication, 'Better Regulation: Joining Forces to Make Better Laws', 29 Apr. 2021, COM(2021) 219 final.

[181] See, e.g., A.S. Binderkrantz et al., 'Stakeholder Consultations in the EU Commission: Instruments of Involvement or Legitimacy' (2023) 30(6) *Journal of European Public Policy*, pp. 1142–62.

[182] G. Giannelos et al., 'Support Study Accompanying the Impact Assessment on ReFuelEU Aviation Final Report' (European Commission, 2021), pp. 135–49.

[183] ICAO, 'Committee on Aviation Environmental Protection (CAEP)', available at: https://www.icao.int/environmental-protection/Pages/Caep.aspx#Members.

[184] ICAO, 'Civil Society Space Report to the Office of the High Commissioner for Human Rights', 10 Apr. 2017, paras 15–6, available at: https://www.ohchr.org/sites/default/files/Documents/AboutUs/CivilSociety/Procedures/UN/InternationalCivilAviationOrganization.pdf.

[185] ICAO, n. 183 above.

[186] Carbon Market Watch, 'Letter to the Parties to the Aarhus Convention on Public Participation and Access to Information at the International Civil Aviation Organization', *Carbon Market Watch*, 26 Aug. 2019, available at: https://carbonmarketwatch.org/publications/letter-to-the-parties-to-the-aarhus-convention-on-public-participation-and-access-to-information-at-the-international-civil-aviation-organisation.

[187] European Commission Services Non-Paper, 'Feedback and Way Forward on the Implementation and Enforcement of Trade and Sustainable Development Chapters in EU Free Trade Agreements', 11 July 2017, Action Pt. 19.

[188] Ibid., Action Pts 11–9.

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seems important: for example, how is the EU trade policy approach influenced by the role of CSOs? Can CSOs act across the approaches, and thereby influence the complementarity and interactions between them? What role could non-state actors in trade policy have to support a more effective route to sustainability?

Moreover, the 'lateral' term used to conceptualize the involvement of non-state actors in international relations – 'polylateralism' – does not seem optimal. The role of CSOs in governing public goods is often defined nowadays as 'multi-stakeholderism'.[189] 'Multi' and 'poli' are, respectively, the Latin and Greek words for 'many', yet 'multi' usually implies many different things, while 'poli' refers to many of the same kind of thing.[190] This is the opposite of how thus far they have been used in the polylateralist literature to describe the involvement of non-state actors.[191] If conceptualized as a form of 'lateralisms', perhaps *trans*lateralism would be linguistically more accurate and would better capture the involvement of non-state actors, similar to how the word 'trans' is used in, for example, *trans*national law and *trans*disciplinary research.[192] There is a choice to be made between linguistic accuracy and existing conventions in academic literature.

In any event, whether and how flexilateralism as a strategic approach in trade policy relates to the multi-stakeholderism of non-state actors offers an important lead for future research. Could such conceptualization turn the two-dimensional flexilateral triangle between uni-, bi-, and multilateral inter-*state* relations (Figure 5) into a three-dimensional pyramid of EU trade relations (Figure 6), where also the involvement of the stakeholders could vary between no role (the triangle of purely state-to-state instruments) and purely non-state instruments with no government involvement remaining (the translateral corner of the pyramid), with consultative and co-deciding roles in-between?

5. Conclusions

5.1. Sustainability Objectives in the Unilateralization of the EU Trade Policy Instruments

Over the past 20 years, the EU has shifted its emphasis in trade policy from multilateral agreements towards bilateral PTAs and, more recently, to unilateral instruments. In this article we have analyzed how the EU's growing ambitions in promoting environmental sustainability have influenced these shifts through the case study of alternative aviation fuels. Our findings contribute to earlier research on the role of EU

[189] See, e.g., J. Hoffman, 'Multi-Stakeholderism in Internet Governance: Putting Fiction into Practice' (2016) 1(1) *Journal of Cyber Policy*, pp. 29–49.

[190] E.g., multi-disciplinary is a combination of different disciplines; polymer is a molecule that combines many similar monomers; polygamy means being married to more than one spouse.

[191] Both 'multi' and 'poly' mean 'much, many, more', but 'multi' comes from Latin (*multus*) while 'poli' comes from Greek (*polys*). 'Lateral' also comes from Latin (*lateralus*), so 'multi' is linguistically a more appropriate fit with lateral. 'Flexi' is also of Latin origin (*flexus*: 'to cause to go in a different direction, bend, curve'), available at: https://www.merriam-webster.com/dictionary.

[192] Although 'translateralism' as a term would remove the ambiguity between 'multilateralism' and 'polylateralism', there is a choice to be made between linguistic accuracy and existing conventions.

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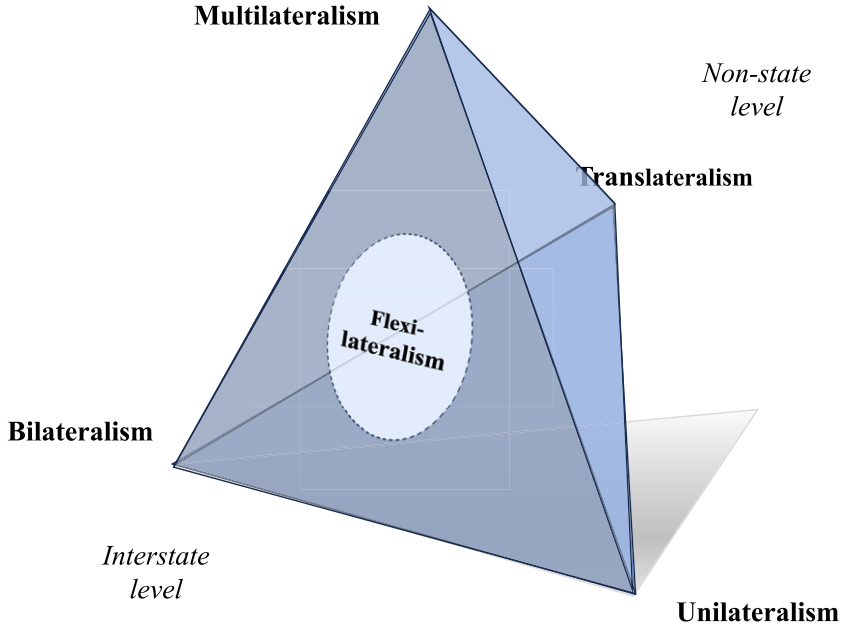

Figure 6. Examining the Involvement of Non-state Actors within a Framework of Lateralisms

environmental policy in the bilateralization and unilateralization of EU trade policy,[193] developing it further analytically and conceptually.

The EU did not succeed in establishing a difference between so-called 'sustainable' and 'unsustainable' biofuels in the WTO Doha Round. Since then, the EU's efforts in multilateral fora have focused on developing high environmental sustainability criteria for aviation fuels within the ICAO's CORSIA. However, our legal analysis shows that CORSIA, although a rather hard instrument, falls far short on its environmental ambitions.

PTAs with biofuel-producing countries such as Malaysia, Brazil or Indonesia have been considered as complementary to CORSIA, shifting the EU focus from multilateral to bilateral policy instruments. Since the 2006 trade strategy[194] and the EU–Korea PTA, the EU has increasingly pursued 'deep' trade agreements with 'Trade and Sustainable Development' chapters that aim to promote environmental and other social standards. However, the comprehensiveness of the PTAs, as well as trading partners' diverging levels of ambitions in environmental sustainability and their respective capabilities, prolong the negotiations and may lead to soft agreements. The problem is familiar from multilateral negotiations and is confirmed in our analysis of the TSD chapters in relation to aviation fuels: they are only moderately hard and have only slightly higher environmental ambition than CORSIA.

[193] See nn. 1–12, 70, 97 for scholarship mapping this evolution.
[194] European Commission, Communication, 'Global Europe: Competing in the World', 4 Oct. 2006, COM(2006) 567 final.

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The European Commission's 2021 Review of the TSD Chapters has entailed a hardening of PTAs in areas that our analysis identified as soft: increasing the precision of the binding commitments in TSD chapters, further involving CSOs, and introducing sanctions as a last resort to ensure compliance. Despite these amendments – and partly precisely because of their effect of complicating the negotiations – we observe a relative shift in SAF-related instruments towards unilateral environmental trade measures. The analyzed unilateral measure, the ReFuelEU Regulation, is harder and considerably more ambitious in terms of environmental sustainability than previous bilateral and multilateral instruments.

The shift towards unilateral measures in governing the sustainability of aviation fuels resonates with a broader unilateralization trend in EU trade policy.[195] This unilateralization has exogenous factors, such as the rise of state intervention and a more adverse geopolitical context, in particular, between China and the US.[196] The case of SAF supports the argument that unilateralization also has endogenous drivers: they result from the growing ambitions of the EU's environmental agenda, which are not always shared by or attainable with the capabilities of the EU's trading partners.[197]

5.2. From Unilateral Instruments to Flexilateralism

A shift in emphasis from the multilateral CORSIA and the bilateral PTAs towards unilateral EU trade and environmental policies on SAF is no panacea, however. Unilateralization implies a change of focus in multilateral governance, but it need not lead to a rejection of bi- or multilateral approaches. As our analysis of key SAF instruments also elucidated, uni-, bi-, and multilateral approaches each have their own aspects of hardness and ambition, and are interrelated.[198] Measures under each of the three approaches may thus complement each other.

The recent unilateralization of trade and environmental measures on aviation fuels does not therefore make the EU a unilateral actor. Actors rarely engage in pure unilateralism, bilateralism or multilateralism; instruments are often applied simultaneously in one policy area or in intersecting policy areas. Following this insight, our analysis of the hardness and ambition of different instruments has led to a conceptual argument. The EU's current trade strategy in SAF – which means an engagement with the main multilateral forum CORSIA, the negotiation of bilateral PTAs that cover SAF, and a simultaneous and flexible enacting of unilateral trade instruments – can be conceptualized as flexilateralism. Flexilateralism[199] highlights the absence of a hierarchy, where multilateralism would take precedence as a matter of principle.

[195] De Ville, Happersberger & Kalimo, n. 3 above.
[196] See the scholarly works in n. 3 and n. 5 above.
[197] See De Ville, Happersberger & Kalimo, n. 3 above.
[198] A. Yildirim et al., 'EU Trade and Non-trade Objectives: New Survey Evidence on Policy Design and Effectiveness' (2021) 59(3) *Journal of Common Market Studies*, pp. 556–68.
[199] Faure, n. 13 above.

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Compared with earlier scholarship,[200] we introduce the conceptualization of flexilateralism to the EU level, and to a new domain, trade and environmental policies. Further, it appears important to research further how to include non-state actors in the translateral trade relations. This holds true where EU trade policies address the environment, as is the case with SAF: non-state actors possess and voice important information about the environmental effects of trade, and their involvement increases the instruments' legitimacy. These preliminary findings pave the way for a research agenda that validates and tests the flexilateralist approach and its interaction with non-state actors, seeking a coherent framework.[201]

5.3. Flexilateralism at the Core of the EU's Strategic Autonomy

In the context of SAF, the EU introduced unilateral options such as the ReFuelEU Regulation, RED II, and RED III to complement two decades of multilateral efforts under CORSIA and the bilateral EU–Mercosur and EU–Indonesia PTAs. Should the EU have waited until the very final stages of these bi- and multilateral tracks before taking unilateral action to maintain its priority for international cooperation and to prevent becoming a flexi- or unilateralist actor? The efforts invested by the EU in CORSIA and in PTAs speak against the idea that the EU has a purely unilateralist agenda. Indeed, the EU appears to try to distance itself from the image of a unilateralist, self-interested actor,[202] reserving that label for its trading partners from China and the US.[203] The EU is also keen to reset its frayed relationship with civil society with regard to trade relations. In this endeavour – the credence and success of which it is too early to judge – it is useful for the EU to make the distinction between unilateralism as a premise, and the implementation of individual unilateral measures as part of a broader, flexilateral EU approach. This may be at the core of the EU's much-touted, more assertive 'strategic autonomy':[204] a flexilateral stance that prevails over a fully multilateralist approach where the latter would undercut the EU's objectives on paramount issues such as environmental sustainability.

[200] Ibid.; Lamy, n. 178 above; Spies, n. 178 above; Wisemann, n. 16 above; A. Zima, 'La politique de défense de la Pologne dans le contexte du Brexit: Bilatérale, multilatérale ou flexilatérale?' (2020) 70 *Politique européenne*, pp. 116–42.

[201] See, e.g., D. Bodansky, 'What is So Bad about Unilateral Action to Protect the Environment?' (2000) 11(2) *European Journal of International* Law, pp. 339–47; J. Scott & L. Rajamani, 'EU Climate Change Unilateralism' (2012) 23(2) *European Journal of International Law*, pp. 469–94.

[202] Ibid. See also the definition of unilateralism in Brooks, n. 4 above.

[203] European Commission, EU Trade Policy Review, n. 2 above, p. 1.

[204] B. Smulders et al., 'The New Geopolitical Dimension of the EU Competition and Trade Policies: Towards Greater Strategic Autonomy', Draft Institutional Report, Topic II, 30th FIDE Conference, Sofia (Bulgaria), 31 May–3 June 2023, *Congress Publications*, Vol. 2, available at: https://www.telles.pt/xms/files/fide-publications-vol-2_margarida_rosado_da_fonseca.pdf.

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6. Postscript

Following finalization of this article, the EU–Mercosur trade agreement, which had been on hold since 2019, was concluded on 6 December 2024.[205] The concluded agreement adds many new provisions. However, a large majority of these provisions only 'reiterate' and 'reaffirm' the agreed 2019 provisions. They modestly increase hardness by adding precise references to SAF as a product group without, however, specifying concrete actions beyond the contexts of collaboration, new jobs, and sustainable interregional value chains.[206] The amendments are also slightly harder and more ambitious in that they mandate the prevention of further deforestation as well as the stabilization and increasing of forest cover.[207] The amendments marginally increase ambition by noting that the parties' commitment under the Paris Agreement entails an upward revision of their nationally determined contributions (NDCs).[208] While the parties' commitments under NDCs include SAF,[209] the fuels are not subjected to specific sustainability targets. The Mercosur amendments also require the parties to substantially increase the share of renewable energy – yet without quantifying the targets or referring to sustainability.[210] Some of the amendments – such as the reference to the principle of common but differentiated responsibilities and respective capabilities,[211] or the agreement to use 'a cooperative approach to address challenges associated with meeting a Party's sustainability measures'[212] – may reduce rather than increase the sustainability ambition of the 2019 text; they introduce flexibilities and accommodate different levels of environmental priorities. Further, the Annex slightly increases the hardness of the means of implementation: according to the new Article on climate change, a 'good faith' membership of the Paris Agreement is an essential condition of the Mercosur Agreement. A 'serious and substantial' violation of such an essential condition justifies the suspension of the Mercosur Agreement.[213]

[205] European Commission, 'Trade Relations, Negotiations and Agreements', available at: https://circabc.europa.eu/ui/group/09242a36-a438-40fd-a7af-fe32e36cbd0e/library/af37e26d-059a-45fe-ab2d-1eacdeb8b0c9 (visited 3 Jan. 2025).

[206] EU-Mercosur Trade Agreement, Annex to the TSD Chapter (EU-Mercosur TA, TSD Annex) Art. 32(d) and 48, available at: https://circabc.europa.eu/ui/group/09242a36-a438-40fd-a7af-fe32e36cbd0e/library/19d538eb-d33c-4039-8afa-42dfe7cc66b6/details.

[207] Ibid., Art. 16.

[208] Ibid., Arts 2 and 14.a.

[209] Brazil's NDC, 'National Determination to Contribute and Transform', Nov. 2024, pp. 4, 15, available at: https://unfccc.int/documents/643337; 'Update of the NDC of the European Union and its Members', Oct. 2023, pp. 6, 12, available at: https://unfccc.int/NDCREG. Both parties consider and commit to the uptake of SAF as part of the low carbon energy transition.

[210] EU–Mercosur TA, TSD Annex, Art. 19.

[211] EU–Mercosur TA, Art. XX on Climate Change, para. 1, available at: https://circabc.europa.eu/ui/group/09242a36-a438-40fd-a7affe32e36cbd0e/library/e93f0789-4255-427e-8f45-f9d5cce09ed7/details. See also EU–Mercosur TA, TSD Annex, Arts 3, 42.

[212] EU–Mercosur TA, TSD Annex, Art. 52.

[213] EU–Mercosur TA, Art. XY on Fulfilment of Obligations, para. 3, available at: https://circabc.europa.eu/ui/group/09242a36-a438-40fd-a7af-fe32e36cbd0e/library/e93f0789-4255-427e-8f45-f9d5cce09ed7/details.

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However, access to the Agreement's general dispute settlement system remains unavailable for TSD-related issues.[214] Overall, the concluded 2024 Agreement, therefore, is only slightly more ambitious and harder across each of the qualities than its 2019 draft version.

As for flexilateralism, the conclusion of the Mercosur Agreement aligns well with our theory. Because the (sustainability) requirements of the recent unilateral ReFuelEU and EU Deforestation Regulation apply to exporters from Mercosur in any event, resistance in these countries to accept the deal has decreased. Moreover, some of the new provisions[215] mutually reinforce the explicit interlinkages between the Mercosur Agreement and multilateral environmental agreements. For example, the parties should enhance trade in goods that contribute to a resource-efficient low-carbon economy or are subject to sustainability assurances,[216] consistent with domestic laws including those required under the ReFuelEU and Deforestation Regulation. The Annex also highlights the implementation of multilateral environmental commitments, such as the Paris Agreement, as noted above.[217] In the Mercosur Agreement, uni-, bi-, and multilateral measures thus are interlinked as the EU flexilateral trade policy on aviation fuels.

Supplementary material: To view supplementary material for this article, please visit https://doi.org/10.1017/S2047102524000359

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[214] EU–Mercosur TA, TSD Chapter, Art. 15(5); EU–Mercosur TA, TSD Annex, Art. 63. However, there seems to be an additional recourse to suspend parts of the Agreement for commensurate violations of the TSD (EU–Mercosur TA, Art. XY – Fulfilment of Obligations, para. 4).
[215] E.g., EU–Mercosur TA, TSD Annex, Art. 6 and Pt A.2 (i.e., Arts 8–21).
[216] Ibid., Art. 41.
[217] Ibid., Art. 48.

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