
CHAPTER FIVE

THE PROMISE AND PERILS OF CARBON TARIFFS

The defining image of the twenty-sixth Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26) featured Simon Kofe, Tuvalu's foreign minister, delivering his address while standing knee-deep in the waters of the South Pacific.¹ His plea to the leaders gathered in Glasgow for the meeting was that urgent action be taken to limit carbon emissions and prevent the inundation of low-lying island states like Tuvalu.² His desperation was justified: national commitments to reduce greenhouse gas (GHG) emissions have proven inadequate,³ and Glasgow was framed as the "last best hope" to slow the pace of climate change.⁴ The alternative, and increasingly likely, outcome: an implacable march past the 1.5°C threshold that marks a point of no return for the earth's warming climate.⁵ Despite Kofe's exhortations, however, multilateral efforts in Glasgow fell short. Though leaders pledged to reduce methane emissions,⁶ limit the use of coal,⁷ slow deforestation,⁸ and support developing nations in adapting

¹ See *Tuvalu Minister to Address Cop26 Knee Deep in Water to Highlight Climate Crisis and Sea Level Rise*, THE GUARDIAN (Nov. 8, 2021, 1:57 AM), <https://www.theguardian.com/environment/2021/nov/08/tuvalu-minister-to-address-cop26-knee-deep-in-seawater-to-highlight-climate-crisis> [https://perma.cc/C3R3-NTGD].

² See *id.*

³ See United Nations Framework Convention on Climate Change Secretariat, Nationally Determined Contributions Under the Paris Agreement, Synthesis Rep. by the Secretariat, at 6, U.N. Doc. FCCC/PA/CMA/2021/8 (Sept. 17, 2021) [hereinafter UNFCCC Synthesis Report] (suggesting "an urgent need for either a significant increase in the level of ambition . . . or a significant over-achievement" in national commitments).

⁴ Alok Sharma, COP26 President, Opening Speech at COP26 (Oct. 31, 2021), <https://www.gov.uk/government/speeches/cop26-president-alok-sharmas-opening-speech-at-cop26> [https://perma.cc/KC35-93A7].

⁵ See UNFCCC Synthesis Report, *supra* note 3, at 5–6; Myles Allen et al., *Summary for Policymakers, in INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, GLOBAL WARMING OF 1.5°C*, § A.3.2 (Valérie Masson-Delmotte et al. eds., 2018).

⁶ Press Release, U.S. Dep't of State, United States, European Union, and Partners Formally Launch Global Methane Pledge to Keep 1.5C Within Reach (Nov. 2, 2021), <https://www.state.gov/united-states-european-union-and-partners-formally-launch-global-methane-pledge-to-keep-1-5c-within-reach> [https://perma.cc/T4KE-L5XJ].

⁷ *Global Coal to Clean Power Transition Statement*, UN CLIMATE CHANGE CONF. UK 2021 (Nov. 4, 2021), <https://ukcop26.org/global-coal-to-clean-power-transition-statement> [https://perma.cc/U84Y-TDHU].

⁸ *Glasgow Leaders' Declaration on Forests and Land Use*, UN CLIMATE CHANGE CONF. UK 2021 (Nov. 2, 2021), <https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use> [https://perma.cc/NF68-MYF4].

to climate change⁹ (after breaking an earlier pledge to the same effect¹⁰), binding targets were few and far between.

One commitment stood out, however: in the lead-up to the summit, the United States and European Union announced a deal to work together to limit emissions in the steel and aluminum industries by levying tariffs against imports of those carbon-intensive goods.¹¹ The idea of carbon tariffs — trade measures that require importers to pay the same penalty as domestic producers for emitting carbon dioxide¹² — did not emerge for the first time in Glasgow.¹³ A carbon border adjustment scheme formed the basis of recent draft EU regulations aimed at shoring up the common market’s carbon-pricing system,¹⁴ and similar proposals have appeared in draft legislative initiatives in Congress and are under consideration in Canada,¹⁵ Russia,¹⁶

⁹ Press Release, U.K. Cabinet Off. & Alok Sharma, President for COP26, UK COP26 Presidency Publishes Climate Finance Delivery Plan Led by German State Secretary Flasbarth and Canada’s Minister Wilkinson Ahead of COP26 (Oct. 25, 2021), <https://www.gov.uk/government/news/uk-cop26-presidency-publishes-climate-finance-delivery-plan-led-by-german-state-secretary-flasbarth-and-canadas-minister-wilkinson-ahead-of-cop26> [https://perma.cc/8JT6-PJ6E].

¹⁰ See ALINA AVERCHENKOVA ET AL., INDEP. EXPERT GRP. ON CLIMATE FIN., DELIVERING ON THE \$100 BILLION CLIMATE FINANCE COMMITMENT AND TRANSFORMING CLIMATE FINANCE 6–7 (2020).

¹¹ See Fact Sheet: U.S.-EU Arrangements on Global Steel and Aluminum Excess Capacity and Carbon Intensity, U.S. DEP’T OF COM. (Oct. 31, 2021), <https://www.commerce.gov/news/fact-sheets/2021/10/fact-sheet-us-eu-arrangements-global-steel-and-aluminum-excess-capacity> [https://perma.cc/WR4X-9W6R]; Yuka Hayashi & Jacob M. Schlesinger, *Tariffs to Tackle Climate Change Gain Momentum. The Idea Could Reshape Industries.*, WALL ST. J. (Nov. 2, 2021, 10:22 AM), <https://www.wsj.com/articles/tariffs-climate-change-greenhouse-gases-manufacturing-steel-11635862305> [https://perma.cc/CME2-WMU6].

¹² See Hayashi & Schlesinger, *supra* note 11. This styling of carbon tariffs is something of a misnomer; the models examined here do not (for the most part) seek to impose punitive trade sanctions but instead aim to equalize the cost paid for goods imported to the regulated market and those produced within it. *See id.*

¹³ Nor are carbon tariffs the only emerging intersection between trade law and climate change, though the others are beyond the scope of this Chapter. *See, e.g.*, Matteo Fermeglia et al., “Investor-State Dispute Settlement” as a New Avenue for Climate Change Litigation, SABIN CTR. FOR CLIMATE CHANGE L. AT COLUM. L. SCH.: CLIMATE L. BLOG (June 2, 2021), <http://blogs.law.columbia.edu/climatechange/2021/06/02/investor-state-dispute-settlement-as-a-new-avenue-for-climate-change-litigation> [https://perma.cc/D6B5-KJTW] (detailing the rise of complaints in investor-state dispute settlement fora that chills national policies seeking to meet climate goals).

¹⁴ Proposal for a Regulation of the European Parliament and of the Council Establishing a Carbon Border Adjustment Mechanism, at 0–2, COM (2021) 564 final (July 14, 2021) [hereinafter EU CBAM Proposal].

¹⁵ News Release, Dep’t of Fin. Can., Government Launches Consultations on Border Carbon Adjustments (Aug. 5, 2021), <https://www.canada.ca/en/department-finance/news/2021/08/government-launches-consultations-on-border-carbon-adjustments.html> [https://perma.cc/XPU8-SLAL].

¹⁶ Evgenia Pismennaya & Yuliya Fedorinova, *Glasgow Deals Prompt Russia Rethink on Coal Plans, Carbon Tax*, BLOOMBERG (Nov. 17, 2021, 8:07 AM), <https://www.bloomberg.com/news/articles/2021-11-16/russia-to-review-coal-plans-mull-carbon-tax-after-glasgow-deals> [https://perma.cc/RMU5-6EER].

and Japan.¹⁷ As an alternative to multilateral treaty processes and a tool to reduce the political cost of climate action, carbon tariffs seem promising. Their global scope also makes carbon tariffs especially well suited to confront the challenge posed by growing emissions outside of the United States.¹⁸

Despite this potential and increased attention from policymakers, the legal status of carbon tariffs remains unclear. Conflicting views as to the compatibility of carbon tariffs with the commitments at the heart of the World Trade Organization (WTO) system — and a deadlocked dispute settlement process — mean that their status under trade law will likely remain ambiguous. Core principles of international environmental law, meanwhile, do not offer clear evidence of a legal obligation on states to address climate change, and the doctrine of state responsibility seems ill suited to the challenge of defining and enforcing the action incumbent on states. But governments do not seem to be in a mood to wait — carbon tariffs are coming.

This Chapter examines the emergence of what may prove to be an important and effective alternative to moribund treaty processes like COP26 against a muddled legal landscape. While carbon tariffs may reduce the social cost of responding to climate change by equalizing terms of trade between regulating and nonregulating jurisdictions — and may help to catalyze international action by creating new incentives for nonregulating jurisdictions to take action — they also highlight the inadequacy of existing norms and structures of international law when it comes to grappling with climate change.

Section A of this Chapter unpacks the rationale for carbon tariffs and highlights several models under consideration. Section B situates carbon tariffs against the trade obligations embodied in the General Agreement on Tariffs and Trade¹⁹ (GATT) and points to conflicting precedent and literature — and the deadlocked dispute settlement system — to suggest that their legality is and will remain uncertain under the WTO regime. Section C turns to principles of international law and state responsibility to try and fill in the gaps but finds that highly contested norms and limited jurisprudence do no better in answering the question of whether or how carbon tariffs may be lawfully implemented. Section D considers the impact of the pending implementation of carbon tariffs in light of this uncertainty. It argues that carbon tariffs may

¹⁷ Shiro Takezawa, *Japan Mulls Carbon Border Tax for Polluters, Nikkei Says (1)*, BLOOMBERG TAX (Feb. 10, 2021, 8:31 PM), <https://news.bloombertax.com/daily-tax-report-international/japan-mulls-carbon-border-tax-for-biggest-polluters-nikkei-says> [https://perma.cc/77P3-R6P2].

¹⁸ See, e.g., *How Is China's Energy Footprint Changing?*, CTR. FOR STRATEGIC & INT'L STUD.: CHINAPOWER (Feb. 7, 2022), <https://chinapower.csis.org/energy-footprint> [https://perma.cc/4T8N-ZUVR] ("[S]ince 2011, China has consumed more coal than the rest of the world combined.").

¹⁹ General Agreement on Tariffs and Trade, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 187 [hereinafter GATT].

prove to be a destabilizing force for the WTO system but may also help to concretize emerging norms of customary international law around responding to climate change, lending new legal weight to the notion that states have a legal responsibility to avert climate disaster.

A. Carbon Leakage and Carbon Tariff Models

Climate policy is dogged by a commons dilemma: domestic efforts to limit climate emissions benefit the entire planet, while the costs of implementing rigorous climate regulations are borne principally by the regulating jurisdiction.²⁰ Exporters in countries with lax emissions standards gain an artificial competitive advantage as compared to those operating in more tightly regulated environments,²¹ which limits incentives for nations to implement serious climate policies. The resulting carbon leakage — the process by which “energy-intensive production . . . flee[s] to regions without controls”²² — raises the risk that emissions reductions within the regulating state will be offset (or exceeded) by emissions increases in other states.²³ The attendant job displacement undermines political support for aggressive climate action in countries that are working to reduce their GHG emissions, further weakening incentives to act.²⁴ These effects together make it more challenging for nations to take collective action: governments are less likely to make meaningful (let alone binding) commitments if they fear that their carbon reductions will simply be taken up by offshore production in less regulated jurisdictions.²⁵

Carbon tariffs can help to level the playing field between countries that price or otherwise regulate carbon emissions and those that do not, while incentivizing action in nonregulating jurisdictions. They do so by imposing a cost on imports originating from nonregulating

²⁰ See William Nordhaus, *The Climate Club: How to Fix a Failing Global Effort*, 99 FOREIGN AFFS. 10, 14 (2020) (“Suppose that when Country A spends \$100 on abatement, global damages decline by \$200 but Country A might get only \$20 worth of the benefits: its national cost-benefit analysis would lead it not to undertake the abatement.”).

²¹ The advantage is artificial because polluting nations continue to impose negative externalities, in the form of higher carbon emissions, on other nations. See Steven Nathaniel Zane, Note, *Leveling the Playing Field: The International Legality of Carbon Tariffs in the EU*, 34 B.C. INT’L & COMPAR. L. REV. 199, 203 (2011).

²² Joshua Elliott et al., *Unilateral Carbon Taxes, Border Tax Adjustments and Carbon Leakage*, 14 THEORETICAL INQUIRIES L. 207, 208 (2013).

²³ The risk is exacerbated by the downward pressure on global carbon-intensive energy prices that emissions regulations can have. *See id.*

²⁴ See, e.g., Chris Isidore, *The Real Story Behind Trump’s Claim that Paris Would Kill 2.7 Million Jobs*, CNN (June 1, 2017, 9:34 PM), <https://money.cnn.com/2017/06/01/news/economy/trump-jobs-paris-climate-treaty/> [https://perma.cc/4SH6-L8VX].

²⁵ See Nordhaus, *supra* note 20, at 12–14.

jurisdictions²⁶ equal to the real or effective carbon price in the regulating jurisdiction.²⁷ Export-exposed industries are protected, and nonregulating jurisdictions are incentivized to implement climate policies in order to gain an exemption for their goods. Though critics have questioned the economic efficiency of carbon tariffs²⁸ and cast doubt on their likely impact on net global emissions,²⁹ even skeptics concede that these tariffs could play a vital role in making domestic climate policies more palatable.³⁰ Moreover, against the disappointing backdrop of multilateral climate negotiations, carbon tariffs bear serious consideration because they offer a credible means of impelling international action. A flurry of activity by regional and national governments suggests that policymakers are taking notice, though as this section suggests, key questions relating to design and implementation remain.

²⁶ While this Chapter focuses on carbon tariffs that take aim at imports, an alternative way to address carbon leakage would be to do the inverse, by exempting exports from the carbon pricing or regulatory scheme at work in the domestic jurisdiction. See, e.g., *Exploring Border Carbon Adjustments for Canada*, DEP’T OF FIN. CAN. (Aug. 8, 2021), <https://www.canada.ca/en/department-finance/programs/consultations/2021/border-carbon-adjustments/exploring-border-carbon-adjustments-canada.html> [https://perma.cc/K5XQ-ZLQM] (noting that currently, in Canada, “carbon leakage risks are mitigated through the design of . . . domestic pricing systems. Industries most at risk (i.e., those that are emissions-intensive and trade-exposed . . .) are subject to carbon pricing but generally do not face full pricing of emissions”). This form of adjustment, however, may be overinclusive by setting the threshold for trade exposure too low or conflating climate regulation with other competitiveness concerns. See ISABELLE TURCOTTE & TOM GREEN, PEMBINA INST. & DAVID SUZUKI FOUND., INCREASING CLIMATE AMBITION WITH OUTPUT-BASED PRICING 7–8 (2021). It also dilutes incentives for domestic producers to limit emissions and does not create incentives for nonregulating jurisdictions to adopt climate policies.

²⁷ See, e.g., Joseph E. Stiglitz, *A New Agenda for Global Warming*, ECONOMISTS’ VOICE, July 2006, at 1, 2.

²⁸ See Juscelino F. Colares & Ashwin Rode, *The Opportunities and Limitations of Neutral Carbon Tariffs*, 19 AM. L. & ECON. REV. 423, 427–28 (2017) (arguing that carbon tariffs “open[] the door for industries to lobby for and secure inefficiently high” tariff rates, *id.* at 427, and advocating for a multilaterally negotiated solution instead).

²⁹ Gabriel Weil, *Incentive Compatible Climate Change Mitigation: Moving Beyond the Pledge and Review Model*, 42 WM. & MARY ENV’T L. & POL’Y REV. 923, 944–45 (2018). But see Glen P. Peters et al., *Growth in Emissions Transfers via International Trade from 1990 to 2008*, 108 PROC. NAT’L ACAD. SCIS. U.S. 8903, 8903 (2011) (finding that, as of 2008, traded goods and services were responsible for twenty-six percent of global emissions).

³⁰ See Weil, *supra* note 29, at 944. Indeed, the environmental movement has united interest groups that see opportunities for cooperation in passing green legislation while also protecting domestic jobs, as in the case of union provisions attached to President Biden’s planned electric vehicle tax credit. See Press Release, Bluegreen All., More than 60 Labor Unions, Environmental Organizations, and Advocacy Groups Urge Inclusion of Union Provision in Build Back Better EV Tax Credit (Dec. 15, 2021), <https://www.bluegreenalliance.org/resources/5722> [https://perma.cc/3A7E-JQTD]. The inclusion of the allegedly protectionist provisions in a draft of President Biden’s Build Back Better bill has already provoked warnings of countermeasures from trade partners. See, e.g., Brian Platt & Keith Laing, *Canada Threatens to Retaliate Against U.S. over EV Tax Credit*, BLOOMBERG (Dec. 10, 2021, 4:27 PM), <https://www.bloomberg.com/news/articles/2021-12-10/canada-threatens-to-retaliate-against-u-s-over-ev-tax-credit-kxowgxbt> [https://perma.cc/2VQ4-62P8].

i. Models. — At COP26, Canadian Prime Minister Justin Trudeau offered a plea backed by a threat. As the leader of one of the few countries that have managed to put in place a national price on carbon,³¹ he called for the nations assembled in Glasgow to adopt a common global price.³² Failing that, his environment minister suggested, Canada would levy a tariff on imports from countries without sufficiently robust climate plans.³³ The idea of carbon tariffs has found purchase in other quarters as well, including in the recently announced EU-U.S. steel and aluminum deal, in a set of draft regulations advanced by the European Council, in draft congressional initiatives, and within academia. Though they vary in scope and approach, each model aims to satisfy the dual imperatives generated by carbon leakage: protecting domestic jobs and incentivizing international action.

(a) *EU-U.S. Steel and Aluminum Deal.* — Though the deal grabbed headlines by putting an end to an acrimonious trade dispute between the United States and the European Union, the pact's real significance may lie in the fact that it represents the most current (as of this writing) planning toward the implementation of a carbon tariff regime.³⁴ In announcing the deal, Commerce Secretary Gina Raimondo pointed to the need to respond to lax environmental standards in China.³⁵ To address carbon leakage in the steel and aluminum sectors, the United States and European Union will work to create a coordinated border adjustment mechanism that would tariff imports from jurisdictions with carbon-intensive production.³⁶ If implemented, the framework would be a step toward combating carbon leakage in a sector that is “one of the largest emitters of carbon in the manufacturing sector, is on track to consume 50 percent of available carbon budgets by 2050, [and] is highly exposed to trade.”³⁷ Nevertheless, its narrow scope would exclude a host of other heavily polluting and trade-exposed industries and would not necessarily capture emissions associated with steel or aluminum used as an input in other traded goods. And it is unclear at this stage whether the

³¹ *Carbon Pollution Pricing Systems Across Canada*, GOV'T OF CAN.: ENV'T & CLIMATE CHANGE CAN. (Jan. 31, 2022), <https://www.canada.ca/en/environment-climate-change/services/climate-change/pricing-pollution-how-it-will-work.html> [https://perma.cc/VGC2-C9QR].

³² John Paul Tasker, *Trudeau Calls for Global Carbon Tax at COP26 Summit*, CBC NEWS (Nov. 3, 2021), <https://www.cbc.ca/news/politics/trudeau-carbon-tax-global-1.6233936> [https://perma.cc/VT7S-BL2A].

³³ *Id.*

³⁴ See Ana Swanson & Katie Rogers, *U.S. Agrees to Roll Back European Steel and Aluminum Tariffs*, N.Y. TIMES (Nov. 3, 2021), <https://www.nytimes.com/2021/10/30/business/economy/biden-steel-tariffs-europe.html> [https://perma.cc/UF92-QL58].

³⁵ *Id.*; see also U.S. DEP'T OF COM., *supra* note 11.

³⁶ See U.S. DEP'T OF COM., *supra* note 11.

³⁷ TODD N. TUCKER & TIMOTHY MEYER, ROOSEVELT INST., A GREEN STEEL DEAL 3 (2021), https://rooseveltinstitute.org/wp-content/uploads/2021/06/RI_GreenSteelDeal_WorkingPaper_202106.pdf [https://perma.cc/H2FD-LS63].

deal — unlike the other proposals examined below — would enable exporting nations with robust climate policies to gain an exemption from the tariff or how that exemption process would be administered.

(b) *The EU Carbon Border Adjustment Mechanism (CBAM) Proposal.* — The EU-U.S. deal was preceded by a proposal introduced by the European Council for a more comprehensive, but still sectorally limited, set of carbon tariffs.³⁸ In order to address the risk of carbon leakage arising from “differing ambitions related to climate policies,”³⁹ the proposal would require importers to track the direct emissions embedded in the goods they bring into the EU and surrender an equivalent number of CBAM certificates linked to the closing prices of carbon allowances auctioned under the EU Emissions Trading System (ETS).⁴⁰ Importers would be able to claim a reduction in the number of CBAM certificates to be surrendered based on the carbon price paid in the country of origin.⁴¹ The CBAM proposal does not specifically address what kinds of carbon pricing initiatives would earn an exemption, however.⁴² And though it hints that the plan will be applied contextually, the EU has not clarified precisely how prevailing conditions in exporting markets will be weighed⁴³ and does not propose to exempt Least Developed Countries (LDCs).⁴⁴ Like the EU-U.S. deal, the CBAM proposal is not comprehensive in scope and has been criticized for omitting “much of the carbon embedded in total imports.”⁴⁵

(c) *U.S. Proposals.* — The idea of carbon tariffs has also caught the attention of U.S. lawmakers on both sides of the aisle⁴⁶ and recently

³⁸ The proposal would cover cement, fertilizers, iron and steel, aluminum, and electricity. *EU CBAM Proposal*, *supra* note 14, annex I.

³⁹ *Id.* at 1.

⁴⁰ *Id.* arts. 6, 21.

⁴¹ See *id.* arts. 6(2)(c), 9. The current draft does not make any such provision for other forms of emissions policies, though a proposed amendment would allow for this to happen. See *Draft Opinion of the Committee on International Trade for the Committee on Environment, Public Health and Food Safety on the Proposal for a Regulation of the European Parliament and of the Council Establishing a Carbon Border Adjustment Mechanism*, at 21, PE699.250VO2-00 (Nov. 22, 2021).

⁴² This omission could become especially problematic in light of carbon pricing schemes that are underambitious or ineffective. See, e.g., Bianca Nogrady, *China Launches World’s Biggest Carbon Market*, 595 NATURE 637, 637 (2021).

⁴³ *EU CBAM Proposal*, *supra* note 14, art. 7(6).

⁴⁴ See *Impact Assessment Report Accompanying Proposal for a Regulation of the European Parliament and of the Council Establishing a Carbon Border Adjustment Mechanism*, at 30, SWD (2021) 643 final (July 14, 2021).

⁴⁵ MARC JARSULIC, CTR. FOR AM. PROGRESS, WHAT THE EUROPEAN UNION’S PROPOSED TRADE TAX ON CARBON MEANS FOR THE UNITED STATES 1 (2021), <https://cf.americanprogress.org/wp-content/uploads/2021/08/Trade-Border-Carbon-Tax-Policy.pdf> [<https://perma.cc/FKJ8-6WBB>].

⁴⁶ See Letter from Senator Kevin Cramer et al. to President Biden (Aug. 9, 2021), <https://senatorkevincramer.app.box.com/s/16jel5ohwqppjir5ozw6w14xwsti8r1g> [<https://perma.cc/K224-9WVU>] (calling for the Administration to work with the EU to “design a common approach to climate and trade policy”); S. 2378, 117th Cong. (2021) (Democrat-sponsored carbon tariff legislation).

found a receptive audience in the White House.⁴⁷ Most recently, Senator Chris Coons unveiled a carbon tariff measure that would, like the EU regulation, be targeted at certain carbon-intensive industries.⁴⁸ Instead of a defined pricing mechanism like the EU's ETS, however, federal authorities would be tasked with assessing a "domestic environmental cost" borne by U.S. industry in complying with federal, state, regional, and local climate laws.⁴⁹ That measure would be used by federal authorities to calculate a carbon border adjustment.⁵⁰ In addition to exempting certain LDCs, the proposal would exempt imports from countries that do not impose carbon tariff measures on U.S. exports and that the Secretary of the Treasury finds have climate policies "that are at least as ambitious" as U.S. measures,⁵¹ though the proposal has little to say about how that ambition will be measured.⁵² As with the EU proposal, Senator Coons's model would not, if implemented, reach the full range of U.S. imports and would also fail to account for embedded emissions in imports.

(d) *The Climate Club Proposal.* — In contrast to those tailored approaches, Professor William Nordhaus, an economist who has written extensively about climate change,⁵³ has suggested a model that would see willing nations form an association predicated on a minimum level of climate ambition; countries on the outside of this "climate club" would be subject to a flat tariff.⁵⁴ Although the idea has not been formally championed by any state, it was seized on by Germany's new Chancellor, then-Minister Olaf Scholz, as a way to avoid potential trade friction linked to carbon tariffs.⁵⁵ The model also serves as a useful

⁴⁷ See David Lawder, *Biden Administration to Consider Carbon Border Tax as Part of Trade Agenda: USTR*, REUTERS (Mar. 1, 2021, 2:12 PM), <https://www.reuters.com/article/us-usa-trade-biden/biden-administration-to-consider-carbon-border-tax-as-part-of-trade-agenda-ustr-idUSKCN2AT3EX> [https://perma.cc/48SC-L3VA].

⁴⁸ See S. 2378 § 9901(15).

⁴⁹ *Id.* § 9902.

⁵⁰ *Id.* § 9904(a).

⁵¹ *Id.* § 9904(b).

⁵² See *id.* § 9905(d). Senator Coons's proposal was not the first attempt by U.S. legislators to introduce a carbon tariff regime and was preceded by a bipartisan effort to tie carbon tariffs to a new cap-and-trade system that would have imposed carbon tariffs on countries that had not achieved progress on climate objectives "comparable" to that of the United States. See S. Amend. 4825 to S. 3036, 110th Cong. § 1306(e)(1)(B) (2008).

⁵³ See Curriculum Vitae, William D. Nordhaus, Sterling Professor of Econ., Yale Univ. (May 2010), <https://drive.google.com/file/d/1JkpyPHUgb8v-LBSPGa-rbS2gBaY3W0lY> [https://perma.cc/EH25-GG4V].

⁵⁴ See Nordhaus, *supra* note 20, at 15–16.

⁵⁵ *Germany's Scholz Proposes "Climate Club" to Avoid Trade Friction*, REUTERS (May 22, 2021, 12:09 PM), <https://www.reuters.com/business/environment/germanys-scholz-proposes-climate-club-avoid-trade-friction-2021-05-22> [https://perma.cc/F3XC-EXL7]. Minister Scholz later presented the idea to the German Federal Cabinet; its status as of this writing, and now that Scholz has assumed the Chancellorship, is unknown. See Press Release, Fed. Ministry of Fin., The German Government Wants to Establish an International Climate Club (Aug. 25, 2021),

counterpoint to the unilateral approaches outlined above. Nordhaus argues that a flat penalty on imports from nonclub nations offers simplicity advantages over tariffs tailored to the carbon intensity of the import in question and would do a better job of capturing indirect emissions. The flat tariff may be “less targeted” than a carbon tariff but is “primarily designed to increase participation, not to reduce leakage or improve competitiveness,” by addressing “*total* emissions of greenhouse gases, not only . . . those embodied in traded goods.”⁵⁶ That approach might prove to be a double-edged sword, however; it would obviate the need for complicated calculations regarding the carbon intensity of a given good or sector,⁵⁷ but the undiscriminating nature of the tariffs could spark damaging retaliatory tariffs that would undercut the benefits that accrue to climate club members.⁵⁸

B. Trade Law

States whose exports are subject to the new carbon tariffs could challenge them at the WTO as violations of either the “most-favoured-nation” requirement that obliges states to provide equal treatment to exports from other parties⁵⁹ or the national-treatment obligation that requires states to treat foreign producers the same as domestic producers.⁶⁰ Though carbon tariffs could conceivably be justified on the basis that they are border adjustment taxes permitted under GATT rules or under the theory that they fall under extant GATT exceptions for health and natural resources, both arguments rely on expansive understandings of the GATT text. Indeed, conflicting scholarship and limited precedent suggest that opponents of carbon tariffs might succeed in pressing a WTO claim — though this analysis presupposes a functioning dispute settlement system at the WTO, which may be an unrealistic assumption

<https://www.bundesfinanzministerium.de/Content/EN/Pressemitteilungen/2021/20210825-german-government-wants-to-establish-an-international-climate-club.html> [<https://perma.cc/X9MK-83SY>].

⁵⁶ William Nordhaus, *Climate Clubs: Overcoming Free-Riding in International Climate Policy*, 105 AM. ECON. REV. 1339, 1349 (2015) (emphasis added).

⁵⁷ See C.R., *Are Carbon Tariffs a Good Idea?*, THE ECONOMIST (Feb. 17, 2017), <https://www.economist.com/the-economist-explains/2017/02/17/are-carbon-tariffs-a-good-idea> [<https://perma.cc/5PPP-UTD8>].

⁵⁸ See Weil, *supra* note 29, at 943.

⁵⁹ GATT, *supra* note 19, art. I (“[A]ny advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.”).

⁶⁰ See *id.* art. III. This obligation in turn rests on the assumption that goods produced in regulated jurisdictions are “like” those produced in the absence of climate regulations; as discussed below, this Chapter assumes that these goods would be viewed as alike under existing WTO jurisprudence. See Annie Arko, *A Canadian Border Carbon Adjustment? GATT Compliance and Underexplored Exceptions*, 16 GLOB. TRADE & CUSTOMS J. 446, 447 n.5 (2021).

in light of the current deadlock in the Appellate Body.⁶¹ Against this muddled backdrop, then, it is no surprise that the WTO has been framed as being “part of the problem,” rather than a potential solution, when it comes to addressing climate change.⁶²

i. Carbon Tariffs as Border Adjustment Taxes. — GATT Article II:2, which incorporates by reference Article III:2, permits border tax adjustments that impose charges equivalent to domestic taxes levied on “like domestic product[s]” or on “an article from which the imported product has been manufactured or produced in whole or in part.”⁶³ WTO precedent suggests that indirect taxes — those that target products instead of producers — are permitted under Article II:2,⁶⁴ but carbon tariffs may not fit neatly into this category because carbon content is not a final or intermediate product.⁶⁵ The status of carbon tariffs is further complicated by the fact that carbon emissions are not physically incorporated into the final product,⁶⁶ leaving scholars divided on whether similar goods with different carbon contents should be considered “like goods” for the purposes of the border tax adjustment provisions.⁶⁷ The exemptions processes outlined in the EU and U.S. proposals could also cast doubt on whether carbon tariffs can be characterized as border adjustment taxes; each proposal suggests that the climate policies in the exporting market will be assessed on a discretionary basis to see if they

⁶¹ See *infra* ch. V, section B.3, pp. 1651–52.

⁶² Katherine Tai, U.S. Trade Representative, Remarks from Ambassador Katherine Tai on Trade Policy, the Environment and Climate Change (Apr. 15, 2021), <https://ustr.gov/about-us/policy-offices/press-office/speeches-and-remarks/2021/april/remarks-ambassador-katherine-tai-trade-policy-environment-and-climate-change> [https://perma.cc/YV77-ZJ8R].

⁶³ GATT, *supra* note 19, art. II:2.

⁶⁴ See Paul-Erik Veel, *Carbon Tariffs and the WTO: An Evaluation of Feasible Policies*, 12 J. INT'L ECON. L. 749, 771–72 (2009); Zane, *supra* note 21, at 207.

⁶⁵ See Kasturi Das, *Can Border Carbon Adjustments Be WTO-Legal?*, 8 MANCHESTER J. INT'L ECON. L. 65, 71 (2011); Veel, *supra* note 64, at 773–74; cf. Panel Report, *United States — Taxes on Petroleum and Certain Imported Substances*, ¶¶ 2.3–2.4, 5.2.10, WTO Doc. L/6175-34S/136 (adopted June 17, 1987) [hereinafter U.S. Petroleum] (upholding adjustment taxes on chemicals used as intermediate products). But see Matthew C. Porterfield, *Border Adjustments for Carbon Taxes, PPMs, and the WTO*, 41 U. PA. J. INT'L L. 1, 37–38 (2019) (suggesting that production inputs can be targeted by border adjustment taxes, but noting that higher effective tax rates associated with higher carbon emissions on the imported product relative to the domestic product could violate GATT's national treatment provisions).

⁶⁶ See Christine Kaufmann & Rolf H. Weber, *Carbon-Related Border Tax Adjustment: Mitigating Climate Change or Restricting International Trade?*, 10 WORLD TRADE REV. 497, 502 (2011); see also Zane, *supra* note 21, at 208 (noting that the chemicals in U.S. Petroleum were “physically incorporated” into the final products, [while] carbon emissions are not incorporated into any product, but are a by-product of the production process,” a distinction which “seems to weigh heavily in favor of carbon taxes as producer rather than product taxes” (quoting Veel, *supra* note 64, at 773)).

⁶⁷ See Kaufmann & Weber, *supra* note 66, at 510; Veel, *supra* note 64, at 779–81; see also Porterfield, *supra* note 65, at 29–30 (noting that carbon content could be a distinguishing factor if it has a significant impact on consumer preferences); Zane, *supra* note 21, at 208–09 (arguing that “it is difficult to distinguish between products based solely on carbon emissions,” *id.* at 209, and that carbon tariffs are thus probably inconsistent with Article III:2).

are as ambitious as those in the importing jurisdiction.⁶⁸ As a result, they could end up imposing different tariffs on “like” products — even those with similar carbon contents — based on the importing jurisdiction’s assessment of the climate policy framework in the exporting state.

2. *Exceptions Under Article XX.* — If carbon tariffs cannot be justified as border adjustment taxes, proponents might look to the exceptions enumerated in GATT Article XX, which enable parties to take nonconforming measures “necessary to protect human, animal or plant life or health”⁶⁹ or “relating to the conservation of exhaustible natural resources.”⁷⁰ Unfortunately, neither exception provides obvious cover.

The natural-resource exception has been read to cover clean air,⁷¹ leading some scholars to frame it as an easy fit for carbon tariffs.⁷² In addition, the WTO has in some cases taken a contextual view of the meaning of “natural resource.”⁷³ However, it is unclear under WTO precedent whether atmospheric carbon levels can truly “be characterized as exhaustible . . . or even as resources.”⁷⁴ Despite the fact that the health exception has been extended to efforts to protect the environment,⁷⁵ that clause is read even more narrowly due to the necessity requirement embodied in the text⁷⁶ and has limited application with respect to regulations aimed at protecting health outside of the regulating jurisdiction.⁷⁷

⁶⁸ See EU CBAM Proposal, *supra* note 14, art. 9; S. 2378, 117th Cong. § 9904(b) (2021).

⁶⁹ GATT, *supra* note 19, art. XX(b).

⁷⁰ *Id.* art. XX(g). The most relevant exceptions are likely those pertaining to health and natural resources, though other exceptions, including Article XXI’s national security exceptions, have also been advanced as possible routes toward GATT compatibility for carbon tariffs. See Arko, *supra* note 60, at 455–57. The security exceptions have received little interpretation at the WTO, but at least one panel report suggests that they will be interpreted narrowly to apply only to “the quintessential functions of the state.” Panel Report, *Russia — Measures Concerning Traffic in Transit*, ¶ 7.130, WTO Doc. WT/DS512/R (adopted Apr. 26, 2019).

⁷¹ Kaufmann & Weber, *supra* note 66, at 512; see also Appellate Body Report, *United States — Standards for Reformulated and Conventional Gasoline*, ¶ I.C(vi), WTO Doc. WT/DS2/AB/R (adopted May 20, 1996).

⁷² See Veel, *supra* note 64, at 777; Joost Pauwelyn, *U.S. Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law* 35–36 (Nicholas Inst. for Env’t Pol’y Sols., Working Paper No. 07-02, 2007), <https://nicholasinstitute.duke.edu/sites/default/files/publications/u.s.-federal-climate-policy-and-competitiveness-concerns-the-limits-and-options-of-international-trade-law-paper.pdf> [https://perma.cc/EE9C-EPZX].

⁷³ See Appellate Body Report, *United States — Import Prohibition of Certain Shrimp and Shrimp Products*, ¶ 130, WTO Doc. WT/DS58/AB/R (adopted Nov. 6, 1998) [hereinafter *U.S. — Shrimp*] (arguing that the term “natural resources” is “by definition, evolutionary” (quoting Legal Consequences for States of Continued Presence of South Africa in Namibia (South West Africa) Notwithstanding Security Council Resolution 276, Advisory Opinion, 1971 I.C.J. 16, ¶ 53 (June 21))).

⁷⁴ Zane, *supra* note 21, at 222.

⁷⁵ See Appellate Body Report, *Brazil — Measures Affecting Imports of Retreaded Tyres*, ¶ 179, WTO Doc. WT/DS332/R (adopted Dec. 3, 2007).

⁷⁶ See Zane, *supra* note 21, at 214–15, 214 n.143 (collecting sources).

⁷⁷ Panel Report, *United States — Restrictions on Imports of Tuna*, ¶¶ 5.24–5.29, WTO Doc. DS21/R-39S/155 (Sept. 3, 1991) (unadopted).

Even if one of the two exceptions were found to apply, carbon tariffs would still have to pass Article XX's chapeau test, which requires that measures not be applied "in a manner which would constitute a means of arbitrary or unjustifiable discrimination" or constitute "a disguised restriction on international trade."⁷⁸ Though WTO jurisprudence has moved away from categorical rejections of attempts to influence policies in exporting countries,⁷⁹ the nondiscrimination principle might preclude discretionary exemptions for carbon pricing or regulatory schemes.⁸⁰ In practice, then, a WTO panel might view the carbon tariff models summarized above skeptically to the extent that they are justified as a means of compelling climate action by other states.⁸¹ Different tariff-exemptions treatments for similar carbon pricing or regulatory schemes could also be problematic. Though the U.S. proposals purport to give credit for different forms of climate policies, the current EU draft does not, which could be challenged as a violation of the chapeau test's non-discrimination principle.⁸² And while the EU model seeks to account for differentiated conditions in exporting countries in applying the tariffs,⁸³ it is still unclear how it could do so objectively.⁸⁴ Moreover, the Article XX standard could require carbon tariff authorities to offer importers due process with respect to their exemptions requests and in setting the emissions baseline for the imports in question,⁸⁵ and to show that less trade-restrictive alternatives were unworkable. These requirements that could prove administratively burdensome for the EU and U.S. proposals and impossible for a climate club model that imposes flat tariffs in an undiscriminating manner.⁸⁶

3. *WTO Deadlock.* — The foregoing ambiguity is exacerbated by the fact that the WTO is currently incapable of definitively settling disputes. Designed as the final body of review for appeals brought by WTO parties, the Appellate Body has been nonfunctional since late 2019, when

⁷⁸ GATT, *supra* note 19, art. XX.

⁷⁹ See Porterfield, *supra* note 65, at 30–31.

⁸⁰ Veel, *supra* note 64, at 784–87; see also Das, *supra* note 65, at 84.

⁸¹ See Porterfield, *supra* note 65, at 39.

⁸² See Weil, *supra* note 29, at 954.

⁸³ EU CBAM Proposal, *supra* note 14, art. 7(6).

⁸⁴ See U.S. — Shrimp, *supra* note 73, ¶ 165 (holding that Article XX requires parties to "allow for an[] inquiry into the appropriateness of the regulatory program for the conditions prevailing" in the exporting country).

⁸⁵ See Veel, *supra* note 64, at 788–90.

⁸⁶ Kaufmann & Weber, *supra* note 66, at 515–16. The managing director of the International Monetary Fund, Kristalina Georgieva, has noted that a patchwork system of carbon border adjustment measures would be a "nightmare" for the WTO and has urged countries to work toward a multilaterally negotiated solution instead. See Tasker, *supra* note 32.

the number of sitting judges fell below the requisite quorum.⁸⁷ The United States began blocking appointments — which must receive the consent of all WTO member states — under the Obama Administration after expressing discontent about judicial activism⁸⁸ and decisions taking an expansive view of the obligations codified in the GATT,⁸⁹ and following a series of losses at the WTO connected to U.S. trade remedies.⁹⁰ The deadlock in appointments — and the effective defenestration of the Appellate Body — means that reports emerging from WTO dispute panels will be unenforceable for the foreseeable future⁹¹ and that definitive answers to the ambiguities around the status of carbon tariffs under the GATT will not be forthcoming anytime soon.⁹²

C. Principles of International Law and State Responsibility

As the preceding foray into trade law makes clear, not much about the compatibility of carbon tariffs with the WTO regime is clear at all. International trade obligations do not exist in a vacuum, however, and a large and growing body of treaty and customary international law also purports to guide state action with respect to the environment. Even if carbon tariffs were found to violate the GATT or left to languish in the legal ambiguity created by a defunct WTO Appellate Body, proponents of carbon tariffs might point to that body of international environmental law to justify the measures as lawful breaches of trade obligations aimed at inducing compliance with international climate obligations. As such, this section examines whether international law imposes a requirement on states to combat climate change and how the doctrine of state responsibility could be applied to justify the imposition of carbon tariffs

⁸⁷ BRANDON J. MURRILL, CONG. RSCH. SERV., LSB 10385, THE WTO'S APPELLATE BODY LOSES ITS QUORUM: IS THIS THE BEGINNING OF THE END FOR THE "RULES-BASED TRADING SYSTEM"? 1–2 (2019).

⁸⁸ NINA M. HART & BRANDON J. MURRILL, CONG. RSCH. SERV., R46852, THE WORLD TRADE ORGANIZATION'S (WTO'S) APPELLATE BODY: KEY DISPUTES AND CONTROVERSIES 2 (2021).

⁸⁹ See *Contemporary Practice of the United States Relating to International Law — United States Blocks Reappointment of WTO Appellate Body Member*, 110 AM. J. INT'L L. 554, 574–75 (2016).

⁹⁰ Chad P. Brown & Soumaya Keynes, *Why Did Trump End the WTO's Appellate Body? Tariffs.*, PETERSON INST. FOR INT'L ECON. (Mar. 4, 2020, 4:30 PM), <https://www.piie.com/blogs/trade-and-investment-policy-watch/why-did-trump-end-wtos-appellate-body-tariffs> [https://perma.cc/Y7KJ-Z9CN]. Notably, U.S. unhappiness was also tied to WTO decisions that allegedly constrained the ability of the United States to “regulate in the public interest.” HART & MURRILL, *supra* note 88, at 3 (quoting OFF. OF THE U.S. TRADE REPRESENTATIVE, EXEC. OFF. OF THE PRESIDENT, 2019 TRADE POLICY AGENDA AND 2018 ANNUAL REPORT OF THE PRESIDENT OF THE UNITED STATES ON THE TRADE AGREEMENTS PROGRAM 6, 148 (2019)).

⁹¹ See HART & MURRILL, *supra* note 88, at 2.

⁹² Although the WTO can still author panel reports to address disputes between parties, the reports cannot be adopted as final unless the disputing parties both agree, effectively giving the losing side a veto. See *id.*

as a lawful countermeasure against states falling short of that responsibility.⁹³ However, in light of largely hortatory treaty commitments and underdeveloped norms of customary international law, international environmental law does not yet supply a binding obligation on states to respond to climate change. Moreover, the doctrine of state responsibility seems ill suited to addressing the wide-ranging temporal and geographic scope of the climate crisis. As such, this section concludes that background principles of international law do little better than trade law to clarify the permissibility of carbon tariffs.

i. International Obligations to Combat Climate Change. — Although still a relatively nascent area of legal doctrine, international environmental law now addresses a “broad range of issues.”⁹⁴ Two primary sources of international legal obligations on states predominate: treaty law and customary international law.⁹⁵ Although climate treaty law has developed considerably since the implementation of the 1992 United Nations Framework Convention on Climate Change⁹⁶ (UNFCCC), and despite a growing body of literature arguing in favor of the existence of norms of customary international law on climate change, neither source of international law provides a clear basis for a binding international obligation on states to address climate change.

(a) *Treaty Law.* — Since the ratification of the UNFCCC, parties to the agreement have committed themselves “to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects,”⁹⁷ a pledge that states are obliged to honor in good faith.⁹⁸ The Paris Agreement⁹⁹ reflects the latest iteration of those treaty obligations and commits its 183 state parties to “[h]olding the increase in the global

⁹³ Though the relationship between the GATT and countermeasures under the doctrine of state responsibility is not examined in depth in this Chapter, scholars have argued that even detailed treaty-based regimes like the WTO do not foreclose resort to self-help where the treaty-based system is ineffectual. See Bruno Simma & Dirk Pulkowski, *Of Planets and the Universe: Self-Contained Regimes in International Law*, 17 EUR. J. INT'L L. 483, 508–10 (2006).

⁹⁴ Catherine Redgwell, *International Environmental Law*, in INTERNATIONAL LAW 675, 676 (Malcolm D. Evans ed., 5th ed. 2018) (quoting PATRICIA BIRNIE ET AL., INTERNATIONAL LAW AND THE ENVIRONMENT 6 (3d ed. 2009)).

⁹⁵ See Statute of the International Court of Justice art. 38, ¶ 1, June 26, 1945, 59 Stat. 1055, 1060, 3 Bevans 1179, 1187. The International Court of Justice statute is the most widely accepted codification of the “doctrine of sources” that guides the interpretation of international law. See Anthea Roberts & Sandesh Sivakumaran, *The Theory and Reality of the Sources of International Law*, in INTERNATIONAL LAW, *supra* note 94, at 89–90.

⁹⁶ United Nations Framework Convention on Climate Change, adopted May 9, 1992, 1771 U.N.T.S. 107.

⁹⁷ *Id.* art. 3, para. 3.

⁹⁸ See Vienna Convention on the Law of Treaties art. 26, May 23, 1969, 1155 U.N.T.S. 331.

⁹⁹ Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104 [hereinafter Paris Agreement].

average temperature to well below 2°C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5°C.”¹⁰⁰

The Paris Agreement contains commitments that are binding under international law,¹⁰¹ seemingly making it a good candidate for a source of international legal obligation on states to combat climate change. State parties are called on to prepare “nationally determined contribution[s]” to global efforts to combat climate change, in the form of emissions reductions, that reflect their “highest possible ambition.”¹⁰² But on closer review, the deal looks less binding; that ambition — undefined in the agreement — is tempered by “differentiated responsibilities” and “different national circumstances.”¹⁰³ Indeed, the substantive commitments under the Paris Agreement are almost entirely self-directed and self-policing in nature; nations are responsible for volunteering their own climate targets and for fulfilling the reporting requirements articulated in the agreement.¹⁰⁴ Moreover, as an international instrument directed at sovereign states, the Paris Agreement is beholden to the principle of state sovereignty: parties are free to accede to and abandon the agreement as they see fit.¹⁰⁵ The voluntary nature of the pact thus undercuts its potency.¹⁰⁶ Even though many parties have offered commitments that are clearly insufficient to meet the overarching 1.5°C target,¹⁰⁷ the Paris Agreement offers little in the way of binding commitments that can be enforced against these states.¹⁰⁸

¹⁰⁰ *Id.* art. 2, para. 1(a).

¹⁰¹ Curtis A. Bradley & Jack L. Goldsmith, *Presidential Control over International Law*, 131 HARV. L. REV. 1201, 1249 (2018).

¹⁰² Paris Agreement, *supra* note 99, art. 4, para. 3. In addition, parties shall, *inter alia*, “account for their nationally determined contributions,” *id.* para. 13, and “be responsible” for the emission-level targets that they set, *id.* para. 17.

¹⁰³ *Id.* para. 3.

¹⁰⁴ See *id.* para. 9.

¹⁰⁵ And the Trump Administration did just that. See Lisa Friedman, *Trump Serves Notice to Quit Paris Agreement*, N.Y. TIMES (Feb. 19, 2021), <https://www.nytimes.com/2019/11/04/climate/trump-paris-agreement-climate.html> [https://perma.cc/P4R3-YRV4]; cf. Off. of the U.N. High Comm’r for Hum. Rts., Fact Sheet No. 15 (Rev. 1), Civil and Political Rights: The Human Rights Committee 10 (2005), <https://www.ohchr.org/Documents/Publications/FactSheet15rev.1en.pdf> [https://perma.cc/DMZ3-35S7] (noting the view of the Human Rights Committee that “once a State has ratified [the International Covenant on Civil and Political Rights], it is not permitted to withdraw from its obligations by denouncing the treaty” owing to the “particular character of human rights treaties such as the Covenant” (emphasis added)).

¹⁰⁶ It bears mentioning here that this bottom-up approach was a deliberate design choice after the failure of the Kyoto Accords, which imposed quantitative emissions-reductions targets on high-income countries like the United States, which did not ratify the agreement. See JANE A. LEGGETT, CONG. RSCH. SERV., R46204, THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, THE KYOTO PROTOCOL, AND THE PARIS AGREEMENT 4–6 (2020); see also *supra* Introduction, pp. 1528–29.

¹⁰⁷ See U.N. Env’t Programme, *Emissions Gap Report 2021*, at xvi (2021).

¹⁰⁸ This is not to say, however, that the Paris Agreement is entirely without teeth with respect to national governments; domestic courts have used the agreement’s voluntary targets to force action

(b) *Climate Change and Customary International Law.* — Customary international law — encompassing the unwritten norms at the heart of the international legal framework — is established by recourse to a two-part test: “[it] arises from a ‘general and consistent practice of states followed by them from a sense of legal obligation.’”¹⁰⁹ This background body of international law, which can be especially impactful in areas — like international humanitarian law — where state practice and a sense of legal obligation are widespread,¹¹⁰ provides little clarity when it comes to climate change. Scholars have advanced several theories arguing for the existence of norms of customary international law that amount to a binding obligation on states to address climate change. Some characterize the environment and atmosphere as a “common concern of mankind,”¹¹¹ while others point to the “no harm” principle of customary international law, which holds that no state may, in exploiting its territory, cause injury to the territory, property, or persons of another.¹¹² And when confronted with the scientific uncertainty attending the link between discrete state action and global climatic phenomena, scholars of this camp point to a “precautionary principle” to suggest that all states have a responsibility to act to limit the pace of climate change, even where causality is unclear.¹¹³

Though each of these arguments has a strong normative appeal to audiences who favor international climate action, their grounding in the doctrine of customary international law is shaky at best. Norms of customary international law must be evidenced by a showing of widespread and consistent state practice, practice that must in turn arise out of a

at the national level. *See* HR 20 December 2019, NJ 2020, 41 paras. 6.1–7.3.6 m.nt. J. Spier (Staat der Nederlanden (Ministerie van Economische Zaken en Klimaat)/Stichting Urgenda) (Neth.) (holding that global climate targets embodied in the Paris Agreement applied against the Netherlands and that the government must act to achieve them).

¹⁰⁹ Ryan M. Scoville, *Finding Customary International Law*, 101 IOWA L. REV. 1893, 1895 (2016) (quoting RESTATEMENT (THIRD) OF THE FOREIGN RELS. L. OF THE U.S. § 102 (AM. L. INST. 1987)); *see also* Roberts & Sivakumaran, *supra* note 95, at 92–93. The line between customary international law and treaty law is not clear cut, and treaties may be viewed as crystallizing emerging norms of customary international law, though state practice pursuant to a treaty may not be dispositive for the purposes of the test of customary international law. *See id.* at 95; North Sea Continental Shelf (W. Ger./Den. & Neth.), Judgment, 1969 I.C.J. 3, ¶¶ 75–76 (Feb. 20) (noting that state practice in conformity with the 1958 Geneva Convention on the Continental Shelf, Convention on the Territorial Sea and the Contiguous Zone, Apr. 29, 1958, 516 U.N.T.S. 205, was ambiguous for the purposes of establishing state practice because the states were “presumably . . . acting . . . in the application of the Convention”).

¹¹⁰ *See* Customary Law, INT'L COMM. OF THE RED CROSS, <https://www.icrc.org/en/war-and-law/treaties-customary-law/customary-law> [<https://perma.cc/VW8F-MDXW>].

¹¹¹ *See* Redgwell, *supra* note 94, at 695.

¹¹² *Id.* at 684.

¹¹³ *See* Vanessa S.W. Tsang, Establishing State Responsibility in Mitigating Climate Change Under Customary International Law 19 (2021) (LL.M. thesis, Columbia Law School), https://scholarship.law.columbia.edu/cgi/viewcontent.cgi?article=1001&context=llm_essays_theses [<https://perma.cc/BEK3-JRK2>].

sense of legal obligation on the part of the acting states.¹¹⁴ Both prongs seem problematic in the context of climate change; state practice on climate change is wildly uneven,¹¹⁵ and evidence of a sense of legal obligation on the part of the states taking action is still hard to find. In addition, the fact that some states have consistently disclaimed any responsibility for responding to climate change could further undercut the status of climate obligations as customary international law, because such “persistent objectors” are generally deemed to be exempt from the reach of international law formulated by custom.¹¹⁶ The other norms advanced in the climate change context seem equally problematic: the no-harm principle has been interpreted principally to require due diligence on the part of the polluting state,¹¹⁷ while the precautionary principle suffers from a dearth of consistent state practice and legal justification.¹¹⁸

(c) *State Responsibility and Countermeasures.* — Even if a binding international legal obligation to respond to climate change were to be established, carbon tariffs would need to be implemented in accordance with the principles of state responsibility and lawful countermeasures reflected in the Draft Articles on State Responsibility¹¹⁹ (ARSIWA), which codify customary international law on lawful remedies for internationally wrongful acts.¹²⁰ Yet problems associated with temporality, causation, and attribution, along with confusion in terms of the remedy sought, may mean that state responsibility doctrine is presently “ill equipped” to take on the challenge of climate change.¹²¹

(i) *State Responsibility.* — State responsibility emerges on a finding of an internationally wrongful act, which in turn rests on a finding of an act or omission that is (1) “attributable to the State” and (2) “a breach of an international obligation of the State.”¹²² Element two is,

¹¹⁴ See Roberts & Sivakumaran, *supra* note 95, at 92–93.

¹¹⁵ See, e.g., *NDC Enhancement Tracker*, CLIMATE WATCH, <https://www.climatewatchdata.org/2020-ndc-tracker> [https://perma.cc/3QSM-Z6TT] (detailing the variety of climate targets, baselines, and metrics advanced by different states).

¹¹⁶ See Roberts & Sivakumaran, *supra* note 95, at 97.

¹¹⁷ See Redgwell, *supra* note 94, at 684.

¹¹⁸ See Usman Hameed et al., *The Precautionary Principle Under International Environmental Law: A Rule of Customary Law or Merely an Approach Based on Prudence?*, 2019 J.L. & SOC. POL’Y 90, 91–92.

¹¹⁹ G.A. Res. 56/83, annex, *Responsibility of States for Internationally Wrongful Acts* (2002) [hereinafter ARSIWA].

¹²⁰ See Patrick Hamilton, *Counter(measuring) Climate Change: The ILC, Third State Countermeasures and Climate Change*, 4 MCGILL INT’L J. SUSTAINABLE DEV. L. & POL’Y 83, 91 (2008).

¹²¹ Christina Voigt, *State Responsibility for Climate Change Damages*, 77 NORDIC J. INT’L L. 1, 2 (2008).

¹²² ARSIWA, *supra* note 119, annex art. 2.

as outlined above, complicated in the context of climate change.¹²³ Attribution would be no simpler. Although a significant share of global emissions can be traced to state-owned enterprises, a large proportion comes from privately held companies.¹²⁴ Still, ARSIWA provides that the conduct of private actors can be attributed to a state if the actors are “under the direction or control of” the state in carrying out the conduct.¹²⁵ This element of the doctrine has received relatively little elucidation in international legal jurisprudence, and what case law exists provides conflicting standards for the degree of state control that is required.¹²⁶ So, although private-sector polluters are arguably under some degree of state control,¹²⁷ the extension of ARSIWA beyond “government organs or the conduct of persons empowered to exercise government authority” would be controversial, to say the least.¹²⁸ Problems of causation would muddy the waters further; attributing climate-wrought damages to specific emissions or state action (or inaction) could be difficult or impossible,¹²⁹ especially in light of the geographic and temporal remoteness and naturally occurring sources of emissions and climate change that come into play when assessing the impact of emissions from a given state.¹³⁰

Additionally, scholars are divided on the question of whether state responsibility must be predicated on a finding of injury,¹³¹ though

¹²³ See *supra* sections C.1.a–b, pp. 1653–56.

¹²⁴ See PAUL GRIFFIN, CDP, THE CARBON MAJORS DATABASE: CDP CARBON MAJORS REPORT 2017, at 8 (2017) (finding 100 large companies to be responsible for seventy-one percent of global industrial GHG emissions). But see Tsang, *supra* note 113, at 12 (arguing that the failure to develop and enforce climate policies may be a form of omission that encourages continued emissions).

¹²⁵ ARSIWA, *supra* note 119, annex art. 8.

¹²⁶ Compare Military and Paramilitary Activities in and Against Nicaragua (Nicar. v. U.S.), Judgment, 1986 I.C.J. 14, ¶ 115 (June 27) (requiring a finding (1) that the state party was in effective control of the actor in question and (2) that the control was exercised with respect to the specific acts giving rise to the breach), with Prosecutor v. Tadić, Case No. IT-94-1-A, Appeals Chamber Judgement, ¶¶ 120–31 (Int'l Crim. Trib. for the Former Yugoslavia July 15, 1999) (holding a more indirect nexus including coordination and general direction could suffice to establish responsibility).

¹²⁷ See Tsang, *supra* note 113, at 2 (advocating for the imposition of state responsibility doctrine in the climate change context generally). Indeed, the basic premise of the Paris Agreement is that states are capable of taking steps to control private-sector emissions. See Paris Agreement, *supra* note 99, at 2.

¹²⁸ Phillip Barton, *State Responsibility and Climate Change: Could Canada Be Liable to Small Island States?*, 11 DALHOUSIE J. LEGAL STUD. 65, 70 n.23 (2002).

¹²⁹ Skeptics have noted that state responsibility doctrine generally attends to harms that have already occurred (rather than those that are anticipated), that climate obligations are largely non-reciprocal, and that this commons-like accountability gap may “render it difficult to meet the requirement of breach of an obligation owed to another State.” Redgwell, *supra* note 94, at 687.

¹³⁰ See Maciej Nyka, *State Responsibility for Climate Change Damages*, 45 REV. EUR. & COMPAR. L. 131, 145 (2021); Tsang, *supra* note 113, at 16–17.

¹³¹ See James Crawford & Simon Olleson, *The Character and Forms of International Responsibility*, in INTERNATIONAL LAW, *supra* note 94, at 415, 435 & n.84. Establishing injury

ARSIWA does provide for state responsibility to be invoked by “[a]ny State other than an injured State” where “the obligation breached is owed to a group of States . . . and is established for the protection of a collective interest of the group.”¹³² This form of obligation is not widely accepted as customary international law, however.¹³³ Moreover, assigning a temporal boundary to the obligation to address climate change could prove challenging; international jurisprudence has frowned on attempts to assign liability retroactively, and as such the precise timing of the emergence of the international obligation to address climate change would be hotly contested.¹³⁴ Finally, so-called “circumstance[s] precluding wrongfulness,” namely economic distress and necessity, might be invoked by less wealthy nations on the receiving end of carbon tariffs to justify their noncompliance with their climate obligations, further limiting the reach of state responsibility.¹³⁵

(ii) *Countermeasures.* — Provided that hurdles related to establishing a binding international obligation could be cleared and that problems relating to attribution could be addressed, ARSIWA provides for countermeasures to be taken by a wronged state, so long as conditions limiting the scope and application of countermeasures are respected. Most saliently for the purposes of carbon tariffs, countermeasures must be taken to induce compliance with the breached obligation and must be proportionate.¹³⁶ Difficult temporal line-drawing exercises seem sure to follow if this doctrine is used to justify carbon tariffs; because a disproportionate share of historical emissions can be traced back to developed nations,¹³⁷ ARSIWA could theoretically justify an endless array of countermeasures by states claiming injury. Yet applying carbon tariffs as countermeasures only in a prospective fashion would raise the question of why the more developed states that are contemplating tariffs should get a free pass for their historical emissions while imposing countermeasures on other states, including LDCs that have historically contributed very little to global emissions.¹³⁸ Proportionality is also

may be difficult, but not impossible, in light of the increasingly sophisticated measures for quantifying the damage wrought by climate change. See generally, e.g., Maximilian Auffhammer, *Quantifying Economic Damages from Climate Change*, 32 J. ECON. PERSPS. 33 (2018).

¹³² ARSIWA, *supra* note 119, annex art. 48, ¶ 1.

¹³³ Crawford & Olleson, *supra* note 131, at 445–46.

¹³⁴ See *id.* at 435–36.

¹³⁵ See *id.* at 438–39.

¹³⁶ ARSIWA, *supra* note 119, annex art. 49, ¶¶ 1, 3; *id.* art. 51; see also Crawford & Olleson, *supra* note 131, at 439 n.100.

¹³⁷ See Nadja Popovich & Brad Plumer, *Who Has the Most Historical Responsibility for Climate Change?*, N.Y. TIMES (Nov. 12, 2021), <https://www.nytimes.com/interactive/2021/11/12/climate/cop26-emissions-compensation.html> [https://perma.cc/E3XW-2ATJ].

¹³⁸ Some analysis has suggested that the increased costs of deferred action to tackle climate change are in the trillions of dollars because of the steeper emissions reductions now needed to

predicated on the nature of the remedy sought; ARSIWA authorizes countermeasures only to the extent that they seek to induce compliance with the breached international obligation.¹³⁹ But establishing what sort of climate policy is proportionate to the obligation to limit climate change hinges on the existence of a still-elusive consensus on what policies are effective at combating climate change and how they must be applied.¹⁴⁰ As outlined above, the relevant treaty law merely requires that states put forward self-defined goals within the broader 1.5°C global target, and even emerging norms of customary international law do not provide for quantitative targets, meaning that compliance with ARSIWA's proportionality principle could be difficult, if not impossible, to measure in practice.

D. Advancing Amidst the Uncertainty

Despite the enduring uncertainty as to their status under international trade and environmental law, carbon tariffs are coming. This Chapter has suggested that carbon tariffs may have a vital role to play in catalyzing international action on climate change — indeed, that they may present the only viable way of doing so — notwithstanding their ambiguous status under international law. Though a full accounting of the legal ramifications of the arrival of carbon tariffs will be contingent on the final model or models implemented, this section offers some tentative conclusions about the ways that they may impact the international legal system. It is too early to assess whether the benefits will outweigh the destabilizing effects of carbon tariffs. But for better or for worse, they seem bound to reshape the WTO system and norms of international law related to climate change. If nothing else, then, this section suggests that policymakers and climate advocates should be clear eyed about the potential side effects of what may prove to be a crucial tool in the fight against climate change.

i. Implications in Trade Law. — As outlined in section B above, the case for authorizing carbon tariffs as border adjustment taxes or as permitted exceptions to GATT obligations is muddy at best. The former route would stretch existing understandings of what constitutes a “like product” and a border adjustment tax,¹⁴¹ while the latter would require parties to shift their accepted understandings of the reach of the GATT

prevent warming beyond the 1.5°C target. Benjamin M. Sanderson & Brian C. O'Neill, *Assessing the Costs of Historical Inaction on Climate Change*, 10 SCI. REPS. 1, 5 (2020).

¹³⁹ Monetary compensation may also be pursued, however, and may be gaining acceptance as an objective for lawful countermeasures. See Crawford & Olleson, *supra* note 131, at 442.

¹⁴⁰ This is not to say that the problem eludes quantification; some scholars have suggested a “social cost of carbon” as a way to identify “the economic cost . . . resulting from emitting one additional ton of carbon dioxide.” Kevin Rennert et al., *The Social Cost of Carbon* 1 (Res. for the Future, Working Paper No. 21-28, 2021), https://media.rff.org/documents/WP_21-28_V2.pdf [<https://perma.cc/RA7P-WQF5>].

¹⁴¹ See Zane, *supra* note 21, at 209.

health and natural-resource exceptions and to accept “weak” analogies to existing WTO case law.¹⁴² Both routes would seem to be predicated on a willingness on the part of GATT parties to interpret text crafted in 1947 through the lens of contemporary understandings of the global nature of the climate challenge. The prospects for these tectonic shifts seem unclear, and the WTO’s rather dismal recent track record when it comes to forging consensus offers scant reason for optimism. The continuing deadlock on the Appellate Body seems set to endure; even if a new U.S. administration interested in defending the imposition of carbon tariffs were to yield on appointments, there is nothing to stop any other state party — one seeking to undermine the legitimacy of trade measures aimed at catalyzing climate action — from advancing judicial-activism arguments similar to those put forth by the United States in holding up new appointments.¹⁴³ U.S. rhetoric castigating the WTO for “adding to or diminishing rights or obligations” could easily be turned against efforts to read authorizations for carbon tariffs into GATT articles dealing with border adjustment taxes or existing Article XX exceptions.¹⁴⁴ And (if as seems likely) disputes about the legality of carbon tariffs remain unaddressed due to deadlock at the Appellate Body, the WTO’s longstanding legitimacy crisis could be exacerbated, threatening the stability of an already-fragile dispute settlement system and raising the specter of tit-for-tat trade wars that find no resolution at the one international institution designed to serve as a clearinghouse for global trade disputes.¹⁴⁵ Expansive interpretations of the GATT’s national security exceptions by the Trump Administration sparked a flurry of still-unresolved claims at the WTO and reprisals by trading partners;¹⁴⁶ it seems likely that a drawn-out dispute over the legality of carbon tariffs based on differing conceptions of the core commitments embodied in the GATT could further undermine the WTO system. Whether the WTO — already facing serious concerns about structural integrity — can bear the additional weight will remain an open question, for now.

¹⁴² *Id.* at 221–22.

¹⁴³ Australian Prime Minister Scott Morrison, for example, has decried carbon tariffs as “protectionism by another name.” Sonali Paul, *Australia Faces Climate Pressure with EU Carbon Tariff Threat — Study*, REUTERS (June 10, 2021, 6:08 PM), <https://www.reuters.com/business/environment/australia-faces-climate-pressure-with-eu-carbon-tariff-threat-study-2021-06-10> [https://perma.cc/URH2-GE4J].

¹⁴⁴ HART & MURRILL, *supra* note 88, at 3 (quoting OFF. OF THE U.S. TRADE REPRESENTATIVE, EXEC. OFF. OF THE PRESIDENT, REPORT ON THE APPELLATE BODY OF THE WORLD TRADE ORGANIZATION 96, 104 (2020)).

¹⁴⁵ See generally Daniel C. Esty, *The World Trade Organization’s Legitimacy Crisis*, 1 WORLD TRADE REV. 7 (2002).

¹⁴⁶ See Keith Johnson, *How Trump May Finally Kill the WTO*, FOREIGN POL’Y (Dec. 9, 2019, 9:58 AM), <https://foreignpolicy.com/2019/12/09/trump-may-kill-wto-finally-appellate-body-world-trade-organization> [https://perma.cc/5E9F-QHX7].

2. Implications in International Law More Broadly. — If the implications of carbon tariffs for the WTO system seem dire, their significance for the evolution of customary international law and the doctrine of state responsibility may offer reasons for cautious optimism on the part of climate advocates. As carbon tariffs proliferate amidst enduring uncertainty at the WTO, background principles of international environmental law may take on new importance as a way to justify and analyze carbon tariffs under international law. This Chapter has suggested that, at present, treaty-based climate targets are largely nonbinding, customary international law around climate change is underdeveloped, and the utility of state responsibility doctrine in this domain is unclear. Carbon tariffs do not offer a panacea to any of these challenges. Nevertheless, their pending imposition may help to firm up the body of international law that bears on the climate crisis. As they are put into practice, carbon tariffs could lead to the development of a larger body of state practice arising from a sense of legal obligation, helping to crystallize emerging norms of customary international law around responding to climate change. By providing a framework to compare different climate policies and determine which of them meet a threshold level of ambition, these tariffs could also facilitate the application of state responsibility doctrine to the issue of climate change.

The combination of consistent practice by a handful of influential (and mostly Western) states, along with evidence that those states are acting in response to a sense of international legal obligation, has sufficed to establish newer norms of customary international law.¹⁴⁷ If they work as designed, carbon tariffs may help to bolster state practice among these influential jurisdictions by lowering the social and political costs of implementing climate policies. The EU-U.S. steel and aluminum deal also hints at the sort of international cooperation and coordination that could accompany the introduction of carbon tariffs, suggesting that common standards, or at least commonly accepted threshold levels of ambition, could come into play. Carbon tariffs may also be justified in ways that indicate a sense of legal obligation to adopt climate policies consistent with the 1.5°C target embodied in the Paris Agreement, further solidifying the status of addressing climate change under customary international law.¹⁴⁸

More significantly, perhaps, the impact on customary international law would not be limited to the states implementing the tariff regimes. Most of the models currently under consideration enable exporters to try to win a tariff exemption by pointing to emissions policies in place in their home jurisdictions that are comparable to those at work in the importing state. As access to large and valuable markets like the United

¹⁴⁷ See Roberts & Sivakumaran, *supra* note 95, at 104.

¹⁴⁸ There is evidence that implementing states are already turning to Paris as a justification. See DEP'T OF FIN. CAN., *supra* note 26; EU CBAM Proposal, *supra* note 14, at 0.

States and the European Union becomes predicated on a showing that comparable climate policies are at work in the exporting state, more and more trade-dependent economies that might not otherwise adopt rigorous climate policies will be compelled to show that they too are complying with the Paris targets, further expanding the body of state practice. These effects may not produce a critical mass of state practice and legal obligation and may not overcome the inertial effects of persistent objectors, but they will almost certainly move the needle in the right direction.

Additionally, as carbon tariffs become more widespread, they could offer a more objective means to quantify the contours of the responsibility to respond to climate change. Though significant challenges related to causation and the scope of state responsibility would remain, carbon tariffs could be a large step toward easing the application of the doctrine of state responsibility in the climate context. Both the EU and U.S. models suggest that carbon tariff authorities will find a way to compare different climate regulatory structures.¹⁴⁹ In so doing, they may develop a functional “carbon price equivalent” to enable regulators to compare different climate policies, ranging from those that price carbon directly to those that use other nonpricing regulatory measures to limit emissions.¹⁵⁰ The emergence of a broader body of state practice related to the measurement and comparison of carbon price equivalents could thus help to solidify a consensus on the effective carbon price that is needed to respond to climate change.¹⁵¹

The impact of carbon tariffs on climate-related norms of customary international law may also have inequitable impacts, however. At present, neither the EU CBAM proposal nor the climate club model make any provision for exemptions for LDCs. And while Senator Coons’s model does suggest that LDCs will gain an exemption, the contours of that exemption are unclear, and the viability of this approach is unknown when viewed against the historical skepticism of the United States toward efforts to limit GHG emissions that exempt developing countries.¹⁵² That rationale, which holds that emerging economies constitute too large a share of contemporary GHG emissions to be exempted from international climate targets, is in tension with the principle of “common but differentiated responsibilities” that sits at the heart of the

¹⁴⁹ See S. 2378, 117th Cong. § 9905(d) (2021); *EU CBAM Proposal*, *supra* note 14, at 16–17.

¹⁵⁰ See Gabriel Weil, *The Carbon Price Equivalent: A Metric for Comparing Climate Change Mitigation Efforts Across Jurisdictions*, 125 DICK. L. REV. 475, 488–91 (2021).

¹⁵¹ And that consensus could creep upward as states with relatively stringent emissions standards, and greener economies as a result, begin to see a competitive advantage in imposing a higher carbon price equivalent on their trading partners.

¹⁵² See, e.g., S. Res. 98, 105th Cong. pml. (1997) (enacted) (“[e]xpressing the sense of the Senate” in the run-up to the Third Conference of the Parties to the UNFCCC in Kyoto that the United States should reject any deal that did not mandate new targets for developing countries as well).

same Paris Agreement that carbon tariff proponents point to as justification for the measures.¹⁵³ A carbon tariff regime structured to overlook the development status and historical emissions of the states subject to sanction might disproportionately penalize poorer states that have contributed less to historical GHG emissions¹⁵⁴ and that should arguably bear a relatively smaller share of the burden in mitigating climate change.¹⁵⁵ Many of those states have advocated fiercely in favor of tailored climate obligations in light of this fact,¹⁵⁶ though whether these arguments will find a receptive audience in the governments leading the charge on carbon tariffs is still unclear. If they do not, carbon tariffs might have the perverse effect of accelerating the development of norms and state practice aimed at responding to climate change, while disregarding along the way a core commitment to global equity embodied in the Paris Agreement.

Conclusion

This Chapter has suggested that perhaps the only definite legal conclusion to be drawn about the impending arrival of carbon tariffs is that they will have wide-ranging and unpredictable effects on the international legal system, in light of their ambiguous legal status. Though much will turn on their final form and implementation, the tariff models currently under consideration each come with their own set of drawbacks. Rather than complying with international legal norms and standards, these new climate-oriented trade measures may end up reshaping them in ways that could be transformative and disruptive. They may further undermine the already-shaky WTO system but may also help to clarify the contours of state responsibility to respond to climate change. At bottom, however, the potential of these novel tools to mitigate the competitiveness and collective action challenges associated with reducing emissions means that carbon tariffs must be considered seriously in the arsenal of new tools being brought to bear in the fight against climate change. States and citizens facing a rising tide of climate threats can afford no less.

¹⁵³ Paris Agreement, *supra* note 99, at 1.

¹⁵⁴ See Hannah Ritchie, *Who Has Contributed Most to Global CO₂ Emissions?*, OUR WORLD IN DATA (Oct. 1, 2019), <https://ourworldindata.org/contributed-most-global-co2> [https://perma.cc/K4KL-HJPB]. See generally Barton, *supra* note 128.

¹⁵⁵ See Lauren Sommer, *Developing Nations Say They're Owed for Climate Damage. Richer Nations Aren't Budging*, NPR (Nov. 11, 2021, 4:18 PM), <https://www.npr.org/2021/11/11/1054809644/climate-change-cop26-loss-and-damage> [https://perma.cc/LZK8-53W5].

¹⁵⁶ See, e.g., Tanguy Gahouma-Bekale, *COP26 on Climate: Top Priorities for Africa*, AFR. RENEWAL (July 15, 2021), <https://www.un.org/africarenewal/magazine/july-2021/cop26-climate-top-priorities-africa> [https://perma.cc/CWW4-9PRN].