NEW APPROACHES AND CHALLENGES REGARDING TRADE, CLIMATE ACTION, AND THE WTO

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Technical Summary

The report examines the intricate relationship between climate change and international trade, emphasizing the necessity for global cooperation to tackle the climate crisis in a sustainable and equitable manner. Climate change poses a significant global challenge, affecting economic, social, and political aspects of life worldwide. While effective resolution requires international cooperation, achieving so is complex due to inadequate action, the distribution of the burdens of regulatory costs, and the potential of free riding—a situation reminiscent of the tragedy of the commons. Efforts for cooperation in the environmental field have included multilateral environmental agreements (MEAs), from the 1992 United Nations Framework Convention on Climate Change to the 2015 Paris Agreement. However, political discord has hindered progress, particularly in linking climate action with trade governance within the World Trade Organization (WTO). Tensions between the developed and the less developed regarding historical contributions to climate change and how such historical contributions qualify current levels of responsibility, inadequate climate finance despite repeated promises, and the technology divide, further complicate this issue. Limited technology transfers and the lack of enforceability of related commitments have led to growing resentment and distrust among WTO members, amid the rising number of climate-related trade measures.

Driven by the need to address the growing climate urgency and frustrated by the slow progress toward the Paris goals and limited action at the WTO to integrate climate action and trade law, countries are ramping up unilateral trade policy measures to pursue climate action. Indeed, the WTO's legal framework offers several avenues for climate-related trade measures, with thousands of such measures notified between 2009 and 2020. Although there is a common understanding that trade and environmental policies must be mutually supportive, often, the design of such measures may run counter to WTO principles. Thus, unilateral measures often lead to actual and perceived conflicts with existing trade rules, raising concerns about "green protectionism". Moreover, the recent onslaught of green trade policies by developed trading nations has been criticized by several developing countries as being discriminatory, arbitrary, exclusionary, and in conflict with developmental principles recognized elsewhere in the international legal framework. Therefore, this report argues that critically re-examining key WTO concepts underlying the design of trade policies is essential to achieving two things. First, since more and more countries are introducing climate-based trade policies, analyzing already introduced policies can help identify legal and policy concerns, and accordingly *course-correct and guide the design of prospective measures*. Second, undertaking a comprehensive review of the legal implications can also help *identify weaknesses in the law*, and *inform the policy prescription* needed to improve the law in keeping with evolving global interests.

The report identifies four specific ways in which trade measures hold relevance to climate action: 1) ensure free trade in environmental goods and services and encourage trade in environmentally preferable goods (*what are the final goods produced*); 2) regulate trade based on the process and production methods used, including through taxation, technical regulations, and standards (*how are they produced*); 3) spur green growth (*relevance of green industrial policy*); and 4) incentivize innovation and provide access to technology to hasten decarbonization globally (*dissemination and uptake of climate technologies*).

Accordingly, this report discusses five different policy tools that can individually, or in some combination, achieve the above objectives: tariff and non-tariff liberalization, border carbon adjustments, standards, subsidies, and technology policy, that can and are playing an important role in shaping the discussions on climate and trade. This report undertakes to highlight key legal considerations that arise in the design of these instruments, by examining their implications under the various WTO agreements—the General Agreement on Tariffs and Trade (GATT) 1994, the Agreement on Technical Barriers to Trade (TBT Agreement), the General Agreement on Trade in Services (GATS), the Agreement on Subsidies and Countervailing Measures (ASCM), the Agreement on Trade-Related Investment Measures (TRIMs Agreement) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement).

In discussing these measures and their legal implications, this report also underscores the importance of considering developmental concerns, in tandem with climate action and trade policy. Therefore, it undertakes to highlight the challenges posed by various unilateral climate-based trade measures to several developing countries, and proposes ways to minimize such effects. Additionally, it emphasizes that regulating countries must account for commitments taken by WTO members under the Paris Agreement, align with the principle of common but differentiated responsibilities and respective capabilities (CBDR-RC), and empower regulate*d* countries to not just comply but also chart their own paths towards energy transition.

The report concludes that urgent action is essential for meeting the Paris Agreement's goals, including by leveraging trade policy, while advocating for multilateral solutions to global climate issues. It highlights that the power lies with WTO members to craft principles and rules that guide us towards a green and inclusive future. In doing so, this report also notes certain topics that have not been addressed, since doing justice to the host of complexities would require far more space than available here. First, it has explored only a set of options that are available to WTO members, limited to those that would require legislative changes to clarify the law ex ante. Yet, there are avenues of change through jurisprudential evolution and application of the law of treaties by adjudicators to interpretive issues. Second, this report has left the following to future research, writing, and analysis: the interface of investment law and policy with climate action, the ability of free trade agreements to pursue climate action, national security and green industrial policy, decarbonization of international transport and trade intersection, sustainable agriculture and food systems, the circular economy, and climate finance, amongst various important topics on which several notable contributions have already been made. Similarly, more can be said about the empirical literature regarding effective and efficient policy design and economic analysis of such tools, to complement the broadly legal dimensions of trade policy tools tackled here. Indeed, economic analysis is critical to inform future legal policy design.

Trade Liberalization:

- Regardless of the correlation between lower tariffs and non-tariff measures (NTMs) and the reduction of greenhouse gas (GHG) emissions, liberalized trade on specific environmental products can broadly support the growth of green economies by facilitating the adoption of cleaner technologies, provided that the necessary supportive infrastructure exists.
- It is important to acknowledge the political challenges in identifying environmental goods, whose trade should be liberalized. Therefore, initial discussions should focus on defining the environmental goods as those which have a direct nexus with climate action, to overcome concerns of selective protectionism. These negotiations should go in tandem with those on green industrial policy, to support countries in designing their trade and industrialization priorities and participation in global value chains.
- Modification of the HS Code to reflect specific tariffs for environmental goods and environmentally preferable products could contribute to the liberalization and diffusion objectives.
- The liberalization of environmental services also requires updating outdated classifications to include emerging service sectors linked to environmental activities.

Border Carbon Adjustments:

- Border carbon adjustments (BCAs) face significant criticism, primarily due to concerns over their potential protectionist nature. Despite these issues, BCAs are anticipated to gain traction, as proven by the UK's plans to follow the EU in introducing BCAs.
- If effectively implemented, carbon taxes could potentially serve as a straightforward climate action tool. The first best option would be a global carbon tax but achieving global consensus on such a tax is unlikely. Yet, the WTO and other international organizations should cooperate closely on facilitating its acceptance and workability.
- Consequently, unilateral BCAs are expected to become more common, raising critical questions about their non-discriminatory application and impacts on less-developed countries.
- To mitigate protectionist effects, BCAs should adhere to principles like eliminating double protection to domestic industries, recognizing equivalent carbon pricing mechanisms, adopting standardized mechanisms for emissions calculations, providing for administrative review mechanisms, and recycling of funds to support decarbonization in regulated countries.

- Least Developed Countries (LDCs), which are least responsible for climate change, must be considered in the design of these measures to avoid economic harm. Exemptions or preferential treatments for LDCs are justifiable under international law principles. However, more nuanced calibration of preferential treatment for developed countries should also be considered, in close consultation with their nationally determined contributions (NDCs) under the Paris Agreement.

Standards:

- Countries utilize standards to reflect their regulatory preferences, such as fuel-efficiency standards and labeling for emissions. As nations increasingly adopt these tools to address climate goals, their compliance with the WTO rules (especially under the TBT Agreement) gains relevance.
- High-income countries implement more technical regulations—averaging 11 for environmental goods—compared to five for middle-income and two for low-income countries.
- The exact definitions of sustainability criteria will play a major role in ascertaining a measure's compatibility with WTO rules, as vague or non-objective standards that provide leeway for subjective discrimination will be more likely implicated than criteria defined on the basis of existing international standards.
- Divergent regulations and standards risk fragmenting value chains and introduce burdensome compliance requirements on companies, especially Micro, Small and Medium Enterprises (MSMEs). Thus, establishing harmonization, mutual recognition, and equivalence of different regulations can reduce trade obstacles and hasten the global diffusion of standards.
- For effective utilization of standards for climate action, support for developing countries is essential, including technology transfers, capacity building, and participation in standard-setting processes. The TBT Agreement can facilitate international standards that account for varying national contexts if developed countries prioritize inclusivity and cooperation in standard development.

Industrial Policy:

- WTO members need to adopt a dual-pronged approach to the regulation of subsidies. First, fossil fuel subsidies need to be phased out at the earliest. Second, rules on environmental subsidies need to be revisited to enable countries to pursue green industrialization without the threat of legal action.
- Green industrial policies have gained traction, yet their aggressive implementation often contravenes WTO laws, leading to trade distortions and potential retaliatory measures. While these policies aim to combat climate change, they risk exacerbating inequalities between developed and developing nations, as wealthier countries can more easily afford subsidies. Accordingly, the new subsidies race between global economic superpowers needs urgent regulation.
- Reform of subsidies disciplines to allow for green subsidies, whether by explicit list-based approach or a proportionality analysis, and with a graded approach to account for developmental considerations.
- Discussions at the WTO should consider diverse industrial policy tools suited to varying economic and fiscal capabilities, which implies the need to revisit the disciplines on TRIMs.

Technology Policy:

- Technological advancements are vital for climate action, aiding in emissions reduction and enhancing adaptation strategies. Access to climate technology is crucial for achieving ambitious climate goals, particularly for lower-income countries.
- While trade tools can promote climate initiatives, disparities in technological capacities hinder equitable outcomes. International bodies like the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC) emphasize the need for technology transfer to combat climate change. The Paris Agreement also encourages cooperation on technology development.
- While the WTO TRIPS Agreement facilitates innovation by protecting intellectual property rights, it also contains certain flexibilities that can be used to gain access to necessary climate

technologies. Therefore, a balanced approach is needed to ensure that developing countries access essential climate technologies while also promoting research and innovation.

- Although existing flexibilities can be leveraged (e.g., international exhaustion of patent rights, the use of the "Bolar exemption"), some further amendments in the law could be explored to enhance the diffusion of climate technologies.
- A declaration on climate change and access to environmental technologies, akin to the Doha Declaration on Public Health, could clarify the TRIPS provisions on patent flexibilities for climate technologies and allow issuance of compulsory licenses for export.
- Additionally, a TRIPS Agreement waiver for environmental technology patents, inspired by the TRIPS waiver for COVID-19 vaccines, could foster consensus by ensuring special treatment based on development levels.

Key Recommendations:

- Members to recognize that the WTO has the potential to support global energy transition and decarbonization through legal reforms, enhanced interpretations of existing rules, and by encouraging the setting (and harmonization) of non-protectionist standards, and accordingly leverage the multilateral trading system to foster inclusive, cooperative, and non-arbitrary approaches to pursuing climate action through trade policy.
- Integrate trade, climate, and economic development in pursuing climate action through trade policy by setting principles for unilateral actions to abide by, and:
  - » Multilaterally agree to affirm and clarify the application of the Paris Agreement and CBDR-RC principles to the design and implementation of unilateral climate-based trade measures.
  - » Recognize that divergent regulatory tools across different members adversely affect supply chains and traders; therefore, interoperability of standards, equivalence of climate policies, and mutual recognition of regulatory schemes must be prioritized.
  - » Technical assistance, capacity building, technology transfers, and recycling of funds (earned via unilateral regulations) to meet such ends must be ensured.
  - » Strengthen developing countries' capacities to participate in standard-setting processes, participate in international negotiations, evaluate policy options to pursue their own climate action agenda, and acquire the expertise and empowerment needed to raise respective climate ambition targets.
- Leverage the WTO institution to:
  - » Continue to monitor and review implementation of WTO obligations, while strengthening transparency obligations where necessary for the development of global trade rules relevant to climate action.
  - » Urgently address the rising concerns regarding national security driven industrial policy with a view to discussing its spillovers on the global economy, resilience concerns, and developing countries; adopt stringent rules on fossil fuel subsidies; negotiate disciplines to permit environmental subsidies; and undertake a review of the impact of WTO rules on industrialization objectives in developing countries with a view to undertake future negotiations on the same.
  - » Formalize the Trade and Environmental Sustainability Structured Dialogue (TESSD) into multilateral negotiations to create new rules and clarify existing ones, especially regarding "green subsidies".
  - » Set ambitions to negotiate comprehensive agreements on environmental goods, carbon adjustments, and deforestation, or a "multilateral climate agreement" under the WTO, in combination with a dedicated environment fund akin to the Fisheries Fund, to help less-developed countries comply with climate-based trade measures and undertake higher climate ambitions.

- » Negotiate disciplines undertaking heightened climate and sustainability related obligations as open plurilateral agreement(s). In addition to concerns over the incorporation of such agreements within the institutional framework of the WTO, variable geometry will fall short of addressing global commons issues unless the largest polluters and committers of climate change are a part of the bargain. The opponents of variable geometry must also assess the risks posed by potential climate clubs established outside the WTO framework.
- » Strengthen and empower the WTO Secretariat to undertake objective research and support members on discussions relating to optimum regulation design and establishing equivalence of climate regimes, amongst other developing topics.

- Leverage international collaboration at all levels—technical and political. The WTO must undertake inter-organizational collaboration such as with the United Nations Conference on Trade and Development (UNCTAD), the United Nations Framework Convention on Climate Change (UNFCCC), the International Trade Centre (ITC), the World Bank, the International Monetary Fund (IMF), and members must leverage political forums like the G20, to marshal political support and foster consensus-building on climate and trade measures. This holistic approach aims to create a cohesive framework for integrating trade and climate goals, fostering cooperation between developed and developing nations.

Part A: Introduction

I. Setting the Context

The Climate Crisis

Climate change is a global phenomenon that leaves no one unaffected—economically, socially, and politically. A global challenge of this scale can and must be solved through global cooperation. However, such global cooperation is not easy to achieve, especially when regulation adds costs, and it is possible to avoid such costs by free riding. Thus, the *tragedy of the commons* applies pervasively to the issue of climate action.

The global community has attempted to forge such cooperation through multilateral environmental agreements (MEAs), starting from the United Nations Framework Convention on Climate Change of 1992 to the Paris Agreement of 2015. But although the link between climate action and trade policy has been debated and discussed vociferously in the last few years, little progress has been made, if any, on the specific links of climate action with trade governance in the three decades of the World Trade Organization (WTO). The discord between science and politics delayed the global acceptance of a strong and clear global warming target until the 2015 Paris Agreement, and continues to delay the measures needed to achieve the targets set in Paris. It has been very difficult to attain agreements across and within countries on the burdens to be borne by different countries and within countries, considering historical responsibilities, development objectives, and current emissions. As a result, while the Paris Agreement broke ground by countries accepting to put forward their nationally determined contributions (NDCs) to global action, it is widely feared that the actions are too little, too late. On a related note, the fault lines between the Global North and the Global South are seen clearly in the context of climate finance and the access to green technologies, amongst other differences on the cause of climate change and the burden of climate action. Lack of enforceability of assistance commitments has rendered them meaningless and has delayed the pursuance of climate action by several countries.

Given the difficulties in achieving the desired outcomes of environmental agreements and the increasing urgency of climate action and sustainable development in policymaking, the tools of international trade are being increasingly invoked by individual nations to pursue climate action and to incentivize others to follow suit. As a result, the relationship between the international trading system and climate change has come into focus as never before. Just as the very act of conducting international trade has been found to contribute to driving greenhouse gas (GHG) emissions that cause climate change,[1] the multilateral trading system should in principle ensure that trade occurs in a sustainable manner, cognizant of climate change concerns and supportive of climate action, but also grounded in the fundamental rules of non-discrimination,[2] in substance and in application.

Agenda 21 (1992) set forth the goal to "ensure that environment and trade policies are mutually supportive, with a view to achieving sustainable development",[3] by promoting sustainable development through trade liberalization; making trade and environment mutually supportive; providing adequate financial resources to developing countries dealing with international debt; and encouraging macroeconomic policies conducive to environment and development.[4] The 2030 Agenda for Sustainable Development envisions that "international trade is an engine for inclusive economic growth and poverty reduction, and contributes to the promotion of sustainable

1 Ankai Xu, Enxhi Tresa, Marc Bacchetta, Francesco Bellelli and José-Antonio Monteiro, *Trade and Climate Change Information Brief No. 4: The Carbon Content of International Trade* (Geneva: World Trade Organization, September 2021), https://www.wto.org/english/news_e/news21_e/clim_03nov21-4_e.pdf.

2 Anabel González, Jean-Marie Paugam, Marc Bacchetta, Eddy Bekkers, Cosimo Beverelli, Mateo Ferrero, Emmanuelle Ganne, John Hancock, Rainer Lanz, José-Antonio Monteiro, Roberta Piermartini, Daniel Ramos and Ankai Xu, *World Trade Report 2022: Climate Change and International Trade* (Geneva: World Trade Organization, 2022), https://www.wto.org/english/res_e/publications_e/wtr22_e.htm.

3 United Nations Sustainable Development, United Nations Conference on Environment & Development Agenda 21, (June 1992) (UN Conference on Environment & Development Agenda 21), https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf.

4 UN Conference on Environment & Development Agenda 21, chapter 2.

development."[5] Further, the Preamble of the Marrakesh Agreement Establishing the World Trade Organization (WTO) provides for "the optimal use of the world's resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so in a manner consistent with their respective needs and concerns at different levels of development."[6] Article XX of the General Agreement on Tariffs and Trade (GATT) of the WTO goes on to expound this principle by providing for a variety of exceptions that create policy space for countries to pursue their environmental objectives. Thus, the relationship of the trading system and climate action has long been recognized in principle. Yet, it has not yet been properly and systematically operationalized.

The Trade Regime and the Climate Crisis

In recognition of the fact that rules of the multilateral trading system comprising primarily of the law of the WTO and free trade agreements (FTAs) can be leveraged for climate action and sustainable development, WTO members have been pursuing trade measures to achieve these goals.[7] As amply clarified by the WTO's World Trade Report of 2022, a total of 4629 climate-related trade measures were notified to the WTO between 2009 and 2020. The Environmental Database of the WTO reflects that a 12.9% of total notifications relate to the environment.[8] Therefore, law of the WTO as detailed in various covered agreements, provides for several opportunities and avenues for members to explore when undertaking climate-based trade measures. These agreements primarily include the General Agreement on Tariffs and Trade (GATT) 1994, the Agreement on Technical Barriers to Trade (TBT Agreement), the General Agreement on Trade in Services (GATS), Agreement on Subsidies and Countervailing Measures (ASCM), and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). They could also span across the other agreements under WTO law. For instance, sustainable or green government procurement is an increasingly popular tool attracting trade disciplines, and the WTO's plurilateral Agreement on Government Procurement has even established a Work Programme on Sustainable Procurement.[9] Although the Agreement on Trade-Related Investment Measures (TRIMs Agreement) is a minor extension of some GATT obligations, it nonetheless bears importance for climate-related industrial policies, especially those involving local content requirements. The Trade Facilitation Agreement is also important to ensure that border checks on products, concerning emissions intensity or certification schemes, are not inefficient, cumbersome, and tedious.

Evidently, there are several instruments within the WTO legal framework that bear relevance to designing, implementing, and managing climate-related trade measures. It is important to note that WTO law does not prejudge the level of environmental protection or aversion to climate change that a member seeks to address but allows members to pursue such measures so long as they abide by certain fundamental principles of the trading system, such as discrimination. While the legality and legitimacy of the various climate-based trade measures remain subject to further scrutiny under WTO law and its compulsory dispute settlement mechanism, the system also provides a forum to undertake monitoring of the measures and a platform for members to raise trade concerns[10] and resolve disputes. Accordingly, the WTO, both substantively and institutionally, can and should play a crucial role in guiding countries using trade policy to pursue climate action and managing externalities that arise out of such measures. Such externalities can be addressed by the anti-protectionism role of trade rules, by separating legitimate public policy purposes (the wheat) from protectionism (the chaff), and by advancing developmental assistance to countries. Thus, the criticality of the organization in providing a multilateral legislative, monitoring, and dispute settlement mechanism pertaining to trade measures continues.

5 United Nations General Assembly (UNGA), Transforming Our World: The 2030 Agenda for Sustainable Development, A/RES/70/1, (October 2015), https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf.

6 World Trade Organization, Marrakesh Agreement Establishing the World Trade Organization, 1867 U.N.T.S. 154, 33 I.L.M. 1144, (April 1994) (Marrakesh Agreement), https://www.wto.org/english/docs_e/legal_e/04-wto_e.htm.

7 In this Report, we focus on the tools present in the WTO legal framework and not the vast network of regional trade agreements that may pursue environmental objectives.

8 "Environmental Database (EDB)", World Trade Organization, https://edb.wto.org/ (accessed on May 20, 2024).

9 "Work Programmes", World Trade Organization, https://www.wto.org/english/tratop_e/gproc_e/gpa_wk_prog_e.htm.

10 Robert Wolfe, "Reforming WTO Conflict Management: Why and How to Improve the Use of 'Specific Trade Concerns'" *Journal of International Economic Law* 23, no. 4 (2020): 817–839, https://doi.org/10.1093/jiel/jgaa034.

The WTO as an institution has witnessed a renewed vigor to discuss climate change, environmental issues, and sustainability in the past few years, with technical discussions on important topics – plastics pollution and environmentally sustainable plastics trade at the Dialogue on Plastics Pollution and Environmentally Sustainable Plastics Trade (DPP), trade and environmental sustainability at the Trade and Environmental Sustainability Structured Discussions (TESSD),[11] and the Fossil Fuel Subsidy Reform (FFSR) initiative. Recently, the successful conclusion of an interim Agreement on Fisheries Subsidies has also marked the WTO's foray into rulemaking at the nexus of trade and sustainability.[12] These multilateral efforts are complemented by WTO-x efforts in the policy community that are stressing the unavoidable and unmissable intersection of trade law and policy with climate action. In this regard, the efforts of the Remaking Trade Project culminating in the Villars Framework; the TESS Forum; World Economic Forum; and the Coalition of the Trade Ministers on Climate, are commendable and reinvigorate multidisciplinary reckoning of challenges and solutions. Further, the recent conclusion of the Agreement on Climate Change, Trade and Sustainability (involving Iceland, New Zealand, Switzerland, and Costa Rica) or ACCTS, with its successes on environmental products liberalization, ecolabelling guidelines, and prohibition on fossil fuel subsidies, is heartening.

However, these encouraging developments stand in contrast to the slow progress to lawmaking by members *within* the WTO. At the 13th Ministerial Conference, lack of consensus on the intersection of trade and climate action resulted in no legislative action or mandates to negotiate new disciplines. Such continued legislative inertia has pushed members to design unilateral trade measures to attain climate objectives.[13] On one hand, the intensified efforts of governments to kickstart climate action is heartening. On the other, several unilateral measures implicate existing trade rules and their interpretations under the WTO framework relating to non-discrimination and arbitrariness, igniting pushback, hostilities, and a lack of trust amongst members. Indeed, studies report that the value of unilateral climate action is proportional to its ability to induce others to follow suit,[14] but the adoption of such measures must be achieved in a WTO compliant way. Thus, complex questions over the legality of innovative, unilateral climate-based trade measures present opportunities for debate, discussion and disputes, and the necessary reform of law and its interpretation. In these challenging times of severe geopolitical stress when "trade wars" seem to be increasing, it is especially necessary to straddle the fine line between the fundamentals of multilateral trade law, the dynamism required to manage a global crisis, the goals of economic development, and special considerations for less-developed economies. It is equally important to ensure that climate-based trade measures do not provide space for "green protectionism"[15] to foster, as provided in Article 3.5 of the UNFCCC: "[m]easures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade."

The Role of the World Trade Organization

This report provides an overview of the key trade law tools in the WTO architecture that are relevant to pursuing climate action but whose use must be carefully calibrated to various nuances, such as developmental considerations. While the preference for multilateral tools is clear, we also discuss select climate-based trade measures that are being leveraged by members unilaterally but that remain controversial in practice, resulting in the need for a variety of clarifying actions by WTO members and the judiciary. The report identifies four specific ways in which climate-based trade measures hold relevance: 1) to ensure free trade in environmental goods and services and encourage trade in environmentally preferable goods (*what are the final goods produced*); 2) to regulate trade based on the process and production methods used, including through taxation, technical regulations and standards (*how are they produced*); 3) to spur green growth (*relevance of green industrial policy*); and 4) to incentivize innovation and provide access to technology to hasten decarbonization globally (*dissemination and uptake of climate technologies*).[16]

11 "Trade and Environment", World Trade Organization, https://www.wto.org/english/tratop_e/envir_e/envir_e.htm (accessed on Dec 21, 2022).

12 World Trade Organization, Agreement on Fisheries Subsidies, Ministerial Decision of 17 June, WT/MIN(22)/33, (June 2022), https://www.wto.org/english/tratop_e/rulesneg_e/fish_e/fish_e.htm.

13 See generally, *Green Industrial Policy and Trade: A Tool-Box*, UN Environment and UNIDO under the Partnership for Action on Green Economy (PAGE), 2017.

14 Tabaré Arroyo-Currás, Nico Bauer, Elmar Kriegler, Valeria Jana Schwanitz, Gunnar Luderer, Tino Aboumahboub, Anastasis Giannousakis, and Jérôme Hilaire, "Carbon Leakage in a Fragmented Climate Regime: The Dynamic Response of Global Energy Markets", *Technological Forecasting and Social Change* 90, part A (2015): 192–203, https://doi.org/10.1016/j.techfore.2013.10.002.

15 In 1971, GATT Director-General Olivier Long presented the GATT assessment, "Industrial Pollution Control and International Trade." The study highlighted trade officials' concerns about environmental policies, which were seen as potential barriers to free trade and constituted risks of "green protectionism".

16 See Martin Dietrich Brauch, Elena Klonsky, Fanny Marie Everard, and Qiaozi Guanglin, with Tyler Alviano, Justin Cuddihey, and Mary Wang, An International Law Framework for Climate-Aligned Investment Governance, CCSI Working Paper (New York: Columbia Center on Sustainable Investment (CCSI), January 2024), https://ccsi.columbia.edu/sites/default/files/content/docs/publications/ccsi-international-law-framework-climate-aligned-investment-governance.pdf (analyzing how the international trade regime hosts a variety of intersecting and relevant areas to climate investment and discussing and providing recommendations for reform in four in particular: Development and Industrial Policy; Trade in Environmental Goods; Carbon Border Adjustments; and Fossil Fuel Subsidies.)

In particular, the report emphasizes the need to appreciate and account for different contexts of development in different WTO members and the necessary harmonization of trade policy with the environmental law principle of common but differentiated responsibilities and respective capacities (CBDR-RC). Although the potential of trade policy can and should be unleashed to further climate action, it should be done in strict simultaneity with increased technology assistance and climate finance. International instruments for decades have expressed CBDR-RC, starting with Principle 7 of the Rio Declaration: "[i]n view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command." Further, Article 3 of the UNFCCC provides that sustainable development should be undertaken "on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, developed country Parties should take the lead in combating climate change and the adverse effects thereof." Article 4 proceeds to qualify commitments of the parties by CBDR-RC and their specific national and regional development priorities, objectives, and circumstances. The Paris Agreement also allows for countries to determine their NDCs in light of CBDR-RC, while recognizing the primary role of developed countries in undertaking economy-wide emission reduction targets. The Paris Agreement also contains several mandatory provisions on climate finance, technology transfer, and capacity building obligations of developed countries.

Accordingly, this report also acknowledges the discourse on the role of the WTO dispute settlement mechanism in interpreting WTO law in light of international environmental law, [17] an unsettled relationship that has come to the limelight in the context of the importance of CBDR-RC in interpreting and applying WTO law.[18] Since this report focuses on the legislative and negotiating hurdles in climate change related talks at the WTO, it does not explore the question of international legal conflicts and harmonized interpretation. This question involves the challenges pertaining to interpretation using the Vienna Convention on the Law of Treaties (VCLT) and mandates of WTO adjudicators to "clarify the existing provisions of those agreements in accordance with customary rules of interpretation of public international law" and "[not] add to or diminish the rights and obligations provided in the covered agreements."[19] Doing justice to the complicated nature of the issue would necessitate more space than available here.[20] Nevertheless, it is worth noting that WTO panels face a daunting task of balancing competing interests—first, of dynamic interpretation of WTO law (and thereby maintaining a sustained relevance of the WTO institution) and second, identifying, interpreting, and applying non-WTO international law or interpreting WTO law creatively (and thereby playing a proxy for consent expressed through multilateral legislative will)—which often give rise to politically unpalatable decisions.

The key takeaway remains that the most efficient legal solutions are reflected through the legislative will of WTO members, expressed clearly through decisions, amendments, and new agreements. Climate change needs urgent action to achieve the global goals of the Paris Agreement. Therefore, international trade law and policy can and should be a part of global, concerted climate action efforts, especially in the face of rising geopolitical challenges and unilateralism. Accordingly, we emphasize the need to reaffirm our commitment to multilateral solutions to global commons issues in the interests of equity, fairness, and efficiency, failing which we will find ourselves in a zero-sum game.

17 For literature on the subject, see: David Palmeter and Petros Mavroidis, "The WTO Legal System: Sources of Law", *American Journal of International Law* 92 (1998): 398; Joel Trachtman, "The Domain of WTO Dispute Resolution", *Harvard International Law Journal* 40 (1999): 333; Joost Pauwelyn, "The Role of Public International Law in the WTO: How Far Can We Go?", *American Journal of International Law* 95 (2001): 535; Joost Pauwelyn, *Conflict of Norms in Public International Law, How WTO Law Relates to Other Rules of International Law* (Cambridge: CUP, 2003); Isabelle Van Damme, *Treaty Interpretation by the WTO Appellate Body* (Oxford: OUP, 2009); Petros Mavroidis, *Sources of WTO Law: Is the New Ok, Ok?* (Cheltenham: Elgar Publishing, 2022); Gabrielle Marceau, "Conflicts of Norms and Conflicts of Jurisdictions, The Relationship between the WTO Agreement and MEAs and other Treaties", *Journal of World Trade* 35 (2001): 1081; Gabrielle Marceau, "WTO Dispute Settlement and Human Rights", *European Journal of International Law* 13 (2002), 753.

18 Sunayana Sasmal, Dongzhe Zhang, Emily Lydgate, and L. Alan Winters. "Exempting Least Developed Countries from Border Carbon Adjustments: Simple Economically but Complex Legally", *World Trade Review* 23, no. 3 (2024): 408–431, https://doi:10.1017/S1474745624000132; International Legal Expert Group on Trade-Related Climate Measures and Policies, *Principles of International Law Relevant for Consideration in the Design and Implementation of Trade-Related Climate Measures and Policies*, Report of an International Legal Expert Group (Geneva: Forum on Trade, Environment, & the SDGs (TESS), September 2023), https://cdn2.assets-servd.host/lyrical-cormorant/production/assets/images/Publications/TRCMs_Principles_TESS.pdf?dm=1695371717; Joel Trachtman, Jan Yves Remy, Dan Esty, and Trevor Sutton, *Villars Framework for a Sustainable Global Trade System, Version 2.0* (New Haven: Remaking Trade Project, January 2024), https://remakingtradeproject.org/villars-framework; Gracia Marín Durán, "Securing Compatibility Of Carbon Border Adjustments With The Multilateral Climate And Trade Regimes", *International & Comparative Law Quarterly* 72, no.1 (2023): 73–103, https://doi.org/10.1017/S0020589322000501.

19 Article 3.2, WTO Dispute Settlement Understanding (DSU).

20 See Sunayana Sasmal and Petros C. Mavroidis (forthcoming) "Trade Integration and Environmental Protection within the WTO Regime: What is the Place of Public International Law?", in C.L. Lim and J. Trachtman, eds., Cambridge Companion World Trade Law. Cambridge University Press.

The report proceeds in the following manner. Part A (Sections I and II) introduces the legal background of the trade and climate change interface, after discussing the various kinds of tools available under the WTO legal architecture, as laid out in the table below. Part B focuses on the role of WTO law in liberalizing trade in certain products, in the context of environmental goods and services. Part C assesses the various unilateral measures such as border carbon adjustments, technical regulations, and standards that dominate the discourse on such trade law tools for climate change. The key considerations for their legality under WTO law are also laid out, with a focus on the environmental defense that members are likely to rely upon to justify potentially discriminatory, unilateral measures. Part D highlights how trade law and policy may be leveraged to support the growth of green industries (through subsidies and industrial policy) and spur innovation and access to climate technologies (through flexibilities in intellectual property rules). Part E provides recommendations and concludes. The report throughout maintains an overarching focus on the developmental challenges posed by the trade policies discussed and options to mitigate them.

Interface of trade regulation and climate action	Key policy issues
The liberalizing role of trade tools	• Environmental goods
The regulatory and anti-protectionism role of trade tools	• Border taxes • Regulations and standards
The supportive role of trade tools	• Industrial policy and subsidies • Technology policy

A final disclaimer must be provided that this report only scratches the surface of the vast world of trade policy and climate action. Future research, writing, and analysis can focus on the interface of investment law and policy with climate action, the ability of free trade agreements to pursue climate action, national security and green industrial policy, decarbonization of international transport and trade intersection, sustainable agriculture and food systems, the circular economy, climate finance, amongst various important topics. Similarly, more can be said about the empirical literature regarding effective and efficient policy design and economic analysis of such tools, as opposed to the broadly legal dimensions tackled here.

II. Select Key Disciplines in WTO Law Pertaining to Climate Action

Any trade measure, whether climate-related or not, should abide by certain fundamental rules of the WTO. Since the WTO does not have an agreement or legal provisions relating specifically to climate-based trade measures, most of such measures take the shape of border measures (such as tariffs), and behind-the-border measures (such as technical regulations, internal taxes, any other regulations concerning sale in the market, subsidies, and intellectual property rights). Most of the obligations affecting climate-based trade measures are found in the GATT, the GATS, the ASCM, the TBT Agreement and the TRIPS Agreement.

Since many of such measures are aimed at either regulating imports or correcting for market failures in trade in goods through non-tariff measures, the GATT provides for a number of provisions that assume significance in the specific measures discussed below. Some of those provisions are highlighted here and will be revisited in specific contexts in subsequent sections.

The fundamental obligation of non-discrimination in goods trade can be found in the GATT, in Article I on the most-favored-nation (MFN) principle and Article III on the national treatment (NT) principle. These provisions stipulate that an importing country cannot discriminate between "like products" that are produced by different foreign trading partners (MFN) nor between its own industry and foreign producers (NT). For example, a measure would violate the MFN obligation if it "imposes conditions that have a detrimental impact on the competitive opportunities for like imports from Members."[21] The

21 Appellate Body Report, EC – Seal Products, para. 5.88.

debate on "like products" holds great significance for deploying trade tools in climate action,[22] since if environmentally friendly goods are found to be "like" their environmentally unfriendly counterparts, it is likely that the measure will violate MFN and NT unless saved by the escape clause in GATT Article XX. But if they are found to be "unlike", it risks a slippery slope where de facto discriminatory regulations are given a free reign. The decision to treat goods as like and unlike will depend on adjudicators' willingness to consider regulatory objectives and intent of the concerned measures in this part of the legal analysis. But in any event, Article XX of the GATT concerning policy objectives of measures, is designed to balance the trade liberalization goals of the WTO obligations with the regulatory discretion of members, by assessing whether the application of such a measure is non-discriminatory and non-arbitrary. Article XX entails stringent tests involving a high burden of proof, which can be avoided if the goods are found to be unlike at the outset.

Further, several climate-based trade measures aim to regulate the *method* of production of the product instead of the product itself (process and production method, or PPM). However, it is widely regarded that the GATT does not allow *non-product-related* process and production methods (NPR PPMs) to justify discrimination between otherwise like products, unless market preferences and surveys that evidence the preference for environmentally friendly goods are produced.[23] For example, does it matter to "reasonable consumers" whether steel is produced using dirty energy as opposed to clean energy? Although the ruling in *EC – Asbestos* suggests that the NPR PPM based distinction can be assessed in the determination of consumer preferences,[24] this issue would benefit from further judicial clarification or negotiated outcomes on the relevance of the product-process distinction in a likeness analysis.[25] Regardless, following the ruling in *US – Shrimp*, NPR PPM based trade measures may also be justified under the GATT general exceptions clause.

Therefore, this treatment of like versus unlike goods raises a fundamental legal question, especially from the view of regulat*ing* countries: how dynamically is "likeness" to be interpreted? The related policy questions are: what is the extent of the evidentiary burden that defendants of a measure pertaining to "green" goods be required to bear? In other words, how fundamentally different are such goods from their "dirty" counterparts, if they have the same physical characteristics and are used for the same purposes? Is there a presumption of "unlikeness"? Must they be treated as "unlike" at the very outset in consideration of NPR PPMs as a differentiator and thereby escape scrutiny under Article XX of the GATT? Doing so would likely reflect societal preferences only where they are expressly clear or where there is overwhelming public consensus. Or should those defending the difference between "clean" and "dirty" goods be subject to the stringent tests of non-discriminatory application? These are questions that will continue to arise with the widespread adoption of climate-based trade measures. But countries remain divided on this issue, as the implications of finding such goods as unlike has consequences for regulat*ed* countries. There is a lack of predictability on how panels will approach this question, since members have nonetheless continued to design their measures based on NPR PPMs which, when found discriminatory, have been proceeded to be assessed under Article XX.

Next, the GATT, in Article II, provides for "Schedules of Commitments" of members, wherein members inscribe the bound levels of tariff treatment for different products based on their HS codes. While liberalization of environmental goods and environmentally preferable goods has been commonly proposed as a way to disseminate the tools needed to fight climate change, the legal obligations pertaining to scheduling commitments (for example, of tariffs and other duties and charges) are relevant when measures include import duties or other forms of fiscal instruments. For example, the specific characterization of the EU border carbon adjustment measure is being scrutinized by several countries to check for consistency with WTO law. This is because different legal tests and standards could apply depending on the nature of the trade policy tool.

In addition to non-discrimination obligations under Article III which apply to "behind-the-border" measures, Article XI of the GATT prohibits quantitative restrictions on imports and exports. Thus,

22 For more on the role of PPMs in the likeness analysis, see: Steve Charnovitz, "The Law of Environmental 'PPMs' in the WTO: Debunking the Myth of Illegality", *Yale Journal of International Law* 27, no. 59 (2002): 59–110, https://openyls.law.yale.edu/handle/20.500.13051/6438.

23 Appellate Body Report, Japan–Alcoholic Beverages II.

24 See Emily Lydgate, "Consumer Preferences and the National Treatment Principle: Emerging Environmental Regulations Prompt a New Look at an Old Problem", *World Trade Review* 10, no. 2 (2011): 165-188, https://doi.org/10.1017/S1474745610000492.

25 This report does not comment on the policy desirability of using NPR PPMs as a distinguishing factor in the test of likeness, but notes that a finding of lack of likeness absent market-based data could risk abuse of regulatory space and adverse implications for developing countries. Also see, Jagdish Bhagwati and T.N. Srinivasan, "Trade and the Environment: Does Environmental Diversity Detract from the Case for Free Trade?", in 1 *Fair Trade And Harmonization*:159-99 (Jagdish Bhagwati & Robert E. Hudec eds., 1996).

measures covered by Article III are allowed unless found to be discriminatory, whereas border measures acting as market access restrictions prima facie run afoul of WTO law.[26] The differences are not just legal, but also bear policy implications for countries' climate-related trade policies which adopt more regulatory features than outright import restrictions, to control the inflow of goods that meet climate objectives. Climate-based trade measures can also be found to de facto violate this obligation if by design, structure and architecture of the measure, it can be proved that the measure creates a disincentive to import[27] and has a limiting effect on the quantities imported.[28] This provision could be implicated for any measure that restricts trade, as several climate-based trade measures are likely to do, if their nexus to the act of importation or exportation is established.

Finally, Article XX of the GATT titled "General Exceptions" introduces a legal litmus test for measures that have otherwise violated GATT provisions, but can be permitted if they fulfil certain conditions and public policy objectives. Assuming a finding of GATT violation(s), the two-pronged test requires the measures to first, attain provisional justification under the environment-related exceptions in Article XX (b) and (g); and second, meet conditions of the chapeau. Under Article XX(b), any measure must be "necessary to protect human, animal or plant life or health" to meet the first step of the test. The *necessity* test comprises 'weighing and balancing' of three factors: (i) the extent of the measure's contribution to the achievement of the final objective (such as addressing climate change by curbing GHG emissions); (ii) the measure's trade-restrictiveness in the light of the importance of the interests or values at stake and; (iii) the availability of less trade-restrictive alternatives with equivalent contributions to the objective at hand.[29] The second potential justification lies in Article XX(g) which requires that the measure must "relate to the conservation of exhaustible natural resources." Per WTO jurisprudence, an exhaustible natural resource may encompass clean air,[30] and it reflects "contemporary concerns of the community of nations about the protection and the conservation of the environment."[31] That a measure "relates" to the objective can be proved by showing "a close and genuine relationship of ends and means."[32] If a measure is provisionally justified under either or both of these paragraphs, the final hurdle for the measure to pass muster is the chapeau. The chapeau requires that the climate-based trade measure does not result in discrimination; that the discrimination should not be arbitrary or unjustifiable in character; and such discrimination is between countries where the same conditions prevail.[33] There should also be no disguised restriction on international trade. If a measure discriminates in a manner that bears no rational connection to the objective being pursued,[34] or if it has "an intended and actual coercive effect on other governments" to "adopt essentially the same policy",[35] it will likely fail the chapeau test.

Next, several measures can also take the form of technical regulations, such as labelling requirements. The WTO compatibility of such measures is assessed under the TBT Agreement. To be covered under the TBT Agreement, a measure must be a technical regulation or a standard or a conformity assessment procedure. A technical regulation is defined as a "document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method." Thus, the use of the word "related" in the definition of technical regulations seems to suggest that only technical regulations based on product-related PPMs fall under the scope of the TBT Agreement. But the same might not be true for labelling requirements, as they must only *apply* to a product, process or production method, without any explicit mention of the state of being "related" to the product. Thus, there is need for clarity on the TBT Agreement's coverage of NPR PPM based measures that do not involve marking or labelling schemes. Further, it was an opinion long held, as a result of two GATT panel reports, that Article III of the GATT covered only those regulations that relate to products. As a result, in the WTO era, many opined that if a measure is not found to be covered under the TBT Agreement as a technical regulation, it should

26 Joost Pauwelyn, "Rien Ne Va Plus? Distinguishing Domestic Regulation From Market Access in GATT and GATS", *World Trade Review* 4, no. 2 (2005): 131–134, doi:10.1017/S1474745605002351.
27 Panel Reports in India – Quantitative Restrictions (para. 5.129) and India – Autos (para. 7.269-7.270) read together.
28 Appellate Body Report, China – Raw Materials, paras. 319 -320.
29 Appellate Body Report, Brazil – Retreaded Tyres, para. 156.
30 Panel Report, US – Gasoline, para. 6.37.
31 Appellate Body Report, US – Shrimp, para. 129.
32 See Appellate Body Report, China – Rare Earths, para. 5.90.
33 Appellate Body Report, US – Shrimp, para. 150.
34 Appellate Body Report, Brazil – Retreaded Tyres, paras. 226-228.
35 Appellate Body Report, US – Shrimp, para. 161.

not be assessed even under Article III of the GATT. However, subsequent jurisprudence (the Shrimp/Turtle dispute) made clear that NPR PPM based measures can be justified under Article XX of the GATT. Although the NPR PPM debate remains unresolved under the TBT Agreement,[36] it is likely that climate-based trade measures discriminating between products through technical regulations based on NPR PPMs will be covered under the GATT. However, there is still clarity needed on the extent to which NPR PPM based distinctions can contribute to findings of likeness (or lack thereof). Once a technical regulation is deemed to exist, the substantive non-discrimination obligation under the TBT Agreement is found in Article 2.1, whereby when two products are "like", a de facto difference in the conditions of competition to the detriment of an imported like product does not violate the non-discrimination obligation if the detrimental impact on imports stems "exclusively from legitimate regulatory distinctions."[37] Thus, the analysis of this provision also involves a GATT Article XX style analysis, as this provision has an in-built policy justification.

It should be noted here that if a purported measure fails to be proven as a technical regulation, standard or a conformity assessment procedure within the scope of the TBT Agreement, the WTO consistency of such a measure will proceed to be ascertained under the GATT provisions,[38] and the analysis above will apply.

Finally, it is worth noting that the climate-based trade measures discussed in this report can be instrumentalized in two ways:

- global efforts concerning concerted actions of members to set the ball rolling on climate action through trade policy and establish minimum baseline rules for governance, and
- unilateral measures such as a border carbon adjustment that may be undertaken by individual members in the absence of multilateral consensus on, for instance, a global carbon tax.

The measures based on concerted actions involve further negotiations on liberalization of trade in environmental goods and services,[39] whereas unilateral measures may involve regulations based on process-based distinctions, border carbon adjustments, and trade support measures. Multilateral action to finalize the modalities, scope, and coverage of unilateral measures will be required, and is the first-best approach in most cases, but it is inherently different from the action that can only be effected by the concerted action and agreement of several or all members, such as the liberalization of trade in environmental goods.

36 See Erich Vranes, "Processes and Production Methods: A Special Case under the GATT and the TBT Agreement?", *Trade and the Environment: Fundamental Issues in International Law, WTO Law, and Legal Theory*, International Economic Law Series (2009), chapter V, https://doi.org/10.1093/acprof:oso/9780199562787.003.0009.

37 Appellate Body Report, US – Tuna II (Mexico), para. 216.

38 Regardless, claims under the TBT and the GATT can be brought simultaneously.

39 Unilateral liberalization may be performed but practically and politically remains infeasible due to free riding concerns.

Part B: The "Liberalizing" Role of Trade

III. Liberalization of Trade in Environmental Goods and Services

A. Liberalization of Trade in Environmental Goods

Environmental goods may be generally defined as the cleaner technologies, products, and services that reduce environmental risk and minimize pollution and resource use.[40] In 2019, the OECD calculated global trade in environmental goods to be approximately over USD 1 trillion.[41] While average tariffs on environmental goods and environmentally preferable products have reduced over time, several less-developed countries impose higher tariffs on environmental goods, such as components of wind turbines or on solar photovoltaic cells.[42] As these goods are necessary for the uptake of renewable energy across industries, it is said that liberalizing trade barriers and lowering tariffs will accelerate the low-carbon energy transition towards the goals of the Paris Agreement.

For all countries to adopt low-emission and climate-friendly technologies, it is believed that it is necessary to increase the incentives to invest in the trading of such goods and services, and thereby increase the swifter acquisition and adoption of cleaner, greener goods and services at reduced costs. It is also believed that increasing trade in environmental goods will incentivize the use of green technologies,[43] which will further encourage innovation and technology transfer. However, as is true for any trade discipline and especially one that emphasizes increasing competitiveness and market access, the fault lines appear when some countries perceive the push for liberalization as a) a disguised means to preserve competitiveness in already existing industries or b) as a strategic industrial policy, to ensure access to cheaper inputs to gain the first-mover advantage in building green industries. As we see below, the resulting tensions between blocs of countries have obstructed all efforts to finalize a WTO discipline to liberalize barriers to trade in environmental goods. It should be noted that these tensions have been further heightened by the recently growing protectionism in some countries against several environmental goods, such as electric vehicles and batteries, on grounds of national security, economic security, and supply chain resilience concerns amidst geopolitical concerns.

To achieve the said liberalization, WTO members had undertaken the mandate to reduce trade barriers to environmental goods and services since the Doha Rounds in 2001.[44] However, failure to arrive at any agreement for a prolonged time led to a group of 14 WTO members issuing a joint statement in 2014, to begin negotiating a plurilateral agreement called the "Environmental Goods Agreement" or "EGA".[45] The 14 WTO members—European Union, Australia, Canada, China, Chinese Taipei, Costa Rica, Hong Kong, Japan, New Zealand, Norway, Singapore, South Korea, Switzerland, and the United States—were further joined by Iceland, Israel, and Turkey. Together accounting for 90% of global exports of environmental goods,[46] they aimed to negotiate disciplines to reduce tariffs and NTMs in trade of such goods, which would take effect with the participation of a critical mass of WTO members. However, the negotiations have stalled since 2016, as countries were unable to reach consensus on the scope and coverage of the list of environmental goods due to potential implications on trade diversion and increased competition from imports,[47] in addition to changes driven by U.S. foreign trade policy.

40 World Trade Organization, *Leveraging Trade in Environmental Goods and Services to Tackle Climate Change: Policy Brief* (Geneva: World Trade Organization, November 2022), https://www.wto.org/english/tratop_e/envir_e/policy_brief_environmental_goods_e.pdf.

41 Grégoire Garsous, Trends in Policy Indicators on Trade and Environment, *Joint Working Party on Trade and Environment*, OECD, COM/TAD/ENV/JWPTE(2018)2/FINAL (2019), p. 20, https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=COM/TAD/ENV/JWPTE(2018)2/FINAL&docLanguage=En.

42 Id.

43 World Trade Organization, *Leveraging Trade in Environmental Goods and Services to Tackle Climate Change.*

44 World Trade Organization, Ministerial Declaration of 14 November 2001, WT/MIN(01)/DEC/01, para. 31 (iii), https://www.wto.org/english/res_e/booksp_e/ddec_e.pdf.

45 World Trade Organization, "Azevêdo Welcomes Launch of Plurilateral Environmental Goods Negotiations", (media release), https://www.wto.org/english/news_e/news14_e/envir_08jul14_e.htm.

46 "Environmental Goods Agreement", Office of the United States Trade Representative, https://ustr.gov/trade-agreements/other-initiatives/environmental-goods-agreement (accessed on October 12, 2022).

47 Jaime de Melo and Jean-Marc Solleder, "The Role of An Environmental Goods Agreement in the Quest to Improve the Regime Complex for Climate Change" (Robert Schuman Centre for Advanced Studies Working Paper No. RSCAS 2019/55, Fiesole: European University Institute, August 2019), p. 6. https://cadmus.eui.eu/handle/1814/63811.

B. Challenges in Negotiating an Environmental Goods Agreement

To understand the sensitivities of the issue and the hurdles to a multilateral solution, it is useful to know of a precursor to the plurilateral negotiations of 2014, albeit outside of the WTO system. In 2012, 21 APEC (Asia-Pacific Economic Cooperation) members agreed on a voluntary basis, that they would limit tariffs on a list of 54 environmental goods to a maximum of 5% by the end of 2015.[48] The APEC list was to serve as the starting point of the more ambitious EGA negotiations to outline the product coverage. However, most of the goods were either related to pollution prevention or they were equipment such as generators to be used in combination with energy sources. Goods that would be less damaging to the environment in the process of their production, consumption, and disposal, also known as environmentally preferable products (EPPs), were not covered as such.[49] Moreover, global average tariffs on EPPs were relatively higher than those on environmental goods, but the tariffs on them in developed countries were low (~2-3%) as compared to developing countries and LDCs.[50] However, developing countries had concerns. First, they were fearful of NPR PPMs appearing as differentiators in a likeness analysis. Second, additional gains from liberalizing tariffs globally would materialize only if there would be increased flows of goods between these groups of countries. Considering the already low tariffs in developed countries, there would not be significantly higher revenues generated from trade with them; instead, further liberalization would reduce the existing tariff revenues without guarantees of increased market access.

Thus, there were concerns over losing respective competitive advantages that influenced the positions taken by countries in their negotiations on liberalizing environmental goods trade. For example, the EU looked to safeguard its own industry when it protested the inclusion of bicycles (a good which China manufactures in large quantities).[51] Similarly, countries like Brazil have proposed the categorization of biofuels as green goods, but several developed members like the EU have not been in favour of including agriculture in these talks.[52] Further, there were concerns of free riding by non-members, i.e., non-members deriving benefits of liberalization without having to make any concessions themselves. The negotiations ultimately broke down in 2016. However, amidst the calls for urgent climate action, it is necessary to recognize the potential benefits and pitfalls associated with such an agreement, and the modifications that can be made to encourage WTO members to resume the negotiations.

A major hurdle has been to find consensus amongst countries on the kinds of goods and services that should be covered by a potential EGA. Renewable energy technologies fit into the category easily, but developing countries fear the effects of opening their markets to the technology-rich and technology-exporting developed countries. In the context of goods, it is difficult to categorize what constitutes "clean" or "green".[53] A new harmonized form of classification would be required in order to overcome the challenge posed by a range of environmental and non-environmental purposes that a good may seek to serve.[54] An additional question regarding the environment-friendliness of a good is whether emissions over its lifetime must be considered.[55] However, once again there would likely be a discord between developed and developing countries.

Assuming an agreement is arrived at on the coverage of goods, a study by Melo and Solleder highlights that a removal of tariffs for environmental goods and EPPs would increase imports of low-income countries by 12-15% on average whereas for developed countries, it would be 1-2%.[56] Developed countries would be better able to weather the effects of liberalization due to existing diversification in manufacturing. However, if developing countries pushed for liberalization of tariffs on products

48 Jaime de Melo and Jean-Marc Solleder, "Towards an Environmental Goods Agreement Style (EGAST) Agenda to Improve the Regime Complex for Climate Change", in *Handbook on Trade Policy and Climate Change* (Michael Jakob ed.) (Cheltenham: Edward Elgar Publishing, 2022), p. 203, https://ideas.repec.org/h/elg/eechap/19575_13.html.

49 De Melo and Solleder, "The Role of An Environmental Goods Agreement in the Quest to Improve the Regime Complex for Climate Change."

50 Paul Brenton and Vicky Chemutai, *The Trade and Climate Change Nexus: The Urgency and Opportunities for Developing Countries* (Washington, DC: World Bank Group, 2021), p. 59, https://documents1.worldbank.org/curated/en/644711632894241300/pdf/The-Trade-and-Climate-Change-Nexus-The-Urgency-and-Opportunities-for-Developing-Countries.pdf.

51 De Melo and Solleder, "The Role of An Environmental Goods Agreement in the Quest to Improve the Regime Complex for Climate Change", p. 5.

52 Brenton and Chemutai, *The Trade and Climate Change Nexus*, p. 56.

53 Aaron Cosbey, *Trade Policy Tools and Instruments for Addressing Climate Change and Sustainable Development: A Scoping Paper* (Winnipeg: International Institute for Sustainable Development, 2007), p. 2, https://www.iisd.org/system/files/publications/trade_tools_climate_sd.pdf.

54 Jona Razzaque and Beatrice Chaytor, *Liberalising Trade in Environmental Goods and Services: in Search of 'Win-Win-Win'* Outcomes (Jaipur: CUTS Centre for International Trade, Economics & Environment, 2004), https://www.researchgate.net/publication/228263666_Liberalising_Trade_in_Environmental_Goods_and_Services_In_Search_of_'Win-Win-Win'_Outcomes; See, Ronald P. Steenblik, *Code Shift: The Environmental Significance of the 2022 Amendments to the Harmonized System* (Geneva: International Institute for Sustainable Development, 2020), https://www.iisd.org/system/files/publications/code-shift-2022-harmonized-system.pdf; Perrine Toledano, Martin Dietrich Brauch and Jack Arnold, Circularity in Mineral and Renewable Energy Value Chains: Overview of Technology, Policy, and Finance Aspects, Executive Summary (New York: Columbia Center on Sustainable Investment (CCSI), October 2023), https://ccsi.columbia.edu/circular-economy-mining-energy.

55 Jaime de Melo and Mariana Vijil, "Barriers to Trade in Environmental Goods and Environmental Services: How Important Are They? How Much Progress at Reducing Them?" *CEPR Discussion Papers* 9869 (2014), https://ideas.repec.org/p/cpr/ceprdp/9869.html.

56 De Melo and Solleder, "The Role of An Environmental Goods Agreement in the Quest to Improve the Regime Complex for Climate Change", p. 10.

that they have a comparative advantage in, developed export destinations could impose stringent regulatory measures to control the sudden increase in imports. For example, the World Trade Report 2022 notes that high-income economies apply, on average, 11 TBT measures on environmental goods imports, middle-income economies apply five TBT measures and low-income economies apply two TBT measures.[57] As a result, increase in exports for developing countries could be limited.[58] Since it is likely that any potential liberalization will be accompanied by increased regulatory measures that will affect developing countries and LDCs the most, countries should work towards ensuring maximum efficiency when facing cumbersome regulatory measures. So, what can be done?

C. Steps Forward on Liberalizing Trade in Environmental Goods

As a further blow, lowering of tariffs and non-tariff measures has been found to have a small impact on lowering GHG emissions.[59] But this study has not accounted for the lowering in emissions that diffusion of green technology and increased consumption of green goods can create. Thus, as a first step, **it is important to recognise that liberalized tariff rates on certain products may be beneficial for countries to scale their green economy and adoption of cleaner practices**. For instance, low tariffs on imported EVs, assuming there is charging infrastructure in place, would potentially contribute to a rapid switch away from fuel-based modes of road transportation towards cleaner ones. Yet, such lowering of tariffs is typically mired in other considerations, including political economy, security concerns, supply chain risks, etc.

Melo and Solleder propose that since the level of tariffs in developed countries is already low, "nuisance tariffs"—tariffs whose costs of collection exceed revenues—should be removed by all countries.[60] Removal of tariffs that are 5% or lesser can affect 45% of environmental goods trade.[61] Since tariffs above 5% appear to be concentrated in only a few countries, **countries with 5% or lower tariffs should be incentivized to engage in negotiations to remove them**. However, as discussed above, tariff liberalization would not enhance market access substantially as the main kinds of barriers affecting the trade of environmental goods are NTMs. Therefore, **developing countries should also consider the trade-off between agreeing to tariff liberalization in exchange of lowered NTMs in key markets**. For example, Brazil, China, and India have been engaging in building capacity in renewable energy technology and goods in recent years,[62] implying that the once-importers are likely to be major exporters in the coming years. A UN report also highlighted that south-south trade in renewable energy products is growing faster than global and north-south trade as developing countries, led by China, take advantage of decreasing manufacturing costs, increased investment, and the falling costs of renewables.[63] Thus, their strategies should be forward-looking and consider changes in trade flows as they build their manufacturing capacities and undergo structural transformation in the renewables sector.

Next, as countries engage more deeply in tariff liberalization negotiations, **they can adopt narrow definitions of environmental goods and environmentally preferable products**. The continuous monitoring and updating of the HS codes by the World Customs Organization is also critical, to ensure that negotiations capture the latest technological innovations in the green goods space. The **HS codes should also be used to target specific products**—for example, the amendments to the HS for 2022 achieved separate six-digit codes for PV cells that are assembled in modules or made into panels or LEDs. Doing so would be able to avoid an earlier challenge where they were categorized under the same six-digit heading and negotiations relating to only specific products would become complicated.[64] As the negotiations progress, HS codes could also be negotiated to account for supply-side environmental externalities, such as the methods of production.[65] However, the existing approach of using "ex outs"

57 González, Paugam, Bacchetta, Bekkers, Beverelli, Ferrero, Ganne, Hancock, Lanz, Monteiro, Piermartini, Ramos and Xu, *World Trade Report* 2022, p. 120.

58 Jean-Marc Solleder & Jaime de Melo, "What's Wrong With the WTO's Environmental Goods Agreement: A Developing Country Perspective", *CEPR VoxEU Column*, March 13, 2019, https://cepr.org/voxeu/columns/whats-wrong-wtos-environmental-goods-agreement-developing-country-perspective.

59 Marc Bacchetta, Eddy Bekkers, Jean-Marc Solleder, and Enxhi Tresa, "The Potential Impact of Environmental Goods Trade Liberalization on Trade and Emissions", (WTO Staff Working Paper, No. ERSD-2023-05, Geneva: World Trade Organization, August 2023), https://www.wto.org/english/res_e/reser_e/ersd202305_e.htm.

60 De Melo and Solleder, "The Role of An Environmental Goods Agreement in the Quest to Improve the Regime Complex for Climate Change."

61 Brenton and Chemutai, *The Trade and Climate Change Nexus*, p. 56.

62 Rosina Bierbaum, Marianne Fay, and Bruce Ross-Larson, *World Development Report 2010: Development And Climate Change* (Washington, DC: World Bank Group, November 2009), p. 254, http://documents.worldbank.org/curated/en/201001468159913657/World-development-report-2010-development-and-climate-change.

63 See, *South-South Trade in Renewable Energy: A Trade Flow Analysis of Selected Environmental Goods* (Nairobi: United Nations Environment Programme, February 2014), https://www.unep.org/resources/report/south-south-trade-renewable-energy-trade-flow-analysis-selected-environmental.

64 Steenblik, *Code Shift: The Environmental Significance of the 2022 Amendments to the Harmonized System*.

65 Petros Mavroidis and Damien Neven, "Greening the WTO Environmental Goods Agreement, Tariff Concessions, and Policy Likeness", *Journal of International Economic Law* 22, no. 3 (2019): 373–388, https://doi.org/10.1093/jiel/jgz018.

at deeper than six-digit levels leads to potential fragmentation and incoherence in policy preferences. Multilaterally agreed codes that account for PPMs will be a politically tough but ideal solution that can avoid adverse legal implications of unilateral classifications.[66] In the interim, it is perhaps more feasible to expect the materialization of "ex outs" agreed upon and implemented by major trading partners.[67]

Further, since lowering tariffs is a difficult challenge, **NTMs must be included within the liberalization agenda**. Indeed, negotiations on the harmonization of regulatory standards are likelier to succeed than those on tariff liberalization. Further, NTMs also raise concerns for developing countries, who face high compliance costs in the absence of appropriate technical production capacity as well as institutional frameworks that add to procedural challenges. While NTMs of the nature of local content requirements and labelling requirements are tackled in other sections of this report, it is important to note the challenges posed by them in the context of EGA negotiations. In this regard, developing countries may need additional guarantees of support, or mutual recognition of standards and procedures, as they simultaneously undertake liberalization efforts. This is discussed further in the section on standards and technical regulations.

Another key challenge lies in **locating the appropriate forum to undertake these discussions**. Multilateral consensus would be ideal, but it is elusive. An EGA as a critical mass agreement applicable on an MFN basis would take account of free riding concerns,[68] whereas such a plurilateral agreement is difficult to conclude due to consensus requirements. Alternatively, select members could undertake coordinated scheduling in the relevant products to realize the objective of liberalizing environmental goods trade more quickly.[69]

D. Liberalization of Trade in Environmental Services

The UN Central Product Classification (CPC) outlines environmental services as a few specific sectors, which are activities in relation to wastewater treatment, waste collection and management, remediation, sanitation and similar services, and some other environmental-protection-related services. While these are traditionally environmental activities, the list is outdated in the backdrop of fast-paced technological growth in the environmental sector. Several services which are not traditionally "environmental" may now be directly related to serving an environmental activity or purpose. Services like consulting, design, engineering, construction, and repair and maintenance, which have their own classification and CPC codes—can play critical roles in the installation and operation of environmental facilities. For example, the operation and frequent maintenance of environmental infrastructure requires expertise, which can be provided by experienced technicians. In fact, a study has identified 65 service categories that can be termed as environmental services and ought to be liberalized.[70] Enabling cheaper access to such services will help countries benefit from expertise and increased efficiency, at scale.

Therefore, the challenge today is to **liberalize the trade in services that serve an environmental purpose**, including those sectors where WTO members may already have pre-existing commitments. Some suggestions include that to avoid renegotiation of existing commitments, **countries could instead define and agree on a new list of environmental services on which they could take commitments**.[71] However, the dangers of stalled negotiations as seen in the EGA could be easily replicated in such a format. In addition, members have been traditionally hesitant about liberalizing services sectors and may continue to showcase similar sentiments due to uncertainty in domestic regulatory measures and their impacts on development.[72] Further, countries will need to discuss the application of rules to the increasing number of integrated products that can be a mix of both goods and services.

66 Mavroidis and Neven, "Greening the WTO Environmental Goods Agreement, Tariff Concessions, and Policy Likeness."

67 For more on coordinated scheduling and unilateral liberalization, Bernard Hoekman and Petros Mavroidis, "Investment Facilitation in the WTO: The Case for Early Harvesting", *CCSI FDI Perspectives*, December 26, 2022, https://ccsi.columbia.edu/sites/default/files/content/docs/fdi%20perspectives/No%20347%20-%20Hoekman%20and%20Mavroidis%20-%20FINAL.pdf.

68 Rudolf Adlung and Hamid Mamdouh, "Plurilateral Trade Agreements: An Escape Route for the WTO?", *Journal of World Trade* 52, no. 1, (2018): 85–111, https://kluwerlawonline.com/journalarticle/Journal+of+World+Trade/52.1/TRAD2018005.

69 Bernard Hoekman and Petros Mavroidis, "Embracing Diversity: Plurilateral Agreements and the Trading System,*" *World Trade Review* 14, no. 1 (2015): 101–116, https://www.cambridge.org/core/journals/world-trade-review/article/abs/embracing-diversity-plurilateral-agreements-and-the-trading-system/A1D32F2AF936618D69202B84BF96801C.

70 Ronald Steenblik and Nordås Hildegunn, *Environmental Services in the APEC Region: Definition, Challenges, and Opportunities* (Singapore: Committee on Trade and Investment (CTI), Group on Services (GOS), Asia-Pacific Economic Cooperation, May 2021), https://www.apec.org/publications/2021/05/environmental-services-in-the-apec-region.

71 World Trade Organization, Council for Trade in Services: Environmental Services, S/C/W/46, 6 July 1998, p. 3, https://www.wto.org/english/tratop_e/serv_e/w46.doc.

72 Colin Kirkpatrick, Clive George and Serban Scrieciu "Trade Liberalisation in Environmental Services: Why So Little Progress?" *Global Economy Journal* 6, no. 2 (2006), https://doi.org/10.2202/1524-5861.1174.

Part C: The "Weighing and Balancing" Regulatory Role of Trade

IV. Carbon Pricing and Border Carbon Adjustment Measures

A. Why a Border Carbon Adjustment?

The carbon tax, a form of carbon pricing, is a policy measure straddling trade and climate action that has been the source of much debate recently.[73] Introducing a price on carbon,[74] whether in the form of carbon taxes or as a cap-and-trade mechanism, is aimed at incentivizing private firms and businesses to reduce their carbon dioxide emissions and encourage the adoption of cleaner technologies and production methods. According to the World Bank, there are 104 carbon pricing initiatives implemented across 52 national jurisdictions and with 38 carbon tax instruments.[75] However, less than 4% of global emissions are currently covered by a carbon price that would enable the attainment of the 2030 temperature goal of the Paris Agreement.[76] Further, to be effective, carbon pricing needs wide acceptance. G20 countries together account for approximately 80% of global GHG emissions.[77] While several G20 economies have introduced carbon pricing mechanisms or established emissions trading systems (another mechanism to encourage curbing of greenhouse gas emissions), many are yet to adopt similar policies. In addition to challenges arising out of a fragmented adoption of different kinds of carbon prices, there are also various differences in the approaches used by countries if they do have a carbon pricing mechanism. For instance, pricing levels, covered sectors, use of carve-outs, allowed offsets, and even the fundamental basis for accounting (absolute emissions or emissions intensity), can all lead to different levels of effectiveness of carbon pricing. Such differences add to the complexities surrounding the use of carbon pricing as a global strategy to meet the Paris Goals,[78] absent harmonization and standardization efforts. In the absence of an agreement on global carbon pricing, cross-border trade of goods adds one such additional layer of complication as there are risks of carbon leakage and loss of competitiveness.

The globally fragmented implementation of carbon pricing measures arguably decreases competitiveness of industries and manufacturing sectors in countries that implement carbon pricing measures, in relation to those that do not and who therefore can benefit from lower and more attractive prices of the goods traded. Concerns regarding shifting of production sites to tax-free jurisdictions to gain from lower production costs have also been voiced as an economic consequence[79] which can pose hindrances to energy transition in the long term. By failing to effectively incentivize adoption of clean production methods and technologies across the slate (either by way of public expenditure or inadequate climate finance), countries with lower environmental standards—typically middle-income and low-income ones that could receive the displaced industries and investments—may take longer to decarbonize.

In addition to economic concerns of an imbalanced playing field and reduced competitiveness, the non-uniform application of carbon prices is argued to defeat the intended environmental aim and effect of such measures as it leads to "carbon leakage." Carbon leakage has been described as the phenomenon whereby decreased carbon emissions in a country are offset by the increased levels of emissions in its trading partners. For example, carbon leakage could arise where decreased emissions arising from a carbon tax are offset by increased emissions in jurisdictions that do not implement equivalent emissions control or carbon tax, caused by shifting of production or diversion of investments. Therefore, several

73 The idea of a carbon fee was first introduced in 1973 by MIT professor David Wilson. David Chandler, "Emeritus: David Wilson Was an Early Proponent of the Concept of Energy-use Fees", *MIT News*, November 2013, https://news.mit.edu/2013/emeritus-david-wilson-was-early-proponent-concept-energy-use-fees.

74 In this section, we use carbon to refer to greenhouse gas emissions including carbon dioxide.

75 "Carbon Pricing Dashboard", World Bank, https://carbonpricingdashboard.worldbank.org (accessed on May 21, 2024).

76 "World Bank Group, *State and Trends of Carbon Pricing 2022* (Washington, DC: World Bank Group, May 2022), p.25, https://openknowledge.worldbank.org/handle/10986/37455.

77 OECD, *Carbon Pricing in Times of COVID-19: What Has Changed in G20 Economies?* (Paris: Organisation for Economic Co-operation and Development, 2021), https://web-archive.oecd.org/temp/2023-01-02/613545-carbon-pricing-in-times-of-covid-19-what-has-changed-in-g20-economies.htm.

78 Jean Chateau, Florence Jaumotte, and Gregor Schwerhoff, "Why Countries Must Cooperate on Carbon Prices", *International Monetary Fund* (blog), May 19, 2022 https://www.imf.org/en/Blogs/Articles/2022/05/19/blog-why-countries-must-cooperate-on-carbon-prices.

79 Reid Dorsey-Palmateer and Ben Niu, "The Effect of Carbon Taxation on Cross-border Competition and Energy Efficiency Investments", *Energy Economics* 85, (2020), https://doi.org/10.1016/j.eneco.2019.104602.

countries that undertake carbon pricing have been considering the utility of imposing a trade measure called a border carbon adjustment (BCA), to level the playing field for their domestic industries and address carbon leakage concerns.[80] However, as such measures implicate trade obligations under the law of the WTO, they have been scrutinized closely to assess their legality and compatibility with rights and obligations emanating from international trade rules. Moreover, it is argued that the necessity to introduce and implement BCAs needs to be rethought in light of the evidence of "some but not too much" leakage.[81] For example, several studies have focused on assessing the carbon leakage caused by one of the largest carbon pricing mechanisms called the EU Emissions Trading System (ETS), which have found mixed results on levels of leakage.[82] However, it is worth noting that low effective carbon prices are likely to contribute to little evidence of leakage, but this may change with increasing prices of carbon.

So far, countries (both at federal and provincial levels) have attempted to address the leakage through measures like exemptions, export rebates, free allocation of allowances, etc. Although these measures may help restore the competitiveness of affected industries, these are not always effective in incentivising the shift to cleaner methods of production that require industrial level changes in a producing country's economy, thereby leaving the original intent of the measure unmet. Indeed, on the question of effectiveness, it is debated whether incentives to decarbonize would be stronger with taxes on the product in the market or through taxing the sites of production based on the energy inputs and emissions. However, the implications of the latter kind of taxes are uncertain under WTO rules.[83]

As a result of the paradox of increasing urgency and lethargy in global rulemaking, the idea of a unilateral border carbon adjustment measure has gained traction with the EU's introduction of a Carbon Border Adjustment Mechanism (CBAM),[84] which has garnered much attention, discussion, and critique. It applies to iron and steel, aluminum, cement, fertilizers, electricity, and hydrogen. Following the EU, other countries have been reportedly considering carbon taxes and BCAs of their own, including most recently, the UK.

80 Michael Keen, Ian Perry and James Roaf, "Border Carbon Adjustments: Rationale, Design and Impact", (International Monetary Fund Working Paper WP/21/239, Washington, DC: International Monetary Fund, 2021), https://www.imf.org/en/Publications/WP/Issues/2021/09/24/Border-Carbon-Adjustments-Rationale-Design-and-Impact-466176.

81 Justin Caron, "Empirical Evidence and Projections of Carbon Leakage: Some, but Not too Much, Probably", in *Handbook on Trade Policy and Climate Change*, Mercator Research Institute on Global Commons and Climate Change (MCC) and Ecologic Institute, 2022, https://www.e-elgar.com/shop/usd/handbook-on-trade-policy-and-climate-change-9781839103230.html.

82 John Ward, Paul Sammon, Guy Dundas, Grzegorz Peszko, Pauline Maree Kennedy, Sebastian Wienges, and Nicolai Prytz, "Carbon Leakage: Theory, Evidence, and Policy", (World Bank Working Paper no. 100369, Washington, DC: World Bank Group, 2015), https://documents.worldbank.org/en/publication/documents-reports/documentdetail/138781468001151104/carbon-leakage-theory-evidence-and-policy-design.

83 Jennifer Hillman, "Changing Climate for Carbon Taxes: Who's Afraid of the WTO?" *Georgetown Law Climate & Energy Policy Paper Series*, July 2013, https://scholarship.law.georgetown.edu/facpub/2030/.

84 European Commission, *Proposal for a 'Regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism,'* COM(2021)564, (July 2021), https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52021PC0564.

B. Key Legal Considerations in Designing Border Carbon Adjustments

Border adjustment measures are generally permissible under WTO law, but there are various conditions that must be met to be legal and in compliance with core WTO principles of non-discrimination. Therefore, BCAs can implicate various agreements of the WTO, such as GATT 1994 as detailed below and potentially, the TBT Agreement (if the border adjustment measure amounts to a mandatory certification) and the ASCM (if the BCA runs parallelly to export rebates for the domestic industry). This section explains key design elements of BCAs that bear implications under GATT rules.

A BCA's characterization as an internal indirect tax or a regulation or a border measure or a quantitative restriction creates different legal implications under the GATT. The design of such a measure is often correlated with the design of the *underlying carbon pricing scheme* prevailing in the importing country. Accordingly, the characterization of the domestic carbon price mechanism (whether as a carbon tax or an emissions trading scheme) assumes great significance to ensure the accurate application of WTO disciplines and assess the legality of the corresponding import adjustment. The requirements for a WTO compliant BCA have been extensively discussed by legal scholars,[85] all of whom argue that it is possible to design a legally permissible measure but may run into interpretation challenges, such as the "like product" analysis discussed above, or on the meaning of "where same conditions prevail" in the context of development-based preferential treatment towards some.

A country introducing a carbon border adjustment in the nature of a tax would be bound by its obligations under Articles I, II, and III of the GATT. WTO members are prohibited from imposing any import duty (including "other duty or charge") that is in excess of those provided in its tariff schedule.[86] However, the GATT does allow for an excess over the scheduled amount—if the border adjustment (a "charge") is equivalent to an "internal tax" that complies with non-discrimination under Article III.2 and is imposed on a "like product" or in respect of an article from which an imported product has been manufactured or produced. Only indirect taxes whose incidence can be shifted, can be adjusted, which implies that carbon *taxes* can be adjusted.[87] Alternatively, even if the argument that the BCA and the internal tax measure apply to "like products" fails, the next step of the analysis checks whether the border adjustment is imposed on an article, i.e., energy inputs or carbon, from which an imported product has been manufactured, as these are not physically incorporated into the final product. This position is unsettled.[88] The 1970 GATT Working Party Report on Border Tax Adjustments did not clarify whether "taxes occultes" or hidden taxes (e.g., those imposed on energy inputs) can be adjusted. The GATT Panel in *US – Superfund* also did not clarify whether the chemicals used in the production process needed to be physically incorporated in the products. As the BCA is a measure based on a PPM, whether the carbon emissions or the energy inputs used in the production process physically form a part of the final product, is an important question.[89] Absent the physical incorporation of the input, it could be argued that the BCA is not imposed on an article from which the imported product has been manufactured and hence, cannot be adjusted.

Next, the BCA must be non-discriminatory in its application of "like" imported products, whether it is applied in the form of a customs tariff within bound rates or an internal tax or an internal regulation.[90] A key question that acquires significance for not just border adjustment, but presumably in future disciplines relating to the environment, is that of likeness. A regulating country is likely to defend the BCA by arguing that products manufactured through cleaner methods and by emitting lesser carbon, are "unlike"

85 Selected literature on the topic is as follows: Hillman, "Changing Climate for Carbon Taxes"; Robert Howse, "Non-tariff Barriers and Climate Policy: Border-Adjusted Taxes and Regulatory Measures as WTO-Compliant Climate Mitigation Strategies", *European Yearbook of International Economic Law* (2015): 3–18, https://www.researchgate.net/publication/300648187_Distinguished_Essay_Non-tariff_Barriers_and_Climate_Policy_Border-Adjusted_Taxes_and_Regulatory_Measures_as_WTO-Compliant_Climate_Mitigation_Strategies; Joost Pauwelyn, "U.S. Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law", (Duke University Working Paper, Durham: Nicholas Institute for Environmental Policy Solutions, April 2007); Joel Trachtman, *WTO Law Constraints on Border Tax Adjustment and Tax Credit Mechanisms to Reduce the Competitive Effects of Carbon Taxes* (Washington, DC: Resources for the Future, January 2016), https://media.rff.org/documents/RFF-DP-16-03.pdf; Henrik Horn and Petros Mavroidis, "To B(TA) or Not to B(TA)? On the Legality and Desirability of Border Tax Adjustments from a Trade Perspective", *The World Economy* 34, no. 11 (2011): 1911–1937, https://doi.org/10.1111/j.1467-9701.2011.01423.x; James Bacchus, "Legal Issues with the European Carbon Border Adjustment Mechanism", (Cato Institute Briefing Paper no. 125, Washington, DC: Cato Institute, August 2021), https://www.cato.org/briefing-paper/legal-issues-european-carbon-border-adjustment-mechanism.

86 Art. II.1(b), GATT 1994.

87 Report of the Working Party on Border Tax Adjustments, BISD 18S/97, https://www.worldtradelaw.net/document.php?id=reports/gattpanels/bordertax.pdf&mode=download.

88 See for argument against physical incorporation requirement, Pauwelyn, "U.S. Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law".

89 Here, it is interesting to note EU's use of the term "embedded emissions", which may have been strategic to assert their perception that carbon emissions are indeed incorporated in the product.

90 Appellate Body Report, China – Auto Parts, paras 158 and 164.

products manufactured conventionally, or through dirty energy. However, jurisprudence thus far has not acknowledged NPR PPM as a key differentiator, unless there are differences in physical characteristics of products.[91] It has relied upon the reasonable consumer's perception of likeness between goods, which has arguably resulted in inadequate consideration of policy considerations behind measures. Indeed, the Appellate Body in *US – Shrimp* did leave the door open to the use of NPR PPMs and regulations based on NPR PPMs are not a priori illegal under WTO law.[92] However, a reasonable reading of the issue is that the treatment of NPR PPMs in a likeness assessment will benefit from greater clarity. Therefore, either WTO adjudicatory panels, or members themselves, must clarify this legal question, as uncertainty over such interpretations may hinder the ability of measures to pursue climate action by differentiating between environmentally clean and dirty products and processes.

Thus, a BCA that seeks to adjust a tax measure must meet the requirements of Articles I, II, and III.2 of the GATT to avoid a violation. A BCA that seeks to adjust an internal *regulation* (arguably, such as an emissions trading scheme) would need to comply with Article III.4 of the GATT, which implies that a regulation cannot be adjusted but must be imposed equally on importers. In any case, regulating countries are not defenseless in case of a violation of the GATT—they may advance justifications available under the environmental exceptions provided in Article XX of the GATT, which is the likely battlefield in a dispute involving a BCA. To avail of those exceptions and absolve themselves from any liability that may arise out of a breach, the measure will have to be designed and applied in a certain way. Thus, the two-pronged test under the "General Exceptions" provision in Article XX requires the BCA to first, attain provisional justification under the environment-related exceptions in Article XX (b) and (g); and second, meet conditions of the chapeau.

Under the first avenue of justification, the BCA must be "necessary to protect human, animal or plant life or health" to meet the first step of the test. It is well-established that reduction of carbon emissions is aimed at protecting human health from climate change.[93] But the test to show measure's necessity to the achievement of this purpose comprises 'weighing and balancing' of three factors: (i) the extent of the carbon border adjustment's contribution to the achievement of the final objective, i.e., reducing carbon emissions; (ii) its trade-restrictiveness in the light of the importance of the interests or values at stake and; (iii) the availability of less trade-restrictive alternatives with equivalent contributions to reduction of carbon emissions.[94]

The second potential justification lies in Article XX(g). To fall under this exception, first, a carbon border adjustment must "relate to the conservation of exhaustible natural resources." A BCA is arguably aimed at protecting the planet from the effects of climate change worsened by increasing carbon emissions. WTO jurisprudence has clarified that an exhaustible natural resource can encompass clean air,[95] and that it reflects "contemporary concerns of the community of nations about the protection and the conservation of the environment."[96] Therefore, a BCA can be said to be a measure to conserve all planetary lifeforms in light of urgent and necessary climate action. Second, a BCA must be "related to" conservation of natural resources, which means there must be "a close and genuine relationship of ends and means."[97] A BCA can arguably be shown to contribute to lowering carbon emissions, which as recognized by MEAs has a direct and consequential impact on managing climate change. The effect is not merely incidental or inadvertent. Third, a BCA must be implemented in an even-handed manner alongside similar measures imposed on domestic production or consumption,[98] for example as in the case of the EU CBAM, the ETS is the relevant domestic measure.

In addition to being provisionally justified under the exceptions, a BCA must also meet the requirements of the chapeau to pass muster of Article XX. The chapeau requires that the measure does not result in discrimination; that the discrimination should not be arbitrary or unjustifiable in character; and such

91 Panel Report, US – Tuna/Dolphin I, para. 5.15; Jagdish Bhagwati and Petros Mavroidis, "Is Action Against US Exports for Failure to Sign Kyoto Protocol WTO-legal?" *World Trade Review* 6, no. 2 (2007): 299–310, p. 304, doi:10.1017/S1474745607003291.

92 Andreas Oeschger and Elisabeth Bürgi Bonanomi, "PPMs Are Back: The Rise of New Sustainability-oriented Trade Policies Based on Process and Production Methods", *International Institute for Sustainable Development*, April 14, 2023, https://www.iisd.org/articles/policy-analysis/ppms-rise-new-sustainability-oriented-trade-policies-process-production-methods; See Robert Howse, "The Appellate Body Rulings in the Shrimp/Turtle Case: A New Legal Baseline for the Trade and Environment Debate", *Columbia Journal of Environmental Law* 27 (2002), p. 489, 513, https://www.law.nyu.edu/sites/default/files/ECM_PRO_060046.pdf.

93 Panel Report, Brazil – Taxation, para 7.880.

94 Appellate Body Report, Brazil – Retreaded Tyres, para. 156.

95 Panel Report, US – Gasoline, para. 6.37.

96 Appellate Body Report, US – Shrimp, para. 129.

97 See Appellate Body Report, China – Rare Earths, para. 5.90.

98 Appellate Body Report, US – Gasoline, p. 20.

discrimination is not between countries where the same conditions prevail.[99] There should also be no disguised restriction on international trade, which overlaps with the discrimination condition.

To show a measure's arbitrariness or unjustifiability of discrimination under the chapeau, it must be shown that the cause of discrimination bears no rational connection to the objective of reducing emissions.[100] In other words, the discriminatory aspects of a measure must be even-handed[101] and rationally related to its policy objective.[102] However, a BCA that considers only a specific kind of carbon price as adjustable may discriminate against countries that have climate policies with no carbon pricing, even if such policies exhibit similar environmental outcomes. For example, regulations or bans on use of coal-generated electricity in the exporting country would not be considered adequate to claim exemptions under such a BCA mechanism, even though such a measure could achieve the same level of emissions reduction. Further, third countries cannot be coerced into adopting essentially the same climate action policy, i.e., a carbon tax. Such discrimination cannot be said to be even-handed or rationally related to the policy objective of addressing climate change.[103] WTO jurisprudence confirms that "an intended and actual coercive effect on other governments" to "adopt essentially the same policy" is considered impermissible in trade relations.[104] Therefore, establishing equivalence of different carbon pricing mechanisms is an essential policy priority. The WTO Appellate Body has also held that "discrimination exists…when the application of the measure does not allow for any inquiry into the appropriateness of the regulatory programme for the conditions prevailing in those exporting countries."[105] Accordingly, a BCA must provide the flexibility to check the appropriateness of the measure under different national conditions, especially in low-income and least developed countries affected most by the measure.[106]

The final step of the chapeau test requires the measure does not cause discrimination between countries where the same conditions prevail. This may give rise to an argument that countries may legally discriminate between countries where *different* conditions prevail, given the differences in economic capacities where the discrimination is felt. However, the conditions that the chapeau refers to must be understood in the context of the sub-paragraph under which the measure was provisionally justified,[107] and the substantive obligations of the GATT under which violation was found.[108] This can have two implications in two different scenarios. First, since the BCA was provisionally justified under environmental exceptions of Article XX, it can be argued that all members face equal threats of climate change and therefore the same conditions—that are relevant to the analysis of this measure's aim, application, and impact—prevail across trading partners. If the measure discriminates between members where the same conditions do indeed prevail, it cannot be justified under the chapeau of Article XX and hence would violate WTO law. But on the other hand, if a substantive violation of the MFN obligation were found owing to preferential treatment towards LDCs for instance, could their economic and developmental status be useful to understanding the meaning of relevant "conditions"? The defending country would have to bear the burden to prove that the levels of development in LDCs are different from those of more developed countries such that they need preferential treatment to comply with the BCA. In other words, any non-origin specific criteria that serve as the basis for discrimination would have to be based on objective criteria for a justification to prevail.[109]

99 Appellate Body Report, US – Shrimp, para. 150.
100 Appellate Body Report, Brazil – Retreaded Tyres, paras. 226-228.
101 Per TBT jurisprudence, the concept of even-handedness is a precondition for the legitimacy of discrimination. *See*, Appellate Body Report, US – COOL.
102 Appellate Body Report, US – Tuna II (Mexico) (Article 21.5 – Mexico), para. 7.316.
103 Trachtman (2016) writes at p. 26: "A BTA regime should not be designed to coerce other states into establishing their own carbon regimes or joining an international regime."
104 Appellate Body Report, US – Shrimp, para. 161.
105 Appellate Body Report, US – Shrimp, para. 164-165.
106 Clara Brandi, "Trade and Climate Change: Environmental, Economic and Ethical Perspectives on Border Carbon Adjustments" *Ethics, Policy & Environment* 16, no.1, (2013): 79–93, https://doi.org/10.1080/21550085.2013.768395.
107 Appellate Body Reports, EC – Seal Products, paras. 5.299-5.301.
108 Appellate Body Reports, EC – Seal Products, paras. 5.299-5.301.
109 Sasmal, Zhang, Lydgate, and Winters, "Exempting Least Developed Countries from Border Carbon Adjustments."

C. Path Forward for Border Carbon Adjustments and Less-Developed Countries

BCAs have come under scrutiny for a variety of reasons. First, some studies have found that the evidence of carbon leakage is not high or conclusive.[110] Yet, a meta-analysis of 25 studies assessing the impact of BCAs on carbon leakage and competitiveness, reveals that "carbon leakage estimates are from 5% to 25% (mean 14%) without policy and from − 5% to 15% (mean 6%) with BCAs."[111] Next, the political desirability of BCAs is questionable, if their very objective is perceived and proved to be a disguised means of protectionism or as failing to serve any real purpose of reducing emissions. Finally, the intention to restore competitiveness has inevitable adverse welfare effects on trading partners.[112] Thus, the BCA reflects a balancing problem in international trade, whereby divergences in carbon pricing policies must be narrowed, and the attainment of climate goals must integrate developmental imperatives of less-developed countries.

Despite several challenges, BCAs are forecasted to gain popularity amongst countries,[113] with the global uptake of carbon pricing mechanisms. The UK has recently announced its plan to follow the EU's suit regarding its own BCA.[114] If designed and implemented well, carbon taxes can certainly be deployed alongside other trade tools. **Sheer simplicity and efficiency considerations indicate that a global carbon tax[115] would be the most effective climate action tool as well as easy to administer from an international trade law perspective**. But arriving at a consensus on such a global tax is near impossible in today's geopolitical climate. Therefore, unilateral border carbon adjustment measures or those imposed by climate clubs will be observed more frequently in the foreseeable future, as a part of addressing carbon leakage and economic competitiveness concerns. Accepting that such measures will gradually become the norm and not the exception, the critical questions will then centre on non-discriminatory application of the measures to prevent protectionist intentions from materializing, and minimizing the negative externalities of these measures on less-developed countries by way of exploring different forms of graded preferential treatment.[116]

First, to avoid protectionism, **any carbon border adjustment should follow certain core principles, such as elimination of double protection to domestic industries; recognition or equivalence for carbon prices or other control mechanisms that achieve the same objective; and administrative review of determinations of carbon emissions that are based on default values**.[117] Indeed, **interoperability of carbon pricing mechanisms and equivalence of different schemes are *imperative* to pursue a more democratic method of climate action using trade measures, in line with respective NDCs**. Article XX of the GATT, as noted above, disallows members from effectively coercing trading partners into adopting essentially the same policy. However, there is no easy method to find equivalence between difference policies,[118] especially where one is explicit-price-based like a tax and the other is non-explicit-price-based, such as regulations, withdrawal of fossil fuel subsidies, etc. Yet, from the view of cooperation, political legitimacy, and equity, different forms of carbon pricing must be found comparable with one another.[119]

Second, for the greatest effectiveness of such unilateral measures and the least possibility of resulting trade frictions, **harmonization of quantification of embedded emissions is necessary to build trust**

110 Håkan Nordström, " Does the Risk of Carbon Leakage Justify the CBAM?" (Robert Schuman Centre for Advanced Studies Working Paper no 2023/08, Fiesole: European University Institute, February 2023), https://cadmus.eui.eu/bitstream/handle/1814/75367/RSC_WP_2023%2008.pdf?sequence=1&isAllowed=y.

111 Frederic Branger and Philippe Quirion, "Would Border Carbon Adjustments Prevent Carbon Leakage and Heavy Industry Competitiveness Losses? Insights from a Meta-analysis of Recent Economic Studies", *Ecological Economics* 99, issue C (2014): 29–39, https://econpapers.repec.org/article/eeeecolec/v_3a99_3ay_3a2014_3ai_3ac_3ap_3a29-39.htm.

112 Horn and Mavroidis, "To B(TA) or Not to B(TA)? On the Legality and Desirability of Border Tax Adjustments from a Trade Perspective", p. 1911, 1929.

113 Laurie Durel, "Border Carbon Adjustment Compliance and the WTO: The Interactional Evolution of Law", *Journal of International Economic Law* 27, no. 1 (2024): 18–40, https://doi.org/10.1093/jiel/jgae007.

114 "Consultation Outcome, Factsheet: UK Carbon Border Adjustment Mechanism" UK Department for Energy Security and Net Zero and UK HM Treasury, December 18, 2023, https://www.gov.uk/government/consultations/addressing-carbon-leakage-risk-to-support-decarbonisation/outcome/factsheet-uk-carbon-border-adjustment-mechanism.

115 Sam Fleming and Chris Giles, "OECD Seeks Global Plan for Carbon Prices to Avoid Trade Wars", *Financial Times*, September 13, 2021, https://www.ft.com/content/334cf17a-e1f1-4837-807a-c4965fe497f3.

116 Sasmal, Zhang, Lydgate, and Winters, "Exempting Least Developed Countries from Border Carbon Adjustments."

117 Nathalie Bernasconi-Osterwalder and Aaron Cosbey, "Carbon And Controversy: Why We Need Global Cooperation On Border Carbon Adjustment", *International Institute for Sustainable Development*, May 18 2021, https://www.iisd.org/articles/carbon-border-adjustment-global-cooperation.

118 Even if price equivalents are calculated, different policies, price-based and non-price-based, have different resource allocation consequences which can affect the conditions of competition in the market.

119 Goran Dominioni and Daniel Esty, "Designing Effective Border Carbon Adjustment Mechanisms: Aligning the Global Trade and Climate Change Regimes", *Arizona Law Review* 65, no. 1 (2023), https://arizonalawreview.org/pdf/65-1/65arizlrev1.pdf.

amongst trading partners and inspire confidence in their respective industries.[120] The variations in methods of carbon accounting deployed for the calculation of embedded emissions are added complexities that make the measure complex and compliance thereof challenging. The WTO rules on technical regulations can play an important role in easing administrative hurdles arising out of divergent methodologies of calculating emissions in different countries.[121] **The TBT Agreement can be leveraged to implement domestic regulations that need to be necessarily based upon existing international standards to gain the presumption of legality, thereby inducing concerted efforts towards standardizing emissions accounting methods**. The TBT Agreement also governs verification and conformity assessment procedures, which could be used in conjunction with the standardization of calculation methodologies to ensure compliance with the regulation. Thus, it is important for countries to cooperate on harmonizing such standards at the international level.

Third, several developing countries and LDCs are vulnerable to consequences of carbon border adjustment measures,[122] despite having contributed to climate change the least. As a result, **countries implementing BCAs as a trade measure must consider the developmental implications and economic impact of their application**. Those countries that depend on export-led growth in the sectors covered by BCAs will face adverse economic consequences which will be felt more acutely in lower-income countries.[123] Though the amount of imports into the regulating countries such as the EU or the UK may be relatively less, the amount of exports affected will be relatively higher for LDCs, for whom this economic loss might signify a significant proportion of their GDP.[124] Thus, the design of carbon border adjustment measures should be informed by the environmental legal principle of CBDR-RC; regulating countries should therefore incorporate the principle into the design and operation of the trade measure.

Meanwhile, LDCs, small island developing states (SIDS), and even some other developing countries, can call for preferential treatment from the application of BCAs. Exemptions would be normatively justified under WTO's principle of special and differential treatment as well as the principle of CBDR-RC under international environmental law, but are not entirely free from discrimination allegations from WTO members that are not recipients of the preferential treatment. Thus, although there are risks of WTO incompatibility, the normative value in exempting those that have contributed least to the problem of climate change is high. Some options include phase-in periods for the less-developed; relaxation of regulatory requirements for the less-developed; import-volumes-threshold based exemptions; and exemptions based on environmental criteria. Since LDC exports—although significant for LDCs—is not considerable for the EU, the risk of carbon leakage is also low, which renders an exemption for LDCs also reasonable.[125] Further, the use of default emissions based on an adverse inference principle, in the absence of emissions data, may be inequitable and arbitrary and prone to legal challenges. An approach more favorable to developing countries would be to assume that best available technology was used when calculating default emissions levels. WTO members could also utilize multilateral instruments to extend the application of the Enabling Clause (the foremost tool on special and differential treatment at the WTO) to indirect taxes.[126]

Finally, **BCAs must also be accompanied by other supportive measures in order to ensure maximum effectiveness and equitable distribution of the gains**. Revenues earned from imposing the BCA should be repatriated back to exporting developing countries to fund decarbonization efforts, as part of special and differential treatment and climate finance commitments under the Paris Agreement. Further, regulating countries should ensure that regulated countries have the necessary technology and infrastructure in place to reduce the impact of and comply with the measure, since the aim of the measure is global climate action. Therefore, technology transfers and technical assistance should be a part of the package.

120 *Trade and Climate Change Information Brief No. 6: What Yardstick for Net-zero? How WTO TBT Disciplines Can Contribute to Effective Policies on Carbon Emission Standards and Climate Change Mitigation*, (Geneva: World Trade Organization, December 2022), https://www.wto.org/english/news_e/news21_e/clim_03nov21-6_e.pdf.

121 Jordy Lee Calderon et al., Addressing the Need for Accurate and Comparable Greenhouse Gas Data: The COMET Framework (New York: Columbia Center on Sustainable Investment (CCSI), March 2023), https://ccsi.columbia.edu/sites/default/files/content/docs/COMET_GHG_Data_White_Paper.pdf.

122 United Nations Conference on Trade and Development, A European Union Carbon Border Adjustment Mechanism: Implications for Developing Countries, UNCTAD/OSG/INF/2021/2, (July 2021), https://unctad.org/publication/european-union-carbon-border-adjustment-mechanism-implications-developing-countries.

123 African Climate Foundation and the LSE Firoz Lalji Institute for Africa, *Implications for African Countries of a Carbon Border Adjustment Mechanism in the EU* (Cape Town: African Climate Foundation, March 2024), https://africanclimatefoundation.org/research-article/implications-for-african-countries-of-a-carbon-border-adjustment-mechanism-in-the-eu/; Sinan Ülgen, "A Political Economy Perspective on the EU's Carbon Border Tax", *Carnegie Europe*, May 9, 2023, https://carnegieendowment.org/research/2023/05/a-political-economy-perspective-on-the-eus-carbon-border-tax?lang=en&center=europe. Finds that the most affected countries are either low-income countries or LDCs or developing countries in the EU's neighbourhood.

124 Brandi, "Trade and Climate Change."

125 See, Clara Brandi, "Priorities for a Development-friendly EU Carbon Border Adjustment (CBAM)", (Briefing Paper, No. 20/2021, Bonn: Deutsches Institut für Entwicklungspolitik (DIE), May 2021), https://doi.org/10.23661/bp20.2021.

126 Sasmal, Zhang, Lydgate, and Winters, "Exempting Least Developed Countries from Border Carbon Adjustments."

In addition, these recommendations must be viewed in conjunction with other multilateral actions, such as revisiting disciplines on green industrial policy. A holistic approach to greening industries will be the most sensible approach in the interests of sustained climate action globally.

V. Regulations and Standards for Climate Action

A. Role of Environmental Regulations and Standards

Standards and regulations form a major kind of behind-the-border measures that affect trade in goods, including environmental goods. These are usually governed under the TBT Agreement and the Sanitary and Phytosanitary Measures Agreement, although the focus of this report is on the TBT Agreement and its relevance to environmental standards. The World Trade Report of 2022 indicates that high-income countries have a higher intensity of TBT measures with an average of 11 such measures on environmental goods imports, with middle-income and low-income countries imposing five and two TBT measures respectively.[127] The WTO Environment Database reveals that the largest share of environmental notifications are made in the context of the technical regulations.[128] Thus, technical regulations, standards, and conformity assessment procedures (collectively referred to as "standards" in this report) have an important role to play in a country's climate action policies.

Such tools are used by countries to regulate the products being imported, by calibrating their regulations to their corresponding risk aversion levels. Accordingly, countries can filter imports by using relevant national, international, or regional standards that reflect their regulatory (environmental, social, health, etc.) preferences. Thus, standards (international, national, regional, or voluntary) are an important tool in international trade that allows a country to reflect its social preferences, including its environmental and climate ambitions, and are often used to generate behavioral changes.[129] For example, fuel-efficiency standards for vehicles and labels to reflect emissions ratings on appliances are criteria that consumers consider in their purchases. They amount to standards and technical regulations that are covered under the TBT Agreement.

Today, countries are increasingly resorting to tools such as labelling or due diligence requirements in the context of deforestation-free products trade, to regulate importation of products that do not meet select policy conditions. Certification requirements for cross-border trade in green electricity also indicate a potential area of further deliberation. Ecolabelling on a voluntary basis and as promulgated by private bodies has been a common practice in several countries as well.[130] As a result, as the use of regulatory standards gains even more prominence in the climate context, it is inevitable that questions and challenges over the legality of such measures intensify, especially if they are perceived as pursuing green protectionism in the garb of green activism.

At the heart of the TBT Agreement is the requirement that any regulation should not discriminate between like products and should not be more trade-restrictive than necessary to fulfil its legitimate objectives.[131] In contrast to Article XX of the GATT that incorporates a similar test applicable to measures found to violate the GATT, the TBT Agreement imposes a similar threshold on *any* technical regulation that is adopted. In addition to the necessity test, a TBT measure should be based on existing international standards unless they would be ill-suited for the attainment of the objective. In fact, when a technical regulation is in accordance with relevant international standards, there is a rebuttable presumption that it does not create an unnecessary obstacle to international trade.[132] In other words, regulations based on international standards are presumed to be necessary, and measures should be based on such standards in principle. Apart from legal reasons, there are several practical conveniences that would result from harmonization of standards in different countries, as discussed below.

127 González, Paugam, Bacchetta, Bekkers, Beverelli, Ferrero, Ganne, Hancock, Lanz, Monteiro, Piermartini, Ramos and Xu, *World Trade Report* 2022, p. 120.
128 "Environmental Database", World Trade Organization, https://edb.wto.org/ (accessed on Dec 19, 2022).
129 Ludivine Tamiotti, Robert Teh, Vesile Kulaçoğlu, Anne Olhoff, Benjamin Simmons, and Hussein Abaza, *Trade and Climate Change: A Report by the United Nations Environment Programme and the World Trade Organization* (Geneva: World Trade Organization, 2009), p. 124, https://www.wto.org/english/res_e/booksp_e/trade_climate_change_e.pdf.
130 International Institute for Sustainable Development and United Nations Environment Programme, *Trade and Green Economy: A Handbook* (Geneva: IISD and UNEP, April 2015), https://www.iisd.org/publications/trade-and-green-economy-handbook-third-edition.
131 Art. 2.1 and Art. 2.2, TBT Agreement.
132 Art. 2.5, TBT Agreement.

B. The Way Forward

An important issue that needs to be settled for the TBT Agreement to set a predictable regulatory environment for both regulating and regulated countries, is the debate on the TBT Agreement's coverage of NPR PPMs. While labelling requirements based on NPR PPMs have been allowed to differentiate between products, some exhibit uncertainty about whether other kinds of regulations based on NPR PPMs would be covered under the TBT Agreement.[133] An NPR PPM based labelling measure in *US – Tuna II* was found to be a "technical regulation" as it was a labelling requirement applied to a product, process or production method, as found by the panel and confirmed by the Appellate Body. But the panel did not analyze whether the labelling requirements in the US dolphin-safe labelling provisions also fell within the scope of "product characteristics or related production or processing methods".[134] Nevertheless, this ruling has lent credence to the view that labels based on NPR PPMs have been within the scope of the TBT Agreement. The argument could be made that this dispute involved a label, whose position is clearer under TBT Annex 1,[135] but the same clarity is not present for other forms of NPR PPM regulations. It must be noted that if a measure is found not to be covered by the TBT Agreement, its legality will continue to be assessed under GATT provisions. But a policy perspective suggests that such a measure will then not be subject to other stringent obligations under the TBT Agreement, which undermines efficiencies related to transparency and harmonization.

At the centre of developing countries' opposition to NPR PPMs being covered by the TBT Agreement is the apprehension that it would open the floodgates to more measures that are based on social preferences that are unrelated to the physical commodity, such as the use of child labor.[136] It is believed that if this concept was permissible under the TBT Agreement, it would be primarily used by developed countries to base more regulations on NPR PPMs which would be destructive to developing countries' economies as a result of their structural incapacity to meet those standards and in a short timeframe. But since the climate change context inspires a greater degree of urgency in delivering outcomes, WTO members should discuss the future interpretation of NPR PPMs in the Committee on Technical Barriers to Trade and the Committee on Trade and Environment within this narrow context. The payoffs from considering NPR PPMs within the scope of the TBT Agreement not only includes various transparency obligations[137] that the WTO membership as a whole benefits from, but also, such discussions would provide an opportunity to discuss structural incapacities of regulated countries to comply with such regulations, with the possibility to create rules to build in developmental safeguards in prospective regulations.

Next, given the importance of international standards on which technical regulations should be based, it is important that WTO members formulate international standards in a manner that they are adaptable in different countries' contexts, and that can be achieved by inclusive participation of all players of the multilateral trading system in standard-making processes. The TBT Committee's Six Principles for the Development of International Standards, Guides and Recommendations provide guidance on the creation of such standards. As per these principles, the standards must be effective and relevant, and prepared in a manner that is transparent, open, impartial and consensus-based, and in consideration of developmental concerns while maintaining goals of coherence with other international standard-setting bodies.

Further, from an equity perspective and to assuage fears of green protectionism, special attention must be paid to the challenges faced by less-developed countries in complying with such regulations and standards. The ability to comply with standards may be directly based on the availability of necessary technology, for e.g., regulations based on embedded carbon emissions are dependent upon the carbon accounting methodologies that must be employed. Thus, increased technical capacity and assistance for developing countries and LDCs is necessary for quicker compliance with new standards;

133 United Nations Conference on Trade and Development, Making Trade Work for Climate Change Mitigation: The Case of Technical Regulations, 2022, p. 23, https://unctad.org/system/files/official-document/ditctab2022d7_en.pdf; For more on the critique of including NPR PPMs under TBT, see, Jagdish Bhagwati, In Defense of Globalization, OUP, 2004, p. 153–158.

134 Panel Report, US – Tuna II, para 7.78-7.79.

135 Gabrielle Marceau, "A Comment on the Appellate Body Report in "EC-Seal Products" in the Context of the Trade and Environment Debate" *Review of European, Comparative & International Environmental Law* 23, no. 3 (2014): 318–328, p. 327, https://archive-ouverte.unige.ch/unige:46784.

136 Center for International Environmental Law, Eco-Labeling Standards, *Green Procurement And The WTO: Significance For World Bank Borrowers* (Washington, DC and Geneva: Center for International Environmental Law, March 2005), p. 19, https://www.ciel.org/Publications/Ecolabeling_WTO_Mar05.pdf.

137 Gabrielle Marceau, "The Interface Between the Trade Rules and Climate Change Actions", in *Legal Issues on Climate Change and International Trade Law*, edited by Deok-Young Park, April 2016, https://www.researchgate.net/publication/301735366_The_Interface_Between_the_Trade_Rules_and_Climate_Change_Actions.

for their participation in standard-making processes;[138] and for their progression towards adopting similar standards in the near future.

Finally, in the absence of relevant international standards, different countries introducing unilateral measures may often give rise to various regulatory divergences. Such divergent standards not only affect private actors in their ability to manage supply chains, but also countries in their ability to ensure, or prove, compliance. While harmonization of environmental and climate standards is key to ensuring lower transaction costs, harmonization of administrative procedures is also an important aspect of regulatory measures. As the World Bank notes, "countries that cannot provide traceability in the value chain and the necessary trading infrastructure, such as certification and inspection services to ensure that the product is genuinely environmentally preferable, may be excluded from overseas markets even if they are competitive in the sustainable production of the good."[139] Thus, the transaction costs and burdens of compliance associated with divergent standards can also be avoided by increasing instances of equivalence of standards and mutual recognition of conformity assessment procedures. The TBT Committee's Indicative List of Approaches to Facilitate the Acceptance of the Results of Conformity Assessment include options like mutual recognition agreements for conformity assessment to specific regulations; cooperative (voluntary) arrangements between domestic and foreign conformity assessment bodies; the use of accreditation to qualify (or recognize) conformity assessment bodies; the designation by governments of specific conformity assessment bodies, including bodies located outside their territories, to undertake conformity assessment; a government's unilateral recognition of results of foreign conformity assessment; and the possibility of relying on the manufacturer's or supplier's declaration of conformity (SDoC) to the specified requirements.[140] Developed countries should also assist the less-developed in the establishment of bodies to undertake conformity assessments.[141]

Therefore, technical regulations, standards, and conformity assessment procedures can both form formidable barriers to trade and provide a path for green protectionism, if abused. However, they also hold great potential for fighting climate change. The TBT Agreement in particular attempts to tread a fine line between protectionism and legitimate regulatory objectives and accordingly contains legal tests to objectively assess the contribution of specific measures towards climate action. Yet, there remains great scope for clarification and improvement. From a governance perspective, the TBT Agreement contains robust transparency requirements, and the TBT Committee at the WTO remains an active forum to discuss "specific trade concerns" that countries may raise regarding any measure being pursued by a member.[142] Therefore, the TBT Agreement's framework, with necessary clarifications and improvements, and flanked by assistance mechanisms, can provide a robust avenue for pursuing climate goals.

VI. Land-Use Based Trade Measures

A. Objectives and Purpose of Land-Use Based Trade Measures

Deforestation has long been acknowledged as one of the biggest contributors of global warming and increased GHGs in the atmosphere. The Intergovernmental Panel on Climate Change (IPCC)[143] suggests that 23% of total anthropogenic GHG emissions between 2007-2016 came from agriculture, forestry, and other land uses, of which 11% were from deforestation and conversion of natural ecosystems, and the remaining 12% were direct emissions from agricultural production such as livestock and fertilizers. An analysis of data for 46 tropical and subtropical countries found that agriculture alone causes 73% of all deforestation, with commercial agriculture accounting for 40% of deforestation, followed by local

138 United Nations Conference on Trade and Development, Making Trade Work for Climate Change Mitigation, p. 34.

139 Brenton and Chemutai, *The Trade and Climate Change Nexus*, p. 59.

140 World Trade Organization, Decisions and Recommendations Adopted by the WTO Committee on Technical Barriers to Trade since 1 January 1995, G/TBT/1/Rev.14, pp. 60-61.

141 Tom Moerenhout and Christophe Bellmann, *Impacts of Climate Change Policies on Developing Country Export Markets* (Winnipeg: International Institute for Sustainable Development, July 2021), p. 24, https://www.iisd.org/system/files/2021-07/climate-change-developing-country-export-markets.pdf.

142 Kian Cássehgari Possada, Emmanuelle Ganne and Roberta Piermartini, "The Role of WTO Committees Through the Lens of Specific Trade Concerns Raised in the TBT Committee", *World Trade Review* 21, no. 4 (2022): 411–431, https://doi.org/10.1017/S1474745621000616.

143 Intergovernmental Panel on Climate Change, 2019: Climate Change and Land: an IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems (2019), https://www.ipcc.ch/site/assets/uploads/sites/4/2020/02/SPM_Updated-Jan20.pdf.

or subsistence agriculture, which is related to 33% of deforestation.[144] Further, emissions from land-use change (i.e., clearing of forests and grasslands) constitute half of total agricultural emissions.[145]

Scale and composition effects may also arise if trade encourages or reallocates activities that lead to higher emissions, such as deforestation. Theoretically, the impact of trade-opening on deforestation can either be positive or negative,[146] although recent studies find a positive correlation between increased trade liberalization and deforestation[147] such that one-third of deforestation related emissions have been found to be caused by international trade.[148] Other studies have found a direct correlation between a reduction of trade barriers and significant increases in net deforestation, with these effects being concentrated in developing countries located in the tropics.[149]

The link between emissions, deforestation and trade makes way for the argument that trade policy can and should be used as one of the tools in the climate action toolkit to address deforestation. There are several international law instruments that are aimed at addressing deforestation and forest degradation, such as the UN Forum of Forests,[150] the New York Declaration on Forests, REDD+ (Reducing Emissions from Deforestation and Forest Degradation),[151] and the Durban Declaration 2050 vision for forests and forestry.[152] While countries usually reflect forest protection policies in such international instruments in their domestic environmental laws, deforestation has largely remained outside the domain of international trade. Trade policies have so far been used to regulate the drivers of deforestation but not deforestation itself, i.e., land-use change. Regulations aimed at curbing deforestation indirectly have involved, for example, regulating the trade in illegal logging by instituting due diligence requirements and licensing procedures for the imports of timber. However, there are increasing discussions on using trade policy instruments to diffuse sustainable supply chains and reduce a country's carbon footprint in its consumption patterns, which implies regulating imports as well. As a result, activities like agriculture that bear closer nexus to deforestation and indirect land-use change have been identified as potential areas of trade policy intervention, such as controlling agricultural expansion into forested lands, and introducing disciplines on imports of deforestation-free products.

Such actions form part of land-use based climate measures, which include both supply-side interventions in forests and agriculture, and related demand-side interventions. A study indicates that 186 countries had included agriculture, forestry, and other land use mitigation measures in their NDCs under the Paris Agreement.[153] As per another study, such measures can contribute to 25% of planned GHG reductions by 2030.[154] Therefore, trade policy measures based on land-use can theoretically be employed to disincentivize countries from clearing forests, by regulating the cross-border trade in products that are manufactured or produced in the deforested land. But when implemented as unilateral measures, it is necessary to consider their compatibility with WTO law, along with feasibility[155] considerations for impacted countries.

144 Noriko Hosonuma, Martin Herold, Veronique De Sy, Ruth S De Fries, Maria Brockhaus, Louis Verchot, Arild Angelsen, and Erika Romijn, "An Assessment of Deforestation and Forest Degradation Drivers in Developing Countries", *Environmental Research Letters* 7, no. 4 (2012), https://iopscience.iop.org/article/10.1088/1748-9326/7/4/044009.

145 *The Role of Trade in Addressing Climate Change: Recommendations for Policies and Practices* (La Jolla: Center for Commerce and Diplomacy Task Force on Climate and Trade, UC San Diego School of Global Policy and Strategy, 2012), p. 24, https://ccd.ucsd.edu/_files/2021-report_role-of-trade-in-addressing-climate-change.pdf.

146 Juan Robalino and Luis Diego Herrera, "Trade and Deforestation: A Literature Review", (World Trade Organization Staff Working Paper, No. ERSD-2010-04, Geneva: World Trade Organization, 2009), p. 4, https://doi.org/10.30875/a6679776-en.

147 González, Paugam, Bacchetta, Bekkers, Beverelli, Ferrero, Ganne, Hancock, Lanz, Monteiro, Piermartini, Ramos and Xu, *World Trade Report* 2022, p. 104.

148 González, Paugam, Bacchetta, Bekkers, Beverelli, Ferrero, Ganne, Hancock, Lanz, Monteiro, Piermartini, Ramos and Xu, *World Trade Report* 2022, p. 104.

149 Ryan Abman and Clark Lundberg, "Does Free Trade Increase Deforestation? The Effects of Regional Trade Agreements", *Journal of the Association of Environmental and Resource Economists* 7, no. 1 (2020): 35–72, https://www.journals.uchicago.edu/doi/abs/10.1086/705787.

150 "UN Forum on Forests", United Nations Department of Economic and Social Affairs, https://www.un.org/esa/forests/index.html.

151 "Reducing Emissions from Deforestation and Forest Degradation in Developing Countries", Web Platform, United Nations Climate Change, https://redd.unfccc.int.

152 *Durban Declaration: 2050 Vision for Forests and Forestry* (Durban: World Forestry Congress, 2015), https://www.fao.org/fileadmin/user_upload/wfc2015/Documents/Durban_Declaration_draft.pdf.

153 Krystal Crumpler, Alexandre Meybeck, Sandro Federici, Mirella Salvatore, Beau Damen, Srijita Dasgupta, Julia Wolf and Martial Bernoux, "Assessing the Role of Agriculture and Land Use in Nationally Determined Contributions: A Methodology", (FAO Working Paper No. 76; Environment and Natural Resources Management, Rome: Food and Agriculture Organization, 2019), https://openknowledge.fao.org/server/api/core/bitstreams/53c5aff2-b3b7-4eaf-9c30-78265e2c5906/content.

154 Giacomo Grassi, Jo House, Frank Dentener, Sandro Federici, Michel den Elzen and Jim Penman, "The Key Role of Forests in Meeting Climate Targets Requires Science for Credible Mitigation", *Nature Climate Change* 7, (2017): 220–226, https://doi.org/10.1038/nclimate3227.

155 Stephanie Roe, Charlotte Streck, Robert Beach, Jonah Busch, Melissa Chapman, Vassilis Daioglou, Andre Deppermann, Jonathan Doelman, Jeremy Emmet-Booth, Jens Engelmann, Oliver Fricko, Chad Frischmann, Jason Funk, Giacomo Grassi, Bronson Griscom, Petr Havlik, Steef Hanssen, Florian Humpenöder, David Landholm, Guy Lomax, Johannes Lehmann, Leah Mesnildrey, Gert-Jan Nabuurs, Alexander Popp, Charlotte Rivard, Jonathan Sanderman, Brent Sohngen, Pete Smith, Elke Stehfest, Dominic Woolf, and Deborah Lawrence, "Land-based Measures to Mitigate Climate Change: Potential and Feasibility By Country", *Global Change Biology* 27, no. 23 (2021): 6025–6058, https://doi.org/10.1111/gcb.15873.

B. Measures Related to Forest Degradation Involving Trade Policy

The EU's regulation on deforestation-free products, the "EU Deforestation Regulation" or the EUDR,[156] can serve as an example for the kind of measure being discussed here. This is not the first trade-based measure enacted by the EU or countries broadly, that is aimed at curbing deforestation, although the previous regulations were limited and indirectly related to the cause.[157] Such policy tools have involved mandatory due diligence, mandatory labelling and licensing requirements, in addition to private certification schemes that firms have adopted in various instances.

Several laws worldwide have aimed to curb trade in illegal logging, such as the EU Timber Regulation (EUTR), the U.S. Lacey Act, and the Australian Illegal Logging Prohibition Act. In the context of the EU, the EUTR—a regulation introduced in 2010—is part of the broader and older Forest Law Enforcement, Governance, and Trade Action Plan (FLEGT)[158] which was established in 2003.[159] The FLEGT consists of a variety of supply-side measures[160] aimed at ensuring trade in legal timber and strengthening compliance with domestic anti-deforestation laws by introducing licensing schemes. It also introduced the concept of "Voluntary Partnership Agreements" or VPAs, which are agreements signed bilaterally between the EU and other timber-exporting countries to regulate the illegal logging of the timber being traded, through improved governance in the exporting countries. Exporting countries were to develop verification systems called "timber legality assurance systems" that assess the legality of timber and timber products and provide a FLEGT licence to certify compliance with FLEGT requirements. It is important to note that the FLEGT licensing scheme applies only to VPA countries; regardless of VPAs, import of timber into the EU is still allowed.

156 European Union, Regulation 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the Making Available on the Union Market and the Export from the Union of Certain Commodities and Products Associated with Deforestation and Forest Degradation and Repealing Regulation (EU) No 995/2010, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R1115.

157 See, Virginia Cram Martos and Frederic Romig, *Trade in Energy and Forestry, a Perspective from the United Nations Economic Commission for Europe* (Geneva: World Trade Organization, 2010), http://www.wto.org/english/res_e/publications_e/wtr10_forum_e/wtr10_11may10_e.htm.

158 European Commission, Council Regulation No 2173/2005 of 20 December 2005 on the Establishment of a FLEGT Licensing Scheme for Imports of Timber into the European Community, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32005R2173.

159 For the purpose of this report, we base our analysis on the EU Regulations concerning deforestation in order to better compare the older regulation on timber and the recently proposed regulation on deforestation-free products.

160 Janice Weatherley-Singh and Aarti Gupta, "'Embodied Deforestation' as a New EU Policy Debate to Tackle Tropical Forest Loss: Assessing Implications for REDD+ Performance", *Forests* 9, no. 12 (2018): 751, https://doi.org/10.3390/f9120751.

To supplement the supply-side measures, the FLEGT also consists of a variety of demand-side measures that are aimed at reducing the demand for illegal timber.[161] The EU sought to achieve this goal by highlighting the role that green procurement can play in ensuring demand for legal timber. Other critical demand-side measures include the EUTR and its due diligence requirements,[162] and other voluntary private sector initiatives. The EUTR has been a key regulation to ensure that illegally harvested timber and timber products are not placed on the EU market, by imposing mandatory due diligence requirements on operators. It included other record-keeping requirements further down the supply chain. Further, the EUTR, as a demand-based measure was designed and intended to incentivize more countries to enter VPAs (i.e., supply-based measure) and utilize the FLEGT licensing mechanism as FLEGT license holders were presumed to be compliant with the EUTR. However, these measures failed to achieve the intended outcome for reasons noted in Box 1, leading to the more ambitious regulation of trade in deforestation-free products.

Box 1. Effectiveness of the EU Timber Regulation and the Forest Law Enforcement, Governance, and Trade Action Plan

The challenges faced by the EUTR and the FLEGT Regulation are the main inspiration for the proposal and enactment of a new strengthened regulation, as indicated by the "Fitness Check" of the FLEGT and the EUTR.[163] The EUTR, though successful to an extent, was not found to have significant effect on the volume of the timber imports from high-risk countries. This is partly due to the reason that it was difficult for operators to validate information from different points in their supply chains. The failure to attain the full potential of the EUTR could also be ascribed to the fact that the EUTR required the imported timber to comply with the domestic laws relating to illegal logging in the country. In addition, over time, agriculture has also been recognized as a major driver of deforestation that is unaddressed by the timber regulation.

Similarly, the FLEGT regulation did not witness an enthusiastic uptake of voluntary agreements, as only Indonesia managed to establish a licensing system that provides them with "green lane" access to EU markets. The process of negotiating VPAs also proved to be long and arduous and that "such processes are fraught with challenges in many partner countries such as the required high standards of a [timber legality assurance system] TLAS (weak overall governance, lack of institutional capacity, absence of political willingness, often widespread corruption), difficulties in gaining agreement from multiple regions in partner countries, insufficiently effective measures and weak law enforcement."[164] As per the Fitness Check, as of 2018, the timber products covered by FLEGT licences amounted to only 3% of EU timber imports and those from all 15 VPA countries combined represented only 9%.[165] Perhaps, the main weakness of the FLEGT licences and EUTR is that they both failed to economically disincentivize illegal logging and prohibit imports of timber from high-risk countries.

To overcome the kind of challenges highlighted, addressing the source of the problem directly appeared to be the next best solution. Accordingly, the EU enacted[166] the EU *Deforestation* Regulation concerning trade in "deforestation-free products" in the context of certain agricultural products, such as cattle, cocoa, coffee, oil palm, rubber, soya, and wood.[167] The regulation defines "deforestation" as converting forests into agricultural land whether human induced or not, and "deforestation-free" as

161 Nathalie Walker, Sabrina Patel, Frances Davies, Simon Milledge and James Hulse, *Demand-side Interventions to Reduce Deforestation and Forest Degradation* (Winnipeg: International Institute for Economic Development, 2013), https://www.iied.org/sites/default/files/pdfs/migrate/13567IIED.pdf.

162 European Union, Regulation (EU) No 995/2010 of the European Parliament and of the Council of 20 October 2010 Laying Down the Obligations of Operators Who Place Timber and Timber Products on the Market Text With EEA Relevance (EU Timber Regulation), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32010R0995.

163 European Union, Commission Staff Working Document Fitness Check on Regulation (EU) No 995/2010 of the European Parliament and of the Council of 20 October 2010 Laying Down the Obligations of Operators Who Place Timber and Timber Products on the Market (the EU Timber Regulation) and on Regulation (EC) No 2173/2005 of 20 December 2005 on the Establishment of a FLEGT Licensing Scheme for Imports of Timber into the European Community (FLEGT Regulation Fitness Check), https://op.europa.eu/en/publication-detail/-/publication/d835ea38-4878-11ec-91ac-01aa75ed71a1/language-en.

164 FLEGT Regulation Fitness Check at p. 26.

165 FLEGT Regulation Fitness Check at p. 25.

166 At the time of writing, the EUDR is law of the land, but there remains uncertainty over its implementation timeline due to vehement opposition by several partner countries and from some quarters within the EU.

167 European Union, Regulation No. 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the Making Available on the Union Market and the Export from the Union of Certain Commodities and Products Associated with Deforestation and Forest Degradation and Repealing Regulation (EU) No. 995/2010 (EU Deforestation Regulation), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1115; Regulation of the European Parliament and of the Council 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, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1115.

meaning that the products, *contain, have been fed with or have been made using*, relevant commodities that were produced on land that has not been subject to deforestation after a cut-off date, and that the wood has been harvested from the forest without inducing forest degradation after that cut-off date. The portion italicized above may have serious implications on downstream supply chains. The crux of the regulation is that only deforestation-free products that are produced in compliance with laws of the exporting country and accompanied by due diligence statements are allowed to be sold in or exported from the EU.[168] Operators (importers and exporters) are required to conduct due diligence and make prior submissions of the relevant due diligence statement stating that no or only a negligible risk was found, before engaging in export or import activity. The due diligence requirement includes collection of granular-level information, including geolocation data, regarding the deforestation-free status and circumstances concerning the production of the traded good that will enable verification of the sustainability of the supply-chain, and performing risk assessment and any necessary risk mitigation.[169] No operator is exempted from the application of the rules, except for micro, small and medium enterprises who must comply from a later date and face less stringent rules. The regulation further lays down a benchmarking system, or a risk-categorization of different countries that will prescribe the kind of due diligence required of them.[170] It is important to note that the EU takes charge in laying down the sustainability criteria in this regulation and diverges from the EUTR's requirement of legality under the exporting country's laws. In this new regulation, it defines "deforestation-free products" and itself ascertains and assigns different risks based on criteria laid down in the regulation. The United States[171] and the UK[172] also appear to be considering similar regulations but limited to trade in certain products involving *illegal* deforestation.

C. Key Legal Considerations in Introducing Land-Use Based Measures in Trade Policy

The regulation concerning deforestation-free products is a land-use based measure, as it seeks to regulate trade in products based on a country's land-use change. Such regulations arise from a country's aversion to risks of contribution to climate change and environmental degradation, whether the activity is happening on its own territory or not. While the WTO allows countries to pursue measures to attain these goals, measures must comply with WTO law.

A measure that requires a product to be manufactured in compliance with laws of the exporting country (for example, in compliance with the exporting country's laws on deforestation) is hardly likely to be challenged, so long as the obligations under Articles I, III, and XI of the GATT are observed. But if the measures lead to more burdensome regulatory requirements that cause unequal treatment between domestically produced products and imported products such that the latter's competitive opportunities are affected, a violation of national treatment can be alleged, and if the regulation differentiates between products based on their origin or nationality, so can a violation of the MFN clause. While the regulations normally take care to avoid a de jure violation, a de facto violation claim may nonetheless be levelled if the measure appears to restrict trade from only certain countries in comparison to others.

However, the discussion on non-discrimination is futile if the products being discriminated are not "like products". As discussed in relation to BCAs, the WTO only regulates discrimination between products that are like. Therefore, an important question in relation to land-use based measures is whether a covered product or commodity that is produced in connection with deforestation is "like" a product or commodity that is not produced in connection with deforestation. Any regulation concerning deforestation and land use could be considered as measures related to the production method, as they do not relate to the product itself. It is arguable that a good produced on deforested land will be likely to be held as like any other good, regardless of the land it was produced on.[173] Another challenge under likeness can arise if a regulated product from country X is "like" an *un*regulated product from country Y, such as palm oil products being *like* rapeseed oil products. For example, if palm oil products

168 Article 3 of the EU Deforestation Regulation.
169 Article 8 of the EU Deforestation Regulation.
170 Article 29 of the EU Deforestation Regulation.
171 United States of America, The Fostering Overseas Rule of Law and Environmentally Sound Trade Act of 2023, https://www.congress.gov/bill/118th-congress/house-bill/6515/text.
172 United Kingdom, Schedule 17 to Environment Act 2021, https://www.legislation.gov.uk/ukpga/2021/30/contents.
173 See Gracia Marín Durán, "NTBs and the WTO Agreement on Technical Barriers to Trade: The Case of PPM-Based Measures Following US-Tuna II and EC-Seal Products" *in European Yearbook of International Economic Law* 6, 87, 114, https://doi.org/10.1007/978-3-662-46748-0_5.

are covered by the EU Deforestation Regulation, whereas rapeseed oil products are not, thereby likely causing de facto discrimination. In such cases, the differences in treatment and effects of the regulation may allegedly violate WTO law.

A measure violating the substantive GATT provisions may still be allowed if it is justifiable under the general exceptions clause of the GATT.[174] Here, the territoriality of the measure may be brought up in the context of the necessity of the measure for the objective being sought, since the measure relates to foreign land-use. Extraterritoriality as a concept is not discussed per se in the substantive provisions of the GATT, but it has been discussed in cases concerning exceptions in Article XX of the GATT. The Appellate Body ruling in *US – Shrimp* appears to be favorable for countries pursuing measures with an extraterritorial effect. However, it has been unclear till very recently, whether the nexus between the regulating country and the subject of the environmental protection need to bear a direct territorial link, as the Appellate Body in *US – Shrimp* allowed the United States to impose measures to protect turtles, since some of the turtles passed through U.S. waters at some points of time.[175] In the case of measures on deforestation-free goods, or generally many climate-based trade measures, the extraterritoriality of the measures may require a similarly nuanced approach as the regulation is arguably aimed at curbing global emissions and climate change, which is a worldwide phenomenon. Indeed, in the recent *EU – Palm Oil (Malaysia)* dispute, the panel ruled as much, stating,

> "The Panel notes that the measures at issue in this dispute are concerned with land use change as an issue related to GHG emissions, which are linked to climate change. Climate change is inherently global in nature. Therefore, there is a nexus between EU territory and the objective of limiting the risk of ILUC-related GHG emissions."[176]

Further, the panel, siding with the EU, affirmed that such measures with extraterritorial effect can be considered as relevant to regulating European consumption demand rather than regulating GHG emissions offshore.[177] This ruling thus has notable implications for the developing jurisprudence and relevance to utilising trade law and policy to advance global climate action.

Yet, the objective of such measures is often considered as conflicting with their alleged effects of furthering protectionism onshore and imperialism offshore.[178] Considering that any climate legislation affecting international trade has extraterritorial implications, other elements of the analysis under Article XX (for example, the chapeau) will likely bear greater significance, such as ensuring non-discrimination and non-arbitrary application of the measure.

The chapeau of Article XX of the GATT requires that the measure should not constitute a disguised restriction on trade nor cause unjustifiable and discriminatory treatment between countries similarly placed. The standard test is whether the rationale for the discrimination can be reconciled with, or rationally connected to, the objective pursued by the measure. Further, even if a land-use based measure applies equally across all trading partners, the regulating country must ensure that it does not "coerce" its trading partner to use the same regulation to gain any benefits. While a measure based on compliance with an exporting country's domestic law would not suffer on this count, a measure based on adopting the same definition of deforestation or deforestation-free product as the regulating country may not meet this condition. The exact definitions of sustainability criteria will play a major role in ascertaining the measure's compatibility with the chapeau, as vague or non-objective standards that provide leeway for subjective discrimination will be more likely implicated than criteria defined on the basis of existing international standards.[179]

However, if a land-use based measure is instrumentalized in the form of a technical regulation such that it may be covered under the TBT Agreement, the legal analysis would be somewhat different. The TBT Agreement does allow for differentiation based on PPMs that are aimed at advancing a legitimate regulatory distinction. For coverage under the TBT, the measure must amount to a mandatory technical regulation, which is a regulation that mandates meeting of certain standards *related to* product characteristics and related production methods, for products be placed on the market.

174 The legal tests developed under Article XX of the GATT have been discussed in detail in a previous section on carbon border adjustments.
175 Appellate Body Report, US – Shrimp, para. 133.
176 Panel Report, EU – Palm Oil (Malaysia), para. 7.314.
177 Panel Report, EU – Palm Oil (Malaysia), para. 7.315.
178 Gayatri Suroyo, Stefanno Sulaiman and Ananda Teresia, "Indonesia Accuses EU of 'Regulatory Imperialism' with Deforestation Law", *Reuters*, June 8, 2023, https://www.reuters.com/business/environment/indonesia-accuses-eu-regulatory-imperialism-with-deforestation-law-2023-06-08/.
179 Appellate Body Report, EC – Seal Products, para. 5.322-5.328.

However, these characteristics do not necessarily provide means of identification, presentation, or appearance of a product,[180] in the absence of labelling requirements. Moreover, these regulations may even be argued to be non-product related as they do not leave any trace in the physical product, the coverage of which under the TBT Agreement remains unsettled per some.[181] Indeed, reference to "or their related processes and production methods" indicate that the subject matter of a technical regulation may consist of a process or production method that is *related* to product characteristics.

The recent panel ruling involving Malaysia's challenge to the European indirect land-use change measure affecting Malaysian exports of palm oil did not clarify the NPR PPM issue in the TBT Agreement context. Owing to the fact that the measure pertained to a biofuel being produced from food or feed crops, the panel found it sufficient to constitute a technical regulation pertaining to product characteristics. It did not need to further delve into the question of the nexus between related process and production methods and product characteristics.[182]

Once the measure is considered as a technical regulation (as a labelling regulation would be), it must comply with a non-discrimination obligation and prove that it is "not more trade-restrictive than necessary to fulfil a legitimate objective, taking account of the risks non-fulfilment would create", with legitimate objective including the environment. This test has been considered as similar to the one in Article XX of the GATT.

Box 2. The EU Deforestation-Free Product Regulation: Some Wins, Some Losses

The legal compatibility of the EUTR with WTO law has been discussed frequently in literature.[183] Despite its existence for years, it has not been challenged at the WTO. But the more recent EU Deforestation Regulation diverges from the EUTR in some ways and therefore, raises critical questions regarding WTO compatibility. There are also significant economic consequences of the new regulation, which add to the mounting concerns.[184] Several countries have also expressed concerns about the legality of the regulation, including at relevant WTO committees.[185] The following highlights the key legal considerations that could arise under the GATT.[186]

As the recent EUDR applies to both EU and foreign producers, a de jure discrimination violation is unlikely. However, the de facto likeness analysis as described above would apply, centrally focusing on consumer preferences for deforestation-free and non-deforestation-free products. As such products would be likely treated as like products (going by prior jurisprudence), discrimination under Article III.4 of the GATT could be alleged if there are any notable instances of less favorable treatment and subversion of competitive opportunities to imported products. An MFN violation under GATT Article I could also be alleged as imports from low-risk countries would be treated differently from those originating in high-risk countries in terms of different due diligence requirements. A violation of the requirement that no country can impose import prohibitions under GATT Article XI could also be alleged if the regulation is argued to be a border measure affecting imports (as there is a de facto prohibition of imports from high-risk countries by disincentivizing their exports).[187] Therefore, assuming that several violations can be alleged and potentially established, the legality of the regulation would hinge upon meeting the requirements of the general exceptions clause, the

180 Appellate Body Report, EC – Asbestos, para. 67.

181 United Nations Conference on Trade and Development, Making Trade Work for Climate Change Mitigation, p. 23. However, although the phraseology of the law remains unclear, the Appellate Body in US – Tuna II assessed an NPR PPM based measure as a technical regulation covered by the TBT Agreement. The Appellate Body did not delve into the questions of NPR PPMs. See, Appellate Body Report, US – Tuna II, para. 178-199.

182 Panel Report, EU – Palm Oil (Malaysia), para. 7.108.

183 Dylan Geraets, "The WTO Consistency of the European Union Timber Regulation", *Journal of World Trade* 48, no. 2, (2014): 433–455, https://kluwerlawonline.com/journalarticle/Journal+of+World+Trade/48.2/TRAD2014014; Akiva Fishman and Krystof Obidzinsk, "European Union Timber Regulation: Is It Legal?", *Review of European Community & International Environmental Law* 23, no. 2 (2014), https://www.cifor-icraf.org/publications/pdf_files/articles/AObidzinski1402.pdf.

184 Alice Hancock, "EU Deforestation Rules Risk 'Catastrophic' Impact on Global Trade, Says ITC Chief", *Financial Times*, August 20, 2023, https://www.ft.com/content/9119d448-ff1c-434d-b07f-27b1bf11c041.

185 Joint letter from Ambassadors of Argentina, Brazil, Bolivia, Colombia, Dominican Republic, Ecuador, Guatemala, Indonesia, Malaysia, Mexico, Nigeria, Paraguay, Peru, Thailand, Ghana, Ivory Coast, Honduras, to European Parliament, European Council, European Commission, September 7 2023, https://www.atibt.org/files/upload/news/RDUE/Trading_partners_joint_letter_on_EUDR_7_September_2023.pdf; World Trade Organization, European Union Deforestation Regulation (EUDR) – Consultation on Notification to the CMA, March 8, 2024, https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/G/MA/W186.pdf&Open=True.

186 Due to uncertainty on the threshold question of whether such a measure would constitute a technical regulation within the meaning of the TBT Agreement, a legal analysis under the TBT Agreement has not been undertaken here.

187 Dylan Geraets, "The WTO Consistency of the European Union Timber Regulation".

elements of which have been discussed above. Here, we discuss those aspects of the deforestation-free product regulation that are important to the chapeau test, assuming the provisional justification under an environmental exception (such as GATT Article XX(g) or Article XX(b)).

The regulation on deforestation-free products establishes a risk benchmarking system whereby the EU would distinguish between "low", "standard", and "high" risk countries based on certain factors. These factors are (i) the rate of deforestation and forest degradation; (ii) the rate of expansion of agricultural land for relevant commodities; (iii) the production trends of relevant commodities (and derived products). However, how the risk will be calibrated to the meeting of these requirements based on these factors possibly renders the EU with considerable subjectivity. In *EC – Seal Products*, the Appellate Body ruled considerable ambiguity and broad discretion of relevant authorities in administering the regulation as falling short of the chapeau.[188] The main implication of different risk levels is that lower the risk, simpler the due diligence procedure. Greater the risk level, more procedures (and burdensome regulatory requirements in the nature of annual checks) would need to be followed to ensure compliance with the regulation. But how does this differentiation translate into legal implications?

The chapeau of Article XX of the GATT requires that there should not arbitrary or unjustifiable discrimination between countries. WTO jurisprudence has explained that this test can be understood by analyzing whether the differentiation between trading partners as caused by the regulation is rationally connected with the objective being pursued. Accordingly, the different categories of risks can be argued by the EU to be furthering the environmental objectives by incentivizing higher risk countries to avoid clearing forests for agriculture. However, the challenge for the EU will be to justify the differences in administrative and regulatory burdens and how such discrimination is rationally connected to the objective being pursued. Some have noted that the lower due diligence requirements for operators from low-risk countries are not capable of ascertaining whether such products are actually deforestation-free, which is propounded by the fact that operators from low-risk countries are not required to undertake risk assessment and risk mitigation as a part of their simplified due diligence obligations.[189] Therefore, it could be alleged that this design feature of the unilateral measure not only undermines the requirement[190] for a country to undertake cooperative efforts, but also arbitrarily discriminates between countries without there being rational bases for such discrimination.[191] In this vein, some civil society organizations have highlighted the need for the EU to continue with the system of VPAs and utilize diplomatic means to encourage other countries to negotiate bilaterally.[192] However, the possibility remains that a future WTO panel is persuaded of the requirement of gradation of risks for the attainment of its chosen level of risk aversion in the context of climate change.

D. The Way Forward

Unilateral land-use based regulations have far-reaching implications. On one hand, such measures act as sanctions on exports that do not meet certain standards, thereby providing a disincentive to continue production or manufacturing in the same manner as a result of the reduced terms of trade. On the other hand, this argument assumes that the market imposing the measure is large or attractive enough to create an incentive for the exporting country to change its methods. It may very well instead, divert its trade towards other countries with less stringent standards, thereby causing leakage. Further, some studies show that achievement of the intended benefits of import measures would often depend upon the demand elasticity of the imported product.[193] If there remains a market for the product, the absence of strong governance mechanisms in exporting countries could help foster an illegal market for the product, through a continuation of the sanctioned activity.

As the EU's regulation of trade in deforestation-free products comes into effect imminently, it provides a ripe framework for discussing future improvements and considerations in enacting similar laws globally.

188 Appellate Body Report, EC – Seal Products, para. 5.338.

189 Gracia Marín Durán and Joanne Scott, "Regulating Trade in Forest-Risk Commodities: Two Cheers for the European Union", *Journal of Environmental Law* 34, no. 2 (2022): 245–267, https://doi.org/10.1093/jel/eqac002.

190 Whether there is or not a requirement to conduct prior negotiations before imposing a unilateral environmental measure is open to debate. However, multilateral cooperative efforts are "strongly preferred" as per US-Shrimp. Appellate Body Report, US-Shrimp, para. 124.

191 EU trade lawyers appear to be cognizant of the potential WTO challenges. See, Jennifer Rankin, "Trade Officials 'Taking a Chainsaw' to EU Forest Protection Plans", *The Guardian*, November 12, 2021, https://www.theguardian.com/world/2021/nov/12/trade-officials-taking-a-chainsaw-to-eu-forest-protection-plans.

192 Abil Achmad Akbar and Sri Palupi, "The EU's New Deforestation Regulation Faces Significant Challenges In Indonesia", *FERN*, December 15, 2022, https://www.fern.org/publications-insight/the-eus-new-deforestation-regulation-faces-significant-challenges-in-indonesia/.

193 Robalino and Herrera, "Trade and Deforestation", p. 23-26.

In addition to the legal implications discussed here, several WTO members have voiced concerns regarding the regulation and its territorial overreach, at the WTO Committee on Trade and Environment.[194] Several countries emphasized the need for CBDR-RC and recognition of economic sustainability, in addition to environmental sustainability.[195] A fundamental issue of the regulation, amongst other issues, appears to be the arbitrary and discriminatory nature of conducting risk assessments affecting different countries differently; the ability (or lack thereof) of operators in poorer but high risk countries to undertake the stringent due diligence requirements; and the lack of consultative mechanisms. **Countries should adopt regulations that are narrowly tailored to the objective of meeting sustainability standards, without discriminating between trading partners based on unilateral, subjective, and unpredictable criteria**. Further, addressing deforestation by enabling producer countries to tackle the problem would be much less trade-distorting and in line with the goals of climate justice.[196] It is also imperative that any regulation that aims to address land-use changes must consider customary land tenure rights of forest-dependent communities and indigenous peoples,[197] and preserve the economic opportunities of smallholders.[198]

An alternative approach could involve the **resort to mandatory labelling requirements that are horizontally applicable to all countries, including domestic players, without any subjectively assessed risk benchmarking system for trading partners**. However, since it is argued that labels allegedly have lesser efficiency and effectiveness than due diligence or certification requirements,[199] it is likely that countries are likely to be tempted by the latter options. Therefore, **it is necessary to ensure that the design of any regulations involving due diligence and certification requirements are not unnecessarily trade-restrictive or a subterfuge for protectionism**. Since several countries may already have similar measures in place domestically, there should be mechanisms to ensure interoperability of such standards and mutual recognition of certification schemes. **Countries could instead explore meaningful partnerships with a combination of demand-side and supply-side measures, so cooperation with affected trading partners takes primacy**. Going forward, countries should also bear considerations of policy coherence and base regulations on existing international legal standards.[200] In addition, **implications of such standards on less-developed countries should be considered and better integrated, as mentioned above**.

Finally, an archaic understanding of deforestation as causing effects vastly different from forest *degradation* puts majority focus on tropical forests and their products. Forest *degradation*, which occurs during the conversion of natural forests to plantations, is not always covered within the definition of deforestation and yet, is rampant in temperate forests. As a result, the trading in products that cause degradation of such temperate forests goes unaddressed, creating an imbalance in the manner of managing risks posed to tropical and temperate forests by trading practices. Thus, such **a definitional issue affecting the scope and coverage of forestry laws must be addressed to ensure effective treatment of all kinds of forests**.

VII. Trade in Zero-Carbon Energy

Cross-border trade in energy and electricity has not been commonly addressed under WTO law. Instead, certain disputes have focused on local content requirements and subsidies (discussed in a subsequent section of the report) provided to certain environmental goods industries (such as solar panels) to incentivize renewable energy production, but they do not relate directly to trade in electricity. In fact, for a long time, whether trade in energy and electricity is covered by WTO law at all was in question. But today it is common understanding that electricity is treated as a tradeable "good" under the WTO, such that the GATT would apply. At the same time, various commentators have

194 World Trade Organization, Committee on Trade and Environment - Report of the Meeting Held on 2 February 2022, WT/CTE/M/74, 25 May 2022.

195 "EU's 'Deforestation-free Products,' to Constitute Neo-colonial Strategy?", *Third World Network*, March 9, 2022, https://www.twn.my/title2/wto.info/2022/ti220306.htm.

196 Lorenzo Cotula and Anirudh Nanda, "Can Europe's New Deforestation Regulation Address Concerns About Trade and Climate Justice?" *International Institute for Environment and Development* (insights), March 25, 2024, https://www.iied.org/can-europes-new-deforestation-regulation-address-concerns-about-trade-climate-justice.

197 Durán, Scott, "Regulating Trade in Forest-Risk Commodities."

198 "Statement: EU Deforestation Regulation Implementation Must Be Socially Just", *FERN*, November 20, 2023, https://www.fern.org/fileadmin/uploads/fern/Documents/2023/EN_Smallholders_and_EUDR.pdf.

199 Aleksandra Heflich, *An EU Legal Framework to Halt and Reverse EU-Driven Global Deforestation – European Added Value Assessment* (Brussels: European Parliamentary Research Service, 2020), https://www.europarl.europa.eu/RegData/etudes/STUD/2020/654174/EPRS_STU(2020)654174_EN.pdf.

200 Elisabeth V. Henn, "Protecting Forests or Saving Trees? The EU's Regulatory Approach to Global Deforestation", *Review of European, Comparative & International Environmental Law* 30, no. 3 (2021): 336–348, https://doi.org/10.1111/reel.12413.

proposed the treatment of electricity as a "service" under the GATS.[201] The applicability of either the GATT or the GATS would have different implications and permit different kinds of regulatory actions by members. In the absence of a determinative prescription to members to classify electricity as a good or service, members can choose to follow either route.[202] Indeed, as per the Appellate Body in *EC – Bananas*, "[w]hether a certain measure affecting the supply of a service related to a particular good is scrutinized under the GATT 1994 or the GATS, or both, is a matter that can only be determined on a case-by-case basis."[203]

A major facet of the global energy transition is the generation of electricity through renewable energy in place of fossil fuels. Although electricity has largely remained within the domestic regulatory framework with cross-border trade only to the extent of trade in surplus production between neighboring countries,[204] international trade in electricity has several potential benefits such as allowing an increased access to a diversified energy mix.[205] Capitalizing on modern technology that allows for efficient and cheaper transfer of electricity through longer distances will help in the faster diffusion of cleaner electricity and help address contingencies in electricity-deficient locations.[206] While the investment law regime has been embroiled in controversies surrounding its failed attempts to create conducive conditions for renewable energy investments,[207] the trade law regime has thus far maintained distance from regulating cross-border trade in electricity, although recent EU FTAs indicate that chapters dedicated to energy are being negotiated. Given the urgency of climate change and in the spirit of assessing every measure available in the trade law toolkit, we examine the potential of liberalizing green electricity trade under WTO rules.

Electricity has been included in the schedules of concessions of some members, as a good under HS code 2716.00, within subsection titled "Mineral fuels, mineral oils and products of their distillation; bituminous substances, mineral waxes." Therefore, as GATT rules would be applicable, any measure or regulation relating to international trade in electricity would be bound by the obligations of non-discrimination (MFN and national treatment). Any tariffs and charges imposed on the electricity being traded would have to comply with the provisions relating to concessions and quantitative restrictions. As with all other GATT non-compliant measures, there are general exceptions that can be invoked to justify measures relating to green electricity. However, since there is no dispute that has dealt with electricity as a commodity, it is uncertain how these legal provisions would apply and whether there might be any potential limitations in the application of the GATT.

As has been already noted by other authors, the trading regime does not necessarily provide the right framework to govern electricity trade. Part of the reason could be that energy has traditionally been a politically sensitive topic which has prevented the development of sophisticated tools on electricity trade. The other reason could be that trade in electricity must consider various regulatory factors, some of which may even go against the grain of the GATT. For example, the various regulatory and technical limitations posed by a network/grid bound industry may come in the way of the freedom of transit rules under GATT Article V.[208] Since electricity transmission necessarily requires unhindered access to grids and fixed infrastructure, questions may arise regarding the extent of members' obligations to provide the freedom of transit, especially when networks may be privately owned, or to provide the necessary infrastructure, or to provide the necessary permits to access that infrastructure. Any interpretation of GATT Article V that imposes a positive obligation to build transmission networks is unlikely. It also does not provide a right to an exporting country to build necessary transmission

201 Thomas Cottier, Garba Malumfashi, Sofya Matteotti-Berkutova, Olga Nartova, Joëlle de Sépibus, and Sadeq Z. Bigdeli, "Energy in WTO Law and Policy", https://www.wto.org/english/res_e/publications_e/wtr10_forum_e/wtr10_7may10_e.pdf.

202 Daria Boklan and Olga Belova, "Trade in Electricity Under WTO and EAEU Law: Compatibility of Two Legal Regimes", *The Journal of World Energy Law & Business* 13, no. 2 (2020): 129–140, https://doi.org/10.1093/jwelb/jwaa014.

203 Appellate Body Report, EC – Bananas, para. 221.

204 Thomas Cottier and Ilaria Espa, "Introduction and Overview", in *International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law*, pp. 1-18, (Cambridge: Cambridge University Press June 2017), https://doi.org/10.1017/9781316681275.002.

205 Heymi Bahar and Jehan Sauvage, "Cross-Border Trade in Electricity and the Development of Renewables-Based Electric Power: Lessons from Europe", (OECD Trade and Environment Working Papers, No. 2013/02, Paris: OECD Publishing, 2013), https://doi.org/10.1787/5k4869cdwnzr-en.

206 Eliza Hotchkiss, Sadie Cox, Sherry Stout, David Hurlbut, Vahan Gevorgian, and Carlo Brancucci, *Cross-Border Power Trade to Support Resilience* (Golden: Resilient Energy Platform, December 2019), https://www.nrel.gov/docs/fy20osti/75153.pdf.

207 Mithatcan Aydos, Perrine Toledano, Martin Dietrich Brauch, Ladan Mehranvar, Theodoros Iliopoulos, and Sunayana Sasmal, *Scaling Investment in Renewable Energy Generation to Achieve Sustainable Development Goals 7 (Affordable and Clean Energy) and 13 (Climate Action) and the Paris Agreement: Roadblocks and Drivers* (New York: Columbia Center on Sustainable Investment, December 2022), https://ccsi.columbia.edu/content/renewable-energy-investment-roadblocks-drivers.

208 Kateryna Holzer, "Chapter XI.30: Green electricity and the GATT" in *Elgar Encyclopedia of Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2021), https://doi.org/10.4337/9781783476985.XI.30.

infrastructure in a transit country.[209] However, some have suggested that a government's restrictions on foreign investments aimed at building such infrastructure might violate GATT Article V.[210]

Further, any measures that provide favorable treatment to green electricity produced from renewable energy sources over electricity produced from conventional sources such as fossil fuels will be limited by the existing uncertainties arising out of "likeness" challenges under the GATT and the TBT Agreement. The question is, is the electricity produced through renewable energy sources "like" electricity produced using fossil fuels? Any measure that distinguishes between electricity based on their source or production method, such that it does not have any impact on the physical nature of the goods, risks violating the non-discrimination obligations.[211]

Countries can also consider devising technical regulations that can lay down characteristics of the electricity, to indicate what the source of that electricity was. The use of technical regulations for this kind of intangible products where each product is not separately identifiable, may appear logistically and practically difficult to implement.[212] However, the concept of green electricity labels, electricity certification schemes and guarantees of origin have been implemented in the EU, [213] such as green certificates for specific electricity installations. Holzer et al. have earlier analyzed the utilization of discriminatory tax schemes on green electricity and other kinds of electricity.[214] Therefore, while it is possible to introduce and justify inherently discriminatory taxes linked to certification schemes, the design of the measure based on the policy objectives of the implementing country will be crucial to the legality of the measure.

The most efficient path forward for WTO members is to negotiate a sectoral agreement that focuses on energy trade and facilitates the cross-border trade in clean electricity. Such negotiated outcomes could ex ante clarify the treatment of "green" electricity in relation to "dirty" energy. This approach could also encourage the development of the necessary energy infrastructure spanning countries. At the multilateral or regional level, we propose that cross-border energy infrastructure be first improved as a prerequisite for cross-border trade in green electricity. The EU FTAs containing chapters on energy and raw materials provide a framework based on which improved disciplines could be considered at the regional or multilateral levels. Despite the potential for action at the WTO to facilitate cross-border trade in renewable energy, it is important to assess the potential conflicts between any future legal developments on energy transit and the existing Energy Charter Treaty. The Energy Charter Treaty's energy neutrality objectives may undermine rules protecting and promoting trade and transit of renewable energy. Therefore, future trade rules on energy transit must explicitly acknowledge the possibility of such conflicts and provide clarity on the set of rules that would prevail.

209 Daria Boklan and Olga Belova, "Trade in Electricity Under WTO and EAEU Law: Compatibility of Two Legal Regimes", *The Journal of World Energy Law & Business* 13, no. 2 (2020): 129–140, https://doi.org/10.1093/jwelb/jwaa014.

210 Lothar Ehring and Yulia Selivanova, "Energy Transit" in *Regulation of Energy in International Trade Law: WTO, NAFTA and Energy Charter* (Alphen aan den Rijn: Wolters Kluwer, 2011), https://law-store.wolterskluwer.com/s/product/regulation-of-energy-in-international-trade-law/01t0f00000J3aWNAAZ?srsltid=AfmBOootkDVXofL00Am6nF0M9lTdu2Cuyt9N8cYVrZnwS3C1yUr8F9Ph.

211 Anna-Alexandra Marhold, "The Current WTO Legal Framework Relevant to Energy", in *Energy in International Trade Law: Concepts, Regulation and Changing Markets* (Cambridge: Cambridge University Press, June 2021), p. 71, https://doi.org/10.1017/9781108551526.004.

212 TBT for intangible goods is also being explored in the context of digital products.

213 Kateryna Holzer, Ilaria Espa and Tetyana Payosova, "Promoting Green Electricity through Differentiated Electricity Tax Schemes", in *International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law* (Cambridge: Cambridge University Press, June 2017), p. 356–389, https://doi.org/10.1017/9781316681275.019.

214 Holzer, Espa and Payosova, "Promoting Green Electricity through Differentiated Electricity Tax Schemes."

Box 3. Energy Trade in EU Free Trade Agreements

The EU's recent FTAs, such as with New Zealand and Chile and those under negotiation, like those with India, Australia, Indonesia, etc. contain disciplines on energy trade. The FTAs reveal that the energy and raw materials chapters set out to achieve three objectives with respect to energy trade. First, energy security is an objective furthered by trade agreements through provisions on unobstructed access to energy goods in the FTA partner. Second, while cross-border trade is important for free trade, fair competition and market principles are crucial to conducting business in a foreign market. Thus, a set of provisions aims to also discipline domestic regulations affecting the operations of EU firms in the energy sector in the FTA partner, so that EU firms are not adversely impacted by unduly restrictive measures. Third, the FTAs aim to strengthen global capacity in and consumption of renewable energy. Thus, the notion of sustainability in energy trade includes the promotion of renewable energies, in addition to environmental and social sustainability of the establishment and conduct of projects themselves. Additionally, as transfer of electricity is predicated upon the existence of infrastructure, the chapters provide for smooth cross-border trade, including a provision that explicitly incorporates the principle of freedom of transit as per Article V GATT and Article 7 of the Energy Charter Treaty.[215] Some FTAs also require parties to take all necessary measures to prohibit, and to minimize the risk of, interruption, reduction or stoppage, or the unauthorized taking of energy goods in transit or transported through their territory.[216] The provisions on access to energy transport infrastructure are related to ensuring the owners and operators of energy transport infrastructure of natural gas and electricity provide non-discriminatory access to any entity of the partner country, on reasonable and non-discriminatory terms. Some FTAs also contain provisions to allow parties to retain the right to provide more favorable terms of using energy infrastructure for renewable or low carbon energy sources.[217]

However, these provisions—on domestic regulated prices and access to energy infrastructure—have been criticized as encroaching upon developmental and energy transition priorities of the EU's trading partners.[218] In the context of domestic regulated prices, an FTA partner embarking on a green transition at home may wish to subsidize costs of renewable energy goods to encourage an increased demand and consumption by domestic consumers. However, the prohibitions on dual pricing and strict rules on domestic regulation of pricing may have a chilling effect on government efforts to pursue energy transition at home. On the other hand, concerns have arisen that access by foreign companies to domestic energy infrastructure networks can create excess pressure on the utilities and affect national energy transition plans by reducing their own supplies.[219] From developing countries' perspective of their own green and energy transition, these concerns must be considered when setting the terms and conditions of access so that there remains necessary regulatory space. While the existing provisions already envisage the right to regulate to maintain stability of the energy system, the legal standard seems vague, open to interpretation and therefore, uncertain.

Further, provisions usually titled "Standards, Technical Regulations and Conformity Assessments" found across the FTAs require parties to cooperate on standards to promote energy efficiency and sustainable energy consumption. They may also attempt to harmonize certification schemes relating to renewable fuels, which is useful to encouraging the cross-border trade in renewable fuels.

Further, there are certain options for WTO members to encourage trade in renewable energy and discourage trade in electricity produced using fossil fuels. WTO members could negotiate a deal amongst themselves—ideally, multilaterally but realistically, as a plurilateral agreement—to restrict cross-border trade in electricity that is generated using fossil fuels. **The negotiated outcome should anticipate and clarify potential legal challenges to treating electricity produced from different sources differently, in addition to establishing regulations of freedom of access to transport,**

215 Association Agreements with Ukraine (Article 272), Georgia (Article 211), and Moldova (Article 348), but also more recently negotiated agreements with Chile (Article 8.9), and Kazakhstan (Article 143); See, Ilaria Espa, "Energy Disciplines in PTAs Between Security and Sustainability Concerns: A Comparative Perspective", *Journal of International Economic Law* 26 no. 4 (2023): 684–702.

216 See Espa, "Energy Disciplines in PTAs Between Security and Sustainability Concerns: A Comparative Perspective".

217 Proposed Article X.10.3 of the EU – India FTA.

218 Sangeeta Godbole, "Inconsistent Green Energy Stances by EU – CBAM Versus FTA", *Third World Network*, May 20, 2023, https://www.twn.my/title2/wto.info/2023/ti230509.htm.

219 Bettina Müller, Luciana Ghiotto and Lucía Bárcena, *The Raw Materials Rush: How the European Union is Using Trade Agreements to Secure Supply of Critical Raw Materials for its Green Transition* (Amsterdam: Transnational Institute, January 2024), https://www.tni.org/files/2024-01/The_Raw_Materials_Rush.pdf.

distribution and storage infrastructure, independence of regulators and administrative review opportunities, non-discrimination subject to the right to regulate, and regulatory transparency. Ex ante clarifications would help set out a predictable legal framework within which domestic regulatory environments can operate. Finally, an added issue for consideration is whether these issues will be covered under goods or services disciplines. If comprehensive disciplines on cross-border trade in electricity would involve supply of services, it has been suggested that an annex or a Reference Paper[220] to the GATS could be used to undertake additional commitments.

220 Yulia Selivanova, "Interconnections in Energy Transportation: Implications for International Trade Law", in *International Trade in Sustainable Electricity: Regulatory Challenges in International Economic Law* (Cambridge: Cambridge University Press, June 2017), p. 193–222, https://doi.org/10.1017/9781316681275.012.

Part D: The "Supportive" Role of Trade

VIII. Subsidies and Industrial Policy

The measures analyzed thus far have focused on border measures and internal regulations to regulate exports and compliance with relevant standards. In addition to such measures, WTO law also deals with contingent protection, which encompasses the legal protection that is contingent upon the occurrence of certain events, such as "dumping". The World Trade Report of 2022 suggests that support measures and technical regulations comprise the main two forms of government intervention for climate change mitigation.[221] In particular, the rise of green industrial policy in recent years has necessitated checking the legality of different measures under WTO law, as several policies have implications for cross-border trade. In this section, we discuss the rise of green industrial policies and their implications for the trading system. Such industrial policies primarily include subsidies and trade-related investment measures, but other instruments such as tariffs and regulations discussed above can also play an important role in conducting green industrial policy. In addition, this section also discusses the TRIMs Agreement and its potential to contribute towards green industrialization in developing countries.

Recent years have seen the increasing use of government incentives and support schemes to domestic industries and consumers that are key players in the fight against climate change, often with an explicit protectionist flavor. These subsidies can take shape of support for production inputs or consumption incentives, which are aimed at strengthening the manufacturing capacity and the demand for a product, respectively. The rationale for subsidies, i.e., strengthening one's own domestic players to increase their import competitiveness, coincides with the intense turn to industrial policy to encourage the development of domestic industries, such as semiconductors, electric vehicles, renewable energy, etc. Policy rationales for green industrial policy have generally included lack of internalization of benefits of globalization, imperfect competition conditions, correcting capital markets failures, and achieving economies of scale.[222] In addition, industrial policy today can be attributed to non-conventional reasons, different from traditional notions of building export competitiveness or protecting the infant industry. Today, geopolitical reasons lie at the center of strategies concerning economic security, on-shoring, friend-shoring, de-risking, and strategic competitiveness—usually those implemented by developed economies. Often, restrictions borne out of such motives intersect with and even hinder progressive climate action. Such measures call for discussions at the intersection of trade law, industrial policy, national/energy/economic security and supply chain resilience, rather than the traditional trade-off between free trade and green goals.[223] Thus, while the traditional approach to reforming the WTO subsidies discipline by greenlighting green subsidies remains a valid call to action, a coherent, multi-pronged approach will likely be necessary to ensure that different, often conflicting, objectives are met. In addition, it is necessary to consider the ability of poorer countries to pursue green industrial policy, and accordingly, assess the measures that may allow them to integrate climate objectives with development.

A. WTO Law on Subsidies

The ASCM defines a subsidy as a financial contribution (in the form of direct fund transfers, foregoing of revenue, provisions of goods or services, payments to a funding mechanism, income or price support) by a government or a public body within the territory of a member, which confers a benefit. Further, for any subsidy to be covered under the disciplines of the ASCM, it must be a "specific subsidy", such that they are provided in specific to a particular enterprise, or an industry, or a region.

Under the ASCM, all subsidies can be challenged at the very least (called "actionable subsidies"), with some being outlawed from the outset (called "prohibited subsidies"). Till 1999, the ASCM also

221 González, Paugam, Bacchetta, Bekkers, Beverelli, Ferrero, Ganne, Hancock, Lanz, Monteiro, Piermartini, Ramos and Xu, *World Trade Report* 2022, p. 13.

222 Aaron Cosbey, *Green Industrial Policy and the World Trading System* (Winnipeg: International Institute for Sustainable Development, 2013), p. 4, https://www.iisd.org/system/files/publications/entwined_brief_green_industrial.pdf.

223 Anthea Roberts, "Risk, Reward, and Resilience Framework: Integrative Policy Making in a Complex World", *Journal of International Economic Law* 26, no. 2 (2023): 233–265, https://doi.org/10.1093/jiel/jgad009.

allowed for certain subsidies that were used for the development of backward areas or for research and development or for environmental purposes.[224] Post 2000, such subsidies are treated similarly to actionable subsidies and can attract challenges or countervailing measures, if they meet certain conditions that establish their distortive effects.

The two kinds of subsidies under the ASCM—the prohibited subsidies and actionable subsidies—attract different rules. The former comprises export subsidies and domestic content subsidies, whereas any subsidy that causes adverse effects—injures the domestic industry or seriously prejudices the interests of another country or nullifies and impairs benefits of the GATT—is actionable. Prohibited subsidies are presumed to be specific, i.e., specific to an industry, sector, or firm, but specificity must be established in the case of actionable subsidies.

A WTO member whose industry is hurt due to subsidies provided by another member may challenge the subsidy by initiating a dispute,[225] or it can use countervailing measures to offset the effects of the subsidy.[226] Resort to the unilateral device of countervailing measures is subject to several procedural and substantive criteria and requires the demonstration of "material injury."[227] The determination of material injury must be based on positive evidence and involves an objective examination of the volume of the dumped imports, their effect on the domestic prices in the importing country market and their consequent impact on the domestic industry.

Therefore, the WTO discipline on subsidies presents both opportunities and hurdles for climate action. Specifically, technical discussions regarding the phase-out of fossil fuel subsidies have been underway since 2021 at the WTO and there have been several calls to reinstate non-actionable subsidies for climate action purposes.[228] There have been no disputes challenging fossil fuel subsidies.[229] But more concerningly, the recent popularity of industrial policy which incentivizes local content requirements sorely ignores the prima facie admonition of prohibited subsidies. The key question is, should such a trade-distorting policy be justified for climate action? The recent Inflation Reduction Act (IRA) of the United States can serve as an example of a country's aggressive interest to pursue climate action through industrial policy in the presence of geopolitics. Reactions of different partner countries ranging from threats of retaliation to negotiating economically sensible commitments, highlight different approaches to settling differences amidst the urgent need for climate action.

B. Prohibited Subsidies Under WTO Law

Of the two kinds of prohibited subsidies, export subsidies are one kind. Green industrial policies that involve provision of subsidies contingent upon exports are outlawed under WTO rules. Export credits that are useful to achieve export market penetration can also be considered as export subsidies if the rates of the loans are lower than the commercial rates or if the guarantees of the loans are made at premium rates that would result in losses for the government.[230] Such subsidies are aimed at improving the export competitiveness of domestic firms, without necessarily having direct impacts on other linkages.

However, the other kind of prohibited subsidy under the ASCM is the domestic content subsidy, which is frequently employed by governments, due to their ability to spur economic opportunities in other linked industries. Local content or domestic content subsidies are those that involve government support conditioned upon the use of domestic content in their production processes. While these measures are important from a governmental perspective of building and encouraging domestic capacity in a sector, economic efficiency concerns raise counterarguments. Therefore, while subsidies based on local content requirements (LCRs) have been found to violate WTO law, there is little motivation to reform this approach to LCRs as the environmental objective is no better served by LCRs.[231]

224 Article 8, ASCM.
225 Articles 4, 7 ASCM.
226 Article 11 ASCM.
227 Article 15, ASCM.
228 World Trade Organization, Ministerial Statement on Fossil Fuel Subsidies, WT/MIN(21)/9/Rev.1, 14 December 2021.
229 Timothy Meyer, "Explaining Energy Disputes at the World Trade Organization", *International Environmental Agreements: Politics, Law and Economics* 17, no. 3 (2017): 391–410, https://ideas.repec.org/a/spr/ieaple/v17y2017i3d10.1007_s10784-017-9356-y.html.
230 Annex I, Item (k), ASCM.
231 Aaditya Mattoo and Arvind Subramanian, *Four Changes to Trade Rules to Facilitate Climate Change Action* (Washington, DC: Centre for Global Development, May 2013), https://www.cgdev.org/sites/default/files/archive/doc/full_text/policyPapers/3120362/four-changes-trade-climate-change.html.

Such LCR-linked subsidies have been associated with incentives in the renewable energy sector, such as in cases involving feed-in tariffs (FIT). In a dispute involving Canada's FIT regime, its use of domestic content requirements to encourage solar and wind sectors was challenged.[232] But showing great hesitation to consider an FIT as a subsidy at all, the Appellate Body found the FIT to not be a subsidy that would be covered by the disciplines of the ASCM. Rather, it found the LCR to violate a different agreement under WTO law, i.e., the Agreement on Trade-Related Investment Measures (TRIMs Agreement). This decision leaves room for a country to design an FIT without an LCR that might be considered legal under the WTO. Indeed, Canada did not withdraw the FIT program entirely but complied with the WTO's ruling by removing the LCR element of its measure.[233] As part of reforming the ASCM, there might also be scope for WTO members to agree upon a list of environmental measures that would be unquestioned including FITs. Some potential reform pathways are discussed below. Despite the clear censure of LCRs in enacting green incentive policies, the United States has recently enacted its most significant climate legislation that includes industrial policy measures with LCRs.[234]

C. Dual-Pronged Approach to Subsidies for Climate Action

Subsidies can spur green growth but can also contribute to the sustained prosperity of environmentally harmful industries. Therefore, a dual-pronged approach to subsidies is the need of the hour. First, there is an urgent need for reform of fossil fuel subsidies. As per the IMF, the total global subsidies provided for fossil fuel amounted to approximately USD 5.9 trillion in 2020, with a projected increase in 2025.[235] The calls for prohibitions on fossil fuel subsidies have intensified over time since 2009 and currently form part of negotiations at the WTO. Second, at the same time, there is a need to permit subsidies that support the growth and strengthening of industries serving environmental purposes.

1. Fossil Fuel Subsidies

Fossil fuel subsidies, both production and consumption sides, have thus far avoided the ASCM scanner, simply because countries have chosen not to invoke the ASCM for these sensitive products. Moreover, the concentration of fossil fuels in some countries shields fossil fuels from the challenges arising out of competition concerns faced in other industries that are replicable elsewhere, for example, the renewable energy industry. Members would tend to pick fights in the latter case due to concerns of competitiveness whereas doing so in the former would likely not yield high benefits as the proof of causation would be tedious. A related note is that WTO members would likely be more concerned about other industries that are affected by fossil fuel subsidies, but even in those cases, fossil fuels will not be treated as "like" the products being produced, indicating that a challenge to fossil fuel subsidies and their effects on competing industries would not survive.[236]

However, environmental concerns related to fossil fuels are on the rise. As the ASCM rules have not been formally tried and tested to regulate fossil fuel subsidies (even if for strategic reasons), there is an increasing recognition amongst WTO members of the need to address these subsidies especially due to their environmental externalities. In addition to environmental concerns, the concept of energy security has also gained ground, with the Appellate Body recognizing that "...fossil energy needs to be replaced progressively if electricity supply is to be guaranteed in the long term."[237] Further, letting production-based fossil fuel subsidies go unchallenged, will continue to make it cheaper for industries to economically exploit fossil fuels, and ultimately, will disincentivize and slow the large-scale adoption of renewable energy.

In recognition of the above, there are political statements by different country groupings like the G20 and APEC echoing SDG 12.C that sets out the target to "rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions."[238] However, terms like

232 See, Appellate Body Reports, Canada – Renewable Energy.

233 Mark Wu & James Salzman, "The Next Generation of Trade and Environment Conflicts: The Rise of Green Industrial Policy", *Northwestern University Law Review* 108, no. 2, (2014): 401–474, p.464, https://scholarlycommons.law.northwestern.edu/cgi/viewcontent.cgi?article=1022&context=nulr.

234 *Building A Clean Energy Economy: A Guidebook To The Inflation Reduction Act's Investments In Clean Energy And Climate Action* (Washington, DC: White House, December 2022), https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf.

235 "Fossil Fuel Subsidies", International Monetary Fund, https://www.imf.org/en/Topics/climate-change/energy-subsidies (accessed on Dec 4, 2022).

236 Ronald Steenblik, Jehan Sauvage & Christina Timiliotis, "Fossil Fuel Subsidies and the Global Trade Regime", in *The International Politics of Fossil Fuel Subsidies and their Reform* (Cambridge: Cambridge University Press, August 2018), https://doi.org/10.1017/9781108241946.009.

237 Appellate Body Reports, Canada – Renewable Energy, para. 5.186.

238 "Indicator 12.C.1", Target 12.C, SDG 12 Hub, https://sdg12hub.org/sdg-12-hub/see-progress-on-sdg-12-by-target/12c-fossil-fuel-subsidies (accessed on Dec 4, 2022).

"fossil fuels", "subsidies", "rationalize", and "inefficient" have remained unspecified, rendering these commitments vague. Therefore, in agreement with previous proposals, we believe that a sectoral agreement to address fossil fuel subsidies, like the Agreement on Fisheries Subsidies, would be the ideal way forward. Unilateral declarations by members to reduce fossil fuel subsidies at the national level may not be adequate, unless provided teeth through formalized mechanisms of transparency and enforcement that an agreement with binding and enforceable obligations could provide.

As a result of the increasing momentum to curb fossil fuel subsidies, the last few ministerial conferences of the WTO have seen positive outcomes that indicate a step towards formalizing specific disciplines of fossil fuel subsidies. In 2017, at the 11th Ministerial Conference, 12 WTO members signed a Ministerial Declaration encouraging the reform and phasing out of fossil fuel subsidies.[239] The Fossil Fuel Subsidy Reform initiative also adopted a Ministerial Statement in June 2022 to invigorate the discussions through a Work Plan, that aims to "advance the rationalization and phase-out of inefficient fossil fuel subsidies that encourage wasteful consumption at the WTO ahead of MC13."[240] It is currently co-sponsored by 48 members, but a multilateral agreement would be the most desirable outcome to ensure harmonious policymaking. At MC13 in 2024, a Ministerial Statement on Fossil Fuel Subsidies expressed concern over the doubling of fossil fuel subsidies in 2022 due to the energy crisis, and agreed to work towards enhancing transparency, streamlining crisis support measures, and addressing the most harmful form of fossil fuel subsidies.[241]

As part of the negotiations on new disciplines, members must arrive at a common understanding of fossil fuel subsidies and what makes them efficient or inefficient. Different approaches by different researchers have led to widely different calculations of total subsidies provided.[242] Once the definition of fossil fuel subsidies is finalized, more targeted obligations tailored to production subsidies and consumption subsidies can be framed, such that some are prohibited on the basis of their environmental impacts.[243] As of today, most of the fossil fuel subsidies are consumption subsidies which need to be phased out gradually, with special arrangements for poorer communities that are dependent on fossil fuels. But production-based fossil fuel subsidies should be prohibited to reduce the fossil-fuel dependency of countries and to encourage the move away from fossil fuels in the longer run. As for phasing out certain subsidies, their environmental impact could be considered, differentiated by referring to the greenhouse gas emissions likely produced by each kind of fossil fuel.[244] Another avenue could be to identify specific projects involving fossil fuels. Subsidies for any new fossil fuel infrastructure should also be prohibited.[245] Further, a graded approach would allow for immediate phase-outs of subsidies with higher environmental damage (such as those for new fossil fuel projects), while those with smaller environmental impact (such as subsidizing low-income households) can benefit from longer timelines.[246] A first step towards this exercise would be to mandate greater transparency regarding the details of the subsidies provided by members, to augment the rulemaking process.[247]

A key policy area to prioritize domestically will be to equitably address the distribution of burdens arising out of removal of subsidies to this sector. The economic brunt will be faced by workers, and less-developed countries who rely on fossil fuels for economic growth and have not yet diversified into green supply chains.

Support to address these equity and fairness concerns must be allocated to foster acceptance of the very idea of fossil fuel subsidy reforms.[248]

239 World Trade Organization, Fossil Fuel Subsidies Reform Ministerial Statement, WT/MIN(17)/54, 12 December 2017.

240 World Trade Organization, Ministerial Statement on Fossil Fuel Subsidies, WT/MIN(21)/9/Rev.2, 10 June 2022.

241 World Trade Organization, Ministerial Statement on Fossil Fuel Subsidies, WT/MIN(24)/19, 26 February 2024.

242 For example, different amounts are reflected in the calculations by the IEA (550 billion) and IMF in 2015 (5300 billion USD). David Coady, Ian W.H. Parry, Louis Sears, and Baoping Shang, "How Large Are Global Energy Subsidies?", (International Monetary Fund Working Paper No. 2015/105, Washington, DC: IMF, May 2015), https://www.imf.org/en/Publications/WP/Issues/2016/12/31/How-Large-Are-Global-Energy-Subsidies-42940.

243 Harro van Asselt and Tom Moerenhout, *Fit for Purpose? Toward Trade Rules that Support Fossil Fuel Subsidy Reform and the Clean Energy Transition* (Copenhagen: Nordic Council of Ministers, 2020), https://pub.norden.org/temanord2020-539/temanord2020-539.pdf.

244 Joel Trachtman, *Fossil Fuel Subsidies Reduction and the World Trade Organization* (Geneva: International Centre for Trade and Sustainable Development, October 2017), p. 13, https://www.greengrowthknowledge.org/sites/default/files/downloads/resource/Fossil%20Fuel%20Subsidies%20Reduction%20and%20the%20World%20Trade%20Organization.pdf.

245 Van Asselt and Moerenhout, *Fit for Purpose? Toward Trade Rules that Support Fossil Fuel Subsidy Reform and the Clean Energy Transition*.

246 Harro van Asselt and Jakob Skovgaard, "Reforming Fossil Fuel Subsidies Requires a New Approach to Setting International Commitments", *One Earth* 4, no. 11 (2021): 1523–1526, https://doi.org/10.1016/j.oneear.2021.10.019.

247 Harro Van Asselt and Tristan Irschlinger, "Can the WTO Tackle Fossil Fuel Subsidies Effectively? Yes, but Something Needs to Change", *International Institute for Sustainable Development* (blog), December 11, 2020, p. 8, https://www.iisd.org/gsi/subsidy-watch-blog/can-wto-tackle-fossil-fuel-subsidies.

248 Jakob Skovgaard, Harro van Asselt, Cristopher Beaton, Evan Drake, Natalie Jones, Neil McCulloch, Ronald Steenblik, and Peter Wooders, "Revitalizing International Fossil Fuel Subsidy Phase-out Commitments Through Roadmaps, Closing Loopholes, and Support", *NPJ Climate Action* 3, no. 68 (2024), https://doi.org/10.1038/s44168-024-00149-7.

2. Green Signal for Green Subsidies

On one hand, WTO rules have been underutilized to challenge fossil fuel subsidies but on the other, they have been utilized on several occasions to challenge subsidies provided by members to strengthen their domestic renewable energy sector. Thus, as fossil fuel subsidies require reform and prohibition, renewable energy subsidies, or more broadly, environmental subsidies, need reform and explicit approval, with guardrails against abuse. Environmental subsidies are justified on the grounds that an economic intervention can correct a market failure arising out of externalities.[249] Indeed, the World Trade Report of 2022 recognizes that "if they are well-targeted and non-discriminatory, environmental subsidies can play a positive role in scaling up new technologies and making climate-friendly products more affordable."[250] However, the current provisions of the ASCM do not provide necessary policy space for consideration of social preferences such as environmental concerns, as it does not contain any general exceptions and no longer allows for specified non-actionable subsidies. Certain reform options are discussed as follows.

There have been several proposals to allow for green subsidies at the WTO, such that support schemes for renewable energy which take the shape of price support, fiscal measures, and other financial grants, would become permissible under WTO law. Two proposals worth echoing here are the revival of non-actionable subsidies under ASCM Article 8,[251] and the adoption of a waiver to allow WTO members to provide green subsidies that achieve reduction in emissions.[252]

Article 8 on non-actionable subsidies contained provisions on subsidies for research and development, and for environment related development. These subsidies were to remain in effect for 5 years from entry into force of the WTO, i.e., till end of 1999, unless extended. They were not extended, and currently are "actionable" subsidies, if they are specific in nature. As a result, subsidies for research and development for climate-friendly goods and technologies may be currently challenged under the ASCM if adequate nexus is shown between the support provided and resultant adverse effects. In fact, subsidies for research and development in the competitive aircraft industry have been found to cause adverse effects in a 2012 dispute between the EU and the United States.[253] If such a finding were to be replicated in a dispute concerning specific subsidies for climate-oriented research and development, it would serve a serious blow to governmental policymaking and support for research and in general for climate innovations. Therefore, it is crucial that subsidies for defined environmental purposes be allowed, and Article 8 provides a template for renegotiation of such provisions in the future.

Although some have criticized the extreme practical difficulties[254] in framing this provision narrowly, most policies with respect to climate change would suffer from the risks of disguised protectionism and negative externalities, unless designed carefully and narrowly. Future reform options must take care to avoid this problem through legal design.

One option available to WTO members could be to draw up an illustrative list of environmental subsidies which would be non-actionable. To draw up such a list, the WTO should coordinate closely with other multilateral environmental organizations or bodies to identify those areas which may benefit from subsidies and would otherwise implicate the ASCM. Non-actionable subsidies should also be considered for those activities that might in turn allow developing countries to accept and adopt more ambitious trade policy measures but are currently apprehensive about due to their technological incapacities, such as research on carbon accounting methods. Subsidies for research and development can especially contribute to not just correction of market failures and development of domestic industries, but also hasten their move towards decarbonization. In this regard, a graded approach with preferences for lower income countries should be considered.

249 Steve Charnovitz, "Green Subsidies and the WTO" (World Bank Policy Research Working Paper No. 7060, Washington, DC: World Bank Group, October 2014), p. 3, https://documents.worldbank.org/en/publication/documents-reports/documentdetail/607731468331864128/green-subsidies-and-the-wto.

250 González, Paugam, Bacchetta, Bekkers, Beverelli, Ferrero, Ganne, Hancock, Lanz, Monteiro, Piermartini, Ramos and Xu, *World Trade Report 2022*, p. 22.

251 Aaron Cosbey and Petros Mavroidis, "A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO", *Journal of International Economic Law* 17, no. 1 (2014): 11–47, https://doi.org/10.1093/jiel/jgu003; Robert Howse, *Climate Mitigation Subsidies and the WTO Legal Framework: A Policy Analysis* (Winnipeg: International Institute for Sustainable Development, May 2010), https://www.iisd.org/system/files/publications/bali_2_copenhagen_subsidies_legal.pdf.

252 James Bacchus, *The Content of a WTO Climate Waiver* (Waterloo: Centre for International Governance Innovation, December 2018), p. 12, https://www.cigionline.org/static/documents/documents/Paper%20no.204web.pdf.

253 Appellate Body Report, US – Boeing, paras. 1350-1352. See, Matthew Kennedy, "The Adverse Effects of Technological Innovation Under WTO Subsidy Rules", *World Trade Review* 19, no. 4 (2019): 511–530, https://doi.org/10.1017/S1474745619000326.

254 Howse, *Climate Mitigation Subsidies and the WTO Legal Framework*, p. 21.

An alternative approach could involve members requiring that environmental subsidies meet the basic requirements of non-discrimination, transparency, and bear proof of close nexus to environmental goals. Members could also require notifying countries to justify how the subsidy contributes to the meeting of the Paris Agreement or other climate treaties, but these kinds of subsidies would not necessarily be non-actionable. Thus, while reinstating Article 8 with modifications is one available option, some scholars have considered this option as inadequate and have instead suggested that the ASCM should instead be recalibrated to consider the rationale for subsidization in each case.[255] Others have proposed the multilateral adoption of an interpretive statement whereby members agree to apply Article XX of the GATT to the ASCM, in order to justify their subsidies on public policy grounds in case of a dispute.[256] On similar lines, a recent proposal[257] on utilizing the proportionality test to distinguish between trade distortions and sustainability impacts of a particular subsidy may also be considered, but it presumes the existence of a strong judiciary. They propose that trade-distorting sustainable subsidies should also be permitted so long as they meet certain criteria of transparency, effectiveness in sustainability, absence of trade barriers, and proportionality.[258] On the other hand, subsidies with negative environmental externalities bearing trade distortions must be prohibited, while those causing no trade distortions would be subject to a proportionality analysis.[259] This argument sets forth that a subsidy meets a proportionality test if the trade disruption/losses are not significantly disproportionate to the sustainable development gains. However, it is extremely difficult to quantify the effects that must be proven and what amounts to "significant" distortions or sustainability gains. Nevertheless, any of these approaches could be explored and should be in addition to a narrowly defined list of non-actionable subsidies that must be framed with caution.

D. The Relevance of Trade-Related Investment Measures

While relaxation of ASCM rules can spur green industrial policy, it is important to note that several countries do not have the fiscal space to offer high-order subsidies. Therefore, the legality of other kinds of industrial policy tools needs to be examined with a view to understanding limitations posed by them to the green industrialization objectives of poorer countries.

TRIMs are policy instruments that can promote industrial growth and foster backward and forward linkages, which facilitate technology transfer and local R&D, thereby boosting local employment and addressing balance-of-payments issues.[260] However, due to their cross-border trade implications, they are regulated by WTO law. The main obligations of the TRIMs Agreement, as outlined in Article 2, include adherence to national treatment as per Article III of the GATT and a ban on quantitative restrictions in line with Article XI of the GATT. It also presents a non-exhaustive list of TRIMs that contradict these GATT commitments. Examples of such inconsistent measures include,

- mandating the purchase of domestically produced goods
- limiting the use of imported products to a certain percentage of the value or volume of local product exports
- restricting imports by limiting access to foreign currency
- controlling exports based on value, volume, or local production levels.

Articles 3, 4, and 5 of the TRIMs Agreement outline potential exceptions to the obligations in Article 2. Article 4 allows developing countries to maintain TRIMs that violate Article 2 if they comply with the conditions of Article XVIII of the GATT (related to the economic development of developing nations) and for other balance-of-payments reasons. Additionally, Article 5 states that TRIMs explicitly prohibited by the Agreement do not need to be removed immediately, though they must be reported to the WTO within 90 days of the TRIMs Agreement coming into force. Developed countries have two years to eliminate such measures, while developing countries have five years, and least-developed countries have seven years. This transition period has now elapsed. Article 3 also references the general exceptions of the GATT, including environmental considerations.

255 Cosbey and Mavroidis, "A Turquoise Mess: Green Subsidies, Blue Industrial Policy and Renewable Energy: The Case for Redrafting the Subsidies Agreement of the WTO".

256 Howse, *Climate Mitigation Subsidies and the WTO Legal Framework*, p. 21.

257 Elena Cima and Daniel C. Esty, "Making International Trade Work for Sustainable Development: Toward a New WTO Framework for Subsidies", *Journal of International Economic Law* 27, no. 1 (2024): 1–17, https://doi.org/10.1093/jiel/jgae008.

258 Cima and Esty, "Making International Trade Work for Sustainable Development."

259 Cima and Esty, "Making International Trade Work for Sustainable Development."

260 World Trade Organization, Trade-related Investment Measures and Other Performance Requirements - Joint Study by the WTO and UNCTAD Secretariats - Part II – Addendum, G/C/W/307/Add.1, 8 February 2002.

Therefore, the TRIMs Agreement can be viewed as an enhancement of GATT disciplines, with its key improvement being the reinforcement of notification and transparency requirements[261] and the establishment of a TRIMs Committee within the WTO framework.

However, although TRIMs offer economic advantages and are useful for achieving industrialization goals, the provisions of the TRIMs Agreement make it challenging for developing countries to utilize these policy tools. This has created an uneven playing field, as developed countries have managed to replace TRIMs with alternative measures (such as stringent rules of origin and regional content requirements in free trade agreements) that effectively function like local content regulations.

Nonetheless, TRIMs remain a significant policy tool to advance development of energy transition sectors, especially in developing countries that may not have the fiscal space to provide large-scale subsidies. Therefore, there has been a recent proposal by the African Group at the WTO to reform the TRIMs Agreement to support developing countries in retaining the ability to introduce TRIMs.[262] They argue that since they import advanced green technologies and suffer from low domestic capacity, the implementation of TRIMs, such as domestic content requirements, is key to prevent negative balance-of-payments impacts. In particular, reforming the TRIMs Agreement and similar provisions in FTAs can have a major role to play in the pursuit of industrialization objectives by countries rich in critical minerals. However, at the same time, it is important to recognize that the implementation of TRIMs policies cannot succeed in the absence of a conducive business and regulatory environment in the host country. Therefore, reform of the governance of TRIMs at the multilateral or bilateral levels must be accompanied by domestic efforts to increase their own investment attractiveness.

E. The Rise of Green Industrial Policy and Risks Involved

In addition to support schemes as industrial policy measures, there are several other trade-related industrial policy tools that can be employed by countries. Certain examples include border measures such as tariffs (from both restrictive and liberalization perspectives), BCAs, export duties, and sustainable public procurement. Unilateral remedies such as anti-dumping and countervailing duties are also deployed as an industrial policy tool, but these duties are inefficient for both producers and consumers and exhibit the same kinds of issues as unilateral BCAs. The "solar panel trade wars"[263] between primarily the United States and China show how unilateral remedies can be a form of industrial policy; but it should be noted that they often tend to be a response to other kinds of industrial policies that lead to over-capacity and trade distortions in the first place.[264]

Several developed economies have introduced their own green industrial policies comprising support schemes, both specific and conditional, and other forms of policies such as export prohibitions to encourage domestic production and industries. China implemented export prohibitions on rare earths and raw materials on the grounds that mining them was not environmentally sustainable as they produce radioactive waste, leading to water pollution and increased cases of cancer. But since China is a dominant supplier of these critical minerals, the export prohibition had adverse effects on other countries who had restricted access to these minerals for downstream production. Further, these minerals are critical to several other downstream industries such as defense, technology, and pharmaceuticals. Some even find China's weaponization of supply chains to be a tactful policy to force foreign manufacturing companies to relocate or offshore their production to Chinese territory.[265] Although this form of industrial policy was and can continue to be economically strategic from China's viewpoint, the exclusionary nature of export bans and the resulting inefficiencies render them illegal under WTO law. As a result, the two disputes at the WTO on this issue were decided against China.[266]

However, fears that history might repeat itself run deep, amplified by shocks and difficulties faced by supply chains globally in recent years.[267] There is a decided shift among countries towards developing

261 Petros Mavroidis, *The Regulation of International Trade Volume 2: The WTO Agreements on Trade in Goods* (Cambridge: MIT Press, April 2016), p. 527.

262 "Members Review How to Boost Developing Economies' Participation in Global Trade", *World Trade Organization*, July 11, 2023, https://www.wto.org/english/news_e/news23_e/devel_11jul23_e.htm.

263 See discussion on solar panel trade war in Wu and Salzman, "The Next Generation of Trade and Environment Conflicts."

264 Simon Evenett and Fernando Martin, *Carbon Copies? Suspicious Patterns of Commercial and Industrial Policy Response by the Behemoths of World Trade*, Zeitgeist Series Briefing 40 (St. Gallen: Global Trade Alert, October 2024).

265 Simon Evenett and Johannes Fritz, *The Scramble for Critical Raw Materials: Time to Take Stock?* (St. Gallen: Global Trade Alert, July 2023), https://www.globaltradealert.org/reports/gta-31-report.

266 Appellate Body Reports, China – Raw Materials, WT/DS394/AB/R, WT/DS395/AB/R, WT/DS398/AB/R (Jan. 30, 2012).

267 Rebeca Grynspan, "Here's How We Can Resolve the Global Supply Chain Crisis", *UN Trade and Development* (blog), January 18, 2022, https://unctad.org/news/blog-heres-how-we-can-resolve-global-supply-chain-crisis.

and protecting domestic industries in key sectors of strategic significance. As a result, industrial policies have proliferated across the world in recent years, often in abject rejection of WTO rules. Sectors of strategic importance in the environmental space largely involve components of solar panels, solar cells, semiconductors, batteries, and electric vehicles, in addition to the final goods that are higher up the value chain. The United States under the Biden Administration has made major strides towards using industrial policy towards achieving "supply chain resilience" in the semiconductor industry through the CHIPS and Science Act, 2022 and in strengthening certain industries on its own soil, such as electric vehicles, through the Inflation Reduction Act. Similarly, the EU has undertaken to implement a set of regulations under its Green Deal, such as the CBAM, the EU Critical Raw Materials Act, the Circular Economy Action Plan, etc. In addition, it has also recently undertaken investigation into Chinese electric vehicles and has imposed variable tariffs on different Chinese exporters, on grounds of unfair trade practices benefitting Chinese manufacturers and upsetting the European market.[268] Thus, the justifications for industrial policy have changed from industrialization to strategic competitiveness, national security, and resilience in the face of geopolitical tensions.

Box 4. U.S. and EU Green Industrial Policy: Not Just Economics but Also Geopolitics

The United States and the EU both have recently begun pursuing an aggressive industrial policy, mixing elements of self-sufficiency, protecting domestic industries from anti-competitive practices of foreign countries, and strengthening supply chain resilience, on grounds of climate action, economic security and national security. Often, the actions can be said to meet several objectives. The difficulty lies in identifying and differentiating the protectionist elements from genuine security concerns, as well as ensuring implementation of measures in the least trade-restrictive and arbitrary ways possible.

The Biden Administration embarked upon an ambitious industrial policy in 2022, with the passing of three significant legislations aimed at supporting U.S. industries at different levels of the value chain. The three legislations are the Infrastructure Investment and Jobs Act, the CHIPS and Science Act, and the Inflation Reduction Act,[269] and each of these supports the goals of the other, enabling the United States to conduct cutting-edge research towards technological innovations, apply such innovations by building necessary infrastructure, and establish market demand for the innovations and products.

The IRA provides USD 369 billion in government subsidies to manufacturing of electric vehicles, renewable energy, power generation facilities and more, using tax credits and domestic content requirements.[270] Some incentives in particular, have fallen under the scanner of U.S. competitors, who claim that the applicability of tax credits on only new electric vehicles (EVs) with final assembly in North America violates the WTO prohibitions on local content subsidies.[271] The incentive is designed as follows. EVs are eligible for a total credit of USD 7500. For a new EV purchase to qualify for half of the credit in 2024, "Section 30D Clean Vehicle tax credits" requires that 50% of the value of the critical minerals contained in the battery must be extracted or processed in the United States or a country with which the United States has an FTA, or be recycled in North America. The content requirement increases by 10% every year, until 2027. Further, starting in 2025, an eligible clean vehicle may not contain any critical minerals that were extracted, processed, or recycled by a "foreign entity of concern".[272] The other half of the credit is based upon assembly in North America. It is key to note that Chinese companies, designated as "foreign entity of concern",[273] are major players in refining key minerals that are used to manufacture batteries. In addition to tax credits for EVs, the IRA also provides bonus tax credits to renewable energy projects that use American-made equipment, as well as advanced manufacturing tax credits for manufacturers of solar and wind components in the United States.

268 Philip Blenkinsop, "EU Slaps Tariffs on Chinese EVs, Risking Beijing Backlash", *Reuters*, October 30, 2024, https://www.reuters.com/business/autos-transportation/eu-slaps-tariffs-chinese-evs-risking-beijing-payback-2024-10-29/.

269 Lachlan Carey and Jun Ukita Shepard, "Congress's Climate Triple Whammy: Innovation, Investment, and Industrial Policy", *RMI*, August 22, 2022, https://rmi.org/climate-innovation-investment-and-industrial-policy/.

270 Remarks by President Biden At Signing of H.R. 5376, The Inflation Reduction Act of 2022, August 16, 2022, https://www.whitehouse.gov/briefing-room/speeches-remarks/2022/08/16/remarks-by-president-biden-at-signing-of-h-r-5376-the-inflation-reduction-act-of-2022/.

271 Andy Bounds, "EU Accuses US of Breaking WTO Rules with Green Energy Incentives", *Financial Times*, November 6, 2022, https://www.ft.com/content/de1ec769-a76c-474a-927c-b7e5aeff7d9e.

272 United States Department of the Treasury, " Treasury Releases Proposed Guidance to Continue U.S. Manufacturing Boom in Batteries and Clean Vehicles, Strengthen Energy Security", press release, December 1, 2023, https://home.treasury.gov/news/press-releases/jy1939.

273 Nicholas E. Buffie, Foreign Entity of Concern Requirements in the Section 30D Clean Vehicle Credit, *Congressional Research Service*, https://crsreports.congress.gov/product/pdf/IN/IN12322#:~:text=The%20term%20foreign%20entity%20of,threats%20to%20the%20United%20States.

The IRA is in effect an instrument to build American industries, improve their competitiveness, and raise barriers to imports from certain nations. In addition, through the FTA conditionality in the eligibility requirements pertaining to the EV tax credits, the IRA also advances "friendshoring", i.e., building supply chains with trusted partners and diversify sources and market opportunities.

The IRA must be seen in consonance with the CHIPS Act, as part of a broader set of industrial policies that set the United States on the path of faster technological growth and self-sufficiency in clean energy. At the federal level, the CHIPS Act looks to provide USD 52 billion in subsidies and a tax credit of 25% to incentivize research and development of semiconductors, an industry wherein US once held 40% of total global manufacturing capacity that has now dwindled to about 1/4th.[274] Instead, China, Taiwan, South Korea, and Japan are the leaders of the industry. Rising tensions between China and Taiwan create uncertainties and vulnerabilities about long term access to chips as inputs in other critical sectors, leading to the aggressive push to ensure control over them. Therefore, the CHIPS Act aims to not only reduce dependency on global supply chains, but also encourage global chip making leaders to relocate production to the US.

However, in addition to the subsidies, the CHIPS Act[275] also introduces several restrictions with regards to "foreign countries of concern", such as China, Russia, Iran, and North Korea, which thereby implicates national security justifications. For example, recipients of funds are prohibited from engaging in any "significant" transaction "involving the material expansion of semiconductor manufacturing" in countries of concern for 10 years.[276] The statute also limits recipients of CHIPS incentives funds from engaging in joint research or technology licensing efforts with a foreign entity of concern that relates to a technology or product that raises national security concerns.[277] Exceptions to this rule include existing facilities or equipment for manufacturing "legacy semiconductors" that exist on the date of the award so long as the facility does not undergo a "significant renovation", and new facilities where they predominantly serve the host country market. In addition to the CHIPS Act, the United States announced export control measures targeted at China on October 7, 2022 and updated them on October 17, 2023. These export controls relate to a) advanced AI chips to commercial and defense entities in China to overcome the challenges posed by the blurred like between Chinese military and civil components; b) U.S. chip design software by threatening to restrict market access in semiconductors to third countries that build Chinese chip designs; c) semiconductor manufacturing equipment to companies in China that make advanced chips; and d) components of semiconductor manufacturing equipment.[278] The updated rules related to thresholds for which chips are covered (with an expansive intention); tackle circumvention by restricting exports to companies headquartered in China, Macau, and countries with whom the United States has an arms embargo; expanding the list of controlled equipment; and expanding the number of firms on the Entity List to whom export of certain technology is prohibited. However, whether these policies will be successful in "foreclosing" China remains dependent upon U.S. capacity to increase self-sufficiency in basic chips.[279]

The link between semiconductors and climate action may not be self-evident. Yet, semiconductors are critical for grid management, manufacturing of energy storage systems, building new charging infrastructure for electric vehicles, etc. Thus, while establishing control over value chains and establishing domestic green industries is a matter of domestic development or trade protectionism, restricting control of adversaries over such supply chains is another geopolitical objective. In this latter instance, economic policy is tempered with security, and thus far, the WTO has not been able to assuage the U.S. concerns of national and economic security. As a result, the United States has viewed reforms of national security disputes as critical to the continued relevance of the WTO.

274 Alexander Kersten, Gregory Arcuri, Gabrielle Athanasia, and Hideki Tomoshige, "A Look at the CHIPS-Related Portions of CHIPS+", *Center for Strategic and International Studies*, August 9, 2022, https://www.csis.org/analysis/look-chips-related-portions-chips.

275 United States Congress, CHIPS and Science Act of 2022, H. R. 4346, https://www.congress.gov/117/bills/hr4346/BILLS-117hr4346enr.pdf.

276 United States Department of Commerce, National Institute of Standards and Technology, Preventing the Improper Use of CHIPS Act Funding, https://public-inspection.federalregister.gov/2023-20471.pdf

277 United States Department of Commerce, "Commerce Department Outlines Proposed National Security Guardrails for CHIPS for America Incentives Program", press release, March 21, 2023, https://www.commerce.gov/news/press-releases/2023/03/commerce-department-outlines-proposed-national-security-guardrails.

278 Gregory C. Allen, *Choking Off China's Access to the Future of AI* (Washington, DC: Center for Strategic and International Studies, October 2022), https://www.csis.org/analysis/choking-chinas-access-future-ai; Emily Benson, "Updated October 7 Semiconductor Export Controls", *Center for Strategic and International Studies*, October 18, 2023, https://www.csis.org/analysis/updated-october-7-semiconductor-export-controls.

279 Gary Clyde Hufbauer and Megan Hogan, *CHIPS Act Will Spur US Production but Not Foreclose China* (Washington, DC: Peterson Institute for International Economics, October 2022), https://www.piie.com/publications/policy-briefs/chips-act-will-spur-us-production-not-foreclose-china.

However, the WTO compatibility of both the IRA and export controls on semiconductors has been called into question by several U.S. trading partners. In specific, China has initiated disputes at the WTO—regarding the IRA, on grounds of violation of the non-discrimination principles in the GATT, the TRIMs Agreement and the prohibition on the use of local content requirements in the ASCM.[280] Regarding the export controls, the bases of the complaint include GATT and the TRIMs Agreement mainly, with GATS and TRIPS Agreement violations alleged as well.[281] Components of the IRA that condition various tax credits upon utilization of U.S. made components *prima facie* appear to be clear violations of national treatment obligations by inflicting less favorable treatment upon foreign producers, and ASCM rules prohibiting conditioning of subsidies upon domestic content requirements. Further, export controls are likely to violate WTO law as well. In both instances, if the United States were to attempt a justification of its measures based on the security exception enshrined in Article XXI of the GATT, it would likely repeat its stance on non-justiciability of the provision despite several WTO panels holding otherwise. In any event, an adverse panel ruling may be appealed into the void as was the case with previous disputes on national security and the "Section 232 tariffs". However, what would be interesting is if the United States were to defend its measure on the basis of conventional general exceptions pertaining to the environment (Article XX(g)), or human health (Article XX(b)), or public morals (Article XX(a)). Such an argumentation would provide an opportunity to panels to deploy the proportionality test described above and assess the legal appetite for incorporating sustainability goals within trade liberalization rules.

In addition to creating opportunities for friendshoring, onshoring, and derisking through national security driven unilateral measures such as the IRA, the CHIPS Act, and export controls, the United States has also recently used trade remedies to protect its industry from a number of imports from China, including EVs, semiconductors, batteries and critical minerals, steel and aluminium, solar cells, cranes, and medical products,[282] with tariffs of 100% on Chinese EVs. Economic analysis shows that the U.S. tariffs on Chinese EVs are pre-emptive in nature, as there are no notable imports currently.[283] Similarly, tariffs of different levels have been announced on Chinese EVs by U.S. allies, the EU (up to ~38% increase), and Canada (100% tariffs). China has responded with threats of WTO disputes and opening of its own investigations into European and Canadian trade policies.

Thus, industrial policy is no longer motivated by only industrialization concerns. Instead, as Evenett et al. note in a study assessing new industrial policy measures and their motivations, the key goals are strategic competitiveness (37.0%), climate-related concerns (28.1%), supply chain resilience (15.2%), and geopolitical concerns and national security (19.7%).[284] In legal parlance, strategic competitiveness as that witnessed in U.S. industrial policy on semiconductors or steel, is a combination of different objectives: maintaining domestic industrial vitality and protecting from geopolitical concerns that are called "economic security". As recent tariffs on a variety of environmental goods show, there appears to be a de facto concerted effort to constrain Chinese overcapacity and unfair subsidization of environmental goods, even though cheaper access to them would enable a rapid energy transition globally. Thus, trade measures adopted to address economic and national security concerns seem to be at odds with climate action.

To resolve such hostilities and prevent a downwards spiral, the WTO dispute settlement system could have played an important role. However, in its current state where panel rulings can be appealed into the void (and especially so in national security disputes involving U.S. measures), the absence of an appellate mechanism reduces the value of ex-post reconciliation. Therefore, the next best solution would constitute diplomatic resolutions and legislated outcomes. Climate related industrial policies in particular have great potential in forming part of the WTO membership's negotiating agenda, whereas security concerns, though tricky to resolve, must also be subject to discussions amongst members.

280 United States – Certain Tax Credits Under the Inflation Reduction Act, Request for Consultations by China, WT/DS623/1, March 28, 2024.

281 United States – Measures on Certain Semiconductor and Other Products, and Related Services and Technologies, Request for Consultations by China, WT/DS615/1, December 15, 2022.

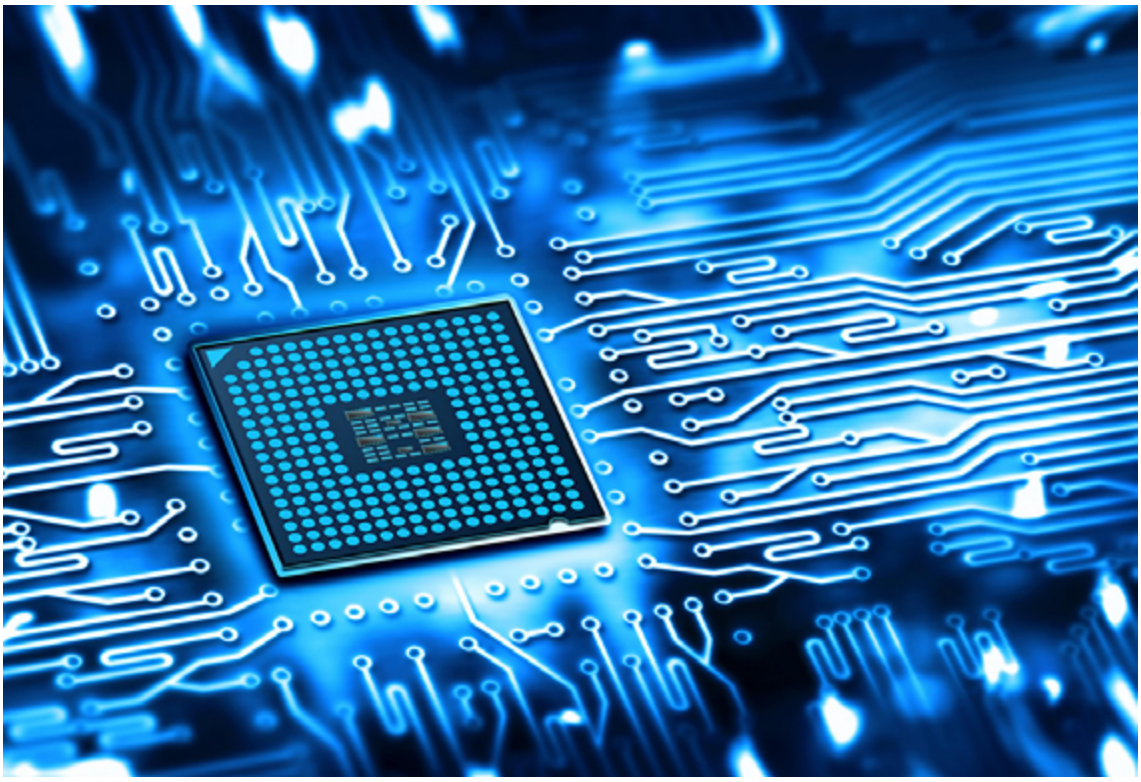
282 Office of the White House, "Fact Sheet: President Biden Takes Action to Protect American Workers and Businesses from China's Unfair Trade Practices", press release, May 14, 2024, https://www.whitehouse.gov/briefing-room/statements-releases/2024/05/14/fact-sheet-president-biden-takes-action-to-protect-american-workers-and-businesses-from-chinas-unfair-trade-practices/.

283 Michael Gasiorek and Ioannis Papadakis, "US Tariffs on EVs: Pre-emptive or Political?" *Centre for Inclusive Trade Policy* (blog), June 6, 2024, https://citp.ac.uk/publications/us-tariffs-on-evs-pre-emptive-or-political.

284 Simon Evenett, Adam Jakubik, Fernando Martín and Michele Ruta, *The Return of Industrial Policy in Data* (Washington, DC: International Monetary Fund, January 2024), https://www.imf.org/en/Publications/WP/Issues/2023/12/23/The-Return-of-Industrial-Policy-in-Data-542828.

They could agree to discuss, and not adjudicate, disputes concerning national security;[285] or adopt the U.S. proposal to accept the utility of non-violation complaints for national security invocations.[286] While neither is an easy choice, negotiation seems the only ideal way forward.[287]

The race to pursue industrial policy also affects allies. For instance, the EU has expressed concern with the IRA, that the United States "should not put this up against friends."[288] The current text of the IRA provides for more favorable treatment towards manufacturers in the United States and its FTA partners, but there is no FTA between the United States and the EU. As a result of the strong oppositions by the EU, the United States and EU have now launched a US-EU Task Force on the Inflation Reduction Act which will attempt to arrive a mediated trans-Atlantic outcome that serves both partners.[289] The US-EU Trade and Technology Council also seeks to provide an additional forum to discuss potential avenues of cooperation.[290] However, this exclusive cooperation with only the EU does not bode well for the rest of the world. After all, the US industrial policies aimed at reshaping supply chains, whether by friendshoring or onshoring, has consequences for the rest of the world. Thus, industrial policy that has trade externalities can lead to a race to the bottom, with severe impact on those that cannot afford an ambitious industrial policy. The multitude of interests affecting industrial policy and multilateral rules regarding industrial policy is reflected in the case of critical minerals.



285 Bernard Hoekman, Petros Mavroidis and Douglas Nelson, "Geopolitical Competition, Globalisation and WTO Reform", *The World Economy* 46, no. 5 (2023): 1163–1188), https://onlinelibrary.wiley.com/doi/abs/10.1111/twec.13406.

286 Simon Lester, "Non-Violation Claims Against National Security Measures", *International Economic Law and Policy Blog*, October 31, 2019, https://ielp.worldtradelaw.net/2019/10/non-violation-claims-against-national-security-measures.html.

287 James Bacchus, *The Black Hole of National Security: Striking the Right Balance for the National Security Exception in International Trade* (Washington, DC: Cato Institute, November 2022), https://www.cato.org/policy-analysis/black-hole-national-security.

288 Silvia Amaro, "EU Says it Has Serious Concerns About Biden's Inflation Reduction Act, *CNBC*, November 7, 2022, https://www.cnbc.com/2022/11/07/us-inflation-reduction-act-eu-raises-concerns-risks-wto-dispute.html.

289 Statement of the European Commission, Launch of the US-EU Task Force on the Inflation Reduction Act, October 26 2022, https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_6402.

290 Office of the White House, "U.S.-EU Joint Statement of the Trade and Technology Council", press release, December 5, 2022, https://www.whitehouse.gov/briefing-room/statements-releases/2022/12/05/u-s-eu-joint-statement-of-the-trade-and-technology-council/.

Box 5. Divergent Interests in Deploying Trade Policy in Critical Minerals: Industrialization v. Security

The development of green technologies ranging from wind turbines and electricity networks to electric vehicles, requires critical minerals including lithium, copper, nickel, cobalt, and rare earth elements.[291] Resultantly, there is an increased global demand for these critical minerals, while supply remains limited to and largely found in developing countries.[292] Moreover, there is an increasing need to diversify yet "friendshore" supply chains[293] as a result of the lessons learnt from the COVID-19 pandemic and Russian aggression in Ukraine. Thus, we see that the issue of supply chains involving critical minerals is not simply an economic concern but one representing geopolitical, strategic, and arguably, even national security concerns. As a result, industrial policy in critical minerals is on the rise in mineral-rich countries, while others seek to ensure a sustained access to such minerals.

To address this policy challenge, recent U.S. and EU legislation and agreements aim to re-direct critical minerals supply chains and secure their access to the minerals from reliable partners, on grounds of maintaining their economic security in one sense of the term. On the other hand, developing country players with traditionally lower bargaining power in trade relations now potentially hold greater leverage as suppliers of these critical minerals. In fact, we see an increasing rate of adoption of export restrictions by certain developing countries, on grounds of industrial policy and with the aim to develop and maintain their economic security. A recent OECD study reported that OECD members are most dependent on imports from China, India, Argentina, Russia, Viet Nam, and Kazakhstan, and yet, these are the countries that issued the most new export restrictions relating to critical minerals between 2009 and 2020.[294] The same report also highlights that such restrictions could potentially undermine global progress toward electrification.[295] Additionally, these restrictions may be used strategically by resource-rich countries to leverage their position in other trade negotiations, as we discuss below.

This background leads us to the following discussion and highlights two main considerations: the need for consideration of industrialization objectives of mineral-rich countries, and the importance of increasing collaborative and cooperative approaches toward building resilient critical raw material supply chains that benefit both the demanders and the suppliers. But first, we note that the legality, the economics, and the geopolitics offer different lenses to view this ongoing dynamic between the developed and the less developed. While international trade law appears to provide concrete answers to the legality of these measures, the economic and strategic considerations underline the desirability of the measures, and usefully indicate normative principles that should guide both public and private sector actions.

Economically speaking, all countries embarking upon an ambitious green transition agenda require critical minerals to support their efforts. Therefore, activities throughout the entire length of the value chain, starting from extraction to processing, and onwards to other manufacturing or value-addition processes, represent sizeable economic opportunities for all countries. However, what matters is where along the supply chain and value chain these countries lie – as raw material producers upstream, or as downstream players involved in processing the raw materials and manufacturing intermediate or final goods. Therefore, the reliance on the suppliers of critical minerals, and consequently their imports, is key, just as are inward investments in value-addition undertakings. In other words, resource-rich countries may be more willing to provide unhindered access to their minerals in exchange for benefits arising out of additional investments in domestic industrial development, which they aim to achieve through the use of export restrictions or TRIMs.

However, international trade law under the WTO does not eye quantitative export restrictions kindly.[296] Specifically, GATT Article XI:1 does not allow for "prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licenses or other measures",

291 "Critical Minerals", International Energy Agency, https://www.iea.org/topics/critical-minerals.

292 Interestingly, the ITC provides contrasting data: Europe imports 64% of its CRM imports from other European countries ($452 billion), whereas Asia imports 40% of its total CRM imports from other Asian countries ($438 billion). "Trade in Critical Raw Minerals: G20 Countries", *International Trade Centre*, August 2023, https://tradebriefs.intracen.org/2023/8/spotlight.

293 Bentley Allan, Noah Gordon, and Cathy Wang, "Friendshoring Critical Minerals: What Could the U.S. and Its Partners Produce?" *Carnegie Endowment for International Peace*, May 3, 2023, https://carnegieendowment.org/2023/05/03/friendshoring-critical-minerals-what-could-u.s.-and-its-partners-produce-pub-89659.

294 Przemyslaw Kowalski and Clarisse Legendre, *Raw Materials Critical for the Green Transition: Production, International Trade and Export Restrictions* (Paris: OECD Publishing, April 2023), https://doi.org/10.1787/c6bb598b-en.

295 Kowalski and Legendre, *Raw Materials Critical for the Green Transition*.

296 Article XI, GATT 1994. For a detailed discussion of export restrictions under the WTO, see: Ilaria Espa, *Export Restrictions on Critical Minerals and Metals – Testing the Adequacy of WTO Disciplines* (Cambridge: Cambridge University Press, 2015).

imposed in connection with exportation. This provision covers both de jure and de facto prohibitions and restrictions, such that a measure's design, structure, and architecture can implicate a measure without having to show its trade effects,[297] so long as a "limiting effect" is evident.[298] Further, the panel in *Indonesia – Raw Materials* reiterated that measures can have the effect of restricting exports without taking the form of an express export prohibition.[299] But given the carve-out for duties, taxes and other charges in GATT Article XI:1, it is generally understood that export duties are not prohibited, unless Members took specific commitments at the time of accession or in their schedules.[300] This explains why countries increasingly resort to export taxes to restrict the supply of critical minerals. Interestingly, this became a point of contention in the disputes concerning China,[301] since China's Accession Protocol contained commitments to limit the use of export restrictions (whether quotas or taxes).

It is worth noting that there are certain in-built relaxations in Article XI of the GATT from the prohibition of quantitative restrictions,[302] but the criteria are narrow: temporary carve-outs to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting party; restrictions necessary for the application of standards or regulations for classification, grading or marketing of commodities; and those necessary to safeguard the interests of importers of foodstuffs. It is possible that in the future, countries may attempt to justify their export restrictions on critical minerals on grounds that they are essential to the exporting contracting party and are therefore necessary to prevent their critical shortage. But the determination of essentiality[303] and criticality are subjective and will necessarily depend upon the adjudicators, as evident from the ruling in *China – Raw Materials*. Similarly, Article XX of the GATT provides for general exceptions including environmental justifications for measures found otherwise inconsistent with the GATT, but the China disputes did not provide any guidance on the topic as China's Accession Protocol did not provide for any explicit linkage between the reduction commitments and Article XX of the GATT. Thus, it is an issue rife for adjudication at the WTO. As an added source of international trade law and given the lack of regulation of export taxes at the WTO, countries are utilizing their FTAs to ensure legal commitments against export taxes, e.g., EU – Canada, [304] EU – CARIFORUM and EU – EAC arrangements.[305]

In addition to the legal and economic challenges, the geopolitical implications of a diversified supply chain in an increasingly polarized world have gained immense significance and resultant attention. In a race to secure access to critical minerals that are majorly found in the lower income countries, the United States, China, the EU and other wealthy countries are investing in critical minerals projects and infrastructural development in source countries.[306] While open and competitive markets are the most conducive to satisfying the increasing demand for critical minerals and strengthening resilience of supply chains, we find that critical minerals supply chains are increasingly being managed.[307] While developed countries base their unilateral measures on security and undisrupted access to supply, the resource-rich emerging countries locate them as an opportunity to pursue industrial policy and developmental objectives at home.[308] Thus, it is highly possible that supplier countries soon understand the leverage they hold given the essentiality of critical minerals for the energy transition, and institute export restrictions to strengthen their bargaining position in the trading system. This may not only give them some leverage in response to other unilateral green trade measures or on the lack of progress on support for mitigation and adaptation, but such responses will only increase the supply chain disruptions outlined above.

297 Panel Report, Colombia – Ports of Entry, paras. 7.252-7.253.

298 Appellate Body Reports, China – Raw Materials, para. 320.

299 Panel Report, Indonesia – Raw Materials, para. 7.81. Indonesia lost this dispute but appealed the panel report into the void due to the absence of a functioning Appellate Body.

300 World Trade Organization, "Export Prohibitions and Restrictions", press release, April 23 2020, https://www.wto.org/english/tratop_e/covid19_e/export_prohibitions_report_e.pdf. For example, the Protocol of Accession of China and specific commitments undertaken in the working party reports of the following members: Bulgaria, Croatia, Estonia, Georgia, Latvia, Nepal, the Kingdom of Saudi Arabia, Ukraine, Tonga and Viet Nam. Schedules of Australia, Afghanistan, Kazakhstan and the Russian Federation include commitments not to impose export duties in respect of several goods.

301 Panel Reports, China – Raw Materials and China – Rare Earths.

302 These are in the form of carve-outs and not exceptions, meaning there are implications on the burden of proof in a dispute such that the claimant is required to prove that the export restriction is prohibited under Article XI:1.

303 It is not a self-judging provision as per the panel report in China – Raw Materials. "The determination of whether a product is "essential" to that Member should take into consideration the particular circumstances faced by that Member at the time when a Member applies a restriction or prohibition under Article XI:2(a)."

304 Victor Crochet and Weihuan Zhou, "Critical Insecurities? The European Union's Trade and Investment Strategy for a Stable Supply of Minerals for the Green Transition", *EJIL Talk!*, February 23 2023, https://www.ejiltalk.org/critical-insecurities-the-european-unions-trade-and-investment-strategy-for-a-stable-supply-of-minerals-for-the-green-transition/.

305 European Parliament Policy Department, Export Taxes and Other Restrictions on Raw Materials and Their Limitation Through Free Trade Agreements: Impact on Developing Countries, EP/EXPO/B/DEVE/FWC/2013-08/LOT7/15, April 2016, https://www.europarl.europa.eu/RegData/etudes/STUD/2016/534997/EXPO_STU(2016)534997_EN.pdf.

306 See, e.g.: European Commission, "Critical Raw Materials: Ensuring Secure and Sustainable Supply Chains for EU's Green and Digital Future", press release, March 16 2023, https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1661; Crochet and Zhou, "Critical Insecurities?."

307 Evenett and Fritz, *The Scramble for Critical Raw Materials*, p. 4-5.

308 Evenett and Fritz, *The Scramble for Critical Raw Materials*, p. 49.

Beyond these considerations, sustainability (economic, social, and environmental) should be central to any form of policymaking in addition to the goal to attain optimal outcomes. Most mineral-rich countries have been traditionally trapped by the resource curse, and therefore seek to utilize their resources to climb up the value chain. Further, often, increased mining activities have undesirable environmental, ecological, and societal consequences for communities living in the mining zones. Thus, there needs to be a push for accountability driven by the private sector, international organizations, and civil society.[309] In addition, state-state cooperation agreements have become trendy. Although these are encouraging developments, from a critical lens, they need to tread a fine balance between loose statements of cooperation and tight transactional obligations resembling conditional investment contracts that may be exploitative. Most of the cooperation agreements contain provisions on integration and development of supply chains, modernization of upstream and downstream processing technology, and possible cooperation in manufacturing components of batteries. In combination with the provisions concerning development of fair markets for renewable energies and cooperation on research and development and technology transfer, these agreements could present a constructive, equitable and economically sound way forward comprising both production of and economic value-addition of critical minerals, if implemented well. However, as of now, these arrangements lie outside the multilateral trade law framework, are not legally binding, and exhibit several trends that considerably shift the balance of powers to the resource-hungry countries: they contain hortatory language on assisting resource-rich countries to pursue domestic value-addition; they serve as engines of standard creation without adequate safeguards for developing, resource-rich country participation; and they enable resource-hungry governments to identify and subsidize projects in third countries, while rejecting recipient countries' efforts to impose horizontal investment conditionalities.[310] Therefore, while these agreements exhibit a cooperative spirit, their implementation and broad effects must continue to be scrutinized.

Investment law and policy also has the potential to play an important role in the treatment of this issue. It has already been noted that investment disputes hinder regulatory space of countries to ensure sustainable mining of critical minerals.[311] At the granular level, a predictable regulatory regime accompanied by well-negotiated contracts reduces the inefficiencies that lead to investor-state disputes.

In sum, there needs to be diversification and resilience of sustainable and responsible supply chains, while ensuring the sharing of economic benefits with resource-rich countries. Overall demand-reducing strategies that would bode well for net importers are implementing circularity in processes involving critical minerals,[312] and incentivizing innovation in methods that require less critical mineral inputs is another strategy to contain over-dependence on imports.[313] Ultimately, import dependent countries need to invest in innovation and technological advancements, both domestically and to share benefits with suppliers. They must find innovative ways to access the minerals (e.g., in exchange for this technology), ensure a global competitive environment for the development of up-stream supply chains (e.g., attractive investment contracts that protect environmental and community rights), and invest in innovation and technological advancements, both domestically and to share benefits with suppliers. Such access concerns must be balanced with industrialization and sustainable development prerogatives of supplier countries. Trade instruments must advance these interests in conjunction with addressing access concerns.

309 Anabel Marín and Daniel Goya, "Development Dilemmas of the Energy Transition for Progressive Democracies in Latin America", *Institute of Development Studies*, February 2, 2022, https://www.ids.ac.uk/opinions/development-dilemmas-of-the-energy-transition-for-progressive-democracies-in-latin-america/.

310 Sunayana Sasmal, *A Stacked Deck That Keeps Getting Higher: The Relationship Between Critical Raw Materials, The WTO And 'Strategic' Partnerships* (Sussex: UK Trade Policy Observatory April 2024), https://blogs.sussex.ac.uk/uktpo/files/2024/04/BP79-CRITICAL-RAW-MATERIALS-THE-WTO-AND-%E2%80%98STRATEGIC-PARTNERSHIPS.pdf.

311 Madeleine Songy and Martin Dietrich Brauch, "How ISDS Interferes with the Governance of Critical Minerals for a Just Energy Transition—And What to Do About It", *Columbia Center on Sustainable Investment* (blog), March 27, 2024, https://ccsi.columbia.edu/content/blog/ISDS-mining-governance-critical-minerals-energy-transition.

312 For e.g., see Frédéric Simon, "Parliament Raises Recycling Goals in EU Critical Raw Materials Act", *Euractiv*, September 8, 2023, https://www.euractiv.com/section/circular-economy/news/parliament-raises-recycling-goals-in-eu-critical-raw-materials-act/.

313 Patrick Schröder, Pepijn Bergsen, and Jack Barrie, "Europe's Pursuit of Securing Critical Raw Materials for the Green Transition", *Chatham House*, April 4, 2023, https://www.chathamhouse.org/2023/04/europes-pursuit-securing-critical-raw-materials-green-transition-0.

F. The Way Forward

The International Energy Agency (IEA) has forecasted that the technological prototypes or demonstration projects of today will contribute to half of global emissions reductions by 2050.[314] Therefore, the need for a country to invest in technological capacity and innovation is critical to fast paced energy transition and control of global warming. Whether in the process of attaining supply chain resilience by some or pursuing critical minerals led industrialization in others, industrial policy has made a comeback with a green tinge and serves different objectives in different jurisdictions. However, as seen above, aggressive green industrial policies are often enacted in disregard of WTO laws, impairing industries in other countries and igniting unilateral reactions in the form of retaliation. Yet, as analyzed by some, **multilateral measures to address industrial policies with trade distortions but some environment benefits are better than unilateral measures that involve unilateral trade remedy measures**. Unilateral trade remedy measures in the form of anti-dumping and countervailing duties may invoke market responses that do not address the fundamental trade-distorting measure while at the same time undermining the environmental objectives by raising prices and hindering consumer choices.[315]

On the other hand, it could be argued that **aggressive green industrial policies are necessary to combat climate change, amid increasing geopolitical concerns. This argument could be merited only if long term potential benefits of the policy in terms of technological diffusion outweigh the environmental costs of not adopting such a policy (i.e., the Bastable test). Further, if a green industrial policy fosters competitive industries such that its spillovers are globally felt and not just limited to structural transformation of the implementing country, such a policy could be welcome**.[316] Similarly, it is crucial to distinguish environmental objectives from underlying objectives of job creation, the former being the predominant goal that green industrial policy seeks to serve, such that environmental objectives are attained in a manner that creates sustained growth opportunities.[317] Yet, assuming strong projections of increased supply of green technology resulting from such industrial policies, WTO rules as they currently exist can act as a check on green growth.

The sad reality is that WTO non-compliant industrial policy is occurring rampantly currently, causing an industrial policy race amongst bigger powers with externalities on rest of the world. At the same time, the appetite for green industrial policy, whether through government support or tariffs, is only increasing. Therefore, regulating the growth and governance of such policies, through a holistic approach and not a piecemeal, instrument-by-instrument approach, is much needed. In this regard, economic analysis can help inform the effects of different industrial policy measures. **Accordingly, reform options such as those discussed above, could be considered with a view to rationalizing the green objective of industrial policy measures with their trade distortiveness. Lower-income countries should be allowed greater timelines to achieve competitiveness**. This approach would contrast with the year 1999, when, during the negotiations of the extension of Article 8, a proposal on a coterminous exemption from disciplines on prohibited subsidies for developing countries was unsuccessful.[318] But such sustainable development concerns, comprising economic and environmental sustainability both, must work in tandem.

Simultaneously, the risks of industrial policy also lay in the abilities of different countries to pursue such policies and the potential of a widened gap between the developed and the less developed. Richer countries with greater fiscal coffers can afford subsidies, commonly known as the least trade -distortive tool that can create positive externalities, in contrast to other tools such as tariffs. However, not all countries have the fiscal space to provide huge subsidies, and therefore may find other policies, such as conditions on investments to spur domestic development, as a method to attain their goals. As a result, potential resistance to a decision on allowing green industrial policies might arise from those countries that do not have the fiscal ability to invest in an ambitious green industrial policy and protect themselves from the trade distortions arising out of others' policies. **In consideration of these structural differences, discussions at the WTO must account for the different kinds of industrial policy tools that may be used by countries, considering varying levels of development and suitability of policy tools. As a result, in addition to the reform of the ASCM, reform of the TRIMs Agreement must also**

314 International Energy Agency, *Net Zero by 2050: A Roadmap for the Global Energy Sector* (Paris: International Energy Agency, May 2021), https://www.iea.org/reports/net-zero-by-2050.

315 Wu and Salzman, p. 467.

316 Aaron Cosbey, "Trade and Investment Law and Green Industrial Policy" in *Green Industrial Policy. Concept, Policies, Country Experiences* (Bonn: UN Environment; German Development Institute/Deutsches Institut für Entwicklungspolitk, 2017), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3088105.

317 Dani Rodrik, "Green Industrial Policy", *Oxford Review of Economic Policy* 30, no. 3 (2014): 469–491, https://doi.org/10.1093/oxrep/gru025.

318 World Trade Organization, Minutes of the Regular Meeting Held on 1-2 November 1999, G/SCM/M/24, 26 April 2000, para. 36.

be given due importance. Additionally, international development and finance institutions, climate finance and technology transfers will have a large role to play in ensuring the necessary resources for such countries to embark on green industrial policies. This would be the only way to prevent such a subsidies and industrial policy race from being a zero-sum game.

A multilateral decision comprising all these elements could be arrived at by WTO members during the on-going discussions on environment and sustainability. Indeed, a recent African proposal calling for reforming WTO rules (including the ASCM, the TRIMs Agreement, and the TRIPS Agreement) to better integrate industrialization objectives and undergo fundamental recalibration such that they enable structural transformation, diversification, and industrialization in an inclusive and equitable manner, must be paid attention.[319] Although MC13 provided an opportunity to explore the regulation of industrial policies and policy space for development, these proposals were finally objected to. Instead, **proposals to discuss industrial policy at the WTO[320] should be encouraged as it could allow members to frame reformed substantive rules in consideration of economic and environmental sustainability concerns and undertake regular reviewing and monitoring operations. Enhanced transparency would also enable governments to track the evolving legal instruments through which industrial policy may be carried out**. It would be in the strategic interests of all WTO members to negotiate the terms of a balanced decision multilaterally or at least in the form of plurilateral agreements under the WTO framework.

IX. Intellectual Property and Low-Carbon Energy Technology

A. The Relevance of Technology Policy in Trade

Technological advancements are critical for climate action as they help address a variety of issues, ranging from curbing climate change itself, reducing the impact of climate change through better adaptation and mitigation strategies,[321] as well as devising methods to make use of trade tools to address climate change. Better availability of and accessibility to climate technology is key to setting and meeting higher climate ambitions.[322] Trade tools hold great potential in furthering climate action, but without addressing the inadequate capacities of lower-income countries to comply with higher standards, well-intended trade measures implemented by developed and technologically advanced countries can have inequitable effects on them. Therefore, the faster that technology can be diffused across all countries, the quicker will be the uptake of climate action measures and higher the willingness of countries to explore the potential of the trading system.

Several international bodies have recognized the role of technology and technology transfers in addressing the "defining challenge of the era."[323] The IEA issued a call to action in 2000 to evaluate technologies that can contribute to emissions reductions.[324] In the same year, the IPCC recognized the importance of "transfer and cooperation to advance the availability and use" of climate technologies.[325] IPCC defined technology transfer "as a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, non-governmental organizations (NGOs) and research/education institutions."[326] The UNFCCC requires all parties to "promote and cooperate in the development, application and diffusion, including transfer, of

319 World Trade Organization, Policy Space for Industrial Development – A Case for Re-balancing Trade Rules to Promote Industrialisation and to Address Emerging Challenges such as Climate Change, Concentration of Production and Digital Industrialisation, Communication from the African Group, WT/GC/W/868, March 1, 2023.

320 World Trade Organization, Draft Abu Dhabi Ministerial Declaration Explanatory Note by the Chairperson of the General Council, WT/MIN(24)/W/12/Add.1, 16 February 2024.

321 Technology Executive Committee of the United Nations Framework Convention on Climate Change, *Technological Innovation for the Paris Agreement* (Bonn: UNFCCC, September 2017), https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/brief10/8c3ce94c20144fd5a8b0c06fefff6633/57440a5fa1244fd8b8cd13eb4413b4f6.pdf.

322 "How Technology Can Help Fight Climate Change", *UN Climate Change News*, July 5, 2022, https://unfccc.int/news/how-technology-can-help-fight-climate-change (accessed on Dec 24, 2022).

323 United Nations, Statement by United Nations Secretary-General Ban Ki-moon at the opening of the High-Level Segment of COP 14 (December 2008), https://unfccc.int/files/meetings/cop_14/statements/application/pdf/cop_14_statement_ban_ki-moon.pdf.

324 International Energy Agency and Organisation for Economic Co-operation and Development, *Energy Technology and Climate Change: A Call to Action* (Paris: IEA and OECD, 2000), https://iea.blob.core.windows.net/assets/e6c80ea2-2a7b-4086-8544-3d057f867ec1/EnergyTechnologyAndClimateChangeACalltoAction.pdf.

325 Bert Metz, Ogunlade Davidson, Jan-Willem Martens, Sascha Van Rooijen and Laura Van Wie Mcgrory, *IPCC Special Report: Methodological and Technological Issues in Technology Transfer* (Cambridge: Cambridge University Press, 2000), p. 87, https://www.ipcc.ch/report/methodological-and-technological-issues-in-technology-transfer/.

326 Metz, Davidson, Martens, Van Rooijen and Van Wie Mcgrory, *IPCC Special Report*.

technologies, practices and processes" that advance climate action goals.[327] The UNFCCC Technology Mechanism is operationalized by the Climate Technology Centre and Network (CTCN), which aims to help developing countries access climate technologies by encouraging private sector participation and assisting in domestic technical capacity building.[328] Paris Agreement takes greater strides in encouraging parties to transfer technology, by not only requiring them to cooperate with one another on technology development and transfer, but also by establishing a technology framework to guide the UNFCCC "Technology Mechanism" in facilitating technology development and transfer.[329] Paris Agreement also provides that research and development and access to technology would be supported by the Financial Mechanism of the UNFCCC, in addition to providing that support, including financial support, "shall be provided to developing countries" for the development and transfer of technology. In what appears to be an accountability check for developed countries, the global stocktake will also examine the efforts to transfer technology to developing countries.[330]

The WTO TRIPS Agreement relating to trade in intellectual property rights is a key international agreement to facilitate technological innovations by guaranteeing protection of private rights. Some argue that it also contains in-built mechanisms to balance these private rights with the goals of diffusion of necessary IPRs and technologies that serve public interests such as health and the environment.[331] Indeed, the promise of technology transfer was deemed to be "part of the bargain."[332] In this regard, while the softer provision in Article 7 of the TRIPS Agreement affirms that the protection and enforcement of IPRs should contribute to technological innovation and to the transfer and dissemination of technology, Article 66.2 requires developed countries to provide incentives to their companies to promote and encourage technology transfer to LDCs. After years of dissatisfactory performance of developed countries in ensuring technology transfers, in 2003 the TRIPS Council established a transparency mechanism for reporting actions taken by developed countries in pursuit of Article 66.2.[333] The World Trade Report of 2022 shows that between 2018-2020, 9 developed countries transferred 152 environmental and climate change technologies to 41 LDCs.[334]

Thus, the TRIPS regime holds the key to the diffusion of climate technologies while also promoting innovation.[335] On one hand, there is significant discrepancy between high-income countries and low-income countries in the ability to specialize in climate technologies.[336] On the other hand, developed countries argue that weak IP protections in developing countries discourage the transfer of technologies.[337] Therefore, the challenge is to strike a balance between incentives to innovators through the protection of private rights, the public interests, and developing country interests to access the necessary climate technology. In this regard, potential TRIPS flexibilities that can be leveraged by developing countries to ensure technology transfer have been highlighted by various commentators, but little has materialized. It is argued that a more interventionist approach by governments and international organizations beyond mere encouragement to the private sector to transfer technology will be needed.[338]

327 United Nations Framework Convention on Climate Change, opened for signature May 9, 1992, entered into force March 21, 1994 (UNFCCC), Art. 4.1(c), https://unfccc.int/resource/ccsites/zimbab/conven/text/art04.htm.

328 *Introducing the CTCN: The Climate Technology & Network* (Copenhagen: UNFCCC, 2013), https://unfccc.int/sites/default/files/climate_technology_centre_and_network._introducing_the_ctcn._submitted_by_the_u.s.pdf.

329 United Nations Framework Convention on Climate Change, Paris Agreement, Art. 10, https://unfccc.int/sites/default/files/english_paris_agreement.pdf.

330 Paris Agreement, Article 9.

331 See, World Trade Organization, Communication from Ecuador Contribution of Intellectual Property to Facilitating the Transfer of Environmentally Rational Technology, IP/C/W/585, February 27, 2013.

332 David M. Fox, "Technology Transfer and the TRIPS Agreement Are Developed Countries Meeting Their End of the Bargain?", *Hastings Science Technology Law Journal* 10, no. 1 (2019), https://repository.uclawsf.edu/hastings_science_technology_law_journal/vol10/iss1/2/.

333 Implementation of Article 66.2 of the TRIPS Agreement, Decision of the Council for TRIPS of 19 February 2003, Council for Trade-Related Aspects of Intellectual Property Rights, IP/C/28, February 20, 2003, https://e-trips.wto.org/En/TypesOfDocuments/ImplementationOfArticle662Notifications.

334 González, Paugam, Bacchetta, Bekkers, Beverelli, Ferrero, Ganne, Hancock, Lanz, Monteiro, Piermartini, Ramos and Xu, *World Trade Report 2022*, p. 70.

335 Jayashree Watal, *Access to Essential Medicines in Developing Countries: Does the WTO TRIPS Agreement Hinder It?* (Cambridge: Harvard University Center for International Development, 2000), https://www.iatp.org/sites/default/files/Access_to_Essential_Medicines_in_Developing_Co.pdf; Konstantinos Karachalios, Nikolaus Thumm, Ahmed Abdel Latif, Pedro Roffe, and Benjamin Simmons, *Patents and Clean Energy: Bridging the Gap between Evidence and Policy* (Munich: Mediengruppe Universal, 2010), p. 9, https://www.uncclearn.org/wp-content/uploads/library/unep97.pdf; Japan, the USA, Germany, Republic of Korea, France and the UK are the source of almost 80 per cent of all innovations developed worldwide in the field of environmental technologies; Kuei-Jung Ni, "Legal Aspects (Barriers) of Granting Compulsory Licenses for Clean Technologies in Light of WTO/TRIPS Rules: Promise or Mirage?", *World Trade Review* 14, no. 4 (2015): 701–719, https://www.cambridge.org/core/journals/world-trade-review/article/abs/legal-aspects-barriers-of-granting-compulsory-licenses-for-clean-technologies-in-light-of-wtotrips-rules-promise-or-mirage/70A5A49BB9BFF252D383007BF18F1B24.

336 Benedict Probst, Simon Touboul, Matthieu Glachant, and Antoine Dechezleprêtre, "Global Trends in the Invention and Diffusion of Climate Change Mitigation Technologies", *Nature Energy* 6, (2021): 1077–1086, https://doi.org/10.1038/s41560-021-00931-5.

337 Cameron Hutchison, "Does TRIPS Facilitate or Impede Climate Change Technology Transfer into Developing Countries?", *University of Ottawa Law & Technology Journal* 3, (2006): 517–537, p. 520, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1019365.

338 For an overview of the debate, see Chaewoon Oh and Shunji Matsuoka, "Complementary Approaches to Discursive Contestation on the Effects of the IPR Regime on Technology Transfer in the Face of Climate Change", *Journal of Cleaner Production* 128, (2016): 168–177, https://doi.org/10.1016/j.jclepro.2015.09.050.

B. TRIPS Patent-Related Flexibilities: Opportunities and Challenges

A variety of proposals on using patent-related flexibilities have been put forth by countries at different fora, from exclusion of environmental technologies from patentability to introduction of compulsory licensing for such technologies.[339] The TRIPS Agreement that lays down the minimum standards of protection to be followed by WTO members, contains certain flexibilities for countries to pursue these proposals. However, they may not be deemed as sufficient in their current state.

Article 27 of the TRIPS Agreement lays down the requirements for an invention or innovation to be granted a patent. This provision does not make a per se exception for environmental technologies, but it contains certain exceptions that could be invoked to increase access to technology. For example, Article 27.1 provides that patents shall be available for inventions "in all fields of technologies" on a non-discriminatory basis, unless there are specifically excluded due to application of Articles 27.2 and 27.3. While environmental technologies cannot be outright excluded from patentability, the panel in *Canada – Pharmaceutical Patents* held that there can be differential treatment arising out of bona fide exceptions for "certain product areas."[340]

However, a close reading of Article 27.2 clarifies that the flexibility provided therein is of limited use to environmental technologies. In 1995, the Korean delegation expressed their apprehension that "it was not clear that the TRIPS Agreement provided a satisfactory solution for environmental protection. Article 27 should be reviewed, as well as the provisions relating to compulsory license and anti-competitiveness practices, to confirm whether they were sufficient to strike a balance between the protection of patent holders and users which would ensure a wider diffusion of environmentally-sound technology."[341] It explicitly recognizes the right of countries to not grant patents to inventions whose commercial exploitation must be prevented in order to protect ordre public or morality, including to human, animal, plant, and environmental protection. Put simply, WTO members may exclude inventions from patentability within their territories if preventing the commercial exploitation of those inventions is necessary to protect ordre public or morality, including to protect human, animal, or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law. Owing to the ambiguities in this provision, whether it may benefit environmental technologies is uncertain, as they may not fit into the category that this provision seeks to cover. However, it could also be argued that such technologies should be excluded from patentability since it is necessary to ensure that commercially driven profit motives do not overtake environmental objectives. By establishing that preventing commercial exploitation of environmental technologies is necessary to avoid serious prejudice to the environment, it could be argued that their patentability must be excluded to advance technological dissemination in the interests of climate action. However, such an argument has thus far remained untested.

Article 30 goes on to provide further exceptions to patent rights, so long as the exception is "limited"; it does not "unreasonably conflict with the normal exploitation of the patent"; and it does not "unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties." This provision seeks to attain a balance between private rights and public interests, and arguably, the dissemination of environmental technologies would be considered to be in legitimate interests of the public at large. A WTO panel has interpreted Article 30 to mean that "this exception is based on the notion that a key public policy purpose underlying patent laws is to facilitate the dissemination and advancement of technical knowledge and that allowing the patent owner to prevent experimental use during the term of the patent would frustrate part of the purpose of the requirement that the nature of the invention be disclosed to the public."[342] Thus, one way that Article 30 could be used is by allowing generic climate technology manufacturers to obtain regulatory approval to be able to market the product after patent expiry, with the permission of patent owners. Leveraging this exemption could help accelerate the diffusion of such technologies.

Next, the phenomena of exhaustion and parallel importation[343] can also be used to disseminate environmental technologies, once the first authorized sale of the physical product containing the IPR has been sold and thereby the right can be said to be exhausted. If a country pursues national exhaustion,

339 For example, see, Comments Made by Members and Observers of the SCP on Documents SCP/13/3 (Exclusions from Patentable Subject Matter and Exceptions and Limitations to the Rights) SCP/14/7 (Proposal from Brazil) and SCP/15/3 (Experts' Study on Exclusions from Patentable Subject Matter and Exceptions and Limitations to the Rights), https://www.wipo.int/edocs/mdocs/scp/en/scp_13/scp_13_3_comments.pdf.

340 Panel Report, Canada – Pharmaceutical Patents, para 7.92.

341 World Trade Organization, Report of the meeting held on 21–22 June 1995, Committee on Trade and Environment, WT/CTE/M/3, 18 July 1995.

342 Panel Report, Canada – Pharmaceutical Patents, para. 7.69.

343 Joshua D. Sarnoff, "The Patent System and Climate Change", *Virginia Journal of Law and Technology* 301 (2011), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1780499.

patent owners can prevent importation of protected products from other countries even if they have been put on the market there by them or with their consent. However, an international exhaustion regime would not allow patent owners to object to such importation once their rights have been exhausted by the earlier marketing of the product in the foreign market, and therefore allow for "parallel importation" of proprietary products at cheaper prices. While the question of whether exhaustion can be said to occur when the sale of the patented product occurs outside the territory of a member is a grey area that is left unanswered by the TRIPS Agreement,[344] Article 6 of the TRIPS Agreement explicitly provides that "nothing in this Agreement shall be used to address the issue of the exhaustion of intellectual property rights." Thus, this provision has been understood to implicitly allow WTO members to devise their own approaches, so long as the cornerstone principles of non-discrimination are met. Therefore, using the international exhaustion regime, foreign environmental technologies can be legitimately imported once a patent is exhausted internationally and sold at a lower price in the domestic market, an action that was condoned by the WHO in the context of access to medicines.[345]

A powerful flexibility in the TRIPS Agreement is compulsory licensing in Article 31. Compulsory licensing as a concept has been heavily discussed in the literature on access to medicines,[346] but it also bears immense significance for environmental technologies. Compulsory licensing involves the grant of licenses to entities (governmental or otherwise) other than the patent holder, to use the patent in exchange for compensation. However, there are several conditions to be met which often happen to be onerous and tedious for developing countries and LDCs. These conditions are: (i) the applicant must have tried to negotiate a voluntary license; (ii) the scope and duration must be limited; (iii) the use should not be exclusive; (iv) the use should be for the supply of the domestic market; (v) the patent owner must be paid an adequate remuneration; and (vi) it should be subject to legal review. The requirement for prior negotiations is waived if there is a national emergency or extreme urgency; if the license is for public non-commercial use; and where such use is permitted to remedy a practice determined after judicial or administrative process to be anti-competitive.[347] It has been argued that these waivers can be leveraged in the climate context, as climate change can be justified as an emergency or urgent situation. Further, if a compulsory license is issued to remedy anti-competitive practices, the prior negotiation and domestic use requirements may be waived.[348]

Though compulsory licensing has been enthusiastically proposed and endorsed by several developing, patent-importing countries at the UNFCCC,[349] it has faced resistance from developed, patent-exporting countries on grounds that it would disincentivize research, innovation, and private funding in environmental technologies. Further, the impact of compulsory licensing will be limited to the patent itself, and not the underlying research which is crucial to knowing how to effectively apply the patent. In such instances, it will not contribute to domestic capacity enhancement and technical spillovers.[350] Further, lower-income countries often lack the institutional, regulatory, and legal policies necessary to issue licenses or utilize the available TRIPS Agreement flexibilities.[351] In particular, the condition that the use of the license should be for supplying the domestic market is antithetical to the objective of increased technology transfers. Members could adopt a waiver of this condition attuned to the context of climate change, similar to the 2003 Decision on the Implementation of Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health[352] and allow members to export the technology at cheaper prices to less-developed countries. Such a decision could help alleviate the technology divide arising from the lack of capability of lower-income and less advanced economies to pursue the TRIPS Agreement flexibilities by themselves. Further, building capacity and expertise in

344 Rochelle Dreyfuss and Esteban Donoso, "On Aiding Technological Development: The Max Planck Declaration on Patent Protection", *UC Irvine Law Review* 6 no. 3 (2016), https://escholarship.org/content/qt5q83n2h5/qt5q83n2h5.pdf?t=qx22n0.

345 Commission on Intellectual Property Rights, Innovation and Public Health, *Public Health: Innovation and Intellectual Property Rights* (Geneva: World Health Organization, January 2006), p. 124, https://www.who.int/publications/i/item/9241563230.

346 See, *Promoting Access to Medical Technologies and Innovation: Intersections Between Public Health, Intellectual Property and Trade (Second Edition)* (Washington, DC: World Trade Organization, 2020), https://www.wto.org/english/res_e/publications_e/who-wipo-wto_2020_e.htm.

347 Article 31(b) and (k) TRIPS Agreement.

348 Cynthia M. Ho, "Compulsory Licenses under TRIPS: An Introduction", *Access to Medicine in the Global Economy: International Agreements on Patents and Related Rights* (2011), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1922803.

349 For example, at the UNFCCC Bali summit in December 2007, Brazil proposed adopting a 'Declaration on IP and climate change.'

350 Maskus, Keith and Okediji, Ruth, I*ntellectual Property Rights and International Technology Transfer to Address Climate Change: Risks, Opportunities and Policy Options* (Geneva: International Centre for Trade and Sustainable Development, December 2010), p. 31, https://www.files.ethz.ch/isn/139228/maskusokedijiittests.pdf.

351 Duncan Matthews, "TRIPS Flexibilities and Access to Medicines in Developing Countries: The Problem with Technical Assistance and Free Trade Agreements", *European Intellectual Property Review* 27, no. 11 (2005), https://core.ac.uk/download/pdf/30695015.pdf.

352 World Trade Organization, Implementation of Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health, WT/L/540 and Corr.1, 1 September 2003.

environmental technology has been found to be more complex than pharmaceuticals,[353] and therefore technology transfers are crucial to accelerate their adoption.

C. The Way Forward

While the TRIPS Agreement provides several flexibilities, it has been difficult to utilize them. Nor are the provisions on technology transfers enforceable. Yet, technology transfers are essential to the diffusion of climate technologies globally. To close these gaps, WTO members can consider the following options.

A proposal to adopt a declaration akin to the Doha Declaration on Public Health, tailored to climate change and access to environmental technologies, has gained popularity amongst developing countries and scholars. In support of such a proposal, this report endorses that view and reiterates the urgency of navigating political hurdles to achieve consensus on such a declaration. The declaration would seek to clarify the application of various TRIPS Agreement provisions on patent related flexibilities for climate technologies. In addition, an amended interpretation of the requirement to supply the domestic market is critical to realization of the needs of developing countries. Therefore, **compulsory licenses should be allowed to be granted for export purposes as well**. However, the legal form in which such an amended provision could be implemented is uncertain. The waiver applicable to essential medicines could be extended to environmental technologies. There should also be insertion of a provision that requires sharing of the know-how underlying the patent along with licensing of the patent itself, given that the same pre-licensing conditions apply.

A recent proposal[354] by India to the WTO's Working Group on Trade and Transfer of Technology is also noteworthy. With several suggestions, the proposal focused on **enhanced transparency regarding patented environmental technologies, the sharing of experiences on their implementation, and their contributions to climate goals**. It also emphasized that technologies borne of publicly funded research on environmental and climate technologies should be subject to transparency obligations and open licensing procedures. However, this proposal was met with resistance from other countries, on grounds that additional flexibilities should not be accorded uniformly to all self-declared developing countries.[355]

A TRIPS waiver for patents on climate change technology could also be considered, as was agreed upon at the 12th Ministerial Conference of the WTO in relation to COVID-19 vaccines.[356] The TRIPS waiver for COVID-19 vaccines reflected a novel approach to achieving consensus between developed and developing countries, with respect to special and differential treatment. Footnote 1 of the Decision provides that "[d]eveloping country Members with existing capacity to manufacture COVID-19 vaccines are encouraged to make a binding commitment not to avail themselves of this Decision."[357] Such a provision could be emulated after an objective assessment of which countries are the key exporters of climate change technologies. Further, a graded approach to preferential treatment and additional flexibilities, based on different levels of development, should be considered as part of this proposal. However, attaining political consensus on such a waiver could prove politically very challenging.

Developing countries should also implement legislations that detail easier methods to legitimize the use of compulsory licenses. For example, borrowing from the U.S. Clean Air Act,[358] compulsory licenses can be issued when the patented innovation is necessary to comply with the emission requirements, when no reasonable alternative is available, and where non-use of the patented invention would lead to weakened market competition or the creation of a monopoly.[359]

Given the institutional hurdles that a country may face in deploying compulsory licenses, **international bodies like the UNFCCC can procure the patent of environmental technologies using funds from the Funding Mechanism and disseminate them to developing countries and LDCs**.[360] The CTCN can be used to operationalize the transfer, in addition to providing technical assistance in applying the patent.

353 Nitya Nanda and Nidhi Srivastava, "Facilitating Technology Transfer for Climate Change Mitigation and Adaptation", prepared for the 17th Conference of Parties to the United Nations Framework Convention on Climate Change, 28 November–9 December 2011, The Energy and Resources Institute, p. 11.

354 World Trade Organization, Reinvigorating Discussions on the Relationship Between Trade and the Transfer of Environmentally Sound Technology, Communication from India, JOB/WGTTT/2, JOB/IP/70, JOB/TE/82, October 11, 2023.

355 World Trade Organization, Minutes of Meeting, Council for Trade-Related Aspects of Intellectual Property Rights, IP/C/M/109/Add.1, 25 March 2024.

356 World Trade Organization, Ministerial Decision on the TRIPS Agreement, WT/MIN(22)/30, 22 June 2022.

357 World Trade Organization, Ministerial Decision on the TRIPS Agreement (2022).

358 United States Clean Air Act, 42 U.S.C. §7401 et seq. (1970).

359 Martin Khor, Climate Change, *Technology and Intellectual Property Rights: Context and Recent Negotiations* (Geneva: South Centre, April 2012), https://www.southcentre.int/wp-content/uploads/2013/05/RP45_Climate-Change-Technology-and-IP_EN.pdf.

360 Sangeeta Shashikant and Martin Khor, *Intellectual Property and Technology Transfer Issues in the Context of Climate Change* (Penang: Third World Network, 2010), https://twn.my/title2/IPR/pdf/ipr14.pdf.

Alternatively, **international institutions could function as a global pool of patents from different countries, who would be willing to license their patents to developing country and LDC companies and governments at lower costs, for example the WIPO GREEN marketplace for climate technologies**. As proposed recently by India, efforts should ensure synergies between similar technology-related undertakings by WIPO and UNFCCC. The same could be replicated in the national context.[361]

Without technology transfers, the trade law tools to address climate change as discussed here will not be able to meet their full potential, in addition to creating discord between developed and developing countries. On one hand, trade-restrictive measures to address climate change may be justified for policy reasons, but on the other, it is equally necessary to ensure that the process of the energy transition takes place in an equitable manner, allowing all countries to take their share of responsibility and benefit from common action. Global commons action will remain an impossibility without equipping every country with the necessary levels of technology. A failure to disseminate relevant technologies will delay climate action, subvert the underlying premise of CBDR-RC in climate action and the importance of financial and technical assistance under the Paris Agreement.

361 Maskus and Okediji, *Intellectual Property Rights and International Technology Transfer to Address Climate Change*, p. 28.

Part E: Looking Ahead

X. Proposals for the Future

WTO rules provide for a variety of means for WTO members to pursue energy transition and decarbonization efforts. The road to attaining that goal could be much simplified by certain changes in the law, or the interpretation of the law, driven by both concerted multilateral action and further development or clarification of jurisprudence by WTO panels. This should be done by formalizing the informal discussions under the TESSD and elevating it to the status of multilateral negotiations with the view to establish new rules or clarify old ones. In addition to legal reforms, the WTO as an institution could provide a suitable platform to discuss the development of climate-based trade measures that are non-discriminatory, non-arbitrary, not protectionist, and are transparent, in addition to regular monitoring and review of measures. Finally, the restoration of a fully functioning dispute settlement system will give necessary credence to negotiated rules. These are explained in detail as follows.

First, *fundamental changes in the law* are required in the area of subsidies, whereby disciplines on "green subsidies" or subsidies with a clear environmental purpose should be introduced and nuanced. This can be achieved by drawing a positive list of the subsidies and narrowly defining the kinds of subsidies that would face a considerably lighter burden of proof through a presumption of legality. However, it might be politically difficult to define such a list that is capable of being contemporaneous. Another approach could be to allow certain range of green industrial policy measures for predefined periods of time, with flexibilities graded according to levels of development. Alternatively, a "GATT Article XX approach" could be considered with adequate safeguards built in to justify subsidies on grounds of environmental and climate action.[362] Such legislative changes can be achieved by amending the ASCM to explicitly subject the ASCM to the exceptions provided for in the GATT, the process of which is described in Article X of the Marrakesh Agreement, and which requires consensus of WTO members. However, amendments are difficult to achieve and has been successful only once in the history of the WTO—amendment of the TRIPS Agreement in 2005 which came into effect only in 2017 after acquiring the required number of signatures.[363] Simultaneous review and reform of the TRIMs Agreement must take place.

Second, *clarifications in the interpretation of the law* are needed to understand "like products" in the climate change context and the role of NPR PPMs in the like product analysis under the GATT—whether or not to create a rebuttable presumption of likeness. Similarly, what kinds of PPMs fall within the coverage of the TBT Agreement could benefit from further clarification. These questions will likely be raised in disputes involving the discussed measures, when WTO panels may be required to address them head on. However, absent a strict rule of precedent in WTO adjudication, a ruling does not have binding value over future rulings. Therefore, to protect the security and predictability of the trading order and to allow WTO members sufficient visibility on the legality of their climate-based trade policies, members could arrive at negotiated outcomes in the form of authoritative interpretations or interpretive declarations on each of these issues. Further, there have been proposals to explicitly include actions taken in furtherance of Paris Goals as ground for a provisional justification under Article XX of the GATT, and to clarify the permissibility of extraterritoriality in the climate change context in Article XX,[364] though the panel in *EU – Palm Oil (Malaysia)* can be said to have now clarified the score on extraterritoriality. But since the WTO disputes mechanism does not operate a strict stare decisis system, future panels could decide differently. This lack of predictability and flexibility accorded to adjudicators means that negotiated outcomes carry maximum political legitimacy and legal predictability. Such clarifications, in the form of "authoritative interpretations" under Article IX of the Marrakesh Agreement, would be preceded by intense discussions at the relevant committees and councils.

362 Horn and Mavroidis, "To B(TA) or Not to B(TA)? On the Legality and Desirability of Border Tax Adjustments from a Trade Perspective."

363 The addition of the Trade Facilitation Agreement to Annex 1A of the WTO Agreement is technically an amendment, but not in the sense of the term of amending existing legal provisions.

364 James Bacchus, *Global Rules for Mutually Supportive and Reinforcing Trade and Climate Regimes* (Geneva: International Centre for Trade and Sustainable Development and World Economic Forum, 2016), p. 16, https://www3.weforum.org/docs/E15/WEF_Climate_Change_POP.pdf.

How can these reforms be achieved?

At the outset, members should find value in the WTO's institutional framework in *facilitating the development of climate-based trade measures* that are non-discriminatory, non-arbitrary, not protectionist, and are transparent. Thus, members have an important role to play in *establishing certain principles and guidelines* relevant to the design and implementation of unilateral climate-trade trade measures, by way of issuing "decisions" or "declarations". First, members can agree upon a rule that any such measure must be imposed after multilateral discussions, and at the very least, in close consultations with the most-affected countries. Second, given that economic development is a key consideration in the trade and climate change nexus, members also have an opportunity to clarify and affirm the application of the Paris Agreement's principles of CBDR-RC to trade policy measures. Doing so would provide clarity to the legality of development-based preferential treatment in trade measures, such that the fear of WTO incompatibility would no longer be a justification for the absence of such preferences. Moreover, application of CBDR-RC to climate-based trade policy measures would ensure that regulating countries respect different countries' commitments under international law. Third, members can agree on a principle that such measures must be strictly accompanied by technical assistance and capacity-building, such that the regulate*d* are actually able to develop the capacity to not just comply with the measures, but also undertake stronger climate ambitions.

More ambitiously, *agreements on each of the topics* discussed—environmental goods and services; BCAs; deforestation; and cross-border trade in green electricity—would be the ideal avenue for countries to negotiate comprehensive disciplines ex ante, spanning changes from existing laws and legal interpretations to specific aspects of implementation, such as harmonization of standards for calculating carbon footprint of product and related technical assistance and technology transfers. Based on the format of the Agreement on Fisheries Subsidies, each agreement could lay down its scope, the applicability of existing WTO rules to it and necessary carve-outs, transparency requirements, specific dispute settlement provisions, and other institutional frameworks for the implementation of that agreement. The agreements could start being negotiated in dedicated technical groups under relevant committees, with them being converted to working groups for monitoring the implementation of the agreement and acting as a forum to continue discussing new challenges in that area. For example, a dedicated group on "Trade and Forests" could help forge agreements on using trade tools to curb deforestation, forest degradation, and trade in deforestation-free products by facilitating exchange of information and positions between members and by acting as a conduit with other relevant committees whose substantive areas of focus have implications on this issue, such as the TBT Committee and the Council on Trade in Goods within the Committee on Market Access. The Committee on Trade and Development should be actively involved in the negotiations and continuing efforts in interests of inclusivity and practicality in addressing challenges faced by the less developed. However, as the twenty-year long negotiations on the Agreement on Fisheries Subsidies have proven, the legislative inertia at the WTO caused by consensus-based decision making hinders the possibility of achieving numerous negotiated agreements.

Alternatively, a *sui generis multilateral trade and climate agreement* as a covered agreement under the WTO legal framework[365] could also provide clarity on fundamental legal issues such as the treatment of process-based distinctions in climate-change related technical regulations and in a discrimination analysis (to provide legal predictability and build in guardrails against arbitrary discrimination), permissibility of "green subsidies" and "green industrial policies" for a predetermined duration, and compulsory licensing of environmental technologies for exportation purposes. Such an agreement would be likely to be based on clarifications to existing laws to correct for identified deficiencies and challenges and emphasis on principles. This kind of an agreement could also help to address issues *ex post,* i.e., at the time of disputes, and provide predictability for members in their prospective policymaking. Subject to discussions on a limited "climate waiver" and "climate peace clause", the agreement could also include dispute settlement provisions such as a mandatory requirement for a panellist to be an environment or climate change expert and clarify the role of amicus curiae briefs or civil society submissions in the dispute settlement. Such an agreement could also lay down specific considerations for developing countries and LDCs, including extended timelines to allow trade-distortive green industrial policies and a climate waiver specifically for developing countries.[366]

365 See, Gary Clyde Hufbauer and Jisun Kim, "Climate Policy Options and the World Trade Organization", *Kiel Institute for the World Economy* (2009), https://ideas.repec.org/p/zbw/ifwedp/7584.html.

366 This has been proposed by the UNCTAD in, *Trade and Development Report 2021: From Recovery to Resilience: The Development Dimension* (Geneva: United Nations Conference on Trade and Development, 2021), p. 141, https://unctad.org/publication/trade-and-development-report-2021.

The Committee on Trade and Environment could provide the apt institutional mechanism to discuss any future issues and regularly monitor implementation of the agreement. While the final contents of such an agreement would depend upon the political will and bargaining powers of WTO members, the key takeaway is a recommendation of a climate agreement under the WTO umbrella. The implementation of such an agreement could also be complemented by the establishment of an "Environment Fund" akin to the Fisheries Fund, to help developing countries and LDCs to undertake structural adjustments in their economy to comply with new rules, especially those on BCAs and other regulations.[367]

The final option would be to negotiate disciplines undertaking heightened climate and sustainability related obligations as *open plurilateral agreement(s)*, such that the obligations would be applicable to only the members that are party to the agreement but whose benefits are extended on an MFN basis. In addition to concerns over the incorporation of such agreements within the institutional framework of the WTO, variable geometry will fall short of addressing global commons issues unless the largest polluters and committers of climate change are a part of the bargain. But the recent past highlights the uptake of variable geometry at the WTO, at least to commence negotiations; establishing a climate agreement at the WTO is the likeliest to take the shape and form of a plurilateral agreement. At a regional level, climate clubs and carbon clubs are also gaining popularity to incentivize climate action,[368] but maximum effectiveness of such groupings can be ensured only when large trading nations bind themselves to the same set of rules. Further, WTO compatibility of climate clubs remains suspect.

Further, the WTO also provides an appropriate forum for members to monitor and review implementation of policies. It also provides an ideal platform for members to non-confrontationally discuss trade-distorting measures or challenges in complying. In this regard, members must recognise that global coordination at a high level and across institutions is necessary. Accordingly, members could strengthen the WTO Secretariat's capacity and mandates, to undertake research based on notifications made by members and their trade policy review outcome documents, to aid and assist in providing solutions rooted in multilateralism. For instance, the WTO could, and arguably should, assist members in finding ways to design a global carbon tax, and harmonize standards by ensuring effective participation of less-developed countries. The WTO would also serve as a suitable institution with the necessary technical expertise and diplomatic capital to help members assess the interoperability of measures, in conjunction with other international organizations.

Another set of proposals pertains to *ex post facto* regulation of climate-based trade measures, to stop fears of regulatory chill from hindering governments' climate action plans. Accordingly, the concept of a time-limited climate waiver granted for "exceptional circumstances" that climate change presents has been proposed.[369] Such a "climate peace clause" or a due restraint clause would entail waiting for a fixed number of years before initiating disputes regarding a broad range[370] of climate measures. The proposed waiver from WTO obligations would apply to certain trade-restrictive climate measures that are based on a product's carbon footprint and are adopted in furtherance of climate agreements or climate clubs. It has been suggested that a waiver could overcome the difficulty otherwise faced in procedures requiring consensus.[371] However, such a waiver would find it difficult to achieve consensus amongst WTO members as it would disproportionately affect developing countries and LDCs where carbon-intensive manufacturing serving the developed country export markets is still predominant.[372] There would be further challenges pertaining to agreeing upon an exempted list of obligations. Further, such a peace clause would have to carefully consider and avoid the possibility of abuse and misuse of the exemption. It is also worth noting that the UNCTAD has recommended a limited climate waiver and peace clause for climate-based trade measures enacted by developing countries and LDCs, as they would be the worst-affected by the flurry of disputes.[373]

367 This proposal is similar to the "Sustainable Trade Transition Fund" proposed by the Villars Framework. See Trachtman, Remy, Esty and Sutton, *Villars Framework for a Sustainable Global Trade System, Version 2.0*.

368 William Nordhaus, "Climate Clubs: Overcoming Free-Riding in International Climate Policy", *American Economic Review* 105, no. 4 (2015): 1339–70, https://ycsg.yale.edu/sites/default/files/files/nordhaus-climate-clubs.pdf.

369 James Bacchus, *The Content of a WTO Climate Waiver*, CIGI Paper No. 204, December 4, 2018.

370 Ilana Solomon, Arthur Stamoulis, Hebah Kassem, Iliana Paul, Lori Wallach, Melinda St. Louis, and Morgan Rote, *The Case for and Design of a Climate Peace Clause* (Oakland: Trade Justice Education Fund and Sierra Club, 2022), https://tradejusticeedfund.org/wp-content/uploads/ClimatePeaceClausePaper.pdf.

371 Caroline Deere Birkbeck, *Greening International Trade: Pathways Forward* (Geneva: Global Governance Centre and the Forum on Trade, Environment & the SDGs (TESS), 2021), https://unctad.org/system/files/information-document/BioTrade_GITPF_publication_en.pdf.

372 Bacchus, *Global Rules for Mutually Supportive and Reinforcing Trade and Climate Regimes.*

373 *Trade and Development Report 2021*, p. 141.

Ultimately, the WTO, a legal and arguably not a political organization, cannot achieve these goals without necessary cooperation with other international bodies. The WTO at an institutional level should continue to engage in exchange of knowledge and information with other organizations like the International Trade Centre, the OECD, the UNCTAD, regional organizations, and civil society organizations. But more importantly, the members of the WTO would benefit from cooperation at other political settings, such as the G20 or the APEC. For instance, any climate-related agreement would be meaningless without the largest emitters and contributors to climate change being a part of those negotiations and outcomes. The G20 provides a suitable platform for Global North and Global South cooperation, as the leadership of the G20 resides with Brazil and South Africa in the following year. The G20 representing several large economies as a group account for 80% of total global GHG emissions[374] and therefore, the seeds of any climate agreement or climate-related proposals at the WTO could be sown at the G20. With major BRICS nations and voices of the Global South holding the presidency for three years in a row, the G20 should build and capitalize on the momentum to foster trust and cooperation between developed and less developed countries and transpose it to negotiations at the WTO.

XI. Conclusion

Fundamental rules of the trading system on non-discriminatory trade and transparency not only attempt to ensure a balanced playing field for members, but combined with special and differential treatment, also aim to bridge the gap between the developed and less developed. In this race to use trade measures for climate action, the WTO as a member-driven organization must be dynamic and must recognize the urgency of climate action, but by providing adequate safeguards against abuse of provisions leading to unchecked protectionism, unnecessary trade restrictiveness, and arbitrary discrimination. Therefore, the rules-based multilateral order of the WTO must be respected while WTO members reshape the law of the WTO that is fitter to serve the urgent calls for climate action.

Through an overview of the various tools potentially available in the WTO toolkit, this report has highlighted the opportunities and gaps in the existing WTO legal framework to undertake climate-based trade measures. It is evident that international trade rules and the WTO as a multilateral institution can and should play an important role in facilitating climate action in furtherance of the Paris Goals, whether in the regulation of BCAs, trade in deforestation-free products, cross-border trade in green electricity, curbing fossil fuel subsidies and green-lighting green subsidies or ensuring access to climate technologies. But it is also clear that to do so will require several modifications in the law and its interpretation, increased institutional role and support, and massive political will by members. There is also need for institutional cooperation for various purposes, such as harmonization of standards, exchange of knowledge, identifying implementation challenges, and facilitating technology transfers and technical assistance programs. As a result, the task ahead for the stakeholders of multilateralism, i.e., WTO members, is not simple albeit it is clear cut: they must not lose hope in the slow negotiating and lawmaking functions of the WTO; they must revive the dispute settlement system; and they must strengthen the WTO's active role in research, monitoring, and review.

374 "G20 Economies are Pricing More Carbon Emissions but Stronger Globally More Coherent Policy Action is Needed to Meet Climate Goals", *OECD*, October 27, 2021, https://eaccny.com/news/chapternews/oecd-g20-economies-are-pricing-more-carbon-emissions-but-stronger-globally-more-coherent-policy-action-is-needed-to-meet-climate-goals/.

This report has explored a set of options that are available to WTO members to pursue climate action through trade policy. The options discussed here are limited to those that would require legislative changes to clarify the law ex ante. However, this report also acknowledges that there are avenues of change through jurisprudential evolution. For example, newer approaches to interpreting the stringent conditions in the general exceptions clause that could be used to allow measures in pursuit of sustainable development objectives.[375] It is also acknowledged that WTO judges will play a major role in assessing the legal relationship between obligations in multilateral environmental agreements such as the Paris Agreement and WTO law, and the extent to which one informs the interpretation of the other. While such interpretive issues have been outside the scope of this report, it is important to pre-empt the potential judicial challenges that could impede climate action and undertake necessary legislative action.

Although the difficulty of multilateral decision-making is not lost on us, ensuring that the WTO (its rules and its institution) remains a powerful forum to discuss the intersection of trade policy with sustainable development and climate change is imperative. Economic sensibilities and political justifications for multilateral rulemaking lie at the heart of ensuring the creation of rules based on principled approaches to climate action, while ensuring that the interests of those most vulnerable to the impacts of such trade measures are accounted for. Finding this balance is key to the future of rulemaking on this topic. Thus, while discussions on trade and climate change did not progress as desired at the 13th Ministerial Conference in 2024 in Abu Dhabi, there were some silver linings with a large number of developing countries releasing a Ministerial Declaration on the Contribution of the Multilateral Trading System to Tackle Environmental Challenges,[376] recognizing the role of non-discriminatory and non-arbitrary trade policies in furthering climate action. A non-WTO initiative called the Coalition of Trade Ministers on Climate also successfully highlighted the essential role of the WTO in supporting a global response to climate and sustainable development concerns.[377] The ACCTS is also an WTO-x effort the implementation of which will be crucial for the multilateral trade community to track. These efforts show that there is increasing recognition of using trade policy tools to not only undertake climate action, but also highlight the need for a central governance mechanism to regulate their impacts. Ignoring the political and economic realities and the absence of discussions at the WTO risks entrenching the lack of trust between members and relegating the WTO to irrelevance, despite its important contributions towards a secure and predictable trading system. Therefore, it remains crucial to undertake negotiations on different aspects of trade governance of climate measures to monitor their design, implementation, and impact, and maintain the rule of law through an effective dispute settlement mechanism.

Finally, this report is one of many comprehensive reports at the nexus of trade policy and climate action, including the Villars Framework for a Sustainable Global Trade System, the TESS Expert Group on Trade-Related Climate Measures, and the Center on Inclusive Trade and Development's trade toolkit for climate change. Greater civil society involvement and academic research can support policymaking by democratizing rulemaking processes and ensuring inclusivity. At the same time, this report, following in the footsteps of others and certainly not as the last, has stressed that trade rules and climate action are interlinked and must be addressed holistically and multilaterally. A piecemeal approach denying the WTO's role in regulating different aspects of climate relevant trade policy will only delay climate action and increase mistrust. Instead, members must focus on agreeing on comprehensive multilateral mandates to discuss trade, climate action, and sustainable development, and frame rules based on equity and fairness, non-discrimination, and non-arbitrariness. An equilibrium must be found at the intersection of heightened climate obligations and bolstering the capabilities of countries at different levels of development to undertake higher levels of climate ambitions and address the global climate crisis.

375 Sasmal, Zhang, Lydgate, and Winters, "Exempting Least Developed Countries from Border Carbon Adjustments."

376 Ministerial Declaration on the Contribution of the Multilateral Trading System to Tackle Environmental Challenges - Communication from Argentina, Bangladesh, Barbados, Plurinational State of Bolivia, Brazil, Cabo Verde, Colombia, Ecuador, Egypt, Honduras, Indonesia, Kazakhstan, Panama, Paraguay, Peru, South Africa, Uruguay, Bolivarian Republic of Venezuela, and the African Group, WT/MIN(24)/28, 29 February 2024.

377 Coalition of Trade Ministers on Climate, "Communiqué from Coalition Ministers", (media release, 2024), https://www.tradeministersonclimate.org/_files/ugd/214b22_a2d7ade912184b62856c69f3583325ab.pdf.

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