

Trade and Carbon Standards: Why Greater Regulatory Cooperation is Needed

Kateryna Holzer, Swiss National Centre of Competence in Research Trade Regulation

Aik Hoe Lim, World Trade Organization

Introduction

Over the last two decades, there has been a steady increase in the use of carbon-related product requirements in various markets at both governmental and private sector levels. The European Union, for example, has introduced regulations stipulating product carbon footprint requirements on imported biofuels. A number of nations, including the United States, countries in the European Union, Japan, and South Korea regulate carbon dioxide emission levels for cars. Several governments, including Japan and France, have initiated the development of product carbon footprint labels for consumer products. In parallel, the private sector and non-governmental organizations run their own voluntary carbon certification and labeling schemes, such as the United Kingdom Carbon Trust and Swiss Climatop labels on products sold by supermarkets. Even individual companies have taken steps to reduce emissions by increasing energy efficiency and insisting on emissions reductions from suppliers in their value chains.¹

The World Trade Organization's (WTO) Environmental Database shows that technical regulations for environmental objectives, including climate change mitigation and adaptation objectives, account for the largest share (35.6%) of all environmental measures notified to the WTO in 2016.² The implementation of the Paris Agreement on climate change is likely to spur the adoption of carbon product requirements and label schemes. Indeed, some nationally determined contributions submitted by parties under the Paris Agreement foresee their use to reduce emissions levels.³

Today, however, the expansion of greenhouse gas product requirements and label schemes go largely uncoordinated. Such *carbon standards* differ not only among markets but also among various standard-setting companies within a market. Uncoordinated action of governments and private actors in the field of product carbon regulations leads to inefficient outcomes in terms of the contribution of carbon regulations to emissions reduction, as well as trade implications due to the diversity of labeling schemes. In this paper, we discuss the use of *carbon standards* with a particular focus on ways to increase their effectiveness as climate change policy tools while minimizing their potential trade implications. The term “carbon standard” is used here in a broad sense to refer to both mandatory and voluntary technical specifications on the design, performance, description or labeling of a product or related processes aimed at reducing emissions. This brings into play the WTO’s Technical Barriers to Trade Agreement, which aims to ensure that regulatory interventions for public policy objectives—including protection of the environment—do not create unnecessary obstacles to international trade. The scope of the Agreement covers all the technical regulations, standards, and conformity assessment procedures that apply to traded goods.⁴

On one hand, the Technical Barriers to Trade Agreement was carefully designed not to limit the right of WTO members to regulate. The preamble of the Agreement confirms this preservation of regulatory flexibility with the statement that “(n)o country should be prevented from taking measures necessary to ensure the quality of its exports, or for the protection of human, animal or plant life or health, of the environment, or for the prevention of deceptive practices, at the levels it considers appropriate.” On the other hand, the Agreement seeks to ensure that WTO members observe the key disciplines of transparency, do not arbitrarily or unjustifiably discriminate trading partners, and avoid creating needless barriers to trade. In other words, the Agreement intends to help governments achieve their legitimate regulatory objectives in a coherent and fit-for-purpose manner.

Our aim is thus not to discuss compliance issues of carbon standards with the disciplines of the Technical Barriers to Trade Agreement, which has been done by others.⁵ Rather, our intention is to discuss how the Agreement and its corresponding Committee could support climate change policy objectives by improving regulatory quality, increasing harmonization, and promoting regulatory cooperation.

We begin with a discussion of different types of carbon standards and regulatory problems associated with their use. We then explain the main features of the Technical Barriers to Trade Agreement and how the agreement applies to carbon standards. We go from here to examine how the principles of the Technical Barriers to Trade Agreement and the work of its Committee could help increase regulatory quality and cooperation, reduce trade friction, and thereby support the climate change policy objective of emissions reduction. The paper then discusses what more we can do to build mutual support between trade and climate change regimes in the area of carbon standards.

Diverse Landscape of Carbon Standards

Carbon standards typically refer to technical specifications on carbon dioxide or other greenhouse gas emissions that a product needs to meet in order to be placed on the market. Carbon standards can be formulated as performance requirements and prescribe the maximum amount of carbon released per unit of production, or represent technology-based standards and stipulate the use of certain technologies or inputs in the manufacturing of products.⁶ Besides carbon intensity requirements in a strict sense (i.e. those targeting carbon emissions associated with products), this type of measure also embraces energy consumption and efficiency requirements. The latter are more widespread, as they have traditionally been used to reduce energy dependency of countries and increase their energy security and competitiveness.

Specific Examples of Carbon Standards

Carbon intensity requirements on products are particularly widespread in the transportation sector, notably on vehicles. The European Union adopted legislation on carbon standards for new car and van fleets in support of its emissions reduction commitments under the Kyoto Protocol. According to these standards, the car producer's new fleet must not emit more than 95 grams of carbon dioxide per kilometer on average by 2020. Calculated as a fuel economy standard, it corresponds to 4.1 liters of gasoline per 1/100 km or 3.6 liters of diesel per 1/100 km. The van producer's new fleet must not emit more than 147 g carbon dioxide per km on average, which translates into 6.3 liters of gasoline or 5.5 liters of diesel per 1/100 km.⁷

In the United States, carbon standards for automobiles are set as fuel economy standards known as Corporate Average Fuel Economy (CAFE) standards. CAFE standards, initially adopted in the wake of the Arab Oil Embargo in 1975 to decrease foreign fuel dependency, aim to reduce emissions today. The standards are set in miles per gallon (mpg) and correspond with the size of a vehicle. CAFE standards have been tightening over the years. They were initially expected to require 54.5 mpg (4.32 l/100 km) for an automaker's fleet average by 2025.⁸ Recently, however, the Environmental Protection Agency has announced its plan to loosen these standards by freezing them at the 2020 level (38 mpg on average).⁹

Carbon standards in the transportation sector also include fuel standards. The Fuel Quality Directive of 2009 introduced fuel standards into the European Union, stipulating that fuel suppliers must reduce the life cycle greenhouse gas intensity of supplied fuels by at least 6 percent by 2020 compared to 2010 levels. In addition, the European Union Renewable Energy Directive of 2009 set the target of 10 percent of energy from renewable sources in transport by 2020. The recently adopted amendments for post-2020 increase the share of

renewable energy consumed in road and rail transport to 14 percent by 2030.¹⁰ This will be accompanied by increased sustainability requirements for biofuels. In particular, the maximum contribution of traditional biofuels (i.e. biofuels produced from food and feed crops) must not exceed 7 percent, whereas the share of advanced biofuels (i.e. biofuels manufactured from non-food biomass) should reach 3.5 percent. In any case, biofuels must fulfill sustainability criteria defined in the legislation to be accounted in the renewable energy target.

In the United States, carbon standards for transportation fuels are applied at the state level. California adopted the Low-Carbon Fuel Standard, which sets a limit on carbon emissions from transportation fuels calculated in grams of carbon dioxide-equivalent per unit of fuel sold. If fuel suppliers do not meet the Standard, they have to submit emission allowances in an amount that covers the difference between the Low-Carbon Fuel Standard and the actual carbon intensity of the fuel. The Low-Carbon Fuel Standard is aimed at reducing the carbon footprint of transportation fuels sold in the Californian market by 10 percent by 2020.¹¹

Requirements on carbon intensity are often implemented through certification and labeling schemes. In 2006, the Carbon Trust, a United Kingdom not-for-profit company, launched a carbon label initiative. Since then, carbon labeling schemes have been introduced in various countries. Private actors administer most of these schemes, but some countries like France and Japan introduced governmental carbon label scheme pilot projects.¹² The most widespread carbon label schemes are based on product carbon footprints, and display the total amount of greenhouse gas emissions emitted during the life cycle of a product, expressed in grams of carbon dioxide-equivalent per unit of the product. For example, the carbon footprint of a 330 ml can of Coca Cola that has been purchased, refrigerated, consumed, and finally recycled by a consumer in the United Kingdom constitutes 170 g of

carbon dioxide-equivalent.¹³ However, the information about the product carbon footprint can be conveyed not only as a carbon score in grams of carbon dioxide per unit of a product, but also as a low-carbon seal and a carbon rating.¹⁴ In the first case, the label testifies that carbon efficiency is below a certain threshold within a product category. In the second case, the product carbon footprint label is similar to the European Union 5-star energy efficiency label for home appliances.

Benefits and Shortcomings of Carbon Standards as Climate Change Policy Tools

Carbon standards and labels are valuable climate change policy tools as they target emissions embedded in trade and consumption in general. According to some estimates, emissions embedded in trade constitute one-fourth or even one-third of global emissions.¹⁵ A significant part of consumption emissions in developed countries come from imported products as a consequence of their transportation by fossil fuel-based means of transport (e.g. ships and planes) and also due to production methods abroad that rely on fossil fuels (e.g. the production of energy-intensive products, such as electricity, steel, aluminum, and cement). Carbon standards and labels encourage the market to supply fewer carbon intensive products. In addition, a carbon label can be viewed as a more market-friendly response to climate change, as it offers an alternative to more direct trade restrictions by informing consumer choice. At the same time, for a carbon label to function as an emissions reduction tool, it is important that the market is characterized by consumer preferences for low-carbon products.¹⁶

However, the rapid proliferation of carbon standards and labels in recent years has exacerbated the problem of varying incoherent and low-efficacy standardization schemes. Carbon product requirements are enacted in different jurisdictions with different national approaches to setting standards. In most cases, governments are rule-takers in this process, as

many private actors promulgate certification and label schemes and use their own criteria for setting carbon standards, methodologies, and approaches—all of which is seldom published. The existing fragmentation of private voluntary sustainability standards creates conflicting interests between voluntary sustainability standards schemes and their clients.¹⁷ Their major weakness is assessing product conformity to standards, as the conformity assessment procedures generally lack clarity and transparency and rarely rely on third-party verification of the product's carbon footprint.¹⁸

The problem with the variation among schemes is compounded by the lack of agreement on a single methodology for carbon accounting. Attempts have been made to develop global standards that provide guidelines on the main principles and processes of tracing carbon in products and labeling. Three of them, based on the product's life cycle assessment, are particularly worth mentioning. In 1999, the World Resources Institute and the World Business Council on Sustainable Development developed the Greenhouse Gas Protocol, arguably the earliest product carbon footprint standard. Since then, it has had several versions and extensions, including the Product and Supply Chain Greenhouse Gas Accounting and Reporting Standard. In 2008, the British Standards Institute introduced the next attempt at a global standard, the Publicly Available Specification 2050, which covers a wide range of diverse products. The Carbon Trust uses this standard for its carbon certification and labeling scheme. More recently, in 2013, the International Organization for Standardization published the latest standard in this category, International Organization for Standardization 14067, as part of the its 14000 group of standards for environmental management. International Organization for Standardization 14067 specifies principles, requirements, and guidelines for the quantification and communication (i.e. labeling) of the carbon footprint of a product based on life cycle assessment.

The absence of unified methodologies for calculating product carbon footprint is problematic, as very different footprint values for the same product and country can be generated depending on the databases and calculation methods used. Of course, this undermines the effectiveness of carbon standardization schemes and weakens the achievement of emissions reduction. In addition, the diversity of carbon labels confuses consumers and undermines their trust in the environmental integrity of carbon standards.¹⁹ *Food miles* labels introduced in 2007 by United Kingdom retailers Tesco and Marks and Spencer are a case in point. These labels show the distance traveled by airfreighted products from factories to grocery shops. However, food miles only take into account emissions from transportation, which often provide incomplete, and sometimes misleading, information about the carbon footprint of products.²⁰

The diversity of carbon standards and labels is also detrimental for trade. It creates high costs of compliance for producers, as they have to adjust their production to comply with standards and conformity assessment procedures of different markets, which practically prevents small producers from participating in the market at all. Conducting a life cycle assessment for a typical agriculture product can cost between €2,500 and €6,000, which is significant for small enterprises.²¹

Finally, carbon product regulations and labels can face the problem of compliance with obligations under the World Trade Organization Agreement if found to constitute unnecessary or unjustifiable trade barriers. In the assessment of necessity, the effectiveness of measures in achieving the intended objective is one of the considerations to be taken into account.²² Although labels are generally perceived as instruments that distort trade the least, the amount of carbon reductions that carbon labels could achieve is still unclear.²³ The impact of carbon labels on emissions reduction is dependent on whether consumer decisions are

sensitive to information about carbon embedded in a product. If such information does not influence consumer behavior, then the impact of a carbon label would be negligible.

While no trade disputes over carbon standards have been brought to the WTO, members have raised concerns about these measures in the Technical Barriers to Trade Committee.²⁴ This makes it important to consider how to improve regulatory quality, increase harmonization, and promote regulatory cooperation in the use of carbon standards. In the next section we look into how the Technical Barriers to Trade Agreement can help either directly or indirectly address some of the above-mentioned problems.

The Role of the Technical Barriers to Trade Agreement in Better Governance of Carbon Standards

The Technical Barriers to Trade Agreement covers non-tariff measures that include technical regulations, standards, and conformity assessment procedures. The Agreement distinguishes between *technical regulation*, where compliance is mandatory, and *standards*, which are voluntary. It is useful to keep this distinction in mind as the obligations in the Agreement differ slightly depending on whether the carbon-related requirement is considered a technical regulation or standard. While the main substantive rules of non-discrimination and the avoidance of unnecessary barriers to trade apply to both types of measures, the corresponding procedural obligations are not the same. The rules on standards are contained in the Code of Good Practice for the Preparation, Adoption and Application of Standards in Annex 3 to the Agreement. Unlike the rules applicable to technical regulations and conformity assessment procedures, the rules on standards do not impose the same level of obligation on governments. Instead, they apply to standardizing bodies that are expected to accept the Code. Governments, on the other hand, have to take reasonable measures available to ensure that standardizing bodies comply with the rules of the Code.²⁵ In addition, there is no WTO

obligation to notify standards, even if in practice some are eventually notified.²⁶ This obligation applies only to draft technical regulations and conformity assessment procedures not based on an international standard. This difference in obligation should not go unnoticed, given that a large number of carbon-related product requirements come in the form of voluntary standards and labeling schemes, many of which are promulgated by non-governmental organizations.

Encouraging Harmonization Through the Use of International Standards

Amongst the key principles of the Technical Barriers to Trade Agreement is the strong encouragement to use relevant international standards as a basis for technical regulations and conformity assessment procedures. Article 2.4 stipulates that if relevant international standards exist, or their completion are imminent, WTO Members must use them as a basis for their regulations unless they would be an ineffective or inappropriate means for the fulfillment of the legitimate objectives pursued. What motivates WTO members to base their product regulations on international standards in particular is the presumption under Article 2.5 that if domestic regulations are in accordance with relevant international standards, they do not create an unnecessary barrier to trade. Although another member could challenge this presumption, it gives legal weight to regulations that are based on international standards.

Encouragement of the Technical Barriers to Trade Agreement to use international standards as the basis for domestic regulations has great importance for the evolution of carbon standards. Actively using international standards for carbon footprint measurement and communication would address the problems associated with standard diversity. It would bring greater credibility to carbon standards and labels, create less confusion for consumers, and lower compliance costs for producers, thus elevating the efficacy of carbon regulations.

In other words, it would ensure that carbon standards are more consistent, science-based, and serve to reduce emissions while creating minimum trade barriers.

Moreover, the use of international carbon standards has the potential to contribute to low-carbon technology transfer to developing countries. A well-developed international standard can serve as a tangible form of technology transfer as enumerated in the Agreement, and is particularly valuable for those countries that do not have the resources to either participate or develop standards themselves.²⁷ By making international standards the common benchmark upon which to anchor regulations, the Technical Barriers to Trade Agreement can serve as a catalyst for convergence on carbon standards.

On the other hand, the WTO is not a standard-setting body and the Technical Barriers to Trade Agreement does not promote harmonization to any specific international standard or relevant standard-setting body. It provides a considerable degree of flexibility on the use of international standards.²⁸ Some see this flexibility as a strength, as it allows for a choice of the most appropriate standard depending on country circumstances. Others see the flexibility as a weakness, as it may reduce certainty of what might be considered a relevant international standard.²⁹

The Technical Barriers to Trade Committee did nevertheless adopt in 2000 an important decision on the six main principles that should guide the development and adoption of international standards. The first principle is *transparency*, which prescribes not only the publication of standards and work programs of standardizing bodies, but also provides all members of international standardizing bodies with the opportunity for early comment when standards are still in development. The second principle of *openness* affords access to participation on a non-discriminatory basis for relevant bodies of at least all WTO members at every stage of standards development. The third principle of *impartiality and consensus* requires that the decision-making of standardizing bodies may not afford preferential

treatment to the interests or privilege of a particular supplier, country, or region, and that decisions should be adopted by consensus, reconciling any conflicting arguments. The fourth principle of *effectiveness and relevance* aims at facilitating trade and preventing unnecessary barriers to trade while responding to regulatory and market needs as well as scientific and technological developments in various countries. The fifth principle of *coherence* discourages conflicting, duplicate, or overlapping international standards, and encourages cooperation and coordination with other relevant international bodies. Finally, the sixth principle of *development dimension* recognizes constraints on developing countries to effectively participate in standards development and urges standardization parties to find tangible ways to facilitate the involvement of developing countries in the process.

While the World Trade Organization has limited power to enforce the six principles, especially in the case of private standardizing bodies, a number of well-known organizations, including the International Organization for Standardization, have declared their incorporation of these principles.³⁰ In *US-Tuna II*, adherence of a standardizing body to the six principles is referred to as a criterion in the characterization of a “relevant international standard.”³¹

Promoting Good Regulatory Practices

Less well-known but deeply important, the Technical Barriers to Trade Agreement and Committee promote regulatory cooperation and the dissemination of good regulatory practices, which are integral for ensuring regulatory quality and coherence. *Good regulatory practices*, according to one definition, are “internationally recognized processes, systems, tools, and methods to improve the quality of regulations and ensure that regulatory outcomes are effective, transparent, inclusive and sustained.”³² These principles and mechanisms typically include domestic coordination of regulation, transparency, public consultation, and

impact assessment. Other examples of good regulatory practices include, at a minimum, reducing the burden on industries to provide technical assistance to developing countries, and engaging in cooperation between governments.

Provisions of the Technical Barriers to Trade Agreement and the work of its corresponding Committee support the dissemination of good regulatory practices and their incorporation into the regulatory frameworks of WTO members. Strong transparency obligations, especially those requiring the notification of draft technical regulations and conformity assessment procedures—which are not based on international standards and create significant barriers to trade—help ensure the design of high quality and cost-effective regulations. These notifications invite other WTO members to comment on regulations at an earlier stage, which can contribute to improved and more effective regulations.

In addition, World Trade Organization members have an opportunity to raise issues concerning Technical Barriers to Trade measures of other members, in relation to notifications or otherwise, in discussions of specific trade concerns. Specific trade concerns discussions at Technical Barriers to Trade Committee meetings play an important role as they help to prevent disputes by addressing tensions through early dialogue and a more informal channel of government-to-government discussions. On the other hand, they increase regulatory quality by drawing regulators' attention to deficiencies in discussed regulations. These discussions essentially function as a peer-review of draft and existing Technical Barriers to Trade measures. From the perspective of carbon regulations and standards, specific trade concerns discussions are particularly valuable because they provide the opportunity to promote new regulatory areas, clarify new regulations, and enable the exchange of new regulatory experiences.

At the Technical Barriers to Trade Committee, most specific trade concerns related to carbon measures have been over carbon emission standards for cars, carbon emissions

standards for fuels and energy efficiency requirements on various products, such as air conditioners, comfort fans, lamps and vacuum cleaners.³³ The most common complaints included the methodology chosen for the calculation of life cycle carbon or energy intensity of products, trade restrictiveness of regulations, as well as short transition periods provided for the implementation of regulations. In all these cases, discussions between a member introducing standards and those expressing their concerns were helpful in clarifying the regulations and reducing trade tensions. In cases where the regulations are not yet adopted, the discussions can help inform and influence the final design of the measure. The exchanges also create an opportunity to improve regulatory cooperation, provide testing ground for new regulation, and minimize the creation of unintended trade barriers.

Carbon labeling featured prominently in the specific trade concerns discussions over the French proposed legislation on carbon labeling.³⁴ WTO members raising this specific trade concern were primarily concerned with the mandatory nature of the proposed carbon labeling scheme. They called on French authorities to consider the fact that carbon labeling involved considerable time and increased cost for manufacturers and exporters. In addition, they appealed to the principle of common but differentiated responsibilities of the international climate change regime for the needs of developing countries and the unfair discrimination of products if the carbon associated with the product is based solely on its transportation distance. It should be noted that the final French legislation left carbon labels as voluntary measures. France introduced carbon labeling for a one-year trial phase to assess the feasibility of labeling and took an active part in the development of the International Organization for Standardization 14067 standard.

Specific trade concerns have also been raised over the European Union proposal to ban products containing hydrofluorocarbons, particularly refrigerators.³⁵ Concerned members complained about the exclusion of their stakeholders from the process of developing the

regulation and noted the technical difficulties of phasing out hydrofluorocarbons by 2020, since no alternative refrigerants had been developed to date that were both sufficiently safe and had low global warming potential. The European Union accommodated these concerns by abandoning the aim of a total phase-out of hydrofluorocarbons by 2020. It introduced only specific bans for a limited number of appliances for which acceptable alternatives were available.

The Technical Barriers to Trade Committee also contributes to the dissemination of good regulatory practices through its normative work by developing guidance and adopting decisions. Apart from the six principles with respect to international standards, the Committee adopted a series of guidelines essential for the fulfillment of transparency obligations.³⁶ Moreover, the Committee organizes workshops and thematic sessions to facilitate the exchange of regulatory experiences among WTO members and it provides technical assistance to enhance the institutional capacity of developing countries. Working on the details of implementation and filling the regulatory gaps of the Technical Barriers to Trade Agreement, the Committee acts as a catalyst of regulatory cooperation and a laboratory for good regulatory practices in general.³⁷

While the Technical Barriers to Trade Committee plays an important role in overseeing WTO members' notifications of technical regulations and conformity assessment procedures, there is no equivalent body under the United Nations Framework Convention on Climate Change framework. Potentially, the Technical Barriers to Trade Committee's institutional role in the WTO and transparency-related working practices could be relevant for the United Nations Framework Convention On Climate Change's Forum on Response Measures, which is intended, *inter alia*, to monitor the implementation of domestic mitigation measures and their adverse impacts. Currently, cooperation between WTO and the climate change bodies takes place horizontally and in connection with the Committee on Trade and

Environment. The United Nations Framework Convention on Climate Change provides regular updates to the Committee on Trade and Environment and cooperation also extends to information exchange sessions and technical assistance, but there are opportunities for deeper institutional learning involving other World Trade Organization bodies.

Using Trade to Enhance Regulatory Cooperation on Carbon Standards

The Technical Barriers to Trade Agreement and Committee offer many opportunities to improve carbon standards' governance for the benefits of both trade and climate change. However, very few of them have been seized. In our view, one pragmatic way forward is using the trade system to enhance international regulatory cooperation. Such an approach does not require the negotiation of new rules, which may take considerable time to conclude and a common political will to launch.

Regulatory cooperation is more flexible for and adaptable to promoting quality and coherence. The Organisation for Economic Co-operation and Development has developed a working definition of international regulatory cooperation as “any agreement, formal or informal, between countries to promote some form of cooperation in the design, monitoring, enforcement, or ex post management of regulation.”³⁸ International regulatory cooperation between trading partners takes various forms, ranging from dialogue and exchange of information to negotiating specific agreements. Globalization has made it increasingly indispensable for regulators in different jurisdictions to cooperate to achieve domestic policy objectives.

Regulatory cooperation helps promote core principles, such as non-discrimination, and encourages regulators to think of impacts outside their own borders. International regulatory cooperation also promotes principles of good regulatory practices such as transparency, non-discrimination, and the use of international standards. In the Technical

Barriers to Trade area, WTO members have underlined that international regulatory cooperation is an effective means of disseminating good regulatory practices across borders.³⁹ WTO members have also emphasized that it can help build confidence between trading partners through enhancing mutual understanding of regulatory systems. This often leads to mutual recognition of standards adopted in different jurisdictions and ultimately the harmonization of technical regulations and standards for the minimization of compliance costs in different markets.⁴⁰ More importantly, such regulatory cooperation not only facilitates trade, but by promoting better quality of regulations and standards, it also brings societal advantages, including increased product safety and environmental protection.⁴¹

In the context of the World Trade Organization, a fundamental starting point of regulatory cooperation is to improve transparency through information exchange. WTO members have obligations of notifying draft technical regulations and conformity assessment procedures. Following notifications, other members have the opportunity to submit comments on draft measures. While the exchange of comments and replies takes place between governments, stakeholders have the opportunity to engage their government representatives because notifications are made public. Notifying draft regulations and gathering comments regarding the design and impact of measures may in turn help improve regulatory quality and effectiveness.

Complex regulatory areas such as carbon emissions can benefit from the Technical Barriers to Trade Agreement's promotion of cooperation. It may even be possible to use the Technical Barriers to Trade Agreement to trigger dialogue and cooperation at a very early stage when regulations and standards are just beginning to take shape and have not yet been notified. Article 2.9.1 of the Technical Barriers to Trade Agreement encourages WTO members to publish notices of their intentions—in other words, when technical regulation

development process has just started. Although it usually attracts little attention, it is an avenue that could be worth exploring.

Experience shows that an early-stage cooperation among governments takes place in regulatory systems that have established procedures for public consultation. The public consultation process is integral as it provides a possibility for all stakeholders, including foreign governments and companies, to influence the final shape of a regulation by providing feedback at various stages of its development. While this kind of consultation is practiced in a number of countries, the multi-stakeholder domestic consultation process is not yet widespread. It is therefore important to encourage and support WTO members to incorporate the good regulatory practice of establishing public consultation processes in their national regulatory systems.

The public consultation process, for instance, can be found on the illustrative list of good regulatory practices prepared on the mandate of the Sixth Triennial Review.⁴² This list was meant to support members in the incorporation of good regulatory practices into their regulatory systems. The adoption of the list by the Technical Barriers to Trade Committee would give useful guidance on promoting good regulatory practices, including the public consultation processes and regulatory cooperation.

Another important precondition for regulatory cooperation, especially when considering developing countries, is capacity building and related technical assistance. The WTO secretariat implements technical assistance, a clear priority area for the Technical Barriers to Trade Committee, through training courses and workshops for government officials from developing countries. However, enhancing knowledge is only part of capacity building and often needs to be accompanied by the development of hard as well as soft quality infrastructure. To this end, there have been several proposals in the Technical Barriers to Trade Committee to establish a program that supports compliance with international

Technical Barriers to Trade standards similar to the Standards Trade and Development Facility, which concerns food safety, and animal and plant health.⁴³

Finally, improvements in governance of carbon standards are not possible without the cooperation between governments and private standard-setting organizations. Carbon standards and label schemes managed by private companies are usually beyond the control of governments alone. Public-private sector cooperation is thus essential to bring these standards in coherence and ensure their high quality. The European Union biofuel sector provides a good example of cooperation between the government and private certification and label schemes.⁴⁴ The European Commission recognizes that private certification schemes can be used for the purposes of compliance with the European Union's renewable energy targets. Certification schemes receive recognition for five years if they meet the Commission's criteria and undergo an independent third-party audit. The European Union also cooperates with private standard-setting companies in other major areas of standardization. The majority of European Union standards are developed by private standardizing bodies (e.g. the European Committee for Electrotechnical Standardization or the European Committee for Standardization and European Telecommunications Standards Institute) under the mandate of the European Commission, aimed at determining the criteria for conformity with legislation requirements.⁴⁵ Despite these promising standardization pathways, non-traditional, standard-setting bodies have started various initiatives with far less cooperation and coordination. This poses a challenge for our traditional understanding of international regulatory cooperation as an activity between government regulators.

Conclusions

The Technical Barriers to Trade Agreement lays the foundation for the international regulation of technical regulations, standards, and conformity assessment procedures, and is

aimed at ensuring that public policy objectives are pursued without being unnecessarily trade restrictive. Some of the key tools for striking this balance are the Agreement's rules on transparency, non-discrimination, and harmonization of regulations based on international standards. Practices developed by the Technical Barriers to Trade Committee, such as the process of comments on draft regulations, periodic reviews of the Agreement's implementation, the raising of specific trade concerns, and the provision of technical assistance to meet capacity gaps have helped to keep the Agreement relevant. However, new challenges such as climate change require new and adaptable regulatory solutions. We submit that the intensification of regulatory cooperation is a key pragmatic approach to addressing the needs of climate change policy. Increased cooperation would contribute to addressing the problem of diversity and poor environmental integrity of carbon standards applied across different markets. Ranging from information exchange and sharing best regulatory practices to bilateral regulatory cooperation arrangements with elements of harmonization, different forms of regulatory cooperation can contribute to regulatory quality and coherence of carbon standards. Governments should rely on already established mechanisms of bilateral cooperation between their regulatory agencies, but also make use of multilateral platforms like the WTO's Committee on Technical Barriers to Trade and the Committee on Trade and Environment to promote regulatory cooperation on climate change standards.⁴⁶

Positive experiences with increased regulatory cooperation could inspire the design of an implementation mechanism under the Paris Agreement, or promote increased transparency and regulatory cooperation within the United Nations Framework Convention on Climate Change. Beyond the scope of this paper, there are also interesting opportunities for climate change bodies to learn from the World Trade Organization on how to establish mechanisms for monitoring and regularly reviewing climate change policies based on the experience of trade policy reviews. When we strive for greater intergovernmental regulatory cooperation,

we should at the same time be mindful that because private standards constitute the vast bulk of carbon-related standards, government-to-government cooperation will not be sufficient. Governments need to more effectively engage the private sector when striving to implement climate change laws and policies, and encourage more transparent regulatory dialogue among standard-setting organizations. With this new generation of private standard-setting organizations, international governments need to engage in meaningful and transparent dialogue if international regulatory cooperation is to be truly effective.

Notes

¹ “Walmart Launches Project Gigaton to Reduce Emissions in Company’s Supply Chain,” *Walmart*, Accessed January 27, 2019, <https://news.walmart.com/2017/04/19/walmart-launches-project-gigaton-to-reduce-emissions-in-companys-supply-chain.>; For example, Walmart’s joint initiative with the Environmental Defense Fund has reduced the company’s cumulative supply chain emissions over the last five years by 28 million metric tons of carbon dioxide. Walmart has also recently pledged to cut its cumulative emissions by one billion tons by 2030.

² World Trade Organization, “Environmental Database for 2016,” WT/CTE/EDB/16, 7 (June 18, 2018), https://docs.wto.org/dol2fe/Pages/FE_Search/DDFDdocuments/246050/q/WT/CTE/EDB16.pdf.

³ UN Framework on Convention on Climate Change, “Intended Nationally Determined Contribution of Viet Nam,” 5-6, accessed January 27, 2019, <https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Viet%20Nam%20First/VIETNAM'S%20INDC.pdf>; The NDC of Vietnam, for instance, lists standards for fuels and labels on energy-saving equipment among measures that Vietnam intends to take to support the achievement of its mitigation target.

⁴ Two areas of trade in goods are excluded from the TBT Agreement: sanitary and phytosanitary measures and government procurement specifications.

⁵ Arthur Appleton, “Private Climate Change Standards and Labelling Schemes under the WTO Agreement on Technical Barriers to Trade,” in *International Trade Regulation and the Mitigation of Climate Change: World Trade Forum*, ed. T. Cottier, O. Nartova and S. Z. Bigdeli (Cambridge: Cambridge University Press, 2009): 148-180.

⁶ Kateryna Holzer, *Carbon-related Border Adjustment and WTO Law* (Cheltenham: Edward Elgar Publishing, 2014), 25.

⁷ Kateryna Holzer and Thomas Cottier, “Addressing Climate Change under Preferential Trade Agreements: Towards Alignment of Carbon Standards under the Transatlantic Trade and Investment Partnership,” *Global Environmental Change* 35 (November 2015): 518, <https://doi.org/10.1016/j.gloenvcha.2015.06.006>.

⁸ Holzer and Cottier, “Addressing Climate Change,” 518.

⁹ “The Safer Affordable Fuel Efficient (SAFE) Vehicles Proposed Rule for Model Years 2021-2026,” Environmental Protection Agency, accessed January 27, 2019, <https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-proposed>.

¹⁰ Council of the European Union, *Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources – Analysis of the final compromise text with a view to agreement Interinstitutional File: 2016/0382 (COD)*, (Brussels: June 21, 2018), <http://data.consilium.europa.eu/doc/document/ST-10308-2018-INIT/en/pdf>.

¹¹ Holzer, *Carbon-related Border Adjustment and WTO Law*, 26-27.

¹² Shane Baddeley, Peter Cheng, and Robert Wolfe, “Trade Policy Implications of Carbon Labels on Food,” *Estey Centre Journal of International Law and Trade Policy*, Canadian

Agricultural Trade Policy and Competitiveness Research Network Commissioned Paper
2011-04 (October 2011): 8,

https://www.researchgate.net/publication/227366030_Trade_Policy_Implications_of_Carbon_Labels_on_Food.

¹³ Simon Bolwig and Peter Gibbon, “Emerging product carbon footprint standards and schemes and their possible trade impacts,” Danmarks Tekniske Universitet, Risø Nationallaboratoriet for Bæredygtig Energi, Denmark: Forskningscenter Risoe, Risoe-R; No. 1719(EN), (2009), 6.

¹⁴ Baddeley, Cheng and Wolfe, “Trade Policy Implications of Carbon Labels on Food,” 8.

¹⁵ Misato Sato, “Embodied carbon in trade: A Survey of the Empirical Literature,” *Journal of Economic Surveys* 28 (2013): 831-836, doi.10.1111/joes.12027, 2; Sylvain Weber, Reyer Gerlagh, Nicole A. Mathys, and Daniel Moran, “CO₂ Embedded in Trade: Trends and Fossil Fuel Drivers,” *Centro Studi Luca d’Agliano Development Studies Working Paper* no. 413 (January 2017): 2-3, <http://dx.doi.org/10.2139/ssrn.2980899>.

¹⁶ Yvonne Feucht and Katrin Zander, “Consumers’ attitudes on carbon footprint labelling: Results of the SUSDIET project,” *Thünen Working Paper*, no. 78 (2017): 45-46, <http://dx.doi.org/10.3220/WP1507534833000>.

¹⁷ Panagoitis Delimatsis, “Sustainable standard-setting, climate change and the TBT Agreement,” in *Research Handbook on Climate Change and Trade Law*, ed. P. Delimatsis (Cheltenham: Edward Elgar Publishing, 2016), 157.

¹⁸ World Trade Organization, “Summary Report of the Information Session on Product Carbon Footprint and Labelling Schemes,” Note by the Secretariat, WT/CTE/M/49/Add.1 (May 28, 2010), https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=233139,225140,129047,120781,113672,102941,101

033,104255,66937,66261&CurrentCatalogueIdIndex=6&FullTextHash=&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True, 2.

¹⁹ Baddeley, Cheng and Wolfe, “Trade Policy Implications of Carbon Labels on Food,” 9.

²⁰ Appleton, “Private Climate Change Standards,” 147.

²¹ Bolwig and Gibbon, “Emerging product carbon footprint standards,” 26.

²² World Trade Organization, “US-Tuna II (Mexico): United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products, Appellate Body report,” WT/DS381/AB/R, (May 16, 2012), para. 322, https://www.wto.org/english/tratop_e/dispu_e/cases_e/1pagesum_e/ds381sum_e.pdf.

²³ Baddeley, Cheng and Wolfe, “Trade Policy Implications of Carbon Labels on Food,” 22.

²⁴ The use of carbon standards and labels has been discussed on several occasions as part of specific trade concerns (STCs) and at thematic sessions and workshops. See e.g., WTO, “Summary Report of the Information Session on Product Carbon Footprint and Labelling Schemes.”

²⁵ World Trade Organization, *Agreement on Technical Barriers to Trade*, 1868 U.N.T.S. 120, Article 4.1 (Geneva, 1979).

²⁶ However, standard-setting bodies have to notify their work programs. The TBT Information Management System (TBT IMS) provides a link to the website of the WTO ISO Standards Information Service, where these notifications can be found.

²⁷ Erik Wijkström and Devin McDaniels, “International standards and the WTO TBT Agreement: Improving governance for regulatory alignment,” *WTO Staff Working Paper ERSD-2013-06* (2013): 18.

²⁸ Under the second part of Article 2.4 of the TBT Agreement, a member may depart from a relevant international standard when it would be an “ineffective or inappropriate

means for the fulfilment of the legitimate objectives pursued” by the domestic regulation.

²⁹ Attempts to clarify the term ‘relevant international standard’ have been made in WTO jurisprudence. When defining an international standard, WTO panels in *EC-Sardines* and *US-Tuna II (Mexico)* have pointed not to the characteristics of the standard but the characteristics of the standardizing body issuing the standard. An international standard is a standard, which is issued by a standardizing body recognized through reference in national standards, technical regulations or conformity assessment procedures and open to standardizing bodies of all WTO members. Importantly, standardization need not be the principal function of the body for it to be considered as having recognized activities in standardization. The larger the number of countries participating in the development of a standard, the more likely it can be said that the respective body's activities in standardization are ‘recognized’. For a more detailed analysis of jurisprudence on this point, see Alessandra Arcuri, “The TBT Agreement and Private Standards,” in *Research Handbook on the WTO and Technical Barriers to Trade*, ed. T. Epps and M. J. Trebilcock (Cheltenham: Edward Elgar Publishing, 2013), 506-511.

³⁰ Devin McDaniels, Ana Cristina Molina, and Erik Wijkström, “How does the regular work of WTO influence regional trade agreements? The case of international standards and the TBT Committee,” *WTO Staff Working Paper ERSD-2018-06* (2018): 4, https://www.wto.org/english/res_e/reser_e/ersd201806_e.pdf.

³¹ WTO, “US-Tuna II (Mexico),” para. 378.

³² Standards and Trade Development Facility, “Good regulatory practice,” accessed January 27, 2019, <http://www.standardsfacility.org/good-regulatory-practice>.

³³ Technical Barriers to Trade Agreement, World Trade Organization, 1995: ID281 Korea - Automobile standards of the efficiency of average energy consumption and allowable emission of greenhouse gases; ID307 European Union - Directive 2009/28/CE, Renewable Energy Directive (EU - RED); ID405 European Union - Fuel Quality Directive; ID408

United States - EPA Palm Oil Biofuels Regulatory Program; ID282 Canada - Proposed Amendment to the Energy Efficiency Regulations; ID321 European Union - Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for air conditioners and comfort fans; ID365 European Union - Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for directional lamps, light emitting diode lamps and related equipment; ID396 European Union - Draft Commission Regulation implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for vacuum cleaners.

³⁴ World Trade Organization, Technical Barriers to Trade Agreement, *ID306 France - Loi No. 2010-788: The National Commitment for the Environment (Grenelle 2 Law)* (1995).

³⁵ World Trade Organization, *Technical Barriers to Trade Agreement, ID391 European Union – Proposal for a Regulation on Fluorinated Greenhouse Gases* (1995).

³⁶ For instance, the recommendation on a reasonable period of 60 days for comments on notifications. See G/TBT/9, 13 November 2000, para. 13 and Annex 3, page 22. Also the reasonable period of time between publication and entry into force of normally not less than 6 months. See WT/MIN(01)/17, 20 November 2001, para. 5.2.

³⁷ Erik N. Wijkström, “The Third Pillar: Behind the Scenes, WTO Committee Work Delivers,” E15Initiative Think Piece, Geneva: *International Centre for Trade and Sustainable Development (ICTSD)* and *World Economic Forum* (2015), 3.

³⁸ Organisation for Economic Cooperation and Development, *International Regulatory Co-operation: Addressing Global Challenges* (Paris: OECD, 2013), <https://doi.org/10.1787/9789264200463-en>.

³⁹ World Trade Organization, “Fifth Triennial Review of the Operation and Implementation of the Agreement on Technical Barriers to Trade under Article 15.4,” G/TBT/26 (November 13, 2009), 4.

⁴⁰ Holzer and Cottier, “Addressing Climate Change,” 517.

⁴¹ Céline Kauffmann and Nikolai Malyshev, “International Regulatory Co-operation: The Menu of Approaches,” E15 Task Force on Regulatory Systems Coherence Think Piece, E15 Initiative, *International Centre for Trade and Sustainable Development (ICTSD)* and *World Economic Forum*, 2015, 3-4.

⁴² World Trade Organization, “Good regulatory practice (GRP): voluntary mechanisms and related principles,” report by Mr. Jingo Kikukawa to the TBT Committee, G/TBT/GEN/168 (June 24, 2014), 1.

⁴³ The STDF is a capacity-building facility founded by a number of international organizations – FAO, OIE, WB, WHO and WTO – and funded by a number of donors, in order to support developing countries (including their producers) in complying with international SPS standards, including in the area related to climate change. The annual budget of STDF is 5 million USD. See “STDF,” Standards and Trade Development Facility.

⁴⁴ Delimatsis, “Sustainable standard-setting, climate change and the TBT Agreement,” 160.

⁴⁵ Arcuri, “The TBT Agreement and Private Standards,” 500-501.

⁴⁶ For an overview of work of the Committee on Trade and Environment in connection to climate change, see Ludivine Tamiotti and Daniel Ramos, “Climate change mitigation and the WTO framework.” in *Research Handbook on Climate Change and Trade Law*, ed. P. Delimatsis, (Cheltenham: Edward Elgar Publishing, 2016), 515-516.