HANDBOOK OF

TRADE POLICY FOR DEVELOPMENT

Edited by

ARVID LUKAUSKAS
ROBERT M. STERN
GIANNI ZANINI

OXFORD
UNIVERSITY PRESS

OXFORD
UNIVERSITY PRESS

Great Clarendon Street, Oxford, OX2 6DP,
United Kingdom

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide. Oxford is a registered trade mark of
Oxford University Press in the UK and in certain other countries

First Edition published in 2013

Impression: 1

Published in the United States of America by Oxford University Press
198 Madison Avenue, New York, NY 10016, United States of America

British Library Cataloguing in Publication Data
Data available

Library of Congress Control Number: 2013941641

ISBN 978–0–19–968040–5

Printed and bound in Great Britain by
CPI Group (UK) Ltd, Croydon, CR0 4YY

Preface and Acknowledgments

This volume is comprised of chapters prepared originally for a comprehensive two- to three-week-long Trade Policy for Development Executive Course designed and offered jointly by Columbia University's School of International and Public Affairs School (SIPA) and the World Bank Institute (WBI). Incorporating also contributions from other trade specialists and the World Bank's International Trade Department, the chapters have been updated, revised, and undergone editorial review.

Although there are many textbooks that cover international trade, there is a glaring lack of books that survey contemporary trade theory, policy, and negotiations in a concise, up-to-date manner from an interdisciplinary perspective. This volume provides a comprehensive overview of the issues that dominate both academic discourse and the policymaking arena. For the most part, it emphasizes the economic and development implications of trade policy and negotiations (be it at the unilateral, multilateral, or regional fronts). But it also ensures adequate coverage of the international trade architecture and the institutional and practical aspects of policymaking and negotiations. The treatment of each issue is rigorous, yet highly accessible to anyone with a basic background in economics, law, and international political economy, as the editors asked the contributors to limit their technical presentations to avoid turning away potential readers. Moreover, the three main disciplines relevant to trade policy, economics, law, and political science are well represented in this volume.

Our hope is that this volume may be widely adopted for courses on international trade or international political economy in both graduate and undergraduate programs in departments of economics, political science, schools of public policy, and law schools. Policymakers, negotiators, middle-level government officials, external advisors, and many academics in both developed and developing countries who are engaged or interested in trade reforms or in multilateral or regional/bilateral trading arrangements will find this volume to be an important and comprehensive reference source for all the key issues.

The editors wish to acknowledge Columbia/SIPA and the WBI for generous financial and logistical support for this project. We owe special thanks to Judith Jackson for her efforts in handling all of the manuscripts and preparing them for publication.

June 28, 2013
Arvid Lukauskas
Robert M. Stern
Gianni Zanini

UN/CEFACT (2004), 'Recommendation No. 33: Single Window Recommendation.' Geneva: United Nations, ECE/TRADE/352: 37, and CEFACT.
UN/CEFACT and UNCTAD (2002), 'Compendium of Trade Facilitation Recommendations.' Geneva: United Nations, UN. ECE/TRADE/279, and CEFACT.
WCO (1999), 'Revised Kyoto Convention: International Convention on the Simplifications and Harmonization of Customs Procedures.' Brussels: World Customs Organisation.
WCO (2007), 'WCO SAFE Framework of Standards.' Brussels: World Customs Organisation.
Wilson, J. S., et al. (2003), 'Trade Facilitation and Economic Development: A New Approach to Quantifying the Impact.' *World Bank Economic Review*, 17(3): 367–89.
Wilson, J. S., et al. (2004), 'Assessing the Potential Benefit of Trade Facilitation: A Global Perspective.' *Policy Research Working Papers*, World Bank, WPS 3224.
WTO. (1998), 'WTO: A Training Package; What is Trade Facilitation?' Retrieved 2 August, 2006, from <http://www.wto.org/english/thewto_e/whatis_e/eol/e/wto02/wto2_69.htm#note2>.
WTO (2010), 'Draft Consolidated Negotiating Text. Negotiating Group on Trade Facilitation.' Geneva: WTO, TN/TF/W/165/Rev.4.

CHAPTER 29

TRADE AND ENVIRONMENT

STEVE CHARNOVITZ

I. Introduction

International policies on trade and on environment have always intersected.[1] The earliest multilateral environmental agreement (MEA), the Convention for the Protection of Birds Useful to Agriculture, signed in 1902, utilized an import ban as an environmental instrument.[2] The earliest multilateral trade agreement to pursue trade liberalization, the Convention for the Abolition of Import and Export Prohibitions and Restrictions, signed in 1927, contained an exception for trade restrictions imposed for the protection of public health and the protection of animals and plants against diseases and against "extinction."[3] As environmental regimes evolved over the twentieth century, trade instruments continued to be used by governments seeking workable environmental protection. When the post-war multilateral trading system was designed in 1947–48, governments recognized the need for some policy space to accommodate the use of trade measures as instruments to safeguard the environment and health. For example, the General Agreement on Tariffs and Trade (GATT) of 1947 contained provisions in Article XX (General Exceptions) to accommodate governmental measures necessary for the protection of life and health and measures relating to the conservation of natural resources.

In these first generation "trade and environment" policies, the two regimes recognized some linkage to the other, but did not actively look for ways to enhance each other's goals. For example, the Convention on International Trade in Endangered Species

[1] Some related material on the "trade and health" linkage will also be covered in this chapter. The "trade and health" linkage regarding generic drugs will not be covered. See the Appendix at the end of the chapter for definitions and discussion of core definitions and concepts pertinent to issues of trade and environment.

[2] Convention for the Protection of Birds Useful to Agriculture, March 19, 1902, 102 BFSP 969, Art. 2 (no longer in force).

[3] Convention for the Abolition of Import and Export Prohibitions and Restrictions, November 8, 1927, 97 LNTS 391, Art. 4, ad Art. 4 (not in force).

of Wild Fauna and Flora (CITES), signed in 1973, used trade bans as a central instrument for the management and enforcement of wildlife policies. For many years, however, CITES was not fully attentive to how controlled trade could enhance sustainable management. Similarly, the GATT system was often not attentive to how its normative activities to address non-tariff barriers were being perceived in the environmental community as a challenge to the legitimacy of environmental measures. With few exceptions, until the early 1990s, there was very little communication between trade officials and environment officials operating at the international level and not much more at the national level. As a result, the trade effects of environmental laws and regulations were often not considered by the governments imposing them. Similarly, the environmental effects of trade and investment liberalization and the impact of trade law disciplines were often not considered.

The private sectors of all countries want to export more, and governments share that goal in order to increase gross domestic product (GDP), create jobs, and satisfy political export interests. Although the products to be exported will typically satisfy the environmental and health regulations of the country of production,[4] there will be a great challenge in meeting the regulations of each of the potential importing countries. Some of the problems will be lack of transparency of regulations, the differences between various countries, and sometimes conflicts among those regulations. Exporters face an equally difficult challenge in meeting the non-governmental "standards" prescribed through market mechanisms. Such standards are not legally coercive, but voluntary markets are coercive in the sense that an exporter may only be able to sell its product to another country if it meets the private standards prescribed in that country. Privately prescribed standards are particularly extensive on matters of environment, safety, and health. The norms and perceptions in developed countries on some issues may be different from the norms and perceptions in developing countries.

As a result of the "trade and environment" debate beginning in the early 1990s, there is now much greater understanding of these linkages. Trade officials at the World Trade Organization (WTO) and in national capitals are much more aware of the links between trade and environment and say that they are committed to avoiding conflicts. Similarly, there is greater recognition by environmental officials as to how trade restrictions can be overused or misused in the pursuit of environmental goals. In the Doha Development Trade Round, two of the issues being negotiated have the potential for delivering benefits both to expand trade and to enhance environmental protection. The two issues are liberalization of environmental goods and services (EGS) and the development of disciplines for harmful fishery subsidies.

This maturation in "trade and environment" policy is owed to commitments by governments to address this policy linkage and was facilitated by analytical work and discussions occurring over many years in the GATT/WTO. Equally important, the progress made within the trading system is owed, at least in part, to the parallel efforts

[4] During the GATT era, there was attention to the phenomenon of export of domestically prohibited goods, but that concern has not been pursued in recent years.

in other international organizations to improve understanding of trade–environment linkages. Most noteworthy were the programs in the UN Environment Programme (UNEP), the Organisation for Economic Co-operation and Development (OECD), the UN Conference on Trade and Development (UNCTAD), and the World Bank, all of which have devoted resources to studying trade and environment linkages. Additionally, considerable credit should be given to many foundations, non-governmental organizations (NGOs), institutes, and business groups that devoted attention to these issues from the early 1990s forward.

Several initiatives have been undertaken to head off or resolve tensions between importing and exporting countries on the interface of environment or health, on the one hand, and trade on the other. For example, the UN Food and Agriculture Organization (FAO) and UNCTAD have teamed up with the International Federation of Organic Agricultural Movements to co-sponsor the International Task Force on Harmonisation and Equivalence in Organic Agriculture. Another fruitful collaboration involves UNCTAD and Brazil's National Institute of Metrology, Standardization, and Industrial Quality which have established a Consultative Task Force on Environmental Requirements and Market Access for Developing Countries. Still another is the Sustainable Trade and Innovation Centre co-sponsored by the European Commission, the French Ministry for the Environment, the Commonwealth Science Council, and the European Partnership for the Environment. The Centre has undertaken pilot projects on textiles and electronics.

Of course, the fact that international policy on "trade and environment" is more coherent and constructive now than it was in the 1980s and 1990s does not mean that this level of progress is sufficient or that the underlying problems have been solved. Environmental problems will always be a challenge on a planet where governmental units do not exactly match ecosystems. Another way of saying this is that, so long as the policies in one country can impose externalities on other countries, and so long as prices in the market are not fully reflective of environmental costs, there will be a need for international governance to manage the trans-border conflicts that will inevitably ensue. In a speech, WTO Director-General Pascal Lamy (2006) explained that governance "is a decision-making process that through consultation, dialogue, exchange and mutual respect, seeks to ensure coexistence and in some cases coherence between different and sometimes divergent points of view." This will be a key challenge for global governance in the twenty-first century

Because all major ecological problems affect the world economy—for example, climate change, biodiversity, forestry, fisheries, and pollution—linkages between the world trading system and environmental policies are inevitable. In Lamy's paradigm, there is a need for governance because individual governments acting alone will not, as a practical matter, adopt policies that are efficient on a global scale. Although individuals can act in a self-interested way in the market knowing that an invisible hand exists to help generate efficient outcomes, the same overall pro-efficiency dynamic does not automatically ensue in global politics if governments act only in a self-interested way toward other countries.

One of the contributions of the late environmentalist, Konrad von Moltke, about 20 years ago, was the axiom that "unmanaged environmental problems become trade problems." There are two insights in this axiom. The first is that major environmental problems can never be definitively solved; new developments will always spawn new problems that require new solutions and better management. The second insight is that governments need to cooperate to solve environmental problems, and when such cooperation is not forthcoming, a government stymied in getting the cooperation it seeks may resort to a trade measure. This dynamic of environmental problems spilling out into the trading system can be seen in all of the major trade–environment conflicts to date.

An example is the danger in the proposals being made for a climate tax or tariff to be imposed on imports from countries that did not ratify the Kyoto Protocol to the UN Climate Change Convention or are not controlling their greenhouse gas emissions.[5] Because many governments are not cooperating on addressing greenhouse-gas emissions and other energy conservation challenges, there is frustration spilling out into the trade arena. In the case of climate change, trade measures are being suggested as a way either to level the playing field between countries with different levels of energy tax or to induce free riding countries to better cooperate.[6]

Because the WTO is a functional international organization with a mandate for trade, WTO law does not generally address government policies beyond trade, but rather leaves those issues to environmental institutions. This approach has clear advantages and disadvantages. The advantage is that the WTO sticks to its technical competence and leaves environmental decisions to organizations with that technical competence. The disadvantage is that, in trade and environment, the WTO looks only at one side of a problem. For example, in the United States–Shrimp case, the WTO considered the appropriateness of the US import ban directed at countries that the US government believed were not adequately protecting sea turtles. But the WTO did not consider whether the complaining governments *were* adequately protecting sea turtles. Because it is partial rather than holistic, WTO dispute settlement may not be able to achieve a satisfactory solution to complex disputes that involve both trade and environmental values.

This legal point has an analog in the economic critiques of international trade law and WTO negotiations that point to the uncertainty as to whether trade liberalization will always benefit the participating countries. For example, the impact of services regulation on an economy will depend to some extent on whether the liberalizing government has an adequate regulatory regime in place. In other words, an adequate regulatory regime can be viewed as a precondition of fully benefiting from trade liberalization. The same point can be made regarding whether a government has in place an adequate legal system, effective competition policy, openness to investment, adequate assistance for workers and farmers, and well-administered environmental controls. All of these policy

[5] For example, see Bennhold (2007).

[6] See WTO and UNEP (2009), pp. 98–110; Houser et al. (2008).

preconditions have in common the fact that the WTO generally does not have rules assuring that non-trade policies are adequate for trade liberalization. In other words, the trade and environment regimes are not synchronized in law.

The same point can be seen in "trade distorting," a term used regularly in the WTO. For example, subsidies and non-tariff barriers are disciplined because they can be trade distorting. Yet, while the WTO disfavors trade-distorting governmental measures, the WTO has no rules about environment-distorting government policies (i.e., government policies that tolerate or cause harmful environmental change). The absence of rules in the WTO on environment (or "rights" to the environment) can be contrasted to the presence of positive rules in the WTO on intellectual property rights, namely the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). As the WTO Secretariat has observed, the TRIPS Agreement "is to date the most comprehensive multilateral agreement on intellectual property."[7]

Seen against that WTO law backdrop, the inclusion of environmental issues in the Doha Round negotiations is especially noteworthy because negotiations are explicitly considering some environmental distortions. In the Rules negotiations, negotiators are considering disciplines on fisheries subsidies that weave in resource sustainability. In the Agriculture negotiations, the negotiators are considering "non-trade" concerns that include the protection of the environment. Unlike the proactive orientation of the fisheries negotiation, the Agriculture negotiations are more modest in seeking to preserve domestic policy space for environment-related subsidization.

Beginning with Agenda 21 (1992), governments have affirmed that trade and environment policies should be "mutually supportive in favour of sustainable development."[8] This mantra is inscribed in the Doha Ministerial Declaration where the WTO members state that "We are convinced that the aims of upholding and safeguarding an open and non-discriminatory multilateral trading system, and acting for the protection of the environment and the promotion of sustainable development can and must be mutually supportive."[9] This phraseology has been adoptable because there is something in it for all sides of the debate. Those who view the trading system as already supportive of the environment can point to the way that trade can positively contribute to environmental goals. On the other hand, those who are skeptical of the benefits of trade for the environment see the mutual supportiveness as a commitment by the WTO to carry out the Doha Agenda in a way that actually does deliver some environmental benefits. Of all trade officials, WTO Director-General Lamy has seemingly been the most committed to turning these pro-environmental aspirations in the Doha Declaration into reality. For example, in a February 2007 speech about the Doha Round, Lamy declared: "Trade, and indeed the WTO, must be made to deliver sustainable development. They are starting

[7] WTO, "Overview: the TRIPS Agreement," available at <http://www.wto.org/english/tratop_e/trips_e/intel2_e.htm>.

[8] UN Conference on Environment and Development, Agenda 21, para. 2.21(b).

[9] Doha Ministerial Declaration, WT/MIN(01)DEC/1, November 14, 2001, para. 6.

to."[10] In June 2010, Lamy reiterated that "Trade opening has much to contribute to the fight against climate change and to the protection of the environment..."[11]

A map of trade and environment issues would consider all the interconnections among international trade, the natural and human environment, governmental trade or environmental measures, international trade law, and international environmental law. Thus, it would consider markets, the physical world, and also the legal aspects on both the national and international planes. The optimal analytical tools for thinking through the challenges of trade and the environment would include theories and practice of trade economics, environmental economics, trade law, environmental law, public choice, international relations, and organizational behavior. This chapter emphasizes the legal dimension.

The economic perspective on trade and environment is important. Given capital mobility and open trade, concerns have been raised that investors will seek to move capital and production facilities to countries with lower environmental standards on the assumption that export opportunities can be most profitable when production occurs in countries with low production costs. This alleged phenomenon has been termed a "polluter haven," and critics see two problems. One is that the low standards in the host country will harm the environment in that country. The other is that exports produced under such standards are unfair trade because there is not a level playing field. Another allegation has been that some governments will seek to lower their standards as a means of attracting investment, and that will produce a dynamic that will artificially suppress environmental standards. This dynamic is called "race to the bottom." Considerable research has been done on both of these alleged problems, and some evidence exists to support these propositions. Yet most available evidence shows that working to achieve effective environmental standards is a good development strategy for governments.[12] A number of specific case studies confirm this conclusion. For example, a case study of Brazil, sponsored by the OECD, found that the stronger environmental legislation in the 1980s improved environmental enforcement in the early 1990s, and trade liberalization in the early 1990s has led to increased public and private investment in Brazil.[13]

Analysts of the impact of trade on the environment often distinguish between effects stemming from changes in production patterns and those stemming from changes in income. Production effects might arise, for example, when greater opportunities for trade boosts production and thereby increases pollution or deforestation. Income effects arise when trade leads to higher income for a country, and that induces greater consumption (which could put stress on the environment) and greater demand for environmental quality (which could translate into stronger environmental regulation).[14]

[10] WTO (2007).

[11] WTO (2010a).

[12] See Nordström and Vaughan (1999); Busse (2004); and Grether et al. (2006).

[13] See Lucon and Rei (2006).

[14] These and other potential effects of trade are carefully analyzed in Cosbey et al. (2005). The effect of higher income on pollution is sometimes seen as an inverted U curve, which is called an environmental Kuznets curve. (The Kuznets curve shows the effects of higher income on economic inequality.)

Many pathways of interaction have been identified. The structural and scale effects of trade on the environment involve the environmental benefits of greater specialization and the more efficient use of natural resources.[15] On the other hand, resource or pollution-intensive sectors may grow faster due to trade and investment, as they have in Vietnam.[16] The income effects of trade enable higher-income liberalizing countries to devote more financial resources toward environmental remediation.[17] The technology effects of trade involve the less costly availability of new pollution control technologies. In addition, there are physical effects of trade on the environment, such as the introduction of invasive species and the movement of hazardous waste. The net effect of trade on the environment depends on the interplay of the various factors (such as scale, structure, income, and technology). The induced effect also depends on the changes in environmental policy in the liberalizing country.

II. Guide to WTO Legal Provisions Addressing the Environment

This section provides background on the various provisions of WTO law that address the environment. The Marrakesh Agreement Establishing the World Trade Organization (WTO Agreement) mentions the environment in its Preamble. Specifically, the preambular language suggests that the parties recognize:

> ...that their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, and expanding the production of and trade in goods and services, while allowing 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 economic development.

The Appellate Body has stated that the WTO Preamble informs the interpretation of the WTO covered agreements, and the jurists used the language above in the US–Shrimp case to help interpret the WTO provisions at issue.[18] The Appellate Body has used other language in the WTO Preamble in two other cases.

[15] See, for example, Vilas-Ghiso and Liverman (2006). Scale effects are the increase in pollution, holding industrial structure constant; in reality, an economy always has structural/compositional changes.

[16] See Mani and Jha (2006), who note that trade liberalization has led to potentially adverse environmental consequences in toxic pollution intensive sectors.

[17] Greater trade openness will "help increase demand for environmental quality..." WTO (2010b).

[18] The WTO Appellate Body is the highest court in the WTO judiciary.

The foundational WTO agreement on trade in goods, the GATT, contains General Exceptions to all rules in that Agreement, including the disciplines governing import bans, domestic taxes, and border tax adjustments. Although most environmental measures can be carried out without infringing WTO rules, a trade-related environmental measure (TREM) may come into conflict with trade rules if the environmental regulatory distinction leads to different treatment when two products are "like." If two products are not like, then the GATT's non-discrimination rules do not apply.

With respect to the environment, Article XX (General Exceptions) states:

> Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:
> ...(*b*) necessary to protect human, animal or plant life or health;
> ...(*g*) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;

The introductory paragraph to Article XX, known as the "chapeau" has been interpreted by the Appellate Body as a condition for the use of any of the Article XX exceptions. Under the chapeau, the challenged measure cannot be a disguised restriction on trade or arbitrary or unjustifiable discrimination between countries where the same conditions prevail. The contingent provision, "where the same conditions prevail," has received little attention in WTO jurisprudence so far and may loom more important in future cases.

The chapeau is examined after a disputed measure is found to qualify provisionally under one of the specific exceptions. Both the (b) and (g) exceptions would be usable for an environmental measure. A panel adjudicating Article XX should first consider the threshold question to see if the governmental measure being litigated fits within the range of policies covered by the exception. If so, then the specific discipline in that exception would be examined. The Appellate Body has allocated the burden of proof to the defendant government for most steps of the Article XX analysis.

For measures regarding human, animal, or plant life or health, the (b) exception requires that the measure be "necessary," and that term has been applied strictly. One early adjudication came in the *EC–Asbestos* case where the Appellate Body found that the XX(b) exception could justify the contested measure. According to the Appellate Body in that case, the term "necessary" in Article XX(b) requires that there be no reasonably available and WTO-consistent alternative measure that the regulating government could *reasonably be expected to employ to achieve its policy objectives. To determine whether a potential alternative is* reasonably available, a panel will engage in a "weighing and balancing process" that considers: (1) the extent to which the alternative measure "contributes to the realization of the end pursued," (2) whether the alternative measure would achieve the same end, and (3) whether the alternative is less restrictive of trade.[19] The relevance of the precautionary principle to Article XX(b) has not yet been addressed in dispute settlement.[20]

For measures regarding the conservation of exhaustible natural resources, the (g) exception requires that the disputed measure is "relating to" such conservation. In *US–Shrimp*, the Appellate Body ended the controversy as to whether "exhaustible" natural resources were distinguishable from renewable resources (such as turtles) by holding that exhaustible natural resources includes both living and non-living resources. The issue of whether there is an implied jurisdictional limit to Article XX(g), that is, whether the natural resources being protected by the contested measure must be within the territory of the defendant country, remains unresolved. In the *US–Shrimp* case, the Appellate Body seemed to suggest that there had to be a "sufficient nexus" to the defendant country.[21] The term "relating to" has been interpreted by the Appellate Body to require an examination of whether the general structure and design of the measure are reasonably related to the ends sought and are not disproportionately wide in scope. In addition, paragraph (g) further requires that a measure applying to imports be made effective in conjunction with restrictions on domestic production or consumption. In US–Gasoline, the Appellate Body held that this clause requires "even-handedness" in the imposition of restrictions, in the name of conservation, upon the production or consumption of exhaustible natural resources.[22]

The applicability of GATT Article XX to process related measures (PPMs) is controversial. In the *US–Shrimp* case, the Appellate Body ultimately ruled that a US import ban on shrimp from Malaysia was WTO consistent even though it was linked to Malaysia's conservation practices.[23] On the other hand, the WTO Secretariat continues to declare that: "trade restrictions cannot be imposed on a product purely because of the way it has been produced."[24] The issue of process related taxes can also raise questions regarding the exceptions in Article XX as well as the underlying GATT rules on the imposition of taxes on imported products and border tax adjustments on imported or exported products. If taxes get used more widely as an instrument to address climate change and to promote the use of clean energy, some tax disputes may be brought to the WTO. The availability of Article XX to justify measures against so-called eco-dumping or against MEA violations has not been litigated.

[19] Appellate Body Report, *EC–Asbestos*, paras. 162–72.

[20] Vranes (2009: 260–63).

[21] Appellate Body Report, *United States—Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R, adopted November 6, 1998, para. 133.

[22] Appellate Body Report, *United States—Standards for Reformulated and Conventional Gasoline*, WT/DS2/AB/R, adopted May 20, 1996, pp. 20–21.

[23] Appellate Body Report, *United States—Import Prohibition of Certain Shrimp and Shrimp Products—Recourse to Article 21.5 of the DSU by Malaysia*, WT/DS58/AB/RW, adopted November 21, 2001.

[24] WTO, "The Environment: A Specific Concern," available at <http://www.wto.org/english/thewto_e/whatis_e/tif_e/bey2_e.htm>. The Secretariat does not cite any legal authority for this assertion.

As for all WTO rules, the WTO dispute settlement system prescribes trade sanctions as an instrument to induce compliance when trade rules are being violated. Ironically, the WTO is the only international organization (other than the UN Security Council) to use trade sanctions in that manner. The implementation system for MEAs relies more on the soft powers of persuasion and capacity building. When MEAs use trade controls, the only trade blocked is the natural resource being regulated by the MEA. For example, a country violating CITES can see its exports of endangered species embargoed by CITES members.

The dispute settlement system in the WTO has adjudicated three environmental cases pursuant to the GATT (see Box 29.1).

Violations of GATT obligations were found in the *US–Gasoline* and *US–Shrimp* cases, and in the *Brazil–Tyres* case, and in all three instances, the offending government corrected the violation without sacrificing its environmental policies. The experience in all three cases demonstrates the focus of panels on the means used to achieve an environmental aim, not a second-guessing of the ends sought to be achieved. Of course, one should note that all three of these cases involved an Appellate Body decision that reversed the lower-level panel on key points. The original panel decisions, if carried to their logical conclusion, had seemed to undermine the right of a government to carry out environmental regulation that affected trade.

Besides the GATT, several other WTO agreements supervising trade in goods also include provisions pertaining to the environment:

- —The Agreement on Agriculture declares that fundamental reform is an ongoing process and committed parties to begin new negotiations in 2000. These negotiations are to take into account the so-called "non-trade concerns, including food security and the need to protect the environment."[25] The Agreement on Agriculture contains a so-called "green box" list of subsidies that have an exemption from reduction

Box 29.1 GATT-Based Trade and Environment Disputes in the WTO

Dispute	Parties	Disposition
Standards for Reformulated and Conventional *Gasoline*	Complainants: Brazil and Venezuela Defendant: United States	Complainants win case. US revises its clean air regulation
Import Prohibition of Certain *Shrimp* and Shrimp Products (the *Shrimp–Turtle* case)	Complainants: India, Malaysia, Pakistan, and Thailand Defendant: United States	Complainants win case. US revises its procedures for the import ban on turtles
Measures Affecting Imports of Retreaded *Tyres*	Complainant: EC Defendant: Brazil	Complainants win case. Brazil eliminates discrimination in favor of its Common Market partners

[25] Agreement on Agriculture, Preamble recital 6, art. 20 (c); Doha Declaration, para. 13.

commitments, so long as they have at most minimal trade-distorting effects or effects on production.[26] In this context, the color green is a traffic signal, not an environmental validator. The WTO Secretariat has opined that this green box enables governments to "capture positive environmental externalities."[27] Yet, there appears to be no research on the true value for the environment of green box subsidies.

- —The Agreement on Technical Barriers to Trade (TBT) contains a complex set of rules regarding government and private regulatory systems. A central rule is that technical regulations not be more trade restrictive than necessary to fulfill a legitimate objective. The TBT Agreement includes, among an illustrative list of objectives, the "protection of human health or safety, animal or plant life or health, or the environment."[28] The TBT Agreement also has disciplines on how governments undertake conformity assessment procedures on imports. Governments are encouraged to negotiate mutual-recognition agreements. Another TBT rule requires governments to use international standards as "a basis for" technical regulations, except when such standards would be an ineffective or inappropriate means for the fulfillment of the legitimate objectives pursued.[29] The applicability of this requirement to international environmental standards has not been well defined. The TBT Agreement defines a standard as "rules, guidelines or characteristics for products or related processes and production methods."[30] Note for example that the International Organization for Standardization has adopted two standards (ISO 14064 and 14065) on the quantification and reporting of greenhouse-gas emissions. In 2012, the Appellate Body decided the first TBT environment case.

Despite the mention of PPMs, the extent to which PPMs come within the scope of the TBT Agreement remains unclear. For example, would the sustainable fisheries label devised by the Marine Stewardship Council be a TBT measure? Another ambiguity in the TBT Agreement is whether the rules for conformity assessment by nongovernmental bodies would apply to organizations such as the Forest Stewardship Council and Green Seal.

— The Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) governs trade and domestic measures imposed to prevent risks to life or health from pests, diseases, additives, contaminants, toxins, and disease-causing organisms. The governmental responses to epidemics, insofar as the ensuing policies involve trade

[26] Ibid. Agreement on Agriculture, art. 6.1, Annex 2, paras. 2(a), 12. Among the listed subsidies are infrastructure works associated with environmental programs and payments under environmental programs. Eligibility for such payments has to be determined as part of a clearly-defined government environmental or conservation program and be dependent on the fulfillment of specific conditions. Moreover, the amount of payment has to be limited to the extra costs or loss of income involved in complying with the government program. No effort is being made in the Doha Round to regulate these subsidies.

[27] WTO, "Relevant WTO provisions: descriptions," available at <http://www.wto.org/english/tratop_e/envir_e/issu3_e.htm>.

[28] TBT Art. 2.2. See also TBT Art. 5.4. This requirement also applies to voluntary international standards.

[29] TBT Art. 5.4, para. 2.4.

[30] TBT Annex 1, para. 2.

in goods, are also governed by the SPS Agreement.[31] The SPS Agreement was written with a focus on food safety and veterinary concerns, and, at one time, trade law commentators thought that environmental regulations would be governed solely by the TBT Agreement rather than the SPS Agreement. Yet in 2006, the WTO panel in EC–Approval and Marketing of Biotech Products gave a broad interpretation to the scope of the SPS Agreement and emphasized that the Agreement could cover "certain damage to the environment other than damage to the life or health or animals or plants."[32] This precedent may mean that the disciplines of the SPS Agreement, which are among the most strict in the WTO, could collide more with TREMs in the future.

When a measure is covered by the SPS Agreement, then it will be subject to numerous rules. For example, SPS measures affecting trade have to be based on a risk assessment and cannot be maintained without sufficient scientific evidence.[33] SPS Article 3 directs governments to base their SPS measures on international standards, but allows governments to set a higher level of protection than exists in the international standard. The Appellate Body has taken note of the "the delicate and carefully negotiated balance in the SPS Agreement between the shared, but sometimes competing, interests of promoting international trade and of protecting the life and health of human beings."[34] In that holding, the Appellate Body seems to view the SPS Agreement as embodying a choice between trade and life/health. Another rule in the SPS Agreement is that regulatory measures (e.g., a maximum residue limit on pesticides) cannot be more trade restrictive than required to meet the importing government's appropriate level of protection.

—The Agreement on Subsidies and Countervailing Measures (SCM) supervises the use of domestic and export subsidies by governments, and the imposition of countervailing duties against subsidies. The SCM Agreement does not contain disciplines exclusively for environmental subsidies. Nor does the SCM Agreement incorporate the polluter pays principle. As negotiated in the Uruguay Round, the SCM Agreement contained an article (Article 8) making certain subsidies non-actionable. Listed among the non-actionable subsidies were financial contributions by governments for adapting existing facilities to new environmental requirement (subject to specified conditions). Insofar as these subsidies are used to address market failure, the SCM Agreement manifested sensitivity to the fact that some subsidies may be justifiable for economic reasons even if they distort trade. At the end of 1999, however, SCM Article 8 expired. With the expiration of this provision, an environmental subsidy can be "actionable," which means that if a subsidy is "specific" and causes "adverse effects" to the interests of other WTO members, then that subsidy would violate the SCM

[31] Measures to control cross-border travel of natural persons supplying or consuming services would be governed by the WTO Services Agreement. It is interesting to note that the World Bank (2007) counsels that trade and travel restrictions could be appropriate instruments to address an avian flu epidemic.

[32] Panel Report, *EC—Measures Affecting the Marketing and Approval of Biotech Products*, WT/DS291,292,293/R, para. 7.209, adopted November 21, 2006.

[33] SPS Arts. 2.2, 5.1. In instances where scientific evidence is insufficient, a government may provisionally impose SPS measures based on pertinent information. See SPS Art. 5.7.

[34] Appellate Body Report, *EC–Asbestos*, SPS Art. 5.7, para 177.

Agreement.[35] The remedy for such a violation would be for the subsidizing government to withdraw the subsidy or remove the adverse effects. The first green subsidy challenged under SCM was a Canadian feed-in tariff, but the WTO ruling in 2013 was inconclusive.

The foundational agreement on trade in services, the General Agreement on Trade in Services (GATS), contains General Exceptions to all rules in the Agreement. The structure of the GATS General Exceptions, found in GATS Article XIV, is similar to the structure of GATT Article XX in having a chapeau like the one in Article XX and a list of specific exceptions. The GATS includes an exception for measures necessary for the protection of life and health, but does not include an exception regarding conservation or the environment. So far, this omission has not proved significant because no environment-related service measure has been challenged in WTO dispute settlement. The Preamble to the GATS recognizes "the right of [WTO] members to regulate, and to introduce new regulations, on the supply of services within their territories . . . ."[36] Nevertheless, that language did not impede the finding of a violation in the US–Gambling case, which involves a US ban on Internet gambling without regard to whether the gambling services originate domestically or in other countries. In that dispute, the Appellate Body held that the challenged measure came within the scope of the GATS General Exception, but further held that the US measure did not qualify for an exception because the US government had not demonstrated that, with respect to horseracing, the regulations on remote gambling are not less favorable to foreign suppliers than to domestic suppliers.[37] If this decision means that governmental consistency is a precondition for a right to regulate, then that principle could work against many environmental regulations because governments may not regulate equivalent environmental risks symmetrically. One should also note that GATS Article VI contains disciplines on Domestic Regulation that could be applied to environmental measures. So far, Article VI has not been interpreted by the Appellate Body.

The foundational WTO agreement on intellectual property rights, the TRIPS Agreement, does not contain an overall environmental exception. Article 8 of the TRIPS Agreement states that WTO members "may" adopt measures necessary to protect public health and nutrition, provided that such measures are consistent with TRIPS. Thus, this provision is merely circular and may lack any content. The rules in TRIPS that would seem most likely to be in interface with environmental regulation are the requirements in Part II, Section 5, regarding the granting of patent rights to nationals of other WTO member countries. Section 5 provides that WTO members may exclude from patentability inventions if "necessary" to "protect human, animal or plant life or health or to avoid serious prejudice to the environment," and further provides that members may exclude from patentability plants and animals other than microorganisms provided

[35] SCM Arts. 1.2, 2, 5.

[36] GATS Preamble.

[37] Appellate Body Report, *United States—Measures Affecting the Cross-Border Supply of Gambling and Betting Services*, WT/DS286/AB/R, paras. 371–372, adopted April 20, 2005.

that plant varieties receive protection either through a patent or an effective *sui generis* system.[38] The meaning of these optional exclusions from patentability has not yet been explicated in WTO dispute settlement.

The Preamble to the TRIPS Agreement memorializes the desire of WTO members to "establish a mutually supportive relationship" between the WTO and the World Intellectual Property Organization (WIPO) "as well as other relevant international organizations." The WTO has moved to do so, for example, by signing a Cooperation Agreement with WIPO in 1996. In addition, the TRIPS Council has granted observer status to several international organizations such as the United Nations, the Food and Agriculture Organization, the World Bank, the International Monetary Fund, and the WIPO. Nevertheless, despite repeated requests for observer status from the Secretariat of the Convention on Biological Diversity (CBD), the TRIPS Council has not granted observer status to that Secretariat.[39] When the CBD Conference of the Parties meets, it gives observer status to the WTO, and WTO representatives do attend. The CBD welcomes the WTO and does not insist upon reciprocity.

The WTO Agreement establishes a Trade Policy Review Mechanism to examine the impact of a member's trade policies and practices on the multilateral trading system. This assessment is carried out "against the backdrop of the wider economic and development needs, policies and objective of the Member concerned, as well as of its external environment."[40] Many Trade Policy Reviews (TPRs) do take note of some ecological factors. The WTO Secretariat has not issued any analytical reports using the environmental information in TPRs.[41]

The WTO (2005) TPR on Nigeria can serve as an example. It notes that Nigeria promotes environmentally friendly farming practices, an environmental shrimp fisheries project, and has transport infrastructure policies seeking environmental sustainability.[42] On the other hand, the TPR notes that gas production leads to environmental pollution.[43] So far, however, the Secretariat has not made an effort to analyze the environment related constraints to Nigeria's trade competitiveness and its economic development. Nor does the TPR look systematically at how Nigeria's environment and trade policies support or undermine each other, and what potential there may be for new synergies in sustainable development. This omission seems a missed opportunity to put more substance behind the statement in the Doha Ministerial Declaration that "We strongly reaffirm our commitment to sustainable

[38] TRIPS Arts. 27.2, 27.2(b).

[39] WTO, Annual Report (2006) of the Council for TRIPS, IP/C/44, December 4, 2006, para. 3. Note that the Doha Ministerial Declaration states: "We welcome the WTO's continued cooperation with UNEP and other inter-governmental environmental organizations." Doha Ministerial Declaration, ibid. para. 6.

[40] WTO Agreement, Annex 3, Trade Policy Review Mechanism, Section A(ii).

[41] The most recent publicly released WTO Environmental Database goes back to 2003. See Environmental Database for 2007, WT/CTE/EDB/7, May 17, 2010. That Database excerpts the statements about the environment from several TPRs.

[42] WTO (2005: 55, 59, 80).

[43] WTO (2005: 66).

development, as stated in the Preamble to the Marrakesh Agreement."[44] Consider that in the latest Yale "Environmental Performance Index," Nigeria ranked in the bottom quarter for Sub-Saharan Africa (33 out of 41).[45]

III. Guide to the Emerging Environmental Chapter of the Doha Round

The latest round of multilateral trade negotiations, the Doha Development Agenda, was launched in 2001, and the negotiations are still ongoing at the time of writing. The Doha Agenda contains several environmental elements, which the WTO Secretariat has called the "environmental chapter." It seems very likely that if the Doha Round is successfully brought to conclusion, the results will include an environmental dimension.

The Doha Declaration sets out a negotiating agenda and a forward work program for the WTO. Paragraphs 31–33 of the Ministerial Declaration address "Trade and Environment" and other several other paragraphs reference issues that come under the trade and environment rubric.

Box 29.2 summarizes the environment-related provisions in the Doha Declaration.[46] The negotiation on MEAs was explicitly limited in two important ways to keep the most difficult and challenging issues off the table. First, the negotiations were designed to exclude trade measures incorporated into MEAs that are *not* specific trade obligations (STOs). Trade measures that are not STOs occur when an MEA has language permitting or encouraging the use of trade measures, but not requiring them—for example, the Biosafety Protocol.[47] By contrast, some MEAs rely upon STOs; for example, the Montreal Protocol on ozone protection imposes trade controls against free riders not participating in the regime. Second, the negotiations were said to exclude disputes where one WTO member is a party to the MEA and the other WTO member is not. Despite the pre-commitment to leave some key MEA issues off the table, the European Communities has sought to revive them.[48] Perhaps it did so on the grounds that the

[44] Doha Ministerial Declaration, ibid. para. 6. The Marrakesh Agreement is the formal name of the WTO Agreement.

[45] Environmental Performance Index 2012, available at <http://epi.yale.edu/>. The Index was developed by the Center for Environmental Law and Policy at Yale University and the Center for International Earth Science Information Network at Columbia University in collaboration with the World Economic Forum and the Joint Research Centre of the European Commission.

[46] These environmental objectives are reiterated in the Hong Kong Ministerial Declaration, WT/MIN(05)DEC, paras. 30–32, December 22, 2005.

[47] Cartagena Protocol on Biosafety to the Convention on Biological Diversity, January 29, 2000, 39 ILM 1027 (2000), arts. 10.3(b), 10.6, 11.8, 12.1.

[48] See, for example, European Communities, "Proposal for a Decision of the Ministerial Conference on Trade and Environment," TN/TE/W/68, June 30, 2006.

Box 29.2 WTO Doha Agenda: Trade and the Environment

Paragraph	Goal for Negotiations or Related WTO Work
31(i)	Relationship between WTO rules and specific trade obligations in MEAs, but limited to matters involving parties to the MEA
31(ii)	Procedures for information exchange between WTO and MEAs, and criteria for granting observer status
31(iii), 32(i)	Reduction or eliminate of tariffs and non-tariff barriers to environmental goods and services.
31, 28	Clarify and improve WTO disciplines on fisheries subsidies
13	Environmental aspects of Agriculture negotiations
19, 32(ii)	Relationship between TRIPS Agreement and the Convention on Biological Diversity
32(iii)	Labeling requirements for environmental purposes
33	Technical assistance and capacity building in the field of trade and environment
6, 33	National environmental assessments of trade policies
51	Forum to identify and debate developmental and environmental aspects of negotiations in order to help achieve the objective of having sustainable development appropriately reflected

issues left off are those most likely to generate disputes at the WTO and therefore should be dealt with if possible.

The WTO-MEA issue has been discussed extensively, but apparently little progress has been made, beyond promoting a better understanding of the key issues. Many useful papers have been circulated, including, for example, the Matrix of Trade Measures, as prepared by the WTO Secretariat.[49] Although many leading MEAs make considerable use of STOs,[50] so far no trade dispute regarding an MEA has come to the WTO (or to the GATT). One theme in the discussions has been the need for better domestic coordination in the negotiation and implementation of MEAs, and for sharing of information among governments about national experiences with MEAs and good governance principles.[51]

With regard to information exchange with MEAs, the WTO has already taken action in holding MEA Information Sessions in the WTO Committee on Trade and Environment (CTE) and in the CTE negotiating sessions (CTESS). The WTO has also sponsored parallel events at intergovernmental environmental meetings. For

[49] "Matrix of Trade Measures Pursuant to Selected Multilateral Environmental Agreements," Note by the Secretariat, TN/TE/S/5/Rev.1, February 16, 2005.

[50] See, for example, UNEP, Governments to Consider New CITES Trade Controls, February 28, 2007.

[51] "Environmental Aspects of the Negotiations," Note by the Secretariat, WT/CTE/W/243, November 27, 2006, paras. 91, 92.

example, the WTO and UNEP cosponsored a High-Level Roundtable on Globalization and Environment at the February 2007 session of the UNEP Governing Council/Global Ministerial Environmental Forum. In December 2009, the WTO cosponsored a Symposium for policymakers at the Copenhagen Climate Conference. The topic of the Symposium was "Trade, Technology and Climate Change Linkages: The Current Debate."

On the topic of observer status, the CTESS has invited UNEP and six major MEA Secretariats to CTESS sessions on an ad hoc basis. The issue of a formal observership of MEAs in regular WTO bodies has been discussed for years, but no decision has been made. The current talks are not aimed at making decisions to actually grant observer status.

Many relevant organizations continue to be excluded. For example, the oldest international organization on the environment, the World Conservation Union/IUCN, has not been invited despite its longtime interest in trade and headquarters near Geneva.[52] Similarly, the International Maritime Organization does not attend the WTO negotiations or the regular CTE meetings despite its recent work in drafting a convention on the recycling of ships.

The elimination or reduction of trade barriers to environmental goods and services (EGS) has been the most active negotiation in the field of trade and environment. Elimination of trade barriers to clean technologies could result in a 14 per cent increase in world trade, according to a recent World Bank study. This negotiation on market access is widely recognized to be win–win, that is, valuable for both trade and environment. Although environmental goods and services are interrelated, the negotiations have been bifurcated organizationally with environmental goods being addressed in the WTO negotiations on non-agricultural market access, and environmental services being addressed Council for Trade in Services Special Sessions. The CTESS has a monitoring role and has considered some conceptual issues relating to goods and services.

As in any WTO negotiation, definitional issues regarding environmental goods have been at the center of the talks. For example, what are environmental goods? At present, WTO tariff rules and the harmonized tariff nomenclature do not specifically address the end use of an item or its environmental footprint. Currently, there are at least nine different lists of environmental goods in play. Alternative approaches were suggested by India and Argentina—namely, a project-oriented approach suggested by India and an integrated approach suggested by Argentina to reconcile the two approaches. A challenging conceptual issue has been how to handle goods which are not used for pollution control or remediation, but rather are more energy efficient or less environmentally harmful than alternative goods. This category is called environmentally preferable products and some lists of those products include ethanol. In commenting on these negotiations, the

[52] For example, the IUCN has an ongoing Working Group on Environment, Trade and Investment. The IUCN is a hybrid international organization with a membership that includes 83 states, 116 government agencies, and hundreds of non-governmental organizations and affiliates. The IUCN was formed under Swiss law, not international law.

WTO Secretariat has noted that liberalizing trade in environmental goods can encourage the use of new environmental technologies and make it easier for countries to obtain high quality goods. The Secretariat has suggested that the EGS negotiations can create a triple-win situation for trade, the environment, and development.

Considerable discussion has ensued about the modalities for the environmental goods negotiations and about the role of special and differential (S&D) treatment. No conclusions have been reached. Although some governments argue that environmental goods should be subject to the same modalities as non-environmental goods, other governments have argued for special treatment of environmental goods, meaning deeper cuts or tariff elimination. There have also been negotiations on non-tariff barriers to goods such as packaging, recycling, disposal, and various labeling regulations.

The GATS services sectoral classification list covers "Environmental Services" as Section 6 and the subsector categories are: sewage services (9401), refuse disposal services (9402), sanitation and similar services (9403), and other services. The Central Protection Classification (CPC) has additional relevant categories such as: cleaning of exhaust gases (9404), noise abatement services (9405), nature and landscape protection services (9406), and other environmental services (9409). Of course, because of the pervasiveness of environmental considerations, any taxonomy is likely to be incomplete, just as the CPC is. Thus, one can see that many other CPC categories can include environmental services—for example, natural water (180), engineering (8672), urban planning and landscape architectural services (8674), R&D on natural sciences (851), technical testing and analysis (8676), higher education (923), services incidental to energy distribution (887), travel agencies and tour operators (7471), transportation of fuels (7131), and so on. In the Uruguay Round and subsequent accession negotiations, about 50 WTO members made commitments in the environmental services classified in the 9400s, but the Secretariat has assessed these as "rather limited."[53] Most of the existing commitments involve mode 3 (commercial presence).

One important service sector that has been highlighted is ecotourism where trade, investment, and ecological objectives can be mutually supportive. Green Globe, an NGO, has worked with major stakeholders in developing ecotourism labels that can help to bring transparency and accountability to this sector. Ecotourism consumption is mode 2. Although most regulation of ecotourism is by the host country, the WTO GATS commitments apply only to the home country.

So far, three themes reportedly have emerged in the environmental–services negotiations. First, governments see a need for better classification of services. Second, governments consider mode 3 the most important, followed by mode 4. Third, some regulatory issues have been raised, particularly the recognition of professional qualifications. Government officials engaged in GATS negotiations can consult the Negotiating Checklist on environmental services prepared in the OECD.[54] More detailed discussion of these negotiations is hindered by the fact that the WTO Secretariat has classified some of the

[53] Environmental Aspects of the Negotiations, ibid. para. 58.

[54] OECD Trade Policy Working Paper No. 11, TD/TC/WTP(2004)/8/, February 15, 2005, para. 74.

documentation for this negotiation in its confidential JOB series, and therefore that documentation is not publicly available.

Besides EGS, the other major topic on which substantive progress has been made are disciplines for fisheries subsidies. The serious attention given to this issue has been a surprise to many observers as the WTO talks are considering detailed rule-making under the Doha mandate to "clarify and improve WTO disciplines on fisheries subsidies, taking into account the importance of this sector to developing countries."[55] Although at the advent of the negotiations, some governments were taking the position that the SCM Agreement should not have sector-specific provisions, this objection has seemingly diminished in recent years as the negotiators discuss the details of supervision proposals.

The concern about government subsidies for fisheries is that such subsidization leads to overcapacity of fishing and overfishing, and therefore to a depletion of world fish stocks. World fish stocks are currently threatened by overfishing and, despite a skein of international agreements governing fishing, there is still a great deal of illegal, unregulated, and unreported fishing.[56] Unless management improves, fish stocks could be severely depleted. The degree of fisheries subsidization is estimated to be about 20–25 per cent of total fisheries revenue.

At the Hong Kong Ministerial in December 2005, the WTO Declaration declared that there was broad agreement that the Negotiating Group on Rules "should strengthen disciplines on subsidies in the fisheries sector, including through the prohibition of certain forms of fisheries subsidies that contribute to overcapacity and over-fishing...."[57] The Declaration called on participants to undertake detailed work to "establish the nature and extent of those disciplines, including transparency and enforceability."[58] In addition, the Declaration calls for appropriate and effective S&D treatment for developing and least-developed WTO members.

Many proposals have been offered in the WTO, including proposals for a ban on fisheries subsidies that would be conditioned on certain fishery management indicators.[59] The conditioning of subsidy rules on management indicators would be an interesting development because it would provide a linkage between the WTO rules and the ongoing work of other international organizations, such as the regional fisheries-management organizations.[60] To the extent that fishery management programs allocate marketable rights, this could constitute a subsidy under the SCM agreement. At the end of 2007, the fishery negotiations led to a Chair's Text which would be a new set of

[55] Doha Declaration, ibid. para. 28.

[56] U.N. Food and Agriculture Organization, "Stopping Illegal, Unreported and Unregulated (IUU) Fishing," available at <http://www.fao.org/docrep/005/y3554e/y3554e01.htm>.

[57] Hong Kong Ministerial Declaration, ibid. Annex D, Part I, para. 9.

[58] Ibid.

[59] See, for example, Proposal from the United States, Fisheries Subsidies: Proposed New Disciplines, WTO Doc. TN/RL/GEN/145, March 22, 2007.

[60] Note that under the current WTO Agreement, new developments extrinsic to the WTO can lead to new obligations within the WTO. For example, TBT Art. 2.4 requires governments to use international standards as a basis for technical regulations.

rules governing fisheries management. The Text has no legal standing at this point and has been praised for concretely promoting sustainable development and environment within the framework of the WTO.[61]

As noted above, the environment is a topic in the agriculture negotiations and is characterized as a "non-trade issue." Both proponents and opponents of reducing (non-environmental) agricultural subsidies are marshalling green arguments for their positions. Those supporting reform emphasize how trade distorting subsidies for agriculture are now harming the environment by encouraging environmentally harmful agricultural practices, such as overuse or misuse of fertilizers and pesticides. Those opposing reform emphasize how subsidies can keep land from being developed in order to manage water resources and preserve biodiversity.

With regard to intellectual property, the Doha Declaration calls on governments to consider the relationship between the TRIPS Agreement and the Convention on Biological Diversity, and, in particular, the patenting process. The key issues are: (1) whether TRIPS should require that patents be available for genetic resources, (2) whether to require disclosure of the country of origin of genetic resources (and traditional knowledge), (3) whether to require "prior informed consent" by a government for the use of so-called sovereign resources, (4) whether to provide for "fair and equitable" benefit sharing, and (5) the legal approach to be used to achieve any agreed result (i.e., within TRIPS or beyond TRIPS). The Doha Declaration mandate for these discussions is bounded by the proviso that the negotiations "shall not add to or diminish the rights and obligations of Members under existing WTO agreements..."[62] In practice, however, such a pre-commitment could not prevent WTO members from agreeing to amend TRIPS, should there be a consensus to do so. WTO Director-General Lamy (2006) has stated that "it is incumbent on all countries to use intellectual property rights in a manner that fosters biodiversity—all countries have a responsibility."[63]

Two other matters are being addressed under the "Trade and Environment" mandate. The first is environmental labeling where the discussions are bounded by the same proviso not to alter WTO rules. So far, these discussions have been mainly informational. The second matter is technical assistance and capacity building for developing countries in the field of trade and environment, and in the Doha Declaration the WTO members have highlighted its importance. The Declaration also encourages governments with expertise in performing environmental reviews at the national level to share that expertise. Since 2001, the WTO has stepped up its capacity building on trade and environment. For example, in 2007, the WTO and UNEP held a joint Round Table on Globalization and the Environment as a side event to the Global Ministerial Environment Forum. In July 2009, the WTO held a Workshop on Environment-related Private Standards, Certification and Labeling Requirements. In February 2010, the WTO held a Regional

[61] Draft Consolidated Chair Texts of the AD and SCM Agreements, TN/RL/W/213, November 30, 2007, pp. 87–93; UNEP and WWF (2009); Moltke (2010).

[62] Doha Declaration, ibid. para. 32.

[63] WTO (2006).

Workshop on the Relationship between the Trade and Environment Regimes for Asia and the Pacific.

The last environment-related issue on the Doha Round agenda is the directive to the CTE and the Committee on Trade and Development to "each act as a forum to identify and debate developmental and environmental aspects of the negotiations, in order to help achieve the objective of having sustainable development appropriately reflected." This penultimate paragraph of the Doha Declaration is known as the "Paragraph 51" mandate. Director-General Lamy (2005) has explained that:

> In Paragraph 51, Ministers instructed us to change our frame of mind. In other words, to no longer compartmentalize our work; discussing environmental and developmental issues in isolation of the rest of what we do.[64]

Evaluating the progress on this objective is difficult for an outsider because none of these meetings are open to the public. But it appears that little progress has been made.[65] Certainly, the CTE is not conducting a real-time environmental impact assessment of the WTO negotiations.

Although climate change was not included in the Doha Declaration, the climate-trade linkage has become a *de facto* issue in the Doha Round.[66] There have been suggestions of a climate-related trade code to be agreed within Doha and of the possibility that political progress within the WTO could be linked to political progress in the UNFCCC negotiations. Many commentators continue to note that progress in the Doha negotiations could promote climate objectives, for example, on the liberalization of environmental goods and services.[67] In the run up to the Copenhagen conference in December 2009, there was hope in some quarters on reaching agreement on the misuse of border measures for climate purposes, but the minimal outcome at Copenhagen precluded environmental and trade negotiators from reaching those issues.

IV. An Introduction to Environmental Protection Provisions in Regional Trade Agreements

The WTO is in competition with other forums for the negotiation of new trade liberalization. In recent years, more progress has been made in achieving liberalization in bilateral free trade or regional agreements (RTAs). Many RTAs negotiated in the 2000s

[64] WTO (2005).

[65] Committee on Trade and Environment "Report of the Meeting Held on 17 February 2010, WT/CTE/M/49, para. 33.

[66] World Bank (2007); ICTSD (2008).

[67] Cosbey (2008) and Bacchus (2010).

embrace numerous "trade-and" issues beyond what is in the WTO. Investment is the most common WTO-plus issue in RTAs.

Many RTAs also have provisions regarding the environment. For example the China–Chile Free Trade Agreement states that the parties shall enhance their communication and cooperation on labor, social security and environment…."[68] The Japan–Mexico Agreement devotes an article to Cooperation in the Field of Environment.[69] The RTAs negotiated by the United States all contain a chapter on environment that commits parties to enforce their own environmental laws and provides for dispute settlement should that not occur. The RTAs also contain side agreements to effect environmental cooperation and capacity building. A detailed analysis of the current US model for incorporating environment into RTAs can be seen in the environmental review of a recent RTA conducted by a private sector advisory committee.[70] This model has been used in US trade agreements with Australia, Bahrain, Central America, Chile, Dominican Republic, Jordan, Morocco, Oman, and Singapore.

The most recent development in the United States is that after the 2006 elections, the new majority party (the Democrats) demanded stronger environmental provisions in pending RTAs. For example for the Peru–USA FTA, Peru agreed that the United States could restrict imports of products (such as mahogany) that are harvested and traded in violation of CITES. This FTA was approved by the US Congress. In 2011, the Obama Administration transmitted three RTAs to the Congress and they were quickly approved. The RTAs with South Korea, Panama, and Columbia contain environmental provisions.

V. Policy and Negotiating Implications for Developing Countries

The Doha Round negotiations have been stripped of investment, competition policy, and transparency in government procurement, and so it is an achievement for the WTO to have progressed this far on environmental issues. While the success of the Doha Round remains uncertain, if the issues being negotiated do coalesce, one can expect environment to be part of the final deal.

[68] Free Trade Agreement between the Government of the People's Republic of China and the Government of the Republic of Chile, November 18, 2005, Art. 108, available at <http://www.sice.oas.org/tradee.asp#CHL_CHN>.

[69] Agreement between Japan and the United Mexican States for the Strengthening of the Economic Partnership, September 17, 2004, Art. 147, available at <http://www.sice.oas.org/Trade/JPN_MEXDraftEPA_e/JPN_MEXind_e.asp>.

[70] "Final Environmental Review of the Dominican Republic—Central America—United States Free Trade Agreement, February 2005, available at <http://www.ustr.gov/Trade_Agreements/Bilateral/CAFTA/Section_Index.html>.

Trade and environment issues have many implications for developing countries. Given the consensus decision-making rule in WTO negotiations, it is hard to imagine any change in WTO rules that would be detrimental to developing countries. But how much positive gain the developing countries get on environment will depend in part on their understanding of the issues and their negotiating skills.

On the issue of MEAs, developing countries as a group do not have a distinctive interest in the WTO separate from others in the international community. MEAs are a response to environmental problems that cross borders or exist in the global commons, and are a way to enhance global public goods. Developing countries stand to gain from effective international environmental regimes. All recent MEAs contain provisions to assist developing countries. When such provisions are negotiated and carried out, developing countries should work within the environment regimes to secure phase-in times and technical assistance as needed. Developing countries can also work to improve transparency within MEAs.

On the EGS liberalization issues, the developing countries have a self-interest in improving trade in these vital services and technologies in order to get access at the lowest possible cost. This means that developing countries should be willing to make commitments on EGS in return for receiving reciprocal market access. Developing country governments that adopt competitiveness strategies should consider what opportunities exist for promoting exports of EGS. When developing countries are pressed to make commitments on environmental services, they should be careful in the details of their services commitments so that they do not inadvertently negotiate away the ability to regulate in a particular sector. That is the lesson to be drawn from the *US–Gambling* case, in which Antigua won a dispute against the United States because of a sloppily written US commitment on recreational services that was interpreted by the WTO panel as a commitment to open the US market to online gambling services, notwithstanding longtime US legal prohibitions on most remote gambling.[71]

Although energy trade is not specifically addressed in the Doha Declaration, that sector is especially important for energy importing and exporting countries.[72] According to Lamy, "While WTO rules have set the beginnings of an architecture to address the trade-related aspects of energy, these rules may need to evolve in [the] future to address energy trade more comprehensively."[73] The relationship between the WTO and the Energy Charter remains to be explored.[74]

One area of tension may be climate policy. The allocation of emission rights, if marketable, could constitute a subsidy under the SCM agreement. If so, the granting of such subsidies could be an illegal actionable subsidy under SCM rules if the subsidies cause adverse trade effects.[75]

[71] See Choueke (2007).

[72] See, for example, Rosen and Houser (2007).

[73] WTO, "Lamy Highlights Environmental Dimension of Trade Talks," May 10, 2006.

[74] Selivanova (2007).

[75] Hufbauer, Charnovitz, and Kim (2009: 61–64, 87–88).

On fisheries subsidies, the interests of a developing country will depend on whether fishing is a significant sector for that country. About half of world fish exports come from developing countries.[76] Although all countries have an interest in preventing overfishing from wasteful and unnecessary government subsidies, developing countries, where fishing is a significant export opportunity, may want to preserve some flexible special and differential treatment. Developing countries could also ask for compensatory programs if the ensuing regimes lead to higher costs for their fishery imports.

The debate on environmental subsidies in the agriculture negotiations is complex, and it is hard to generalize an interest for developing countries. As in all WTO issues, developing countries should partner with like-minded countries in order to deploy analytical resources in the most efficient way. Greater market access for developing countries to export agricultural products to the United States and Europe will be of benefit to developing countries, and so, when developing countries call for reduction in subsidies and other concessions, environmental arguments should be marshaled. In particular, developing countries can criticize the harmful environmental results arising from subsidy programs relied upon by many high-income countries. In the past few years, a series of WTO tribunals have criticized the US practice of granting WTO-illegal subsidies to cotton farmers. The complaint was brought by Brazil, which, in mid 2010, threatened trade sanctions against the United States because the Obama Administration had not fully complied with the WTO ruling.

The TRIPS and Biodiversity issues are complex. Because these issues are of great interest to the private sector in the high-income countries, the negotiators from those countries will be especially well prepared. In response, developing countries have engineered their own coalitions and have obtained technical help from NGOs and the academic community. The history of TRIPS in the trading system demonstrates that vigilance is always needed because, in the Uruguay Round, leading governments were focused mainly on gratifying the interest groups promoting rights for holders of intellectual property. At present, the WTO TRIPS Council has refused to give observer status to the Biodiversity Convention. This exclusion cannot possibly help developing countries, and they might consider being more vociferous in asking for greater WTO transparency and cooperation.

The WTO is carrying out significant capacity building on trade and environment, but these efforts can be stepped up. Developing countries should not hesitate to request technical assistance when they need it and should work to assure that WTO rules on the provision of technical assistance provide for some quantitative assessments of the need for assistance by country, perhaps carried out by the WTO Secretariat or a UN body.

The WTO capacity building on trade and environment is just one small part of what is being carried out in this field by other international organizations and many governments. For example, UNEP and UNCTAD have delivered technical assistance for over a decade. The European Union's programs are wide-ranging—for example, the Forest Law Enforcement, Governance and Trade Program that helps countries control illegal logging and exports.

[76] The leading exporters are China, Thailand, Norway, the United States, Canada, Vietnam, Chile, Taiwan, Indonesia, and the European Union. Japan is the largest importer.

As noted above, while there has been very little progress made in implementing Paragraph 51 of the Doha Declaration, it is still important for developing countries to have a robust and open forum to analyze and debate the environmental and developmental implications of the Doha negotiations. The developing countries ought to consider promoting better implementation of Paragraph 51 and more attention in the WTO to developing ways to operationalize the concept of sustainable development.

On RTA environmental negotiations, developing countries should recognize that, in trade agreements with developed countries, there is a possibility of using the RTA negotiations to achieve effective environmental cooperation agreements with real commitments of financial resources and technical assistance. To use the United States as an example, at the outset of new RTA negotiations, developing countries should develop alliances with US environmental NGOs and work with them to put political pressure on US negotiators to improve the environmental cooperation provisions in the trade agreement or side agreements. In 2013, the ongoing negotiations for the Trans-Pacific Partnership include an environmental dimension.

APPENDIX

Core Definitions and Concepts

Border tax adjustment. The imposition of a charge on an imported product equivalent to an indirect domestic tax being imposed on that product or on an article from which the imported product has been manufactured or produced. Such adjustments are permitted under WTO rules. WTO rules also permit the remission of indirect taxes on exported products; such rebates may not be in excess of the domestic tax.

Eco-dumping. A term referring to exports with prices that are artificially low because they have been produced under environmental regulations that are inefficient for the exporting country. Just as anti-dumping duties can be calculated based on hypothetical prices in a market economy, an eco-dumping duty could be based on the hypothetical prices that would ensue if all environmental externalities were internalized. Eco-dumping duties have been proposed but none have been imposed. Sometimes a claim of eco-dumping is used more broadly without reference to what is efficient for an exporting country.

Environmental goods and services (EGS). EGS are goods and services whose use or consumption is thought to promote better environmental outcomes. No universally agreed definition of EGS exists but some obvious products include wind turbines, solar cooking appliances, and photovoltaic cells. Although some environmental services are grouped within the services sectoral list, environmental technologies do not have separate tariff categories in the harmonized system. Some EGS trade liberalization has already occurred in bilateral and regional trade agreements.

Environmental harmonization. The use of international benchmarks for environmental regulations and standards by governments. The use of international standards in the production

of goods is called for in the WTO TBT and SPS Agreements. Indeed, SPS Article 3 is captioned "Harmonization." The main purpose of such harmonization measures is to facilitate trade by preventing idiosyncratic trade restrictions. Harmonization to international standards also has the potential of raising standards in countries that do not have adequate regulatory systems appropriate to their level of development.

Environmental impact assessment. A principle of national and international environmental policy calling for an assessment of the risk to human health and/or ecological services of a project and calling for the consideration of alternatives. Environmental assessments can also be focused on government policies such as international negotiations. The WTO Doha Declaration (para. 51) calls for debate within the WTO on the "developmental and environmental aspects of the negotiations...."

Environmental services. In a trade context, "environmental services" refers to services traded via one of the four modes of the GATS. Many environmental services are grouped in the WTO Services Sectoral Classification List in Sector 6. In an environmental context, the term refers to services performed by nature itself, such as the protection of soil by trees and the natural filtration and purification of water. This is one of many terms that is used in different ways by the trade community and the environment community.

Free rider. In an environmental context, a free rider is a country that enjoys the benefits of an environmental regime without following the rules of that regime or contributing to its maintenance.

Level of protection. Not to be confused with the trade concept of effective protection, the "level of protection" in the SPS Agreement refers to the level of sanitary or phytosanitary protection that a WTO member government chooses to protect human, animals, or plants in its territory.[77] The SPS Agreement implies that a government may choose the "level" of protection that it wants, but the Appellate Body has held that governments do not have an absolute or unqualified right to do so.[78] By contrast, the Appellate Body has held that the concept of autonomous choice of a desired level of protection exists for the level of health protection sought under the GATT and the level of morality sought under the GATS.[79]

Level playing field. A normative claim that countries should compete in international trade fairly. In an environment context, a level playing field claim is that a country with stringent environmental regulations will suffer in competition against a country with less stringent regulations. The term "level playing field" is often used to describe trade relations that are perceived as fair. For example, the Brazil–Aircraft (Article 21.5—Canada) panel stated that the Agreement on Subsidies and Countervailing Measures "establishes a level playing field for all Members in respect of export credit practices...."[80]

Multilateral environmental agreements (MEAs). An international treaty or convention aimed at an environmental purpose that invites all governments to join as parties. Many environmental treaties are regional rather than multilateral. The UN Convention on Biological Diversity is an example of an MEA. Many MEAs have international secretariats that help coordinate efforts undertaken under the agreement.

[77] Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), Annex A, para. 5 (definition of appropriate level of protection).

[78] Appellate Body Report, *EC Measures Concerning Meat and Meat Products* (Hormones), WT/DS26/AB/R, para. 173, adopted February 13, 1998.

[79] Appellate Body Report, *European Communities—Measures Affecting Asbestos and Asbestos-Containing Products*, WT/DS135/AB/R, para. 168, adopted April 5, 2001; Appellate Body Report, *United States—Measures Affecting the Cross-Border Supply of Gambling and Betting Services*, WT/DS285/AB/R, para. 308, adopted April 20, 2005.

[80] Panel Report, *Brazil–Export Financing Programme for Aircraft—Recourse by Canada to Article 21.5 of the DSU*, WT/DS46/RW, para. 6.107, adopted August 4, 2000 as modified by Appellate Body Report.

Polluter havens (or pollution havens). A political unit that seeks to draw in foreign investment through lower environmental standards or that attracts investment for that reason. The identification of polluter havens is controversial. Indeed, the category may be a theoretical concept that is non-existent in practice.

Polluter-pays principle (PPP). The PPP, originally devised by the OECD in 1972, states that the polluter should bear the expenses for carrying out measures that governmental authorities determine are needed to ensure that the environment is in an acceptable state. The rationale for having the polluter bear these costs is that these costs will be passed forward to the ultimate users. The PPP acknowledges that there may be exceptions in which government subsidies can be used particularly for transitional periods, provided that the subsidies do not lead to significant distortions in trade or investment. The WTO has not explicitly endorsed the PPP.

Precautionary principle. A principle of international environmental law stating where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. Some commentators aver that the precautionary principle also counsels that the proponent of an activity, rather than a regulator, should bear the burden of proof. In the EC–Hormones case, the Appellate Body noted that the precautionary principle "finds reflection" in one provision of WTO law.[81]

Processes and production methods (PPMs). PPM is a term from the Agreement on Technical Barriers to Trade (and its Tokyo Round predecessor) that refers to the way that a product is produced. Some PPMs may be detectable in the product, such as whether milk or cheese is pasteurized. Other PPMs require information about the producer or the product chain, such as dolphin-safe tuna. The PPM concept is in use throughout the trading system—for example, with rules of origin, intellectual property, countervailing duties, and antidumping—where products that are intrinsically "like" are treated differently based on extrinsic factors. Many WTO agreements recognize, permit, and/or require non-product-related trade restrictions. Nevertheless, one should note that PPM-based trade restrictions relating to environment, labor, or human rights are very controversial, and their status under WTO law remains to be tested.

Sustainable development. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. To operationalize this amorphous term, environmentalists point to the need for sustainable production and consumption and the need for decision-making that seeks simultaneously to achieve economic and environmental (and sometimes also social) goals. In the *US–Shrimp* case, the panel stated that "sustainable development is one of the objectives of the WTO Agreement."[82] The goal of sustainable development is endorsed in the Doha Declaration.

"Trade-and" linkages. Trade-and linkages are the interconnections between international trade and labor," "trade and health," "trade and competition policy," "trade and investment," "trade and human rights," "trade and culture," and "trade and gender." Although not always

[81] Appellate Body Report, *EC–Hormones*, ibid. para. 124 (referring to SPS Article 5.7).

[82] Panel Report, *United States—Import Prohibition of Certain Shrimp and Shrimp Products—Recourse to Article 21.5 of the DSU by Malaysia*, WT/DS58/RW, para. 5.54, adopted November 21, 2001 as modified by Appellate Body report.

explicitly identified as such, the WTO has provisions addressing all of these "trade-and" linkages on this list except the last one. The linkages between "trade and development" are explicitly recognized in the WTO.

Trade-related environmental measures (TREMs). A measure in an environmental treaty, law, or regulation that affects trade. Disputes about TREMs can be lodged in the WTO. For example, the EC–Asbestos case involved a complaint by the Government of Canada about a French decree that banned the manufacture, sale, or importation of asbestos fibers and any product containing such fibers. The purpose of the decree was to prevent harm to human health. TREMs that inhibit trade are regularly used for environmental purposes. Of course, most measures that inhibit trade are trade measures, not environmental measures. For example, tariffs, quotas, and countervailing duties are trade related measures.

Win–win. A descriptor often used by government officials and the business community to suggest that coherent government policies can deliver victories for both the economy and the environment. Win–win is also used to connote a dual win for environment and development. Another descriptor is "win–win–win," which suggests that coherent policies can deliver wins for the economic, environmental, and social aspects of development. In the context of corporate responsibility, the term "triple bottom line" suggests business strategies that promote financial gains for the company, social gains for workers, and social and environmental gains for a broader community.

References

Note: The references referring to WTO cases and other official reports and documents are cited in the chapter footnotes.

Bacchus, J. (2010), 'Combating Climate Change. How WTO Rules Can Speed Up Global Action.' Forbes.com, April 26, available at <http://www.forbes.com/2010/04/26/climate-change-global-wto-opinions-contributors-james-bacchus.html>. (accessed April 2013).

Bennhold, K. (2007), 'France Tells U.S. to Sign Climate Pacts Or Face Tax.' *New York Times*, February 1, p. 10.

Busse, M. (2004), 'Trade, Environmental Regulations and the World Trade Organization.' World Bank Policy Research Working Paper 3361, July.

Choueke, M. (2007), 'Antigua Defeats US in Challenge to Gaming Law.' *Sunday Telegraph* (London), January 28, p. 1.

Cosbey, A., Peterson, L. E., and Pintér, L. (2005), Environmental Health and International Trade. Winnipeg: IISD. Available at <http://www.iisd.org/publications/pub.aspx?id=713> (accessed April 2013).

Cosbey, A. (ed.) (2008), *Trade and Climate Change: Issues in Perspective.* Winnipeg: International Institute for Sustainable Development.

Grether, J.-M., Mathys, N. A., and de Melo, J. (2006), 'Unraveling the Worldwide Pollution Haven Effect.' World Bank Policy Research Paper Working Paper 4047, November.

Houser, T., Bradley, R., Childs, B., Werksman, J., and Heilmayr, R. (2008), *Leveling the Carbon Playing Field.* Washington DC: Peterson Institute for International Economics.

Hufbauer, G. C., Charnovitz, S., and Kim, J. (2009), *Global Warming and the World Trading System.* Washington DC: Peterson Institute for International Economics.

ICTSD (2008), *Climate Change and Trade on the Road to Copenhagen.* Geneva: International Centre for Trade and Sustainable Development.

Lamy, P. (2006), 'The World Trade Organization: A Laboratory for Global Governance.' Malcolm Wiener Lecture, November, 1. Available at <http://www.wto.org/english/news_e/sppl_e/sppl47_e.htm> (accessed April 2013).

Mani, M., and Jha, S. (2006), 'Trade Liberalization and the Environment in Vietnam.' World Bank Policy Research Working Paper No. 3879, April.

Moltke, A. von (ed.) (2010). *Fisheries Subsidies, Sustainable Development and the WTO.* London: Earthscan.

Nordström, H., and Vaughan, S. (1999), 'Trade and the Environment.' WTO Special Studies 4, available at <http://www.wto.org/english/res_e/publications_e/special_studies4_e.htm> (accessed April 2013).

Rosen, D. H., and Houser, T. (2007), 'China Energy: A Guide for the Perplexed.' Washington DC: Peterson Institute for International Economics and Center for Strategic and International Studies, April.

Selivanova, J. (2007), 'The WTO and Energy: WTO Rules and Agreements of Relevance to the Energy Sector.' ICTSD Trade and Sustainable Energy Series Issue Paper No. 1.

UNEP and WWF (2009), The WTO Fishery Subsidies Negotiation: Update and Introductory Briefing for New Delegates', April 1, available at <http://www.unep.ch/etb/events/WTO%20FS%20workshop%201%20Apr%202009/Meeting%20Report%20UNEP-WWF%20Briefing%201April09.pdf> (accessed April 2013).

Vilas-Ghiso, S. J., and Liverman, D. M. (2006), 'Scale, Technique and Composition Effects in the Mexican Agricultural Sector: The Influence of NAFTA and the Institutional Environment.' Montreal: North American Commission on Environmental Cooperation.

Vranes, E. (2009), *Trade and the Environment.* London: Oxford University Press.

World Bank (2007), *International Trade and Climate Change: Economic, Legal and Institutional Perspectives.* Washington DC: The World Bank.

WTO (2005), 'Trade Policy Review Nigeria, Report by the Secretariat.' WT/TPR/S/xx147, April 13, 2005.

WTO (2005), 'Trade Can Be a Friend, and Not a Foe, of Conservation.' Pascal Lamy: speech at WTO symposium on Trade and sustainable Development within the framework of paragraph 51 of the Doha Ministerial Declaration. Geneva, October 10.

WTO (2006), 'Lamy Urges Members to Support Multilateral Environmental Accords.' May, 30.

WTO (2007), 'Lamy Urges Support for Environmental Chapter of the Doha Round.' February 5. Available at <http://www.wto.org/english/news_e/sppl_e/sppl54_e.htm> (accessed April 2013).

WTO (2010a), Lamy: 'Trade Opening has Much to Contribute to the Protection of the Environment', June 5. Available at <http://www.wto.org/english/news_e/news10_e/dgpl_05jun10_e.htm> (accessed April 2013).

WTO (2010b), 'DDG Yerxa Cites Benefits of More Open Trade on the Environment', March, 26. Available at <http://www.wto.org/english/news_e/news10_e/envir_26mar10_e.htm> (accessed April 2013).

WTO and UNEP (2009), 'Trade and Climate Change. A Report by the United Nations Environment Programme and the World Trade Organization.' Available at <http://www.wto.org/english/res_e/booksp_e/trade_climate_change_e.pdf> (accessed April 2013).