

Trade and Green Economy

A HANDBOOK

Third Edition



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United Nations
Environment Programme

Trade and Green Economy

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Third Edition

The United Nations Environment Programme
Division of Technology, Industry and Economics
Economics and Trade Branch
and
The International Institute for Sustainable Development

iisd International Institute for Sustainable Development
Institut international du développement durable



United Nations
Environment Programme

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The United Nations Environment Programme (UNEP) is the overall coordinating environmental organization of the United Nations system. Its mission is to provide leadership and encourage partnerships in caring for the environment by inspiring, informing and enabling nations and people to improve their quality of life without compromising that of future generations.

UNEP's Economics and Trade Branch (ETB) is part of the Division of Technology, Industry and Economics (DTIE). ETB's mission is to enhance the capacities of countries, especially developing countries and countries with economies in transition, to integrate environmental considerations into development planning and macroeconomic policies, including trade policies. A key workstream of the ETB is the Green Economy Initiative (GEI), which is designed to assist governments in "greening" their economies by reshaping and refocusing policies, investments and spending, for example towards deployment of renewable energy, clean technologies, water services, sustainable transportation, waste management, green buildings and cities, and sustainable agriculture, forests and tourism.

The trade component of ETB's work programme focuses on improving countries' understanding of the intersection between trade and green economy. It includes research and capacity building at global, national and sectoral levels, on how to use trade as an engine for sustainable development and poverty eradication. ETB also provides technical input to the trade and environment debate through a transparent and broad-based consultative process. Trade activities ultimately aim to foster mutually beneficial outcomes for trade and the environment, for example by identifying and harnessing trade opportunities that are associated with the green economy transition, particularly in developing countries.

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The International Institute for Sustainable Development

Established in 1990, the International Institute for Sustainable Development (IISD) is a non-partisan, charitable organization specializing in policy research and analysis, and information exchange. Through their head office in Winnipeg, Manitoba, Canada, and their branches in Ottawa, New York, Geneva and Beijing, the Institute champions sustainable development around the world through innovation, partnerships, research and communications. It is dedicated to engaging decision-makers in business, government, non-government organizations and academia on issues around economic and legal frameworks, energy and climate change, water, resilience, and knowledge.

IISD is registered as a charitable organization in Canada and has 501(c)(3) status in the United States. IISD receives core operating support from the Government of Canada, provided through the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC) and Environment Canada, and from the Province of Manitoba. The Institute receives project funding from numerous governments inside and outside Canada, United Nations agencies, foundations, and the private sector.

IISD's work in trade, investment and sustainable development seeks to find those areas of synergy where trade, investment, environment and development can be mutually beneficial, and to help policy-makers exploit those opportunities. It concentrates on two major themes in its work: reform of trade and investment rules and institutions, and building capacity in developing countries to address the issues of trade and sustainable development. Since 1991, IISD has worked to broaden the terms of the trade-environment debates to encompass the concerns and objectives of developing countries—to make them evolve into debates about trade and sustainable development. All of IISD's work aims to raise public consciousness about the importance of the issues of sustainable development. This handbook, first produced in 2001 and widely hailed as a standard for the educated layperson, is part of that tradition.

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Preface

This handbook aims to foster a better understanding of the interlinkages between international trade, the environment and the green economy. It therefore focuses on national and international trade policy and rules, on environmental governance and principles, and the relationship between both.

This third edition of *Environment and Trade: A Handbook* covers a wealth of new information, including the emergence of the green economy concept, the latest WTO jurisprudence, and increasingly important legal and policy linkages between trade and green economy policies and practices in the changing dynamics of international trade with the emergence of the BRIC economies and the exponential rise in preferential trade agreements. The handbook has been renamed *Trade and Green Economy: A Handbook* to reflect the green economy as an important tool for achieving sustainable development and poverty eradication, and to illustrate the holistic approach that is required when addressing issues at the nexus of trade, environment and sustainable development.

The targeted audience includes those interested in and with some knowledge of trade, environment or development, but who are not expert on the intersection of the three. It should serve as a practical reference tool for policy-makers and practitioners, and be equally useful to civil society. With this in mind, the handbook uses clear language and a minimum of jargon to foster a greater understanding by all segments of the public.

The handbook is available online at www.unep.org/greeneconomy and www.iisd.org/trade/handbook.

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Foreword

The expansion and liberalization of global trade, while a primary driver of economic growth, should not come at the expense of the natural environment.

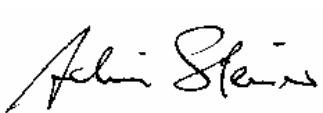
In 2013, the financial volume of global trade amounted to US\$23.4 trillion, roughly a third of global GDP. At the same time, the world's environmental indicators reveal that the pressure exerted by trade on the environment is taking its toll.

Population growth and rising incomes are fuelling a demand for goods and services that is often met at the expense of natural resources, especially land and water. A tripling of the global population in the last six decades and a four-fold increase in GDP expected by 2050 are just some of the factors driving the growth in trade. These trends are pushing a growing number of the world's ecosystems well beyond their service capacity. For example, global demand for food is expected to double between now and 2050. By this time, an estimated 3.9 billion people, or 40 per cent of the projected global population, will live in countries facing water scarcity, with access to as little as 1,000 litres of water per person a year.

For these trends to be reversed, trade must be harnessed as a catalyst for positive economic, social and environmental change, rather than a driver of environmental degradation. The green economy presents a model for reversing these trends by altering economic policies and incentives in a way that supports growth, social equity and welfare through the conservation and sustainable use of natural resources and vigilant control of pollution.

This handbook provides an analysis of the most recent developments in environment and trade governance, as well as a discussion of the legal and policy linkages between the two. Building on the previous two editions of the handbook, it supplements UNEP's *Green Economy and Trade Opportunities Report* by providing policy-makers, civil servants, academics and students with an easily accessible analysis of the interplay between environmental and trade policy in the context of a green economy.

The objective of this Handbook is to increase coordination and reduce tension between the international trade and environment agendas. Doing so will allow trade, one of the most powerful tools for generating wealth, to be leveraged to open new pathways to achieve sustainable development.



Achim Steiner
United Nations Under-Secretary General
Executive Director, United Nations Environment Programme

Foreword

This third edition of IISD and UNEP's popular standard on the intersection of international trade, the green economy and sustainable development is a testament to the distance we have come since the issues sprang to life in the early 1990s as incendiary debates: the trade-environment "dialogues of the deaf." For example, while previous versions of the book featured what amounted to mutual introductions to help the trade and environment communities understand each other's basic motivations and assumptions, most of those passages are now obsolete. There is today much deeper understanding all around, and distinctly less mistrust and suspicion.

That is not to say that the agenda is straightforward. Over the last decades we have seen distressingly little progress in the multilateral trade system on issues such as climate change, perverse subsidies, sustainable agriculture and a litany of other critically important challenges explored in this volume. At the same time, we have seen welcome advances outside the negotiations, in the context of dispute settlement. And regional trade approaches show some promise for progress outside the multilateral setting, though they pose their own set of risks. On the environment policy side, it has not helped that a number of multilateral agendas are making only difficult progress, unable to articulate clearly what is needed from the trading system.

Nonetheless, the modern agenda as explored in this handbook is one that looks for mutual support, that asks how the objectives of a healthy economy, social equity and environmental integrity can be met with few compromises and, ideally, with positive synergy. That is a welcome evolution that this volume, by making complex issues accessible to a broad audience, seeks to deepen and prolong.



Scott Vaughan
President and Chief Executive Officer
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Abbreviations

AB	WTO Appellate Body
AfT	Aid for Trade
AoA	WTO Agreement on Agriculture
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
BCA	border carbon adjustment
BIT	bilateral investment treaty
BRIC	Brazil, Russia, India, China
CARIFORUM	Caribbean Forum of African, Caribbean and Pacific States
CBD	Convention on Biological Diversity
CBDR	common but differentiated responsibility
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPC	Central Product Classification
CTE	Committee on Trade and Environment
DSB	WTO Dispute Settlement Body
DSU	Dispute Settlement Understanding
ECOWAS	Economic Community of West African States
EGS	environmental goods and services
ETS	EU Emissions Trading System
FAO	Food and Agriculture Organization of the United Nations
FDI	foreign direct investment
FIT	feed-in tariff
FLO	Fairtrade Labelling Organizations International
FSC	Forest Stewardship Council
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GHG	greenhouse gas
GM	genetically modified
GMO	genetically modified organism
GPA	WTO Agreement on Government Procurement
ICAO	International Civil Aviation Organization
ILUC	indirect land use change
IPR	intellectual property right
ISEAL	International Social and Environmental Labeling Alliance
ISO	International Organization for Standardization
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
LCA	life-cycle analysis
LMO	living (genetically) modified organism
MEA	multilateral environmental agreement

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Mercosur	Common Market of the South
MFN	most-favoured nation
NAFTA	North American Free Trade Agreement
NGO	non-governmental organization
OECD	Organisation for Economic Co-operation and Development
PEFC	Programme for the Endorsement of Forest Certification
PIC	prior informed consent
POPs	persistent organic pollutants
PPM	process and production method
PV	photovoltaic
RTA	regional trade agreements
SCM	WTO Agreement on Subsidies and Countervailing Measures
SDT	special and differential treatment
SME	small and medium-sized enterprises
SMTA	standard material transfer agreement
SPS	sanitary and phytosanitary
TBT	WTO Agreement on Technical Barriers to Trade
TFA	Trade Facilitation Agreement
TPRB	Trade Policy Review Body
TPRM	Trade Policy Review Mechanism
TRIMs	Trade-Related Investment Measures
TRIPS	WTO Agreement on Trade-Related Aspects of Intellectual Property Rights
UNCITRAL	United Nations Commission on International Trade Law
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFSS	United Nations Forum on Sustainability Standards
UPOV	International Union for the Protection of New Varieties of Plants
VSS	voluntary sustainability standard
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

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1. Global Trends

Our world has seen fundamental and pervasive change over the last 50 years. National economies are increasingly interconnected in an economic structure of “global value chains,” where all the elements needed to produce a final good or service—production of inputs, design, assembly, management, marketing, savings for investment—may be sourced from around the globe in a system held together by powerful communications and information technologies. Global value chains enhance the economic and resource efficiency of production processes, and challenge the conventional focus on national competitiveness.

The trend toward globalization has been driven by multiple factors, including innovative technologies and reduced barriers to international trade and investment flows. The world has seen a steady increase in the importance of international trade in the global economy: since 1980, the global economy has roughly tripled and world trade has grown by a factor of six. By 2011, exports of merchandise and commercial services reached \$22.3 trillion* in value and accounted for 29.3 per cent of GDP. For 2013, that share increased to around 32 per cent.

Another important trend is the widening of national and global income gaps; the benefits of growth have been unevenly spread. Today, the wealthiest 20 per cent of the population earn over 70 per cent of total income, and the growing inequality within nations shows no signs of abating. However, while Gini indices measuring inequality of income have grown the world over, absolute poverty has decreased. The global real GDP per capita now exceeds \$7,500, and between 1990 and 2010 the global population living in extreme poverty (i.e., on \$1.25 a day) was halved, to 21 per cent.

The absolute decrease in global poverty has been driven mainly by the global expansion of free trade and the rise of the BRIC (Brazil, Russia, India, China) economies. As an indicator of a reduced development gap, South-South trade has increased to roughly half of developing countries’ goods and services exports. Some developing countries are also equalling developed countries in strategically vital economic indicators, such as renewable energy investment.

However, while rapid economic growth in emerging economies has reduced the development gap between North and South, world trade patterns show that least-developed countries’ contributions to global value chains are still dominated by natural resource-based products and raw materials. This creates an urgent need for economic diversification for these countries to secure long-term growth and sustainable development.

Besides these socioeconomic trends, the world is also experiencing enormous environmental change. The groundbreaking Millennium Ecosystem Assessment found in 2005 that during the second half of the 20th century, humans altered the world’s ecosystems more fundamentally than during any other period in

* All values in USD, unless otherwise stated.

human history, and that some 60 per cent of the world's ecosystem services are currently being degraded or used unsustainably. Since 1971, global carbon dioxide emissions that cause climate change have increased by an annual 2 per cent—117 per cent overall—and their growth continues. Evidence is mounting that we have passed a milestone carbon dioxide concentration of 400 parts per million in the atmosphere. Partly due to climate change and also driven by many other factors, global biodiversity has declined by 30 per cent since 1970, and the current rate of species extinction is some 1,000 to 10,000 times higher than the natural extinction rate. The steady increase in nitrogen released from cars and fertilizers is creating deserts of lifelessness in our oceans and lakes. Of remaining global fish resources, about 57 per cent are fished at their biological limit, and 30 per cent beyond that point. If current trends persist, by 2050 an estimated 3.9 billion people, or 40 per cent of the projected global population, will live in countries facing water scarcity, having less than 1,000 litres of water per person a year. Each year 3.4 million people, mostly children, die from diseases caused by lack of access to clean water or sanitation.

One significant driver of environmental stress is our increasing numbers, which contribute to the continuing growth in global greenhouse gas (GHG) emissions: the global population roughly tripled to 7.2 billion between 1950 and 2013, and projections for 2050 have us adding another 2.4 billion—the 1950 world population again. While that represents a 25 per cent growth in global population by 2050, global demand for food, especially meat and dairy products, is expected to actually *double* during the same period. Another factor that is expected to push us toward and beyond planetary boundaries is the projected four-fold increase of global GDP by 2050.

Parallel to these developments, the institutions for addressing environmental problems have also evolved significantly. Since the first major global environmental treaty was signed in 1973, 12 others have entered into force, dealing with such global issues as ozone depletion, climate change, biodiversity, transport of hazardous waste, and migratory species; over 70 per cent of the world's countries are party to all 13 major global environmental treaties. In addition, the large and complex body of international environmental law includes almost 3,000 environmental agreements concluded at the international, regional or bilateral level. At the national level, regulators have moved from traditional “command and control” solutions to a mixed bag of regulatory and policy tools that include market-based incentives such as pollution charges, taxes, emission trading systems, and sector-specific measures like feed-in tariffs (FITs) or preferential pricing schemes for renewable energy. For select problems—such as stratospheric ozone depletion, local air quality, waste management and quality of regional rivers—in many countries the result has been marked by environmental improvement; for many others, however, the discouraging trends continue.

1.1 Environment and Trade Linkages

These environmental and economic trends are not isolated; rather, they are fundamentally related. Much environmental damage is due to the increased scale of global economic activity. International trade constitutes a growing portion of global economic activity, making it an increasingly important driver of environmental change. As economic globalization proceeds and the global nature of many environmental problems becomes more evident, there is bound to be friction among the multilateral, national and regional systems of law and policy governing both.

This book aims to shed light on the physical, legal and institutional linkages between international trade and the environment. Two fundamental truths about this relationship should become clear in the process:

- The links between trade and the environment are multiple, complex and important.
- Trade liberalization as such is neither good nor bad for the environment. Its effects on the environment depend on the extent to which environment and trade goals can be made complementary and mutually supportive. A positive outcome requires appropriate supporting social, economic and environmental policies at the national and international levels.

At the most basic level, trade and the environment are related because all economic activity is based on the environment. Natural resources such as metals and minerals, soil, forests, and fisheries are basic inputs to production of any goods, and also provide the energy needed to process them. At the end of the cycle, the environment also receives the waste products of economic activity. Trade is also affected by the environment in many ways, from issues related to natural resource quality, safety and availability to the fact that exporters must respond to growing consumer and regulatory demands for greener goods and services.

From another perspective, environment and trade represent two distinct bodies of law and policy. Environmental law is embodied in various multilateral environmental agreements (MEAs) and as regional, national and sub-national regulations. Trade law is embodied in such legal structures as the multilateral trade agreements under the World Trade Organization (WTO), and in regional and bilateral trade agreements. The structure, goals and principles of these two areas are the subject of Chapter 2, on the international system of environmental management, and Chapter 3, on the multilateral system of trade rules.

It is inevitable that these two areas of law and policy will interact. Environmental law, both national and international, and environmental policies—such as promotion of renewable energy, environmental taxation and conservation measures—help define how countries will structure their economic activities.

Trade law affects the way in which countries design their laws and policies in areas—such as subsidies, technical regulations, investment policy and taxes—that are integral to environmental policy. The legal and policy linkages that arise at the nexus of these two spheres are explored in Chapter 4.

The progress of and prospects for the multilateral trading system are assessed in Chapter 5, with some thoughts on the implications for the green economy. Trade law and policy is increasingly more than just what happens at the multilateral level, however, with the explosive growth of regional and bilateral trade and investment agreements. Chapter 6 explores how these agreements address environment issues.

Finally, some issues are crosscutting in nature. Efforts to build capacity to participate meaningfully in the green economy, for example, take place on a number of levels, and Chapter 7 looks in some depth at two key avenues for this sort of work: aid for trade and trade facilitation.

1.2 The Evolution Toward the Green Economy

The recognition of the crosscutting and interdisciplinary nature of environment, trade and development issues is reflected in the traction for a new development paradigm: the “green economy.”

The UN Environment Programme (UNEP) defines a green economy as one that results in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities. The concept therefore recognizes the inseparability of the three pillars of sustainable development—social, economic and environmental development—with the aim of fostering triple-win situations and, where trade-offs are inevitable, of supporting sound decision making with adequate data and information.

At the 2012 UN Conference on Sustainable Development, commonly known as the Rio+20 Conference, the green economy approach was endorsed as an important tool for sustainable development and poverty eradication. Given the global challenges that countries face, this approach represents an opportunity for these two goals to permeate all three pillars of sustainable development.

The green economy responds to global economic, social and financial crises by reallocating natural, social and financial capital into creating benefits for economic development, social equity and environmental protection. It reflects a paradigm shift toward a holistic approach to valuing nature and the environment, human well-being, and economic development.

In recognition of the three pillars of sustainable development, the green economy applies three overarching metrics for progress. First, it measures the degree of economic transformation toward investment and growth in green sectors. Second, it accounts for the footprint of development by factoring in the extraction and

depletion of resources. Third, the green economy measures the well-being of society by factoring in a population's access to basic resources, education, health and social security.

UNEP's *Green Economy Report* (2011) estimated that allocating up to 2 per cent of global GDP until 2050 to jump-start a green transformation of the global economy would generate as much growth and employment as a brown economy, and would outperform the latter in the medium and long run while also yielding significant environmental and social benefits.

There are a multitude of approaches that countries can take to move toward a green economy. Tools of choice range from fiscal incentives, such as green subsidies and carbon taxes, to regulation of resource-intensive sectors and public investment in research and development for green innovation.

Thus, a green economy will look different for each country, depending on the measures that it adopts based on its own national priorities and natural assets. However, these national pathways can be informed and assisted by an international framework of rules, best practices and actors. It is in this capacity that the UN system plans to support countries and regions in the global transition to an inclusive green economy.

The transition to a green economy is inextricably linked with, and crucially affected by, economic activities related to international trade. A green economy transition can create enhanced trade opportunities, for example, by opening new export markets for environmental goods and services (EGS) and by greening global value chains. For example, the global market in low-carbon and energy-efficient technologies is projected to nearly triple to \$2.2 trillion by 2020. Hence, a green economy is increasingly seen as a gateway to new opportunities for trade, growth and sustainable development.

In turn, trade, when accompanied by appropriate regulation, can facilitate the transition to a green economy by fostering the exchange of environmentally friendly goods and services. By effectively seizing the benefits of interstate synergies, international trade can play a key role in the transition to a green economy.

World leaders at the Rio+20 Conference embraced this notion by defining international trade as “an engine for development and sustained economic growth.” While the pre-Rio debate focused on many developing countries' concerns about the risks of countries using green economy policies as a pretext for protectionist measures, it could be argued that Rio+20 broadened the focus of the trade and green economy debate to also consider the opportunities that green economy measures can bring to developing countries in terms of development, market creation and access, employment, and sustainability.

Trade and Green Economy: A Handbook

In recognition of the fact that environmental issues often call for interdisciplinary and holistic solutions, this handbook aims to describe the broader universe of interrelated green economy and trade issues.

Suggested Readings

Global trends

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2. International Environmental Governance

The modern system of international environmental governance dates to the 1972 UN Conference on the Human Environment, held in Stockholm, Sweden. Several international environmental agreements, in particular on marine pollution, predate the Stockholm Conference, but this first major environmental event triggered a flurry of further initiatives at national and international levels, as countries and international organizations responded to the emerging challenges of environmental degradation. The Stockholm Conference also pioneered new forms of public participation in international governance, establishing links between the formal government-driven negotiating processes and the informal parallel non-governmental organization (NGO) processes.

The Stockholm Conference led to the establishment of UNEP, headquartered in Nairobi, Kenya. UNEP was to act as a catalyst for environmental issues in the United Nations system, but its means were modest compared with the dimensions of its task. Over the years, however, UNEP has launched a significant number of international agreements, and today has administrative responsibility for several major conventions as well as many regional agreements. Perhaps even more importantly, it has also acted as the tireless environmental conscience and voice for the United Nations system.

It soon became obvious that the Stockholm Conference's focus on the environment without due concern for development was not enough for the long-term advancement of the international environmental agenda. In 1985 the United Nations established the World Commission on Environment and Development, which issued its report, *Our Common Future*, in 1987. This report was the first systematic articulation of the concept of sustainable development (see Box 2.1). This, in turn, became the basis for a major review of all international environmental activities in the United Nations through the UN Conference on Environment and Development, held in 1992 in Rio de Janeiro, Brazil.

The 1992 Rio Conference articulated an ambitious program of sustainable development, contained in the final conference documents: the Rio Declaration and the action plan known as Agenda 21. The preparations for the Rio Conference also provided the momentum for the conclusion of the UN Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD), which were opened for signature at the Conference. The Rio Conference also helped establish the UN Commission on Sustainable Development, which operated for 20 years before being replaced by the High-level Political Forum on sustainable development in 2013. The first Rio Conference affirmed the role of the Global Environment Facility, thus widening the organizational basis for the environment and sustainable development within the United Nations system.

Box 2.1: Sustainable development according to Brundtland

Sustainable development goes further than just concern for the environment. It aims to improve human conditions, but seeks to achieve this in an environmentally sustainable way. According to the Brundtland Commission report, *Our Common Future*, sustainable development is “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Further, it contains within it two key concepts:

- The concept of “needs,” in particular the essential needs of the world’s poor, to which overriding priority should be given.
- The notion that the state of our technology and our systems of social organization (how our societies organize and govern, how we cooperate at the international level, etc.) impose limitations on the environment’s ability to meet present and future needs.

In 2012, the Rio+20 follow-up conference was held. Its objective was to renew political commitment for sustainable development. The conference also sought to assess implementation and address new and emerging issues. The Rio+20 outcome document, *The Future We Want*, focuses on the green economy, institutions and implementation. It recognizes the green economy, in the context of sustainable development and poverty eradication, as one of the most important tools for achieving sustainable development and calls for assistance for countries seeking to transition to greener economies. The Rio+20 outcome also calls for stronger international cooperation on finance, debt, trade and technology. This includes better cooperation among institutions within the United Nations system, and with the WTO. Rio+20 recognizes international trade as an engine for development and sustained economic growth, and calls for progress on trade-distorting subsidies and trade in EGS. Furthermore, it launches a process to specify sustainable development goals for the post-2015 period.

The complex webs of institutions and organizations evolving around international environmental agreements are often referred to as “regimes,” to distinguish them from state-to-state treaties cast in stone. For one thing, they involve a range of non-state actors; the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), for example, relies fundamentally on an NGO (TRAFFIC) to monitor and collect information on endangered species, and the process of negotiations in the UNFCCC is heavily influenced by non-state actors (environmental NGOs, research NGOs, business NGOs, labour, social justice groups, etc.), who speak and make formal submissions during negotiations.

For another thing, they involve both hard and soft law. For example, one of the key components of the Montreal Protocol, which addresses ozone depletion, is a facility that identifies technological alternatives and helps support developing countries in transitioning to using them. Finally, they are constantly evolving in response to our increasing understanding of the science and the trends that affect their subject areas. The regimes for chemical management and endangered species, for example, work on an ongoing basis to update the lists of chemicals and species covered and the nature of the coverage as circumstances and understanding change. And the climate regime's negotiations are underpinned by one of the most extensive ongoing scientific and economic advisory pursuits ever conducted: the Intergovernmental Panel on Climate Change.

2.1 Principles

The structure of international environmental regimes must reflect the structure of the problem being addressed. A regime that protects biodiversity needs to use different tools, draw on different constituencies and have different institutional arrangements than one that protects the oceans from oil pollution, or one that manages international trade in endangered species. Nevertheless, most environmental regimes have come to respect several fundamental principles and approaches, and to articulate them. Many of these were laid out in the 1992 Rio Declaration on Environment and Development. Eight key principles and approaches are described below.

Prevention. The principle of prevention has two elements: each state has the sovereign right to exploit its natural resources pursuant to its own environmental and development policies and, as well, has a responsibility to ensure that activities within its jurisdiction or control do not cause damage to the environment of other states or in areas that are beyond states' national jurisdiction, such as the high seas. The principle entails that states are responsible not only for their own activities, but for all public and private activities within their jurisdictions or under their control. The principle prohibiting transboundary harm, widely known as the no-harm principle of the 1972 Stockholm Declaration, is included in the Rio Declaration and many environmental treaties. The principle of prevention has been recognized by the International Court of Justice as customary international law (*Legality of Nuclear Weapons*, 1996).

Integration. The Rio Declaration's Principle 4 reads: "In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it." This is a key principle of international environmental governance and is operationalized in all the major global treaties by means of mechanisms that try to ensure that environmental protection does not come at the expense of development. It is

also operationalized in the trade regime and has found expression in a number of environment-related disputes (for example, *U.S.–Shrimp*; see Box 3.3). The integration principle is the legal face of sustainable development.

Assessment of environmental impacts. In recent years, the international community has recognized that international law requires countries to assess environmental impacts when planning activities that can have significant adverse impacts across borders. This is particularly important when the planned activity affects a resource shared between countries, as noted by the International Court of Justice in its 2010 *Pulp Mills* decision confirming this principle. (In that case, the court dealt with the permitting and construction of polluting pulp mills on the River Uruguay, which is bordered by both Uruguay and Argentina.) Environmental impact assessment is a tool to integrate sustainable development considerations into projects and activities, and also a mechanism for the public to get information and participate in decision making. While the UN Economic Commission for Europe Convention on Environmental Impact Assessment in a Transboundary Context provides basic guidance on how to assess environmental impacts in the international context, it still remains unclear how to fulfil this legal obligation in practice. This is particularly true of how to appropriately engage the affected public—an exercise that can run the spectrum from merely informing, to consulting, to allowing for meaningful participation.

Precaution. Calculating the likelihood and cost of damage is a difficult task, because our knowledge of ecological and environmental processes is frequently rudimentary at best and is based on an evolving foundation of scientific research. Despite increasing availability of scientific, reliable and internationally accepted information (through processes such as the Intergovernmental Panel on Climate Change and the Intergovernmental Panel on Biodiversity and Ecosystem Services), science does not always provide clear guidance on the measures that may be needed, so we are often faced with the task of making policy in the face of uncertainty. As articulated in the 1992 Rio Declaration, the lack of conclusive scientific evidence does not justify inaction, particularly when the consequences of inaction may be serious or irreversible, or when the costs of action are low. The Seabed Disputes Chamber of the International Tribunal for the Law of the Sea recognized in its 2011 opinion on “activities in the area” that precaution is a component of due diligence and thus an extension of prevention. The possibility of precautionary action is also included in some WTO provisions, such as Article 5.7 of the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) (see Section 3.4.6 on the SPS Agreement, Box 3.11 on the *EC–Hormones* case and Box 3.10 on the *EC–Biotech* case).

Openness. Openness has two elements: transparency and public participation in policy making. Both are necessary for good environmental management, because protecting the environment requires the participation of countless people in many locations. At the international level most environmental regimes are relatively

open, making use of environmental organizations, the media and the Internet to communicate to the public, with many allowing NGOs to participate in the discussions and negotiations of their provisions. But at the national level, practice varies widely. While openness is not a legal principle, there is an environmental agreement designed to promote openness in environmental governance: the 1998 Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters.

Polluter-pays principle. The polluter-pays principle was first propounded by the OECD—the “policy club” of industrialized countries—in 1972. At that time it simply said that polluters should have to bear the full cost of meeting environmental regulations, and that no subsidies should be given to help in this process. It has since evolved to become a broader principle of cost internalization: polluters should pay the full cost of the environmental damage that their activities produce. Of course, much of that cost will be passed along to consumers in the price of the goods involved, but this then discourages consumption of more pollution-intensive goods.

Common but differentiated responsibilities (CBDRs). Many environmental regimes require the participation of numerous countries, both rich and poor. But not all countries carry an equal responsibility for past environmental damage, and different countries have different resources at their disposal. So, while the parties to environmental regimes all acknowledge common responsibility for the environment, they also work to develop differentiated responsibilities for addressing environmental problems. In the Kyoto Protocol’s first commitment period (2008–2012), for example, only developed country parties had binding targets for GHG emission reductions.

Subsidiarity. The linkages between individuals and the global consequences of their actions are a major challenge to the organization of environmental management. In particular, it means that rules developed at one level—for example in international regimes—must be adapted to conditions in a wide variety of regional or local environments. The principle of subsidiarity calls for decision making and responsibility to fall to the lowest level of government or political organization that can effectively take action.

2.2 National Environmental Measures

At the country level, the environmental principles discussed above are implemented through a variety of means. At the base of most national measures, and of the greatest relevance to the environment-trade interface, are environmental measures—particularly those imposed on traded goods. There are many types of environmental measures applicable along the lifetime of a product, from extraction of raw materials to manufacture, packaging, transport, trade, sale, use and disposal. Examples of environmental measures include the following:

- Species and habitat conservation measures
- Restrictions on certain goods and practices, including bans, standards and permit requirements
- Environmental taxes and charges
- Negotiated voluntary agreements
- Deposit-and-refund, or take-back, schemes

National environmental measures can be grouped under six headings.

Environmental quality regulations seek to describe a desired state of the environment. They can be specified in terms of an acceptable status for air or water quality, or in terms of maximum concentrations of specific pollutants in the air, water or soil. A modern approach to such regulations, which is responsive to the accumulation of harmful substances in the natural environment, is the concept of “critical loads”: levels of deposition of pollutants below which some elements of the environment are not damaged. Environmental quality regulations can also take the form of population-based measures requiring the protection of certain species that have become threatened or endangered.

Emission standards identify the amount of certain substances a facility may emit. Often they are dynamic regulations, requiring the use of the best available technology. Emission standards can induce significant changes in production processes, since it is generally less costly to avoid producing pollutants than to capture them at the end of the production process, creating a waste stream that must in turn be managed.

Environmental product standards or technical regulations specify certain product characteristics that are deemed necessary to avoid environmental harm from use or disposal. For example, the use of lead in household paints has been banned in most countries because some of that toxic heavy metal is likely to reach the environment and pose a hazard, and many countries mandate standards of efficiency in appliances and other consumer goods because, among other things, low efficiencies contribute to climate change through wasteful use of energy.

Standards or technical regulations based on processes and production methods (PPMs) specify how products are to be produced and what kinds of impact they may have on the environment. Technical regulations based on PPMs take on significance in international trade that they completely lack at the domestic level. Applied to traded goods, they have been accused of amounting to the importing country regulating activities that take place outside its borders. Of course *product*-based technical regulations may also force changes in foreign processes and production methods. The trade implications of PPM-based technical regulations are examined further in Section 5.1.

Performance-based regulations are a type of PPM-based standard, but they do not focus on the process of actual production. They require certain actions, such as environmental assessments, which are expected to improve environmental outcomes. Environmental management standards, for example, dictate a structure of firm management that is conducive to adequately addressing environmental concerns, spelling out reporting standards, mandating an objective of continuous improvement and so on.

Market-based instruments, like the regulatory measures described above, seek to achieve some desired outcome that improves or protects the environment. However, they do so not by specifying the behaviour of producers or the outcomes of production. Rather, they lay down incentives and disincentives that will hopefully achieve similar results. Rather than setting ambient pollution limits, for example, they may assess a charge per unit of pollution emitted. Common types of market-based instruments are taxes, charges, tradable permits and subsidies. The advantage of these instruments is that they are generally more economically efficient. Their drawback is that, like regulatory measures, they require precisely articulated environmental goals, as well as monitoring, to ensure that the desired results are being achieved.

Box 2.2: Standards versus technical regulations

In trade law, technical regulations are documents that lay out *mandatory* rules on product characteristics, the way a product is made, or the product's packaging or labelling. They are put into law and implemented by governments. Examples include mandatory health warnings on cigarette packages and minimum automobile efficiency levels. Traditionally, "mandatory" described guidelines that products had to follow to be allowed for sale, distribution or import in a jurisdiction (though that understanding is no longer so clear-cut; see Box 3.9).

Standards also describe product characteristics or the way a product is made, but, by contrast, these are voluntary. Examples include fair trade standards and guidelines for where governments should set their safety standards for consumer products. The latter are typically agreed at the international level in bodies such as the International Organization for Standardization (ISO), and often then become the basis for national technical regulations.

While in ordinary use both such measures may be called "standards," it is important to distinguish between the two, since they are treated quite differently under trade law.

It is possible to combine many of these measurements and standards when analyzing the full impact of a single product—to consider all the environmental impacts of a product’s production, use and disposal, and to combine them in a single life-cycle analysis (LCA). While not part of the regulatory toolbox *per se*, LCAs can be used to identify opportunities to reduce environmental impacts. They can also be used to compare the environmental impacts of otherwise “like” products—for example, cloth diapers and disposable diapers, or different kinds of beverage containers. LCAs by definition look at a large number of categories of environmental impacts—for example, water and energy use, or release of various pollutants. The challenge in comparing the life-cycle impacts of different products lies in adding up the various types of impacts—for example, how to add water pollution figures to biodiversity damage figures—and deciding how to weight them to calculate an overall measure of environmental impact.

This large number and variety of measures, usually used in combination rather than alone, create a complex management structure in which each measure complements the other, and few if any are effective just by themselves. It is important to recognize, however, that all of these measures, both regulatory and market-based, result in structural economic change as environmentally desirable activities are favoured and environmentally undesirable ones disadvantaged. In an open economy this probably means altering the flows of traded goods, creating potential problems for the trading system, which has traditionally dealt mostly with product-based technical regulations and standards.

2.3 Multilateral Environmental Agreements

Since the 1972 Stockholm Conference, an extraordinary number of international environmental agreements have been concluded. More than 1,000 multilateral environmental agreements (MEAs)—defined in this book as those involving more than two countries—are known to exist. A few of these are global treaties, open to any country. The number of bilateral agreements is over 1,500. The result is an international structure for environmental governance that is diverse and reflects the extraordinary range of issues and interests involved.

Very few MEAs actually regulate trade or mandate the use of trade restrictions. Of the 20 or so that do, even fewer are of notable significance to the environment-trade interface, as their measures do not substantially affect trade flows, or the value of the trade flows they do affect is not significant in global terms. Ultimately, the major interactions between MEAs and trade will not come from MEA-mandated trade-related environmental measures, but rather from the types of structural and social changes these agreements will bring about if they are successful. As noted below, fulfilling the UNFCCC commitments will necessarily imply fundamentally changing global patterns of production and consumption.

MEAs that are particularly relevant to trade are discussed in greater detail below.

Box 2.3: Key MEAs relevant to trade

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973
- Vienna Convention for the Protection of the Ozone Layer, 1985
 - ▷ Montreal Protocol on Substances that Deplete the Stratospheric Ozone Layer, 1987
- Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, 1992
- Convention on Biological Diversity (CBD), 1992
 - ▷ Cartagena Protocol on Biosafety, 2000
 - ▷ Nagoya–Kuala Lumpur Supplementary Protocol on Liability and Redress, 2010
 - ▷ Nagoya Protocol on Access to Genetic Resources and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity, 2010
- UN Framework Convention on Climate Change, 1992
 - ▷ Kyoto Protocol to the UN Framework Convention on Climate Change, 1997
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 1998
- Stockholm Convention on Persistent Organic Pollutants, 2001
- Minamata Convention on Mercury, 2013

Dates refer to the completion of negotiations, not entry into force. The Minamata Convention on Mercury, the Nagoya Protocol on Access and Benefit-sharing and the Nagoya–Kuala Lumpur Supplementary Protocol on Liability and Redress are not yet in force. All other treaties listed have entered into force.

The international structure of environmental governance is extremely dynamic. The various regimes address a wide variety of issues, ranging from toxic substances to endangered species, from air pollution to biodiversity. As well, they must respond to changing scientific information about the environment, changing perceptions of the significance of this information, and the constant feedback from the successes and failures of the measures adopted in support of their objectives.

2.3.1 The Key Trade-Related MEAs

This handbook defines MEAs as those agreements with more than two parties—that is, multilateral is anything bigger than bilateral. The word *multilateral* has a slightly different meaning for the trade community, for whom the multilateral trading system is the global trading system. Below are the MEAs that are particularly relevant to trade regimes because they directly control trade as a part of their operation and/or because they will significantly influence trade flows as a result achieving their objectives. The data on numbers of parties are current as of July 2014.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The earliest of the key MEAs, CITES was drawn up in 1973 and entered into force two years later. CITES seeks to regulate trade in certain species and their parts, as well as products made from such species. Three annexes list species identified by the Conference of Parties (on scientific advice) as requiring various degrees of trade restrictions to ensure their sustainability. These restrictions range from a general prohibition on commercial trade to a partial licensing system. CITES has long been known for the unusually active participation of NGOs, scientific and advocacy organizations in particular, in its deliberations. It has subsequently begun—not without controversy—to address species traded in such volumes as to have a significant economic value, such as certain tree and fish species. (178 parties.)

The Vienna Convention for Protection of the Stratosphere and the Montreal Protocol on Substances that Deplete the Stratospheric Ozone Layer. The Vienna Convention was concluded in 1985, at which time ozone depletion was suspected but not yet confirmed. It provided for research and cooperation to better understand the issue and formed a framework agreement under which specific protocols could be negotiated as needed. The evidence soon became stronger, and in 1987 the parties drafted the Montreal Protocol, establishing a regime of control for several classes of industrial chemicals now known to harm the stratospheric ozone layer. The Protocol has been amended four times to tighten controls. The result has been a ban on the production and use of several industrial chemicals, together with severe limitations on others. It has successfully implemented a precautionary approach, by acting before the availability of clear scientific evidence, and has also operationalized the principle of common and differentiated responsibility by establishing a fund to assist developing countries in their transition away from the use of controlled substances. Its principal implementation tool—apart from continuing public pressure—is the control of production and trade of ozone-depleting substances and trade in products containing controlled substances. The Montreal Protocol included the possibility of imposing controls on trade in products produced with (but not containing) controlled substances, but the parties

have not considered it necessary to implement such controls. (Vienna Convention: 197 parties; Montreal Protocol: 197 parties.)

The **Convention on Biological Diversity (CBD)**, the **Cartagena Protocol on Biosafety**, and the **Nagoya Protocol on Access to Genetic Resources and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity**. Opened for signature at the 1992 Rio Conference, the CBD's objective is conserving biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising from the use of genetic resources. The Convention has resulted in national biodiversity strategies and action plans in 178 countries. It has also produced two protocols: the Cartagena Protocol on Biosafety and the Nagoya Protocol on Access and Benefit-Sharing, discussed below. The CBD plays a major role in highlighting the importance of biodiversity issues globally, through research and public education. Linkages connecting the CBD regime with agriculture and the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) are discussed in Sections 4.5.1 and 4.5.2. (193 parties, 1 signatory not ratified.)

The Cartagena Protocol is the first protocol to the CBD, covering trade in most forms of living (genetically) modified organisms (LMOs) and the risks it may present to biodiversity. It creates an advanced informed agreement system for LMOs destined to be introduced to the environment (such as micro-organisms and seeds), and a less complex system for monitoring those destined for use as food, animal feed or processing. It sets out a procedure for countries to decide whether to restrict imports of LMOs, spelling out, for example, the type of risk assessment that must be carried out. In allowing such decisions to be taken even where the risks are unknown, the Cartagena Protocol operationalizes the precautionary approach. The Cartagena Protocol's provisions have subsequently been complemented with the Nagoya–Kuala Lumpur Supplementary Protocol on Liability and Redress. This instrument contains international rules on liability and redress for damage to biodiversity resulting from LMOs. (Cartagena Protocol: 166 parties; Nagoya–Kuala Lumpur Supplementary Protocol: 30 signatories, 24 ratifications. Will enter into force on the 90th day after receiving 40 ratifications.)

The CBD's Nagoya Protocol focuses on fair and equitable sharing of benefits with countries and local communities when genetic materials and associated traditional knowledge are being used in transboundary situations. The trade dimension comes from the Nagoya Protocol's relationship with the WTO TRIPS Agreement, discussed in Section 5.5.1. (92 signatories, 38 ratifications. Will enter into force on the 90th day after receiving 50 ratifications.)

The **UNFCCC** and the **Kyoto Protocol**. The UNFCCC, adopted at the Rio Conference in 1992, grapples with one of the most complex of all environmental issues, and the one with greatest potential for economic impacts: it aims to reduce the emission of various GHGs (such as carbon dioxide or methane) that contribute

to global climate change. Since such emissions can rarely be limited with technical, “end-of-pipe” technologies, the principal strategy of the UNFCCC must be to change the patterns of future production, consumption and investment in favour of activities that emit fewer GHGs.

In December 1997 the Kyoto Protocol was adopted, entering into force in February 2005. The agreement was structured around two categories of countries: those with GHG limitation commitments (industrialized countries) and those without. The Protocol’s first set of targets to limit GHG emissions applied in 2008–2012, and the second set of commitments will apply in 2013–2020. The challenge with the Protocol is that it only covers a decreasing proportion of global GHG emissions, since the United States never joined the Protocol, and several other industrialized countries have chosen not to undertake commitments in the new 2013–2020 period. Meanwhile, a number of countries—developed and developing—not covered by the Kyoto Protocol’s targets have set domestic goals and policies to limit their GHG emissions. Most of these countries have communicated information on their domestic goals to the UNFCCC.

Taken together, the Kyoto Protocol’s binding targets and UNFCCC parties’ national mitigation pledges cover the majority of global GHG emissions, although they are not adequate to prevent dangerous climate change. Negotiations are therefore ongoing concerning a new legal instrument that would apply from 2020 and cover all countries party to the UNFCCC.

Enhancing technology transfer toward developing countries is an integral part of the UNFCCC, as stated in its Article 4. In particular, the 16th session of its Conference of the Parties in 2010 established a Technology Mechanism, which includes a Technology Executive Committee, as well as a Climate Technology Centre and Network. The Centre aims to stimulate technology cooperation and enhance the development and transfer of climate-sound technologies that support climate change mitigation and adaptation. Finance is another increasingly important area of international climate change cooperation. The 16th Conference of the Parties also established the Green Climate Fund with the objective of making a significant and ambitious contribution to global efforts to address climate change. The Fund will seek to promote a paradigm shift toward a low-emission and climate-resilient development.

Although neither the UNFCCC nor the Kyoto Protocol specifically mandates that parties take trade-restrictive measures, it is highly likely that those parties, in limiting their GHG emissions, will adopt domestic policies and measures with significant trade implications. That likelihood was probably in the minds of drafters when they crafted UNFCCC Article 3.5, which commits the parties to promoting an “open economic system” that enables developing countries in particular to address climate change, and which adds language adapted from the General Agreement on Tariffs and Trade (GATT) Article XX: “Measures taken to

combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade.” Further, the Kyoto Protocol’s Articles 2.3 and 3.14 commit developed country parties to mitigating climate change in such a way as to minimize adverse impacts on developing countries—specifically referring to the sort of impacts that might come from environmental measures that restrict trade. (UNFCCC: 195 parties; Kyoto Protocol: 192 parties. The Kyoto Protocol was amended in 2012 for a second commitment period. For this Doha Amendment to enter into force, 144 ratifications will be required. As of March 2014, 7 parties had ratified the Doha Amendment.)

The three MEAs described below—the Basel Convention, Rotterdam Convention and POPs Convention—share the common objective of protecting human health and the environment from hazardous chemicals and wastes. Their parties are increasingly seeking to exploit synergies by enhancing cooperation and coordination.

Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal. The Basel Convention resulted from the concern of developing countries, particularly in Africa, that they could become the dumping ground for hazardous wastes whose disposal in the developed world had become difficult and expensive. Developing countries and NGOs have played a significant role in the regime since its inception. Discussions within the regime have been marked by disputes over the most appropriate strategy for controlling the movement of hazardous waste (regional bans versus prior informed consent) and the technical difficulty in establishing unambiguous distinctions between wastes and materials for recycling. In 1995, parties adopted an amendment banning the export of hazardous waste from mainly OECD to non-OECD countries. While the Ban Amendment is yet to enter into force, parties agreed, in 2011, on an interpretation of the Basel Convention that will expedite this entry. Parties have also adopted a protocol on liability and compensation, which is not yet in force. Numerous countries currently adhere to these two instruments, even though they are not yet in force. Not content to wait for the Ban Amendment to enter into force, and alarmed at several high-profile cases of illicit hazardous waste exports to Africa from developed countries, the Organization of African Unity convened negotiations on the Bamako Convention, a 1991 treaty under which 24 parties have outright banned the import of hazardous waste. Contemporary challenges under the Basel Convention include illegal trade in hazardous waste, capacity to ensure environmentally sound management and increasing waste trade among developing countries. (180 parties.)

Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade. The Rotterdam Convention is designed to help countries monitor and control trade in certain hazardous chemicals. Many domestically banned or severely limited goods

are traded internationally. For years there was controversy over the procedures to ensure that the appropriate authorities in the importing country were informed promptly. Indeed, a working group of the GATT (the predecessor of the WTO) devoted several years of negotiation to this topic, without achieving a generally acceptable result. UNEP (concerned with the management of potentially toxic substances) and the Food and Agriculture Organization of the United Nations (FAO) (concerned with pesticide use) had a strong interest in developing a uniform system of notification. The PIC regime under the Rotterdam Convention offers assurance that information will be provided quickly, and that it will reach the appropriate authorities when needed. The Convention also creates a system that allows developing countries to stop the import of certain substances if they feel a need to do so. Also, exporting countries are required to ensure that chemicals subject to the PIC regime are not traded contrary to the importing party's decision. (154 parties.)

Stockholm Convention on Persistent Organic Pollutants (POPs). The POPs Convention entered into force in May 2004. It establishes an international regime for the control of certain substances that persist in the environment and can accumulate in the food chain, all of which are suspected of disrupting hormonal functions in animals and humans (such chemicals are known as endocrine disruptors). The controlled substances are listed in three annexes: Annex A envisages elimination of 18 chemicals or classes of chemicals (subject to time-limited exceptions); Annex B imposes restrictions on the listed chemicals, including DDT; and Annex C deals with the unintentional releases of certain chemicals. The POPs Convention also establishes a procedure for adding to these annexes, which has been used twice. In 2009, the three annexes were amended to include nine new POPs. In 2011, Annex A was amended to list endosulfan and its related isomers with a specific exemption. (179 parties.)

Minamata Convention on Mercury. Finalized in 2013, the Minamata Convention is the most recent MEA adopted. It was signed in Minamata, Japan, where a number of people were exposed to severe mercury poisoning and developed a neurological disease known as the Minamata disease. The Convention's objective is to protect human health and the environment from emissions and releases of mercury and mercury compounds. The Convention requires countries to phase out or take measures to reduce mercury use in certain products, such as batteries, switches, lights, cosmetics, pesticides and measuring devices, and reduce the use of mercury in dental amalgam. Countries are also required to phase out or reduce the use of mercury in manufacturing processes such as chlor-alkali production, vinyl chloride monomer production and acetaldehyde production. Like the Montreal Protocol, the Minamata Convention leaves room for later amendments to its annexes in light of new information and technologies. (99 signatories, 1 ratification; will enter into force on the 90th day after receiving 50 ratifications.)

Forests under international environmental law. Several other international environmental regimes are still being negotiated, some of which are likely to remain based on a less formal understanding between the interested parties. One of these, the international forest regime, remains controversial and is not fully articulated; most observers doubt that it will coalesce into a multilateral agreement in the near future. There are, however, significant forest-related initiatives under MEAs, including negotiations under the UNFCCC to develop a new mechanism known as REDD+, which aims to reduce deforestation and forest degradation in developing countries. Countries also cooperate bilaterally, for example to combat trade in illegally harvested timber through a system of voluntary partnership agreements under the European Union's Forest Law Enforcement, Governance and Trade initiative. There are also viable private regimes for forestry, the result of collaboration between producers and environmental NGOs on labelling for sustainable practices. These regimes are highly relevant for trade, since they involve widely traded commodities.

2.3.2 Implementation and Dispute Settlement

International environmental regimes involve complex interactions among the parties, their sub-national jurisdictions, their citizens and, sometimes, other stakeholders. In practice it often takes several rounds of negotiation before an effective regime emerges. Even then, implementing an MEA at the national level and monitoring its progress at the international level requires continual adjustment—the result of intensive further research on the environmental problem and on the regime's effectiveness—and ongoing public debate on the results of the research, among other elements.

It is widely recognized that coercing countries into action is not a sound basis for international environmental policy. In the first place, there is seldom potential for the kind of effective economic leverage that is possible under trade dispute settlement. In the second place, non-compliance in environmental regimes is more often due to lack of capacity to implement than it is to strategic misbehaviour. Therefore, international environmental regimes use coercive dispute settlement only on rare occasions, and are more apt to use capacity building, dialogue and transparency as solutions.

Another reason for the lack of coercive mechanisms—and rare use of the few existing mechanisms—is that, unlike in the trade context, non-compliance by one country often does not directly harm another country, but rather usually impairs the global commons. In such cases, it may be that no individual country is so harmed by non-compliance that it is worth the international diplomatic costs to pursue coercive dispute settlement. Following this logic, coercive mechanisms are most used in disputes over shared waters in regional and bilateral agreements, where there is direct harm.

Transparency and participation are arguably the most important implementation tools of international environmental regimes. NGOs can be instrumental in this regard by assessing a country's internal implementation of MEAs and exerting pressure on the government for good faith compliance. Science-based assessments of environmental developments provide the foundation for most of these agreements, and all of this activity depends on a free flow of information and ready access to decision making in the regime.

2.3.3 Trade-Related Provisions in MEAs

One of the environmental community's fears from the beginning of the trade and environment debates has been that a trade law dispute panel will find that a country, by fulfilling its obligations under an MEA, has breached its trade law obligations. Actual conflicts of this type between WTO law and trade-related provisions in MEAs, though, have been rare; the real core of the trade and environment legal conflicts to date has involved non-MEA-related domestic measures of the type surveyed in Section 2.3. The WTO–MEA relationship is discussed in greater detail in Section 5.4. What follows is a primer on the nature and use of trade-related provisions in MEAs.

As noted earlier, trade-related provisions in MEAs are uncommon, but those that exist may have important effects on international trade flows. The trade-related provisions found in five MEAs are described in Box 2.4.

Box 2.4: Trade-related provisions in selected MEAs

The Basel Convention. Transboundary movement (i.e., international trade) of hazardous wastes and other wastes within the scope of the Convention may take place only under the control procedure established by the Convention. Parties may only export a hazardous waste to another party that has not banned its import and that has provided prior consent to the import in writing. Parties may not import from or export to a non-party, unless there is an agreement or arrangement in place that does not derogate from the provisions of the Convention. Parties are also obliged to prevent the import or export of hazardous wastes if they have reason to believe that the wastes will not be treated in an environmentally sound manner at their destination. The Ban Amendment (see above) envisages a ban on all hazardous waste exports from OECD countries to non-OECD countries.

CITES. CITES generally prohibits commercial international trade in several hundreds of species identified as threatened with extinction (i.e., “endangered”). It also regulates and monitors (by use of permits, quotas and other control measures) trade in many thousands of other species that might become threatened with extinction (or endangered).

The Montreal Protocol. The Protocol lists certain substances as ozone depleting, and generally bans all trade in those substances between parties and non-parties. Similar bans may be implemented against parties as part of the Protocol's non-compliance procedure. The Protocol also contemplates allowing import bans on products made with, but not containing, ozone-depleting substances—a ban based on PPMs.

The Rotterdam PIC Convention. The Convention provides for a national decision-making process on export and import of chemicals whereby parties can decide which of the chemicals listed in the Convention they wish to agree to import. When trade does take place, the PIC procedure (including labelling and information requirements) applies. Decisions taken by the parties must be trade neutral: if a party decides not to consent to imports of a specific chemical or to consent only under specified conditions, it must also stop domestic production of the chemical for domestic use.

The Cartagena Protocol on Biosafety. Parties may restrict the import of some LMOs as part of a carefully specified risk-management procedure. LMOs that will be intentionally released to the environment are subject to an advance informed agreement procedure, and those destined for direct use as food, feed or processing must be accompanied by documents identifying them.

The Minamata Convention on Mercury. Parties may export mercury only where the importing party has given its written consent for the transaction and commits to storing and using the imported mercury in ways allowed by the Convention. The Minamata Convention also regulates trade with non-parties. The importing non-party must give its written consent to the import and certify that it has measures in place for the protection of human health and the environment. The non-party must also certify that the mercury will only be used and stored in accordance with the Convention's provisions, and that it will comply with the Convention's provisions on mercury wastes.

Why do some environmental agreements incorporate trade-related provisions? The explanation will vary according to the circumstances of the agreement. There are at least four reasons why such measures are sometimes considered necessary:

1. **Integrity of regulatory frameworks.** Environmental agreements such as the Montreal Protocol restrict the domestic production of substances that cause global environmental harm. But those domestic restrictions would be meaningless if the parties then allowed imports of those same substances from non-parties that had no such controls. In such cases trade restrictions help to protect the integrity of the regulatory frameworks that the agreements put into place.

2. **Containment.** Sometimes, the practical requirements of administering environmental market disciplines impose a need to restrict the movement of certain goods. For example, imposing size limits on lobsters that are caught generally protects lobster stocks, but in warmer waters lobsters mature faster, so a smaller size limit achieves the same conservation goal. As such, from a purely ecological perspective smaller lobster should be acceptable from colder-water countries. But a trade panel under the Canada–United States Free Trade Agreement ruled that the United States may exclude smaller Canadian lobsters from its market because it could not maintain an essential conservation discipline without such a ban; it would be too difficult to prevent undersize U.S. lobster from being falsely labelled as Canadian in U.S. markets. Similar reasoning can apply to hazardous wastes or toxic substances, both of which become increasingly difficult to control and manage the farther they are transported.
3. **Controlling markets.** Some products may have high demand, but meeting that demand may destroy the resources on which they are based. It can prove difficult or even impossible to ensure that the scarcity value of these products is adequately reflected in the price, or that the associated profits are distributed in a way that promotes rather than undermines conservation. Under these circumstances, an international structure of market control is required. This is the logic behind CITES and plays a significant role in the CBD.
4. **Ensuring compliance.** The threat of imposing limits on trade with non-parties can be an effective tool for securing greater compliance with MEAs than might otherwise be obtained. This was done in the Montreal Protocol. Clearly, it is important to ensure that the limits are neither arbitrary nor disproportionate; that is, they cannot restrict a substantial amount of trade to address a relatively limited environmental problem.

Trade law looks rather differently on trade measures taken for environmental purposes when they are taken pursuant to an MEA. But, in the end, a number of variables come into play, such as whether the measure in question is specifically mandated by the MEA, or not specifically mandated but taken in pursuit of MEA objectives. This set of issues is explored in more depth in Section 5.4.

Box 2.5: Trade and climate change

The UNFCCC and its Kyoto Protocol have as their ultimate goal to prevent dangerous anthropogenic climate change (climate change caused by human behaviour), currently defined as limiting global average temperature increase (relative to pre-industrial times) to below 2°C. Achieving this objective requires fundamental economic changes in a relatively short time span. As such, while neither agreement includes any specific mandates to take trade measures, the policies parties implement to fulfil their commitments under these agreements are likely to have important impacts on trade and investment.

For example, several countries are seeking to put a price on pollution and internalize the cost of GHG emissions through emission trading schemes and taxes. There would be links to international trade if those countries sought to impose similar carbon costs on unregulated foreign producers. Such measures could take the form of either a border tax or a requirement for importers to hold emission allowances (see Section 5.2 on border carbon adjustment). Different issues might be raised by cap-and-trade regimes that use free allocation of emission allowances, which could be challenged as illegal subsidies.

Many countries use standards and labelling requirements for products in an effort to reduce GHG emissions and improve energy efficiency. Examples include fuel-efficiency standards for cars, emission limits for diesel engines, eco-design requirements for energy-using products and labels that rate products' associated GHG emissions. These measures fall under the WTO Agreement on Technical Barriers to Trade (TBT Agreement), where the key requirement is that they be no more trade restrictive than necessary to fulfil the legitimate goal of environmental protection.

Many countries are encouraging domestic economic activity in sectors that address climate change, such as renewable energy goods, biofuels and electric vehicles. Most of the support policies in these sectors are potentially illegal subsidies of one sort or another: grants of land or cash, low-interest loans, tax breaks, R&D support, export credit, etc. Other policies, such as premium rates for renewably generated electricity, may or may not be subsidies (see Section 3.4.7, Section 5.8.3 and Box 3.12 for detailed discussion). When subsidies are conditioned on the use of local content, as many are in a bid to develop domestic manufacturing capacity, they are even more problematic from a trade law perspective (see Sections 5.6 and 5.8).

Technology and innovation are important to meet climate change mitigation objectives. There is a wide spectrum of views among countries on whether intellectual property rights (IPRs)—such as those dictated by the WTO TRIPS Agreement—are barriers to technology development, diffusion and transfer to developing countries, or whether IPRs are essential for technology development and diffusion. In fact, as Section 5.5 argues, this is a false dichotomy; both sides are right.

The UNFCCC also covers adaptation to negative consequences of climate change, some of which can no longer be avoided. Most economic sectors are likely to be affected by climate change. Agriculture, tourism, trade infrastructure and trade routes are particularly vulnerable to the negative impacts of climate change. In a related vein, there may be calls in the future for the policy space to violate trade and investment rules in the service of adaptation to climate change; for example, to ensure food security in the face of changing weather patterns and worsening agricultural productivity.

Suggested Readings

Introduction and principles

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Mitchell, R.B. (2014). *International environmental agreements (IEA) database project*. <http://iea.uoregon.edu>

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3. International Trade Law

The foundations of the contemporary international trade regime date back to 1947, when the GATT was concluded. This agreement, salvaged from an unratified broader agreement that would have also established an International Trade Organization, was to be one piece of the Bretton-Woods system, designed in the post-World War II environment to promote and manage global economic governance and development. (The International Monetary Fund and the International Bank for Reconstruction and Development, more commonly known as the World Bank, were the other two main pieces.) The 48-year history of the GATT established the five basic functions of the multilateral trade regime:

- Administering trade agreements.
- Acting as a forum for trade negotiations.
- Settling interstate trade disputes.
- Reviewing national trade policies.
- Assisting developing countries in trade policy issues through technical assistance and training programs

From 1948 to 1994, the GATT Secretariat oversaw the evolution of the multilateral trade regime, including eight negotiating “rounds” that further developed the trade regime along the above-noted lines. Early rounds focused more on lowering tariffs, but non-tariff barriers began coming to the fore in the so-called Kennedy Round, which ended in 1964.

The last of these negotiations, the Uruguay Round, concluded in 1994. The Marrakesh Agreement Establishing the WTO marked the end of the round and established the WTO in 1995 as an organizational structure to administer the GATT and the other multilateral trade agreements. Never properly established as an international regime since its awkward beginnings, the multilateral trade system now had a real “home.” Among the key changes brought about at this time was the creation of a more effective dispute settlement system, completed by an appeal procedure, through the establishment of a permanent tribunal, the Appellate Body (AB).

In 2001, at the WTO’s fourth Ministerial Conference, the Members initiated a new work program of negotiations, analysis and work to implement existing agreements: The Doha program of work, in this book referred to as the Doha Agenda, and the outcomes reached at the Bali Ministerial Conference in 2013 are discussed in greater detail in Section 6.1 and in various sections of Chapter 4.

In parallel with the evolution of the multilateral trade regime, other aspects of international trade were also developing. The development of the internal

European market both foreshadowed and underpinned the deepening continental integration. Regional trade agreements in North America, South America, Asia and elsewhere emerged, with differing degrees of trade liberalization. As well, non-tariff issues continued to grow in importance within the trade regime. By 1992–1994 (the period for final negotiations for both the North American Free Trade Agreement [NAFTA] and the WTO) they came to include IPRs, investment rules, subsidies and other areas of laws and regulations that impact trade.

This vast expansion of trade rules has, not surprisingly, led to a much larger array of connections between trade law and the environment. This section and the following one identify the basic elements of the WTO and its law, as well as other sources and elements that today constitute the international trade law regime, along with their linkages to environmental management and protection. These include the most important functions, principles and agreements that provide the foundation for today's trade regime.

3.1 Objectives of the WTO

The goals of the WTO are set out in the preamble to the Marrakesh Agreement Establishing the WTO and include the following:

- Raising standards of living
- Ensuring full employment
- Ensuring large and steadily growing real incomes and demand for goods and services
- Expanding the production of and trade in goods and services

According to the preamble, these objectives are to be achieved while allowing for the optimal use of the world's resources in accordance with the objective of sustainable development, and while seeking to protect and preserve the environment. The preamble also specifically mentions the need to assist developing countries, especially the least developed ones, to secure a growing share of international trade.

3.2 Structure of the WTO

The basic structure of the WTO includes the following bodies:

- The **Ministerial Conference** is composed of international trade ministers from all member countries. This is the governing body of the WTO, responsible for setting the strategic direction of the organization and making all final decisions on agreements under its wings. The Ministerial Conference meets at least once every two years. Although voting can take place, decisions are generally taken by consensus, a process that can be difficult in a body composed of 160 very different Members.

- The **General Council** is composed of senior representatives (usually ambassador level) of all Members. It is responsible for overseeing the day-to-day business and management of the WTO, and is based at the WTO headquarters in Geneva, Switzerland. In practice, this is the key decision-making forum of the WTO for most issues. Several of the bodies described below report directly to the General Council.
- The **Trade Policy Review Body** is also composed of all the WTO Members, and it oversees the Trade Policy Review Mechanism (TPRM). It periodically reviews the trade policies and practices of all Members. These reviews are intended to provide a general indication of how Members are implementing their obligations and to help them improve their adherence to WTO obligations.
- The **Dispute Settlement Body (DSB)** is also composed of all the WTO Members. It oversees the implementation and effectiveness of the dispute resolution process for all WTO agreements, and the implementation of the decisions on WTO disputes. Disputes are heard and ruled on by dispute resolution panels chosen individually for each case, and by the permanent Appellate Body (AB) established in 1995. Dispute resolution is mandatory and binding on all Members. A final decision of panels and the AB can only be rejected by a full consensus, expressed by the DSB.
- The **Councils on Trade in Goods and Trade in Services** operate under the mandate of the General Council and are composed of all Members. They provide a mechanism to oversee the details of the general and specific agreements on trade in goods (such as those on subsidies and agriculture) and trade in services. There is also a Council for the TRIPS Agreement, dealing with just that agreement and subject area.
- The **Secretariat** and **Director-General** of the WTO reside in Geneva, in the old home of the GATT Secretariat. The WTO Secretariat numbers around 600 positions and undertakes the administrative functions of running all aspects of the organization. The Secretariat has no legal decision-making powers but provides vital services, and often advice, to Members. The Secretariat is headed by the Director-General, who is elected by the Members.
- The **Committee on Trade and Environment (CTE)**, the **Committee on Technical Barriers to Trade (TBT)**, and the **Committee on Sanitary and Phytosanitary (SPS) Measures** are three of the other committees established in 1994 as part of the Marrakesh package of agreements and ministerial decisions. They have specific mandates that are especially relevant to how the WTO deals with sustainable development issues. The forerunner to the CTE (the Group on Environmental Measures

and International Trade) was established in 1971, but did not meet until 1992. The mandate of the CTE, TBT and SPS committees is discussed in greater detail in Sections 3.3.1, 3.3.2 and 3.3.3.

A diagram of the WTO structure is available at http://www.wto.org/english/thewto_e/whatis_e/tif_e/organigram_e.pdf

All WTO Members may participate in all councils, committees and bodies, except the AB, dispute settlement panels and plurilateral committees. International intergovernmental organizations are sometimes given observer status to follow the discussions in the committees or other WTO bodies in which they have a direct interest. UNEP was given observer status for the CTE, but its request for observer status in other relevant bodies, such as the TBT Committee and the SPS Committee, has been pending for the last 12 years.

Box 3.1: Four phases of the WTO dispute settlement proceedings

Consultations. Parties to a dispute are obliged to see whether they can settle their differences before proceeding to dispute panel. If consultations are not successful within 60 days, the complainant can ask the DSB to establish a panel. The parties may also undertake good offices, conciliation or mediation procedures. In practice, however, consultations often continue for longer than 60 days, as the Dispute Settlement Understanding (DSU) sets forth only their minimum duration.

The panel. The three-member panel chosen from a roster of experts decides the case in a quasi-judicial process. Where the dispute involves a developing country, at least one panelist is from a developing country. The panel report, which should be circulated to all WTO Members within nine months of panel establishment, becomes the ruling of the DSB unless it is rejected by consensus or appealed.

Appeals. The possibility of appealing a panel ruling is a new feature in the WTO as compared with GATT. Either party can appeal the ruling of the panel based on points of law. Appeals are heard by three of the seven Members of the permanent AB. The AB may uphold, modify or reverse the legal findings and conclusions of the panel in a report issued within 60 to 90 days.

Surveillance of implementation. The member found violating WTO rules is required to state its intentions to comply with the ruling and relevant WTO agreements within 30 days of the DSB adopting the report. If the party fails to implement the report within a reasonable period (usually between 8 and 15 months), the disputing Members enter negotiations to agree on appropriate compensation. If this fails, the prevailing party may ask the DSB for permission to retaliate, for example by imposing trade sanctions, the level of which can be

subject to arbitration. Even where the authorization to retaliate is granted, this does not bring the dispute to a definitive conclusion; the subject matter of the dispute remains on the DSB agenda until the infringing measure is either modified or withdrawn, the latter two options being the only definitive way to formally conclude a WTO dispute.

3.2.1 The CTE

The terms of reference given to the CTE at its inception in Marrakesh were, in part, the following:

- To identify the relationship between trade measures and environmental measures, in order to promote sustainable development.
- To make appropriate recommendations on whether any modifications of the provisions of the multilateral trading system are required, compatible with the open, equitable and non-discriminatory nature of the system.

The committee narrowed this broad mandate down to a 10-item agenda for work (see Box 3.2) and used this agenda as its framework for discussions until its role was fundamentally expanded by the 2001 Doha Declaration. In Doha, WTO Members charged the committee to serve as a negotiating forum on three issues:

- The relationship between the WTO and MEAs.
- Procedures for information exchange between MEA Secretariats and the WTO, and criteria for granting MEAs observer status in WTO meetings.
- Reducing or eliminating barriers to trade in EGS.

This aspect of the CTE's work contributes to the Doha Agenda, a role that the CTE undertakes in parallel with its work in regular sessions, and for which it convenes in special negotiating sessions. The CTE was also instructed, in pursuing its work on the 10-point agenda, to give particular attention to three issues (though not in the form of negotiations):

- The effect of environmental measures on market access and the environmental benefits of removing trade distortions.
- The relevant provisions of the TRIPS Agreement.
- Labelling requirements for environmental purposes.

The substance of these issues is discussed in depth in Chapter 5, and the specifics of the CTE's revised agenda are taken up in greater detail in Section 4.1.

Box 3.2: The Marrakesh Mandate for the CTE

The CTE was created with an agenda of 10 items for discussion:

1. The relationship between trade rules and trade measures used for environmental purposes, including those in MEAs.
2. The relationship between trade rules and environmental policies with trade impacts.
3.
 - a) The relationship between trade rules and environmental charges and taxes.
 - b) The relationship between trade rules and environmental requirements for products, including packaging, labelling and recycling standards and regulations.
4. Trade rules on the transparency (that is, full and timely disclosure) of trade measures used for environmental purposes, and of environmental policies with trade impacts.
5. The relationship between the dispute settlement mechanisms of the WTO and those of MEAs.
6. The potential for environmental measures to impede access to markets for developing country exports, and the potential environmental benefits of removing trade restrictions and distortions.
7. The issue of the export of domestically prohibited goods.
8. The relationship between the environment and the TRIPS Agreement.
9. The relationship between the environment and trade in services.
10. WTO's relations with other organizations, both non-governmental and intergovernmental.

3.2.2 The Committee on Technical Barriers to Trade

The TBT Agreement regulates the use of standards, technical regulations and conformity assessment procedures by WTO Members. (The TBT Agreement is discussed in more detail in Section 3.4.5, and the distinction between technical regulations and standards is explained in Box 2.2).

At the national level, these measures are used to pursue legitimate policy objectives including environmental protection, while having potentially significant effects on trade flows and market access. Hence, they represent a clear “working linkage” between trade and environmental issues. This strong connection emerges prominently from the work of the TBT Committee, which meets three times per year. Its mandate is built into the text of the TBT Agreement and can be summarized as follows:

- Reviewing the way the TBT Agreement is implemented and operated, with both annual and triennial review processes.
- Receiving and discussing notifications of Members’ measures falling under the scope of the Agreement.
- Receiving and discussing “specific trade concerns”.

The TBT Committee provides an opportunity to consult on any matters relating to the operation of the TBT Agreement or the furtherance of its objectives. By providing a platform to discuss so-called *specific trade concerns*, the TBT Committee offers the chance to raise and discuss concerns about market-access effects of other Members’ TBT measures. Ultimately, this avoids costly legal proceedings within the WTO. In most cases, through bilateral and plenary discussions, Members reach mutually satisfactory solutions in relation to their concerns related to TBT measures (discussed in Sections 3.5.4).

3.2.3 The Committee on Sanitary and Phytosanitary Measures

The SPS Agreement deals with measures aimed at protecting human, animal or plant life or health from food-borne risks and from risks from pests and diseases (discussed in more detail in Section 3.4.6). Food-borne risks, as well as the spread of pests and diseases, all relate closely to various categories of environmental concerns, and hence deserve special attention. The SPS Agreement affirms the sovereign right of WTO Members to take measures for the protection of human, animal or plant life or health, and spells out the conditions under which an SPS measure is consistent with WTO law.

The SPS Agreement contains a mandate for the SPS Committee, which normally meets three times per year. The main functions of the SPS Committee are the following:

- Reviewing the way the SPS Agreement is operated and implemented.
- Maintaining a constant dialogue with the recognized international standardizing bodies: the Codex Alimentarius Commission, the International Office of Epizootics and the Secretariat of the International Plant Protection Convention.

- Providing a forum for discussing specific trade concerns.
- Monitoring the process of international harmonization and the use of international standards, guidelines or recommendations.

As with the TBT Committee (but to a somewhat lesser extent), the SPS Committee serves as a way to prevent costly and lengthy formal disputes. It provides a forum in which Members can raise concerns with proposed or existing SPS measures and, ideally, have those concerns addressed.

3.3 The Core Principles

The WTO aims to achieve its objectives by reducing existing barriers to trade and by preventing new ones from developing. It seeks to ensure fair and equal competitive conditions for market access, and predictability of access for all traded goods and services. This approach is based on two fundamental principles: the national treatment and most-favoured nation (MFN) principles. Together, they form the critical “discipline” of non-discrimination at the core of trade law.

- The **principle of national treatment** requires, in its simplest terms, that the goods and services of other WTO Members be given no worse treatment than “like” goods and services of a member’s own country.
- The **MFN principle** requires that if any advantage is given to the goods and services of one country, it must be extended to any “like” goods and services from all WTO Members.

Members must follow these non-discrimination principles among “like” products and services: those of a similar quality that perform similar functions in a similar way. They are, of course, free to discriminate among products that are not like—foreign oranges need not be treated the same as domestic carrots. Note, however, that products that are not physically or chemically identical can still be considered like products if, among other things, evidence exists that those products/services are in a competitive relationship. The “like products test,” which determines which products are and are not like, is thus of central importance. The non-discrimination principles and the notion of like products are discussed further in Section 3.4.2.

The concept of sustainable development, present in the preamble to the WTO Agreement, has arguably emerged as a principle to guide the interpretation of the WTO agreements. The 1998 AB ruling in the *U.S.–Shrimp* case (see Box 3.3), made clear that the interpretation of WTO law should reflect the Uruguay Round’s deliberate inclusion of the language and concept of sustainable development. The ruling may have moved the WTO toward requiring the legal provisions of its agreements to be interpreted and applied in light of the evolving principles and legal standards of sustainable development. Subsequent rulings, such as *China–Raw Materials*, have also made explicit reference to the objective of sustainable development (see Box 3.5).

How the WTO will use sustainable development as a principle of interpretation in the future remains, of course, to be seen. While standards of review based on the agreements themselves would be preferable to the unpredictable consideration offered by the preambular reference, elevating sustainable development to this role still represents a major step in making trade policy and environmental objectives mutually supportive.

Box 3.3: The *U.S.—Shrimp* case

The AB rulings in the *U.S.—Shrimp* case are something of an environmental landmark. The case stemmed from a U.S. measure banning the import of shrimp from countries that did not require protection measures similar to those mandated for the U.S. fleet to protect endangered sea turtles from drowning in shrimp nets. The dispute thus concerned how the WTO would define “like” products, discriminating among shrimp imports based on the way the shrimp was harvested.

In October 1996, India, Malaysia, Pakistan and Thailand complained to the WTO that the measure violated WTO rules by discriminating between like products (i.e., between shrimp that had been harvested with and without turtle-saving measures). The dispute panel agreed, as did the AB. But the latter went against the traditional understanding, ruling that the measure could, under certain conditions, be allowed under GATT’s Article XX(g) exception, which focuses on conservation of natural resources. It also set a precedent by looking outside trade law to several MEAs in helping it to define exhaustible natural resources as including living resources (such as turtles).

But the AB faulted the United States on process, finding unjustified or arbitrary discrimination, including the following:

- Specifying the use of a specific technology—the turtle excluder device—rather than specifying an environmental objective.
- Giving the complainants less lead time for compliance than given to other countries.
- Rejecting shrimp based on prevailing policy in the country of origin, even if the shrimp in question had been caught using acceptable U.S. standards.
- Failing to take into account the relative cost of turtle excluder devices in developing countries.
- Failing to explore multilateral alternatives with the complainants.

In a subsequent ruling made in 2001, the AB found that the United States had taken sufficient steps to remove unjustified or arbitrary discrimination. An important observation in this light is that the WTO allows a Member to take unilateral action, on the condition that an attempt for negotiation is made, to protect exhaustible natural resources beyond the scope of its territorial jurisdiction. Because turtles were considered migratory species and potentially cross U.S. waters, it was justified for the United States to take measures with extra-territorial effect for the purpose of protecting turtles. The measure challenged under the subsequent ruling qualified under the Article XX(g) exception.

The result of the *U.S.–Shrimp* case was not only a welcome set of precedents from a sustainable development perspective, but also a “rough principles” guide to what might make a measure acceptable even though it discriminates between like products because of their different environmental impacts. While the specifics will necessarily be different in each case, the “rough principles” include that a Member should first seek international cooperation, including good faith negotiations, before resorting to unilateral trade measures. If exporting Members do not agree to negotiate, or agreement is not reached despite good faith efforts, this allows greater leeway for a WTO Member to subsequently enact unilateral measures. In addition, foreign countries affected by trade measures should be allowed time to make adjustments. Due process, transparency, appropriate appeals procedures and other procedural safeguards must also be available to foreign states or producers to review the application of the measure.

3.4 The Key Agreements, with Special Consideration of Those Related to the Environment

The body of WTO law consists of a number of agreements negotiated by the Members, the result of the Uruguay Round of negotiations, but in large part building on the agreements and codes that preceded the creation of the WTO. Most of the agreements cover different aspects of international trade, ranging from rules on trade in goods to rules on trade-related IPRs. Some cover the working of the WTO system itself, such as rules on dispute settlement and on the establishment of the trade policy review mechanism. This section will briefly describe the WTO agreements that have the most relevance to the trade and green economy relationship.

3.4.1 The Preamble of the Marrakesh Agreement

The Marrakesh Agreement Establishing the WTO is the agreement that concluded the Uruguay Round of negotiations and established the WTO, and all the various WTO agreements and arrangements are covered under it. Although the text of the GATT itself was not amended in the Uruguay Round, the preamble of the Marrakesh Agreement is now understood to have made an important change to the original GATT's preamble by incorporating it and making key additions. The original text of the main paragraph of the GATT 1947 preamble is set out roman type below. The additions coming from the Marrakesh Agreement are in italics:

Recognizing 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.*

This addition has, in fact, taken root as a helpful guide in interpreting the GATT and other WTO agreements and, as a result, has had a significant impact on the decisions in the WTO's dispute settlement mechanism, especially in the AB (see, for example, Box 3.3 on the *U.S.–Shrimp* case). As a result of these decisions, GATT 1994 should be read and understood in the light of this new preamble.

In terms of its relationship to environmental management and protection, the GATT law needs to be worked through in a two-step manner: first, there are some specific disciplines, most notably on discrimination between domestic and imported products and on quantitative restrictions on imports and exports. Then there are exceptions to the rules, which establish the rights of Members to deviate from those disciplines for certain reasons, including environmental protection. Both steps are considered below.

3.4.2 GATT 1994

The GATT is the starting point for the key principles of trade law, whether multilateral, bilateral or regional. First concluded in 1947, it has stayed in largely the same form since then, forming an integral part of the Uruguay Round results as GATT 1994. It is composed of 38 articles and a number of explanatory understandings and addenda. This section reviews a few selected articles that are of key importance for the debate on the green economy.

Articles I and III: Non-discrimination, like products

Articles I and III of GATT are the legal home of the core principles of the WTO: MFN and national treatment. These principles were described earlier as together constituting the critical WTO discipline of non-discrimination.

Article I establishes the MFN principle. This requires parties to ensure that if any advantage is given to the goods of one country, it must be extended to all WTO Members. This provision is designed to prevent the erosion of the benefits offered to other Members during negotiations. If, after ceding a low tariff rate to all Members during the negotiations, a Member offers even lower tariffs to a privileged few, the benefits for which the other Members negotiated will have disappeared. The principle has now also been extended to other potential barriers to trade.

This rule has two major exceptions. The first applies to regional trade agreements. Where these have been adopted, preferential tariffs and other regulations may be established between the parties to these agreements. The second exception is for developing countries, and especially the least developed countries. Ad hoc WTO legal instruments such as the so-called Enabling Clause (a 1979 decision of the GATT Contracting Parties, now part of WTO law) allow Members to apply preferential tariff rates, or zero tariff rates, to products coming from these countries while still having higher rates for like products from other countries. These rules, which in theory would be in contrast with the GATT non-discrimination principles, are designed to help promote economic development where it is most needed.

Article III establishes the national treatment principle. This requires that the products of other WTO Members be treated “no less favourably” than “like products” manufactured in the importing country. The basic purpose of the national treatment rule is to ensure that products made abroad have the same opportunity to compete in domestic markets. That is, domestic taxes, laws, regulations and policies should not impact the competitive opportunities of imported products.

Two key issues arise here. First, what does “no less favourably” mean? Under trade law, it is understood that domestic measures can be different for imported and domestic products, as long as the resulting treatment of the imported product is no less favourable in terms of its opportunity to compete in a market. In addition, the law can be exactly the same on paper for both domestic and imported products, but if the effect of the law is substantially different between them, and the imported product is treated worse in practice (*de facto*), this could also be a breach of the national treatment rule.

The second key issue is what is meant by “like products.” Article III mandates no less favourable treatment for like products only, giving the definition great importance. That is, if two products are not found to be like, then discriminating between them is not a violation of GATT obligations.

The like products test is also important from an environmental perspective. Consider an example: are two tonnes of steel “like” even though one of them has been produced in a highly efficient manner that results in the fewest possible CO2 emissions? Traditionally, the GATT dispute panels used four criteria to determine whether products were like, all designed principally to test whether they were in direct competition for market share—whether they were “commercially substitutable”:

- Physical properties, nature and quality
- End uses
- Consumer tastes and habits
- Tariff classification

These four criteria should be applied to the products to be compared—in our case, the two tonnes of steel—and the result will tell us whether the two products are like, hence moving on to an assessment of non-discrimination requirements. However, the WTO’s AB has stated that the four tests described above are not treaty-mandated criteria, and that any final determination of likeness requires an overall assessment, based on a range of relevant criteria and related facts (see Box 3.4 on asbestos). That can include risks a product poses to human health or the environment, as long as these risks arise from a product’s physical characteristics or are reflected in consumer preferences.

Box 3.4: *EC–Asbestos* (likeness under the GATT)

The AB ruling in the *EC–Asbestos* case contributed to a better understanding of the way the “likeness test” functions in WTO dispute settlement. A product that presents intrinsic environmental and/or health risks might be considered “unlike” identical products not posing those same risks, and therefore not subject to non-discrimination obligations.

The case concerned a ban imposed by France on the importation of asbestos and certain products containing asbestos. In the late nineties, within the framework of a general policy to regulate the presence and use of asbestos on its territory, France had collected scientific evidence to prove that those products posed risks to human health and had to be removed from the market. The protection of public health provided the justification for the trade ban.

It is in this context that the AB stated its landmark line of reasoning in relation to the likeness test:

The Appellate Body stated that a product’s health risks are relevant to the determination of the competitive relationship between products, and

addressed health risks as part of the products' physical characteristics and of the tastes and habits of consumers. In respect of physical characteristics, the Appellate Body considered that a panel should examine fully the physical properties of products, in particular, those physical properties that are likely to influence the competitive relationship between products in the marketplace. (US—Clove Cigarettes, AB report, para. 118)

This reasoning (which was reaffirmed by the AB in 2011 in *Philippines—Taxes on Distilled Spirits* (paras. 112–128) confirms that likeness ultimately centres on the competitive relationship of two products in the marketplace—a principle established in previous cases. The asbestos case broke new ground by arguing that the environmental health impacts of a product could conceivably be important to that competitive relationship (and thus could be a legitimate basis for discrimination).

Article XI: Quantitative trade restrictions and licences

Article XI of GATT imposes another type of limit on measures that a Member can take to restrict trade. It prohibits the use of import or export bans or quotas, whether through simple bans or limitations or through import and export licensing schemes that amount to a quantitative restriction. This prohibition stems from the fact that such volume-based measures are more trade distorting than are price-based measures such as tariffs and taxes. Agricultural products currently benefit from a limited exception to Article XI and are generally subject to an entirely separate regime (the WTO Agreement on Agriculture [AoA]).

However, Article XI does not prohibit the use of market-based (i.e., non-quantitative) export limitations, which may include those taken for environmental conservation purposes. A typical example of such measures is provided by export taxes. WTO Members may discourage exports of raw materials through the imposition of additional levies, arguing that the extraction and processing are environmentally damaging. Some new WTO Members, however, have given up this right in their WTO Accession Protocols, and this has led to new conflicts between WTO law and national policies related to sustainable development (see Box 3.5 on *China—Raw Materials*). The broader question, which was broached in that case as well, is whether export restrictions are the right policy to address the environmental damage from extraction and processing, or whether domestic environmental regulations are more appropriate. Of course, in the end the two are not mutually exclusive, and domestic regulations are probably a necessary complement if export restrictions are to be seen as truly environmentally motivated.

Box 3.5: Export restrictions and environmental exceptions in *China–Raw Materials*

The AB ruling in the *China–Raw Materials* case is important from a green economy perspective in that it touched on a key issue (though not definitively): Can the GATT's Article XX exceptions be used to defend breaches in obligations contained in agreements other than the GATT itself?

In 2009, China had imposed export restrictions through taxes, licences and quotas on certain forms of bauxite, coke, fluorspar, magnesium, manganese, silicon carbide, silicon metal, yellow phosphorous and zinc. Most of these measures did not violate GATT Article XI's prohibition on export restrictions since they were not *quantitative* restrictions. However, pursuant to a specific commitment undertaken by China upon its accession to the WTO, Chinese non-quantitative export restrictions can be challenged by other WTO Members. China tried to defend the challenged measures by arguing the applicability of the environmental exceptions included in Article XX of the GATT, but the AB did not accept China's arguments. It held that GATT's Article XX provides shelter only to breaches of GATT obligations, and that since the complaint dealt with a violation of the conditions of China's Protocol of Accession (and absent any explicit reference to GATT Article XX in that Protocol), GATT Article XX did not apply.

While it was definitive in the context of China's Protocol of Accession, the AB ruling in this case left considerable uncertainty about how GATT Article XX might apply (or not) to other non-GATT agreements. It is worth asking, for example, whether GATT Article XX might apply to the WTO Agreement on Subsidies and Countervailing Measures (SCM)—an agreement that otherwise would have no environmental exceptions.

The *China–Raw Materials* case also provides an example of the endorsement of sustainable development as an interpretative principle of WTO law. The panel report makes various references to the relevant language in the preamble of the WTO Agreement, and no party contested the fact that WTO provisions should be interpreted in harmony with the principle of sustainable development.

Article XX: The environmental exceptions

In cases where a Member's national measure is found to be inconsistent with GATT rules, such as those contained in Articles I, III or XI of the GATT, a Member defending the measure can seek justification under certain specified exceptions to trade rules defined in Article XX of the GATT (entitled General Exceptions). Two of these exceptions are particularly relevant for environment-related measures, namely those contained in Articles XX(b) and XX(g) of the GATT. Recent case law raises the question whether Article XX(a) (discussed further below) might also be relevant.

Article XX reads, in part:

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...

A country wanting to use the environmental exceptions in Article XX of the GATT has two hurdles to clear. It must first establish the provisional justification for using Article XX by showing that sub-paragraph (b) or (g) applies. It must then establish that the measure in question does not contravene the lead paragraph, known as the chapeau of Article XX, quoted above.

Sub-paragraph (b) requires the country to show that the measure is “necessary” to protect the environment. In the GATT era, a country invoking this exception had to show that there was a need to use trade-restrictive measures and, if this was acceptably demonstrated, to show that the least trade-restrictive measure had been used. Passing such a necessity test constituted a difficult hurdle, particularly if the disputed measure was weighed against purely hypothetical alternatives, rather than those that were actually practical for environmental regulators. However, more recent WTO cases, such as *Korea–Various Measures on Beef* and *Brazil–Retreaded Tyres* have taken a more flexible approach for proving that a measure is necessary. To assess whether a measure is necessary a panel must, in a process of weighing and balancing, take different factors into account: (1) the relative importance of the objective of the measure, (2) the contribution of the measure to the objective pursued and (3) reasonably available less trade-restrictive alternatives, defining “reasonable” by considering such factors as the measure’s cost and the administrative capacity to implement it. In addition, the alternative measures must be equally effective in achieving the member’s objectives (see Box 3.6).

Box 3.6: Article XX(b) of the GATT in the *Brazil–Retreaded Tyres* dispute

The AB ruling in the *Brazil–Retreaded Tyres* case concerned a ban imposed by Brazil on imports of retreaded tires. The ban was motivated by public health and environmental concerns. Imports of retreaded tires mean fewer domestic tires being retreaded, and more being disposed of. Improperly stored, used tires are a breeding ground for disease-carrying mosquitos, and in mass storage they may burn in accidental fires that are particularly toxic. If a country does not have sufficient financial resources to establish proper control mechanisms in connection with those activities, environmental and health risks are significant.

Brazil defended its ban by resorting to GATT Article XX(b), arguing that the measure was necessary to protect human, animal or plant life or health. First, the AB and the panel asked whether the measure could be provisionally justified as necessary under Article XX(b), and found that it could. They found that the ban made a material contribution to the objective: It did in fact reduce the number of waste tires in Brazil, and this reduction did in fact have potential to protect against, among other things, mosquito-borne diseases such as malaria and dengue fever. And the AB and panel rejected the proposed alternative (less trade-restrictive) measures as less effective at achieving the desired end.

But the measure was then found to violate Article XX's chapeau. Brazil had granted a limited exception to the ban for its Mercosur trading partners, in response to a ruling issued by a Mercosur (Common Market of the South) tribunal. The AB found that this exception bore no relationship to the legitimate aim Brazil was pursuing—protection of public health—and that therefore the measure was being applied in a way that constituted arbitrary or unjustifiable discrimination.

In finding the ban provisionally justified under XX(b), the AB rejected the claim that it was necessary to actually quantify how much the ban contributed to the objective, allowing for a qualitative assessment. The AB argued that it might be difficult to isolate the contribution made by one element of a suite of policies aimed at addressing a complex problem, and that some benefits would only manifest over time. It cited climate change as an example of just such a complex problem. This argument is important because it shows insight into and deference for environmental policy making, and because it explicitly acknowledges climate change as a legitimate and challenging objective, even in a case not addressing the subject.

A member claiming an exception under sub-paragraph (g) of Article XX must demonstrate first that its measure is aimed at the conservation of “exhaustible natural resources.” The *U.S.–Shrimp* case (see Box 3.3) made progress, from an

environmental perspective, in defining exhaustible natural resources broadly, to include *living* resources (e.g., flora and fauna) as well as non-living resources (e.g., minerals) and renewable and non-renewable resources. Second, the measure must have been accompanied by domestic-level restrictions on management, production or consumption of the resource to be conserved. In other words, the costs of any conservation regime must not only be reserved for foreigners. Finally, the measure employed must be “relating to” the conservation goal. That is, the measure itself, including the administrative procedures that implement it, must show a rational relationship to the conservation ends being sought. These requirements help ensure that environmental protection is not merely disguised trade discrimination.

If a measure is provisionally justified as covered by XX(b) or XX(g), it must still pass the test imposed by Article XX’s chapeau, quoted above. That is, the measure should not be applied in a way that makes it an instrument of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade. While this sounds complex, the intent is simple: Even if the measure has some valid environmental purpose (as proved by the fact that it is covered by XX(b) or (g)), it must still be assessed to determine whether it is legitimately aimed at achieving that purpose, or whether instead it is aimed at economic protection of domestic industries. The approach of the chapeau is to look at how the measure is applied in practice; its role is as a filter to weed out measures implemented in a way that betrays the ostensible aims listed in the sub-paragraphs. As noted in Box 3.6, for example, the AB rejected Brazil’s used tire import ban even though it was justified as having an environmental objective, because that ban did not apply to fellow Mercosur members—an exception that seemed unrelated to the ostensible environmental goals of the measure.

Recent case law raises the interesting question whether Article XX(a) might also be used in future to cover environmental objectives. This article covers measures “necessary to protect public morals.” This seldom-invoked exception was recently tested in a case that examined an EU ban on seal products, implemented in response to concerns about animal cruelty in the hunting of seals for pelts (see Box 3.7). The AB in that case agreed the measure was provisionally justified under the public morals exception (though the measure later failed to pass the chapeau), and seemed to grant broad latitude to governments to define the moral welfare of their citizens. Could it be claimed that the destruction of rainforest wildlife habitat through deforestation (which could be seen as cruelty to animals) offends the public morals of a member importing palm oil grown on the deforested lands? Or that non-action on climate change constitutes publicly repugnant immoral behaviour toward future generations? It will be interesting to see how this question plays out in future.

Box 3.7: Animal welfare and public morals: *EC–Seal Products*

In 2014 the AB found the European Union violated WTO law by enacting measures that banned seal products from the European market. The EU “Seal Regime” instituted an import ban on seal products, in response to concerns about the suffering of seals during the hunts that produced seal pelts. The regime did allow seal products to enter the EU market if they were the by-products of culls (marine resource management), if the products were for personal use, or if the seal products came from the hunts of Inuit or other indigenous communities, provided that parts of the catch were used as food by the hunting communities.

One interesting element of the case was the resort by the European Union to the little-used GATT Article XX(a). The European Union claimed that its trade restrictions were *necessary to protect public morals*, which were offended by the suffering of hunted seals.

The AB and the panel gave broad deference to WTO Members to define “standards of right and wrong conduct, maintained by or on behalf of a community or nation,” and stated that “Members should be given some scope to define and apply for themselves the concept of public morals according to their own systems and scales of values.”

While the regime was found in compliance with subparagraph XX(a), being necessary to protect public morals, it did not meet the conditions of the chapeau of GATT XX (see Section 3.4.2). Among other things, the AB argued that the indigenous communities exception constituted unjustifiable and arbitrary discrimination, since it did not serve the objective of protecting public morals.

This case raises an interesting question: Could the public morals exception be used to justify discriminatory environmental measures if a member argues that foreign environmental damage offends its citizens’ morals?

3.4.3 The GATS

While the original focus of the international trade regime was on goods, the conclusion of the Uruguay Round expanded the regime’s scope toward regulating trade in services through the General Agreement on Trade in Services (GATS). The GATS applies to four modes of services supply: cross-border supply, consumption abroad, commercial presence and the presence of natural persons.

The core non-discrimination principles—MFN and national treatment—are also reflected in the GATS. MFN applies generally but, unlike in the GATT and other

WTO agreements, national treatment under the GATS is linked to commitments that WTO Members have made in their national schedules annexed to the GATS. In these schedules Members specify sector-specific commitments for (1) market access and (2) national treatment. For each sector a Member has agreed to include in its schedule, it has to list all measures that have a restrictive effect on market access or deviate from national treatment in order to be WTO compliant. A member can either commit fully (with no limitations regarding market access or national treatment), commit with limitations (listing all measures that limit market access and/or national treatment), make no commitment (excluding a sector or mode from liberalization) or technically not commit (when a sector or particular mode cannot be traded).

The GATS also provides for a general rule on transparency that requires Members to promptly publish all measures taken in relation to trade in services, allowing other Members to assess the impact of those measures and ask questions in the Committee on Trade in Services.

Similar to the general exceptions in Article XX of the GATT, Article XIV of the GATS provides the regulatory space for Members to take measures that are necessary to protect human, animal or plant life and health as long as they do not constitute an unjustifiable or arbitrary discrimination between countries where like conditions prevail or a disguised restriction on international trade in services.

Unlike the goods pillar of the WTO, there are no specific rules on subsidies in the area of services. Although it is recognized in the GATS that subsidies may have a distortive effect on trade in services, rules still have to be developed as part of the negotiations.

3.4.4 TRIPS

The WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement) is an international treaty that sets minimum standards for national laws in WTO Members to protect IPRs. The TRIPS Agreement covers a number of different types of IPRs (see Box 3.8). Of these, patents are the most important from an environmental perspective. The objectives, as laid out in Article 7 of the TRIPS Agreement, reaffirm that the purpose of IPRs is balance between the welfare of the innovator or creator and the welfare of society. The TRIPS Agreement states that IPRs should contribute to the following:

- Technological innovation.
- Transfer and dissemination of technology.
- The mutual advantage of technology users and producers in a manner that fosters social and economic welfare.

Box 3.8: Types of intellectual property rights

Intellectual property rights (IPRs) are granted through national laws, and each country has its own definitions of the various types of protected rights. The following types of IPRs are found in most national legislation:

- Patents: inventions of new products/processes.
- Copyrights: creations/works.
- Geographical indications: marks that identify goods as originating in a particular territory.
- Trademarks: commercial signs.
- Industrial designs: aesthetic features of a product.
- Integrated circuits: layout designs of integrated circuits.
- Undisclosed information: classified information of commercial value.

The TRIPS Agreement is special among the WTO agreements in that it is positively prescriptive. That is, most other WTO rules describe what countries should *not* do, whereas the TRIPS Agreement prescribes what countries *should* do. As a result, its implementation often requires extensive legislative and administrative reforms at the national level. The TRIPS Agreement is also noteworthy in that it directly concerns private rights: the rights of innovators and creators. Other WTO agreements focus on the rights and obligations of governments.

The TRIPS Agreement reflects a high level of protection for IPRs. It was, in fact, aimed at globally enforcing the types of high standards that existed in most developed countries at the time but were found in only a few developing countries.

The environmental implications of the TRIPS Agreement are explored in Section 5.5.

3.4.5 The TBT Agreement

The TBT Agreement was established in the Uruguay Round and was preceded by the plurilateral Standards Code originating in the Tokyo Round of 1979. It covers technical regulations, standards and conformity assessment procedures—measures that constitute non-tariff barriers to trade. (For an explanation of the distinction between standards and technical regulations, see Box 2.2.) Technical regulations are specifications of product characteristics that a good must meet to be traded: for example, energy efficiency standards for washing machines, or nutritional labelling requirements. Standards are non-mandatory product specifications. They

may include environmental, health, labour or other specifications that a product must meet to gain a label—for example, a requirement that forest products must originate from sustainably managed forests (see Section 5.3 on sustainability standards and eco-labels).

It is not always straightforward whether a measure is covered by the TBT. In the *EC–Seal Products* dispute (see Box 3.7) the panel ruled that the European Union’s Seal Regime, banning most seal products from the European Union, was a technical regulation, but the AB overturned that ruling, arguing that the ban did not on the whole lay down a product specification so much as specify that *all* goods should not contain seal products.

The TBT Agreement dictates when such barriers may be allowed and what conditions must be met, such as notification, non-discrimination, proportionality, transparency in developing the rules, the use of international standards when appropriate, and so on. It applies fully to all technical regulations, including those propounded by most levels of local government. Standards such as eco-labels are much less strictly regulated under what is called the Code of Good Practice, included in Annex 3 of the TBT Agreement.

The TBT Agreement acknowledges the Members’ right to enact technical regulations, standards and conformity assessment procedures to achieve legitimate objectives (such as environmental protection) even though they may be trade restrictive, but balances this right against a positive obligation to design and implement these measures such that they do not constitute unnecessary obstacles to international trade. The Agreement requires that technical regulations “not be more trade restrictive than necessary to fulfill a legitimate objective,” and provides a non-exhaustive list of legitimate objectives that includes environmental protection. So the key question from an environmental perspective is how we might determine what level of trade restriction is “necessary.” Part of the answer to that question comes from asking whether there are other, less trade-restrictive measures that could just as effectively fulfill the legitimate objective.

Box 3.9: Eco-labelling and the WTO: *U.S.–Tuna II (Mexico)*

In 2012, the AB issued three reports clarifying the meaning of different substantive provisions of the TBT Agreement. The *U.S.–Tuna II* case in particular is relevant for a debate on environmental policies, more specifically on labelling requirements and how to design them in a WTO-compliant manner. In *U.S.–Tuna II*, Mexico complained against the U.S. Dolphin-Safe labelling regulation for canned tuna: a label designed to tell consumers that the tuna they are purchasing was caught in ways that minimized the chance of incidental harm to dolphins (one common

method of tuna capture involves setting nets not only on schools of tuna, but also on the dolphins that tend to swim above them).

This case was interesting in part for its treatment of what, up until that time, would have been considered a standard, not a technical regulation. The distinction is important, since standards face a much lighter burden of obligation than do technical regulations. The Dolphin-Safe label regime allowed non-labelled tuna to enter the U.S. market, which traditionally would qualify it as a non-mandatory standard. But the AB, in a controversial decision, ruled that it was in fact a mandatory technical regulation, noting that the definition of “dolphin-safe” was strictly defined by the U.S. government, that no other claims related to dolphin safety were allowed on tuna labels and that a government-led enforcement mechanism had been established.

In light of this decision, many more labels and standards that were previously thought to be “voluntary” might now fall under the definition of a technical regulation for WTO purposes.

The TBT Agreement encourages WTO Members to base their technical regulations on international standards, where they exist. Measures based on such standards are relieved of the burden of proving that they are not more trade restrictive than necessary to achieve their objectives—a significant legal advantage. As such, the definition of international standard is important. Clearly, a standard produced by the ISO, which any WTO member may join and which is engaged in producing standards, is a legitimate international standard. In fact, the ISO is explicitly mentioned in the TBT Agreement as a standard-setting body, as are several others. But is a standard created by the Forest Stewardship Council (FSC) or the UN Convention of the Law of the Sea also an international standard? It is not clear from the TBT text.

3.4.6 The SPS Agreement

The SPS Agreement, like the TBT Agreement, was negotiated during the Uruguay Round. It deals with measures “necessary” to protect humans, animals and plants from certain hazards associated with the movement of plants, animals and foodstuffs in international trade.

The measures covered by the SPS Agreement include, for example, measures to protect the environment (see Box 3.10 on the *EC-Biotech* case) or human, animal and plant health against the following:

- Risks from pests, diseases and disease-related organisms entering the country with the traded goods.
- Risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs.

Box 3.10: GMOs, precaution and scientific uncertainty in SPS matters: *EC–Biotech*

The treatment of GMOs in WTO law remains somewhat uncertain. As all other products, GMOs are subject to the full body of multilateral trade rules, in particular the SPS Agreement and the AoA. The *EC–Biotech* case remains the only WTO dispute on this topic. The case is important for the topic of this book for two main reasons: it revived the discussion on the precautionary principle following the decision in *EC–Hormones* (see Box 3.11), and it addressed SPS measures taken in relation to environmental risks potentially arising from the presence of GMOs in a given territory.

In 2006, the panel in *EC–Biotech* was faced with the question of the legality of certain market access prohibitions and approval delays that the European Union and its member states were applying to imports of specific agricultural GMOs from Argentina, Canada and the United States. More precisely, the case concerned a de facto ban on approvals of biotech products at the EU level and safeguard measures put in place by individual EU members prohibiting importation and marketing of specific biotech products within their national territories, justified by scientific uncertainty on the environmental and health effects of those products. The panel found that these measures violated various provisions of the SPS Agreement. Some of them breached the provisions that required no undue delay for products to enter the market; others violated substantive articles of the SPS Agreement because scientific justification for these protective measures was absent or insufficient.

The outcome was not subject to appeal and so was never considered by the AB, making it somewhat less legally definitive.

Like the TBT Agreement, the SPS Agreement describes what conditions such measures must meet, such as notification, non-discrimination, proportionality, transparency in developing the rules, basing SPS measures on international standards when appropriate, and so on. Unlike the TBT Agreement, the SPS Agreement obliges measures to be based on scientific evidence and risk assessment. A special provision is included in Article 5.7 for temporary measures when current scientific information is insufficient to adopt permanent measures, potentially allowing governments to design SPS measures based on a precautionary approach, though this is subject to strict conditions (see Box 3.10 on the *EC–Biotech* case and Box 3.11 on the *EC–Hormones* case).

Box 3.11: Precaution and harmonization in the SPS Agreement: *EC–Hormones*

The 1998 AB ruling in the *EC–Hormones* case shed some light on two important interpretive issues: the relationship between the SPS Agreement and the precautionary principle, and the obligation of WTO Members to harmonize their SPS measures to international standards. The precautionary principle is a cornerstone of international environmental law (see Section 2.2), but has not yet been fully recognized as a principle of customary international law; the relationship between this principle and WTO law is therefore of particular interest for the present book. Harmonization, on the other hand, is a cornerstone of the SPS and TBT Agreements, and of the work of the relevant WTO committees. It relates to a broader debate on using international standards as a reference point for policies to protect public health and the environment, while eliminating unnecessary trade barriers.

Article 5.7 of the SPS Agreement incorporates a precautionary approach by allowing temporary measures to be taken when scientific evidence is uncertain and not yet fully developed. It does require a Member to actively pursue additional information necessary for an objective risk assessment. The European Union, in arguing its defense in the *EC–Hormones* case, did not, however, resort to Article 5.7, but instead argued that the precautionary principle as a customary principle of general international law should guide the panel and the AB in their interpretation of the SPS Agreement. Neither the panel nor the AB found it necessary or appropriate to determine whether the precautionary principle is a customary principle of general international law, arguing that even if it were, the principle could not override the obligations of the European Union under the SPS Agreement. Subsequently, the panel in the *EC–Biotech* case (see Box 3.10) used the same argument.

In relation to the obligation to base SPS measures on international standards, the AB made clear that such obligation does not affect the right of Members to take different standards as reference points, or even to go beyond the recommendations contained in international standards.

Another important set of provisions in the SPS Agreement relates to the harmonization to international SPS standards. As under the TBT Agreement, measures that conform to international standards are given preferential treatment under SPS; they are presumed to be in compliance with the key provision of the SPS Agreement that demands that they be based on science, and be applied only to the extent necessary to protect human, animal or plant life or health. In contrast

to the TBT Agreement, the SPS Agreement explicitly defines international standards. Standards, guidelines and recommendations for the purposes of the SPS Agreement are those developed, in their respective areas of expertise, by three specific bodies: the Codex Alimentarius Commission, the International Office of Epizootics, and international and regional organizations operating within the framework of the International Plant Convention (see Section 3.2.3 on the SPS Committee).

While harmonization is an important goal for the SPS Agreement, because it allows traded goods to flow more freely, WTO Members have the right to adopt SPS measures that grant a higher level of SPS protection than the level set forth in international standards. This is explicitly set out in the Agreement and has been confirmed in case law (see Box 3.11 on *EC–Hormones*). The only catch is that such measures may have to be justified in dispute settlement as “necessary” and as being based on science.

3.4.7 The SCM Agreement

The Agreement on Subsidies and Countervailing Measures (SCM Agreement) came into force with the establishment of the WTO in 1995. Elaborating on the GATT Articles VI and XVI, which dealt with subsidies in a less in-depth manner, the SCM for the first time included a definition of “subsidy” and made all specific subsidies (other than those covered under the AoA; see Section 3.5) subject to WTO discipline. The interest in disciplining subsidies springs from their potential to distort trade and nullify the expected benefits that trade liberalization might bring; it does little good to get one’s trading partners to agree to lower tariffs on a good if those tariffs are simply replaced with protective subsidies to domestic producers of that good.

For a measure to be considered a subsidy, and therefore covered by the SCM, the following elements are required:

- A financial contribution by a government, or an income or price support.
- A benefit conferred by that contribution.
- Specificity to a sector, enterprise or group of enterprises (i.e., the support should not be generally available).

The SCM then envisions three types of subsidies: *prohibited*, *actionable* and *non-actionable*. Being *prohibited* is a fast-track to removal; complainants do not have to prove that the subsidies are harmful, nor do they have to prove that the subsidies are specific. Such subsidies must be withdrawn without delay. Prohibited subsidies are those that are conditional on exports, or conditional on the use of domestic content.

Non-actionable subsidies were allowed for a limited time; they were sheltered from the disciplines of the SCM as described in Article 8. Only certain types of carefully described “good” subsidies fall within this category: subsidies for regional development, for research and development and, notably, for certain types of subsidies to firms to aid compliance with new environmental regulations. The carve-out no longer applies, however; Article 8 was a temporary provision. It expired when Members at the 1999 Seattle Ministerial Conference could not agree on the terms of its renewal, and the subsidies described in Article 8 are now therefore considered either actionable or prohibited.

Actionable subsidies (i.e., those that are not prohibited) are open to challenge in dispute settlement. A successful challenge is not guaranteed; a complainant has to prove that the subsidies in question are actually harmful to its firms.

When a subsidy causes damage to a trading partner, the affected member has the option of challenging the harmful subsidy through the WTO dispute settlement mechanism. Alternatively, it can choose to take unilateral action by imposing a countervailing duty against the subsidized imports, subject to detailed procedural guidelines provided in the SCM.

The SCM also provides for a notification mechanism and requires that all specific subsidies are notified to the Committee on Subsidies and Countervailing Measures (SCM Committee). Unfortunately, and in sharp contrast with the notification mechanisms under the TBT or SPS Agreements, notifications of subsidies are of very poor quality and quantity.

While the GATT has exceptions for measures that serve agreed objectives—including environmental objectives—the SCM has had no such carve-out since the expiry of Article 8. This sets up the potential for tension between the SCM and environmental measures such as subsidies that many would argue are desirable, such as those for renewable energy (see Box 3.12 on *Canada–Renewable Energy*). These tensions are further discussed in Section 5.8.

Box 3.12: WTO and green subsidies: *Canada–Renewable Energy*

In 2011 the European Union and Japan challenged a feed-in tariff (FIT) scheme that supported solar and wind power in the Canadian province of Ontario. FITs pay a premium rate to producers of renewable electricity, a subsidy they need because their product, while environmentally superior to alternatives like coal, is also more costly to produce.

The complainants emphasized that they did not object to the FIT as such, but rather to the fact that receipt of the FIT was conditional on the use of local content to produce renewable electricity. They argued that the scheme constituted

a prohibited subsidy (and also that it violated the Agreement on Trade Related Investment Measures [TRIMs], again because of the local content requirement).

The AB ultimately found that it could not rule on whether the measure was even a subsidy in the first place, since it couldn't determine at what price renewable electricity *should* be bought. However, in a move that cheered the environmental community, the AB declared that the price for conventional electricity was not the right comparator, and that the government-created market for renewable energy was a new market that needed its own benchmark price.

The FIT was still found to be illegal, since it breached TRIMs obligations as a measure that discriminated against foreign investors. But it left open the question of whether a FIT—which most observers consider to be a “good” subsidy because it pays for social environmental benefits, facilitating the transition to a green economy—could be considered a subsidy under WTO rules.

The question will probably soon be answered. FIT schemes exist in over 90 jurisdictions worldwide and many are conditioned on local content requirements.

3.5 Other Agreements

Several other WTO agreements are relevant to the longer-term relationship between the trade regime, environment and sustainable development. Some are under negotiation as part of the Doha Agenda (see Section 6.1), though the environmental implications of the talks are not generally being explicitly addressed. These include the following:

The **Agreement on Agriculture** (AoA) sets out the rights and obligations regarding trade in agricultural products. It includes provisions that deal with market access, domestic support and export subsidies, and aims at “establishing a fair and market-oriented agricultural trading system.” Because agriculture is an extremely important issue, in particular for least-developed and developing countries, the Agreement includes provisions on special and differential treatment (SDT) and provides more leeway, and time, for developing countries to meet their commitments under the AoA. The obligations on domestic support and export subsidies are further discussed in Section 5.8.1.

The **Agreement on Trade-Related Investment Measures** (TRIMs Agreement) deals with investment measures that have an impact on traded goods. It includes the principle of national treatment as well as a prohibition on some types of performance requirements. Performance requirements are requirements an investor must fulfil in order to receive an advantage, such as the ability to invest or continue operations, or such as receipt of some subsidy. The TRIMs Agreement specifically prohibits requirements related to the use of local content

(see Box 3.12 on the *Canada–Renewable Energy* case), and requirements related to exports (such as a requirement to export a certain percentage of production). Such requirements are classic tools of industrial policy (see Section 5.6).

The WTO's **Dispute Settlement Understanding** (DSU) mechanism, with its compulsory nature and ability to deliver binding decisions, was one of the central elements of the Uruguay Round outcome in 1994. The DSU introduced a more structured dispute settlement process with more clearly defined stages than its predecessor under the GATT. A fundamental difference between the two is that under the old GATT system, a consensus of the Members was needed to adopt reports, meaning that any one party could prevent decisions from being formally adopted. Under the DSU, dispute settlement reports are automatically adopted, unless there is a consensus to the contrary. This is known as “reverse consensus” and makes the decisions very difficult, if not impossible, to reject. The DSU did, however, add a mechanism for appealing panel rulings to a standing AB.

The key provision in the DSU in relation to sustainable development is Article 3.2 thereof. This provision states the following:

The dispute settlement system of the WTO is a central element in providing security and predictability to the multilateral trading system. The Members recognize that it serves to preserve the rights and obligations of Members under the covered agreements, and to clarify the existing provisions of those agreements in accordance with customary rules of interpretation of public international law. Recommendations and rulings of the DSB cannot add to or diminish the rights and obligations provided in the covered agreements.

According to the way WTO jurisprudence evolved over the last 18 years, this provision and its reference to customary rules of interpretation of public international law constitute a key entry point for non-WTO rules, including MEAs, in the interpretation of WTO law. In the *U.S.–Gasoline* case the AB explicitly derived from Article 3.2 of the DSU that WTO law is “not to be read in clinical isolation from public international law” (*U.S.–Gasoline*, p. 17). Cases like *U.S.–Shrimp* and *EC–Biotech* contain long and detailed discussions that draw from the applicable MEAs as sources by which to clarify the meaning of certain WTO provisions.

A dispute is brought to the WTO when a member believes that a fellow member is infringing its rights under one of the agreements governed by the WTO. This usually occurs when a company brings an alleged violation to the attention of its government, and the government decides that action before the WTO is warranted. The two parties to a dispute then follow a pre-defined set of procedures (see Box 3.1).

There is no international enforcement mechanism to guarantee the implementation of DSB decisions. As an alternative to changing measures found to be in breach

of their obligations, Members can either negotiate compensation in favour of the complainant or, failing that, be subjected to retaliatory trade sanctions. However, the DSU and relevant jurisprudence make clear that all these remedies are of a temporary nature, whereas the only definitive action that brings a dispute to its conclusion is the modification or withdrawal of the measure(s) at issue, as the case may be.

Annex 3 of the Marrakesh Agreement Establishing the WTO establishes the monitoring and surveillance mechanism of the WTO: the Trade Policy Review Mechanism (TPRM). The TPRM, through the Trade Policy Review Body (TPRB), has two major tasks: conducting trade policy reviews of each WTO member—frequency is dependent upon the weight of the member in the global economy—and providing an annual overview of the developments in the international trading environment. Since 2009, in light of fears that countries would resort to protectionist measures after the financial and economic crisis, the TPRB has also been given the mandate to engage in crisis monitoring and periodically publish reviews on the international trading system.

The TRPM significantly improves transparency within the trading system. It offers a platform for Members to discuss trade-related developments and to ask questions about trade policies and measures that are mentioned in the trade policy review documents. Some analysts have suggested that the TPRM might be used as a tool for strengthening policies at the nexus of trade and environment, via the power of transparency. Members might, for example, see fit to comment on each other's use of trade-distorting and environmentally damaging fossil fuel subsidies.

3.6 Regional/Preferential Trade Agreements

Although the WTO provides the central features of the global trade regime, there are also an increasing number of regional and bilateral trade agreements in force, in large part modelled on the multilateral system. Of the 585 regional trade agreements that had been notified to the WTO as of June 2014, only 120 pre-date 1995. Of those regional trade agreements, 379 are already in force. There are also some 2,800 bilateral investment treaties (BITs) in force.

Under Article XXIV of the GATT and Article V of the GATS, such free trade areas or customs unions are allowed under WTO rules, provided that they meet three criteria: trade barriers with non-signatories are not raised, the free trade area or customs union is fully established within a reasonable transition period (generally interpreted as no more than 10 years), and tariffs and “other restrictive regulations of commerce” are eliminated for “substantially all sectors.” The latter requirement has been subject to various interpretations, and many agreements arguably fail to clear this hurdle. Nonetheless, though all regional/bilateral agreements involving Members must be notified to and approved by the WTO, none has ever been

rejected. It may be that Members are reluctant to censure practices in which they themselves engage.

Regional and bilateral agreements take a wide variety of approaches to environmental issues. These are described in greater detail in Chapter 6.

Suggested Readings

Hoekman, B., & Mavroidis, P. (2007.) *The World Trade Organization: Law, economics and politics*. London, UK: Routledge.

Trebilcock, M., Howse, R., & Eliason, A. (2013). *The regulation of international trade* (4th ed.). Abingdon, UK: Routledge.

Van den Bossche, P., & Zdouc, W. (2013). *The law and policy of the World Trade Organization: Text cases and materials* (3rd ed.). Cambridge, UK: Cambridge University Press.

VanGrasstek, C. (2013). *The history and future of the World Trade Organization*. Geneva, Switzerland: WTO.

WTO. (2011). *WTO analytical index – Guide to WTO law and practice*. Geneva, Switzerland: Author.

WTO. (2014). *Dispute settlement*. www.wto.org/english/tratop_e/dispu_e/dispu_e.htm

WTO. (2014). *Understanding the WTO*. www.wto.org/english/thewto_e/whatis_e/tif_e/tif_e.htm

WTO. (2014). *WTO legal texts*. www.wto.org/english/docs_e/legal_e/legal_e.htm

4. Multilateral Trade Negotiations – WTO & Doha Round

Environmental issues have made slow but steady progress on the WTO agenda. Section 3.2.1 describes the mandate of the CTE, which was established in 1995 with the WTO itself and which provides space for discussing the issues of trade and environment. But it was not until the launch of the Doha Round of multilateral trade negotiations at the 2001 Ministerial Conference that environment became a part of the negotiating agenda. That conference adopted the Doha Ministerial Declaration: the blueprint for the Doha program of work that included negotiations, analysis and work to implement existing agreements.

4.1 Environment and the WTO Doha Mandate

The Doha Declaration includes two references to sustainable development in the preamble, including this powerful statement: “We strongly reaffirm our commitment to the objective of sustainable development” (paragraph 6). But it also includes a number of explicit references to environmental items as part of the broader negotiations. As Chapter 5 demonstrates, a number of traditional items on the WTO negotiating agenda also have significant environmental dimensions. Taken together, there are as many as 12 items in the Doha Declaration that address the trade and environment linkage.

Environmental issues for negotiation. Paragraph 31 of the Doha Declaration lists three issues for negotiation. These are part of a single undertaking, meaning they are part of the list of elements on which there must be agreement before the entire package of Doha negotiating results is final.

1. The relationship between WTO rules and specific trade obligations set out in MEAs. The term “specific trade obligations” is undefined, but most take it to mean measures specifically authorized by MEAs (many MEAs only set objectives, allowing countries to decide on their own what measures might best achieve them). The mandate for negotiation is narrow, only covering frictions between parties to an MEA, whereas there is much greater potential for party-non-party conflicts.
2. Procedures for regular information exchange between MEA Secretariats and relevant WTO committees, and the criteria for granting observer status to MEAs. It would seem intuitively obvious, for example, that the CBD Secretariat should be involved or in the room when the WTO discusses certain TRIPS issues. But progress on this item has been difficult.
3. The reduction or elimination of trade barriers to environmental goods and services (EGS). There is potential for environmental and economic

benefits here, but a key challenge is in defining “environmental goods.” For example, is an energy-efficient car—or any good that is preferable to others in its class—an environmental good? If so, who sets the standards and manages them over time? Is a good manufactured in an environmentally friendly way an environmental good? Here we get into issues of PPM-based distinctions (see Section 5.1 on PPMs and 5.11 on EGS).

These three items represent a challenging agenda. Yet, none of them presents the kind of conflict of economic interests that typically dominates trade negotiations and is now dominating the Doha Round. It is, therefore, likely that solutions to these environmental issues will only emerge as the more difficult matters are settled. Negotiations on paragraph 31, when they occur, are conducted by the CTE meeting in special session, marking an important transition of the committee from talk shop to negotiating forum.

Environmental issues for discussion. Paragraph 32 of the Doha Declaration lists three further items for discussion, taken from the CTE’s original mandate. Unless there are unexpected developments, these will not become part of any agreement concluding the Doha Round.

- The effect of environmental measures on market access and the environmental benefits of removing trade distortions. These issues have been on the CTE agenda from its inception, and it is difficult to see how they could ever become negotiating items. They reflect a suspicion on the part of many developing countries that environmental measures are being used as barriers to trade, and the conviction that removing barriers to their exports may yield both economic and environmental benefits.
- The “relevant provisions” of the TRIPS Agreement. This might include work on exceptions for patenting of life forms. The relationship between TRIPS and the CBD is covered elsewhere in the Declaration.
- Labelling requirements for environmental purposes. The discussion to date has focused on the ways in which environmental labelling requirements might constitute unfair barriers to market access. This set of issues is discussed in some depth in Section 5.3.

Environmental issues mentioned in other areas of negotiation. Two areas of negotiation (part of the single undertaking) include explicit reference to environmental issues.

- Under the heading of “WTO Rules” (paragraph 28) the Doha Declaration addresses non-agricultural subsidies, asking for clarification and improvement of WTO disciplines on fisheries subsidies. This issue has obvious environmental significance, and in fact, environmental interests

were instrumental in putting it on the agenda (see Section 5.8).

- In the context of negotiations on TRIPS (paragraph 19), the Doha Declaration calls for an examination of the relationship between the TRIPS Agreement and the CBD, over and above any discussion under the paragraph 31 WTO–MEAs negotiations (see Section 5.5).

Sustainable development. The Doha Declaration contained several other provisions that are significant from the broader perspective of sustainable development.

- As noted above, the preamble strongly reaffirmed the commitment of WTO Members to the objective of sustainable development. While preambular statements do not have much impact on the course of negotiations, they have played a key role in guiding dispute settlement panels addressing trade–environment issues.
- The preamble also takes note of efforts by some countries to undertake environmental assessments of trade policies.
- The preamble reaffirms such cooperation as exists among the WTO, UNEP and other intergovernmental environmental organizations.
- Paragraph 33 underlines the importance of technical assistance and capacity building in the field of trade and environment and calls for an exchange of experience with countries wishing to perform environmental reviews at the national level.
- Paragraph 51 calls on the Committee on Trade and Development and the CTE to identify and debate developmental and environmental aspects of the negotiations, in order to help achieve the objective of having sustainable development appropriately reflected. There is potential in this provision for strong integration of environmental and development objectives in the negotiations, but discussions on paragraph 51 have been limited.

4.2 Looking Forward

The Doha Round has been under negotiation since 2001, making it easily the longest running of any of the rounds of multilateral trade negotiations. Key disagreements underlying the failure to finish include the desire by developed countries for an ambitious result on non-agricultural market access for their exports, and the desire by developing countries for an ambitious result on market access and subsidy reform for agricultural goods.

None of the key stumbling blocks are related to green economy concerns, but the lack of progress on the Doha Agenda has been a roadblock to progress in the pursuit of a multilateral trade regime that supports a global green economy. The

current fisheries subsidies text, for example, is a good basis for progress in this area, but since nothing can be agreed until it is all agreed, progress is stalled. There is also a barrier to broaching the many new issues that have become important since the launch of Doha in 2001. A growing number of analysts are suggesting, for example, that the WTO needs to develop specialized rules on energy or climate change in the same way that it did for the agricultural sector. But any such talk of reform is purely hypothetical while the unfinished business of the Doha Round obstructs progress.

In response to this challenge some countries have proposed tackling small parts of the larger agenda, and this strategy was attempted unsuccessfully at the 2013 Bali Ministerial Conference (see below). But this technique may lack the ability to trade off member interests across enough issues to get multilateral agreement. And it may leave some critical issues orphaned, harvesting the low-hanging fruit but stranding the worthy remainder.

Others have suggested progress at lower than the multilateral level: coalitions of the willing that can move specific issues forward at a plurilateral level. An example of this was the January 2014 announcement at the World Economic Forum in Davos that 14 countries would move forward with negotiating an agreement to liberalize trade in “green goods”—a move that takes the locus of action on environmental goods out of the Doha Round and seeks to find ways to advance it on a parallel track. The idea is to garner agreement with a high enough percentage of the world’s importers such that any concessions can be offered on an MFN basis without giving too much away to those that had to make no commitments. It remains to be seen whether a single-issue negotiation can work (though this is roughly the model followed by another successful agreement: the Information Technology Agreement), and whether creating a non-Doha track for progress is viable.

4.3 The Bali Agreement

At the WTO’s 9th Ministerial Conference in Bali in 2013, the Members agreed to their first multilateral trade deal since the conclusion of the Uruguay Round in 1994. It was widely agreed that some sort of agreement was needed to counter the arguments that the Doha Round was dead and trade multilateralism was in crisis. The Bali results seemed to prove that agreement was possible, producing a so-called “mini-package,” the main elements of which were the following:

- On **agriculture and food security**, the Members agreed to a four-year peace clause within which governments with existing programs would be immune from subsidy complaints when purchasing food stocks to be distributed to their citizens. The key issue here was at what price such purchases could be made without counting as subsidies. A process was put in place to find a permanent solution.

- On **trade facilitation**, which seeks to lower non-tariff barriers at the border, such as customs administration and related regulations, Members entered a binding agreement to improve the ability of goods to be traded. Developed countries agreed to provide targeted assistance and support to developing country Members undertaking costly reforms to comply with these obligations.
- On **agriculture and market access**, the Members agreed to transparency provisions aimed at preventing the administration of tariff rate quotas from being used as a trade barrier. Tariff rate quotas are commitments to allow some quantity of imports of a good at a lower tariff rate, but in some cases the low-tariff quotas to which countries committed are not filled. Members also agreed to measures to remedy cases of persistent underfilling of quotas.
- On **agricultural subsidies**, Members agreed to a developing country proposal to expand the definition of permitted subsidies (so-called green box subsidies). The new categories included support for land rehabilitation, soil conservation and resource management, drought management and flood control, rural employment programs, land ownership titles, and settlement programs.
- Members agreed to establish a **development monitoring mechanism** to analyze and review the implementation of WTO provisions for SDT for developing countries. The mechanism will meet twice a year, and can make recommendations where it finds aspects of implementation to be a concern.

Members were to approve the Bali results by six months after the Ministerial. But shortly before the deadline for approval, one Member protested the results, and the resulting lack of consensus meant that the agreement failed to get adopted. As of this writing, it is not clear what the way forward might be.

As noted above, there was hope that the WTO Members might build on the results of the Bali Ministerial to make substantial progress on the remainder of the Doha Round issues. The entire effort was relatively modest in scope, with several of the Bali Package issues essentially taken from existing agreed text from 2008. Other issues—like food security—were hard-fought battles that eventually derailed the Conference’s successful result. The difficulties faced in Bali do not bode well for progress on the many tough issues remaining on the Doha agenda.

Suggested Readings

International Centre for Trade and Sustainable Development. *What should LDCs pack in their suitcase for Bali?* (special edition on the WTO Bali Ministerial). *Bridges Africa*, 2(8). www.ictsd.org/bridges-news/bridges-africa/issue-archive/what-should-ldcs-pack-in-their-suitcase-for-bali

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5. Legal and Policy Linkages

Previous chapters have described the trade regime and the various regimes for environmental governance. For the most part the two spheres coexist without much interaction, but there are a small number of important linkages that connect them. Some of these result from environmental policies that, because they impact trade and investment flows, are disciplined and potentially hamstrung by trade law. Others start with trade law—for example the laws on IPRs or investment—and trace out the complex (often unintended) environmental policy impacts that ensue. In other cases, such as voluntary sustainability standards, the concern is the unintended trade impacts of environmental policy. This chapter describes the most significant of those linkages.

5.1 Process and Production Methods

The acronym “PPM” (process and production method) is one of the most debated set of letters in trade law history, and it covers one of the most fundamental aspects of the trade and environment relationship. The vociferousness of the debate over PPMs has eased considerably in recent years, but its importance remains as high as ever.

A PPM is the way in which a product is made. Many products go through a number of stages, and therefore a number of PPMs, before they are ready for market. For example, traditional paper making requires trees to be grown and harvested, the wood to be processed, the pulp often to be bleached, and so on. At all points of the life cycle there are choices about how the product is made that have environmental implications. For example, paper production may source post-consumer waste (recycling) rather than trees, or may be bleached without chlorine. The various processes will have different types of environmental impacts: for example, on forest-based streams and wildlife, on human health from chemical pollution of waterways, or in terms of air pollution and energy use.

Some pre-WTO trade law cases developed a technical distinction between a product-related PPM and a non-product-related PPM (see Box 5.1). Throughout this book, the term “PPMs” will refer to non-product-related PPMs, more or less the accepted shorthand in general discourse.

Box 5.1: Product- and non-product-related PPMs

The distinction between product-related PPMs and non-product-related PPMs may seem like nitpicking, but it is important to understand, since the two have been treated somewhat differently under trade law.

The distinction rests on how the PPM affects the final product. Consider two products—say two sheets of steel. One is produced in a basic oxygen furnace from primary materials, which consumes a great deal of energy, and the other is produced in an electric arc furnace from recycled scrap, which is more energy efficient. These are two very different PPMs. But the key question is whether the final product has different qualities that would cause it to be treated differently in its use, handling or disposal. If the two sheets of steel perform in every sense the same, then those steel-making methods are non-product-related PPMs, since they have negligible physical impact on the final product.

Take, for another example, two apples: one produced organically and one produced with the use of pesticides, some of which are still left on the product as a residue. Again, we have two very different PPMs. But in this case, the difference will cause us to have to handle and use the products differently. Some people might want to peel the chemically treated apple, and border authorities will inspect the levels of pesticide residue to see that they meet health regulations. The organic apple may be subject to tighter border checks aimed at preventing the spread of invasive pests. The different PPMs in this case make a difference to the final product, and they would thus be treated as product-related PPMs.

Trade law does not question the right of countries to discriminate based on product-related PPMs. There are rules about the process and extent of discrimination, of course—the SPS Agreement, for example, has a preference for international standards when setting restrictions on pesticide residue levels—but the principle of discrimination within certain limits is accepted.

Non-product-related PPMs, on the other hand, have come to be seen as a different matter. Most legal scholars argue that how products are made (provided the finished products were indistinguishable) does not make products different from one another. In trade law terms, they would be considered “like products.” As such, countries cannot treat them differently, and even trade law exceptions, such as Article XX of the GATT, might not excuse such discriminatory treatment. (See also the discussions in Section 3.3 and Box 3.2.)

From an environmental perspective, it makes little sense to ignore how a product is produced. The way a product is produced is one of the three central questions for an environmental manager: How is it made, how is it used and how is it disposed of? Domestic environmental regulations on PPMs abound; factories are

told how much pollution they may emit, forest products companies are told how and where they may harvest trees, and mining companies are told how they must treat their waste and how they must restore their sites after mine closure. From this perspective, it makes sense to also be able to discriminate at the border between goods that are otherwise “like” but that differ in whether they were produced in clean or dirty ways.

From a trade law perspective, however, it is not so straightforward. In the first place, Section 3.4.2 notes that PPMs are *not* among the criteria used to assess whether products are “like” under GATT law. According to that approach, discriminating on the basis of PPMs will probably be found to violate the non-discrimination provisions of Articles I and/or III (though some argue that this misinterprets the law).

The question then becomes whether PPM-based discrimination for environmental purposes can possibly be “saved” by GATT Article XX. For many years the trade policy community argued that PPM-based discrimination would not pass Article XX—that it was simply GATT-illegal. But, as also discussed in Section 3.4, the state of trade law appears to have fundamentally changed on this point. In the landmark *U.S.–Shrimp* case, the WTO AB ruled that measures addressed at a foreign PPM (i.e., how shrimp are produced) could be justified under Article XX of the GATT, but it also laid down a number of important requirements that might be expected for any measure that did so (see Box. 3.2).

More recently, the question of PPMs has arisen under other WTO agreements as well. The AB ruling in the *Canada–Renewable Energy* case (described in Box 3.12) seemed to say that renewably produced electricity should be treated differently under subsidy law than conventionally produced electricity. Specifically, the AB was trying to find a market price for electricity to compare to the premium price offered to renewable electricity producers in Ontario, Canada, to determine whether a subsidy was being conferred. They declined to use the wholesale market price for electricity as a market price, finding instead that the relevant comparator market had to be a market for electricity produced from renewable sources.

As noted in Section 3.4.5, the TBT Agreement addresses technical regulations laying down product characteristics that can include how a good must be produced. The key question here is not whether PPM-based discrimination is allowed—it is—but rather whether that discrimination is aimed at achieving some legitimate objective (including environmental objectives) and whether it is more trade restrictive than necessary for achieving that objective. As such, PPM-based distinction is not prohibited in the context of technical regulations, a fact that was confirmed in the *U.S.–Tuna II* case (see Box 3.9) where PPM-based discrimination per se was not an issue.

All things considered, the product-non-product distinction has lost much, but not all, of its legal impact. It remains relevant, since challenged PPM-based measures may have to meet a number of Article XX tests not applicable to product-based measures (as laid out in the *U.S.–Shrimp* case, for example; see Box 3.3). But in the final analysis, PPM-based measures are not automatically considered inconsistent with trade law.

If this is the state of the law, what are the policy concerns behind the debate? There are a number of reasons for the controversy that dogs the PPMs issue.

In practice, discrimination based on PPMs presents some difficulties for the trading system. Regulating PPMs gives governments an opportunity to protect their industries unfairly against foreign competition. Motivated not by environmental but by economic considerations, a government might conduct an inventory of the environmentally preferable PPMs used by its domestic industries and make new regulations penalizing those producers (that is, foreigners) not using them. Of course there is also scope for this kind of protectionism using product standards, which are not subject to the same legal stigma under trade law. The available defence against such actions when they occur in the context of PPM-based measures lies in the chapeau of Article XX of the GATT, which tries to weed out protectionist discrimination, and in the similar-minded obligations established by the TBT and SPS Agreements.

From a purely environmental perspective, a widespread use of measures to address foreign PPMs might result in environmental improvement, if only in certain selected industries. But there are two fears that argue against such widespread use. The first is that the standards thus imposed might be environmentally inappropriate for some foreign competitors. For example, a country where water scarcity is a major issue might enact laws discriminating against products produced in ways that waste water. But this would force exporters in water-rich countries to follow standards that are not relevant to their local environmental conditions, or risk losing market access. It might also be environmentally inappropriate for all countries to follow the same environmental standards if the principle of common but differentiated responsibility (CBDR) is taken into account, as argued below.

The second is a related argument from some developing countries that argue that their social priorities differ from those of developed countries. They may, for example, be more concerned about clean water as an environmental issue than with global warming. Or they may be more concerned about infrastructure, education and health care than about any environmental issue. If so, the argument goes, it is unfair for developed countries to discriminate against the exports of developing countries based on environmental issues that are not high on these countries' agendas, forcing them to either adopt rich-country environmental priorities or suffer a loss of wealth-creating exports. Many developing countries worry that if the WTO continues to allow PPM-based discrimination on environmental

grounds, it will also be forced to allow it on social grounds such as human rights, labour standards, and so on, increasing the scope of the threat to their exports.

Another part of this argument is that the now-rich countries became wealthy by burning a lot of fossil fuels, cutting down most of their forests and otherwise cashing in on national and global environmental resources. Now that the wealth they have gained allows them to maintain high environmental standards, it is hypocritical (and contrary to the spirit of the principle of CBDR; see Section 2.2) to forbid developing countries to follow the same path. It is argued that, at a minimum, demands to maintain high environmental standards should be accompanied by technical and financial assistance and other forms of capacity building. In the *U.S.–Shrimp* case the AB agreed with this last point, making such assistance a condition for Article XX to “save” a U.S. measure covering PPMs in developing country exports. The ruling established other conditions as well, in effect placing the use of PPM-based measures into a legal framework that recognizes the legitimate fears of developing country exporters.

Finally, there is a sovereignty argument. If the environmental damage in question is purely local, then it is really the purview of the exporting, not the importing, government. This argument weakens, however, if the environmental damage in question is not purely local—if it involves polluting shared waters or airstreams, depleting populations of species that migrate across borders or damaging the atmosphere. Here, the need for international cooperation is both obvious and legally clear; as noted in Section 2.2, states have legal obligations under customary law to prevent transboundary harm. The *EC–Seal Products* case (see Box 3.7) raises the interesting question of whether environmental damage that is purely local might be viewed as repugnant to the public morals of the importing member and therefore be an acceptable basis for PPM-based trade restrictions.

MEAs are a form of cooperation that represent a commonly recommended way to prevent PPM-based environment and trade conflicts. The AB ruling in *U.S.–Shrimp* made good faith negotiations a prerequisite for the unilateral use of the PPM-based trade measures in that case—an obligation that binds both the demanding country (importer) and potential “target” countries (exporters). In an ideal world, countries would collectively agree to either harmonize their environmental measures or to live with a negotiated menu of different national approaches to environmental problems. This sort of harmonization or mutual recognition is, however, relatively rare, even where negotiated international agreements exist. In the area of climate change, for example, the Kyoto Protocol’s first commitment period prescribed specific GHG mitigation targets for developed country parties, but never tried to prescribe approved or mandated national policies—such as PPM-based standards—to be used to achieve those targets, leaving this to sovereign discretion.

5.2 Environmental Measures, Competitiveness and Leakage

One of the most important obstacles to stronger environmental regulation is the prospect of leakage and loss of competitiveness. If a country strengthens its environmental regulations and imposes adjustment costs on the covered firms, those firms will try to pass cost increases to their customers. This is good from an environmental perspective; one of the reasons to impose higher standards in the first place is to discourage consumption of environmentally destructive goods, and price increases will do just that.

But firms may be unable to pass the cost increases along to their customers if the goods in question are highly traded (i.e., plenty of foreign substitutes are available on the global market). In such cases the firms would lose market share if they tried to increase prices; they would be undercut by their foreign competitors both in their home markets and in export markets. This is the problem of loss of competitiveness, an economic concern. It is most serious in those cases where:

- The impacts of the regulations are significant (that is, where the firms are big GHG emitters).
- Producers in other countries don't face the costs of environmental regulations (if, for example, a regulating country is acting unilaterally).

A related problem is leakage, an environmental concern. Leakage is an increase in pollution *outside* the implementing jurisdiction brought about by regulations *within* the implementing jurisdiction. This might come about in any of three ways:

- Loss of market share by domestic firms, and a corresponding increase of production by foreign competitors in low-standard countries.
- Relocation of domestic firms to low-standard countries (the “pollution haven” effect).
- Diversion of new investment from countries with high standards to countries with low standards.

From an environmental perspective, any leakage is bad news. If the pollutants being regulated are purely local, this means the pollution in question is simply being displaced onto some other population. If it is global—as in the case of GHG emissions—the result is that the pollution in question is still being emitted with the same effect, so the effectiveness of the regulation is undercut.

The first best way to address leakage and competitiveness concerns is to prevent them by crafting a multilateral agreement that binds all parties to regulate their producers with equivalent effect. For many reasons, the principle of CBDR being one of them (see Section 2.2), this is not likely any time soon.

One of the commonly proposed second-best methods for dealing with leakage and competitiveness concerns in the context of climate change is a border carbon adjustment (BCA): a charge at the border that forces importers to pay the equivalent of what domestic producers face in terms of costs of their GHG emissions. This could come either as a tax adjustment corresponding to a domestic carbon tax or as a requirement to buy into a domestic scheme of carbon emission allowances like the European Union's emissions trading scheme. Despite being often proposed, a BCA has never been implemented.

BCAs are controversial, as seen by the fracas that erupted over the European Union's scheme for international aviation levies—the closest thing we've seen to BCA in actual practice (see Box 5.2). The details of the BCA regime design are key, but almost any regime would contravene the GATT's non-discrimination provisions. Imposing different requirements or charges on goods depending on how they were produced—with “dirty” foreign steel treated worse than “green” domestic steel, for example—probably violates national treatment obligations (GATT Article III: recall that under trade law the two types of steel are probably viewed as “like”). Imposing different requirements or charges on goods depending on the country of export—for example allowing lower charges or exemptions for goods from countries with strong climate policies—probably violates MFN obligations (GATT Article I). BCA might nonetheless be saved by the general exceptions in Article XX of the GATT if it could be shown, among other things, that it was genuinely an environmental measure aimed at addressing leakage and not competitiveness concerns (see Section 3.4.2).

Box 5.2: The EU Scheme for International Aviation Emissions

The travails of the European Union's aviation levy scheme illustrate how controversial a BCA might be in practice. After having unsuccessfully tried to address aviation emissions—the fastest-growing source of GHG emissions in the transport sector—through multilateral negotiations in the International Civil Aviation Organization (ICAO) for more than 10 years, the European Union decided to include the aviation sector in its Emissions Trading System (ETS). The 2008 EU Aviation Directive directed all airlines to hold permits to cover their carbon dioxide emissions for flights operating to or from EU airports, *including for the parts of those flights that take place outside of EU airspace*. This last element of the scheme, introduced in response to competitiveness and leakage concerns, is analogous to BCA's efforts to account for GHGs emitted outside of the importing country.

In 2011, the year after the baseline reporting by airlines had been completed successfully, there was powerful resistance from countries such as the United

States, China, India and Russia, who threatened with countermeasures such as the cancellation of orders for Airbus aircraft. The opposing countries argued that the EU directive was a breach of national sovereignty, as it covered emissions from flights that took place within their own airspace. As well, emerging economies were wary of setting a precedent in terms of being treated equally to developed countries in climate change policy, and wanted to prevent a breach of the CBDR principle (see Section 2.2). As a result, the European Commission announced in November 2012 that it would “stop the clock” on its legislation until the end of 2013, to give breathing space to the negotiations under ICAO. Thus, only intra-European flights fell under the ETS.

In October 2013 ICAO Members indeed agreed to draft a proposal for a global market-based measure for aviation by 2016, which should enter into force by 2020. The ICAO resolution limits the options for unilateral measures on climate change, as it requires countries to seek agreement from other nations before imposing their own aviation market-based measures. The European Union rejected this point and initially proposed in the aftermath of the ICAO assembly to only include in the EU ETS the parts of flights that take place in European regional airspace. However, the final decision adopted in April 2014 continued to limit the EU ETS to covering intra-EU flights, at least until 2016, when the situation would again be reviewed in light of progress at ICAO.

How real is the threat of leakage and pollution havens? Little evidence of leakage has been found to date in the climate change context, but this is likely due to a lack of effective regulations. Vulnerability to leakage has been predicted in a handful of energy-intensive, trade-exposed sectors including aluminum, cement, steel and some chemicals. While these sectors typically comprise only 1 or 2 per cent of GDP in any country, they are politically very important.

Researchers have long searched for evidence on pollution havens. A flurry of studies in the 1990s found little evidence, but more sophisticated modelling in the early 2000s turned up evidence of a significant effect in pollution-intensive footloose industries. In most other sectors, however, environmental costs are only one of a broad number of factors—including infrastructure, access to inputs, wage costs, labour productivity and political risk—a firm must take into account when deciding whether to relocate. For these firms, average environmental control costs run around 2 to 3 per cent of total costs.

The threat of relocation by firms may be more of an issue than actual relocation. The threat, whether made explicitly or just anticipated, may create a “regulatory chill” effect: a climate where government regulators balk at strengthening their environmental laws for fear of driving away existing business or losing potential business investment. If a number of governments simultaneously feel this sort of

pressure, the global community may be simply unable to strengthen regulations at a rate that will ensure environmental sustainability.

5.3 Voluntary Sustainability Standards

In the last two decades, the number of voluntary sustainability standards (VSSs) has grown tremendously. The global supply of sustainably produced cocoa, for example, grew an average of 69 per cent per year between 2009 and 2014, and a conservative estimate predicts that by 2020 sustainably produced cocoa will account for a full 48 per cent of global trade. Trends are similar in such widely traded commodities as forest products, palm oil, coffee, tea, bananas and cotton.

In contrast to technical regulations, which are designed, promulgated and enforced by governments and are mandatory, VSSs are non-binding in nature, and may be implemented by governments, the private sector or NGOs (see Box 2.2 on standards versus technical regulations and Box 3.9 on eco-labelling and the WTO).

VSSs can be an important policy tool in the transition to greener economies because they help foster a consumer-driven shift toward more sustainable consumption and production. VSSs are also sometimes used by producers to drive quality and environmental demands up the supply chain to the producers of their inputs, as when the maker of an organic processed food demands that its ingredients be organically certified. Compliance with a VSS has upfront costs but can also lead to better resource efficiency, thereby reducing production costs, particularly in the longer term.

5.3.1 VSSs – Definition and Examples

The UN Forum on Sustainability Standards (UNFSS) defines VSSs as “standards specifying requirements that producers, traders, manufacturers, retailers or service providers may be asked to meet, relating to a wide range of sustainability metrics, including respect for basic human rights, worker health and safety, environmental impacts, community relations, land-use planning and others.” There are many different types of VSSs. Some focus on specific sectors, like agriculture, forestry or mining; others have a cross-sectoral approach and draw attention to specific environmental or social factors, throughout the life cycle of a product. The focus of a VSS is determined by its standard-setting body, which can consist of individual businesses, business associations, civil society institutions, and multistakeholder initiatives, public or private. The standard-setting bodies define sustainability requirements and criteria, with which producers and other respective stakeholders may choose to comply. This is different from the technical regulations discussed in Section 2.3, where compliance is mandatory.

This once clear-cut distinction is less clear in the aftermath of the WTO's 2013 AB ruling in *US–Tuna II* (see Box 3.9). In that case a U.S. standard and label for dolphin-safe tuna was judged to be a technical regulation, and not a voluntary standard, even though tuna was free to enter the market without the label. The distinction for the AB hinged on several grounds, primary among them being that the government had mandated that no other dolphin-safe claims could be made on labels outside of the designated scheme. It matters whether a measure is a standard or a technical regulation because, as described in Section 2.3, the legal standard for technical regulations is more demanding, including needing to show that the measure is not more trade restrictive than necessary.

Labels are closely related to standards, being the tools that tell the consumer that a product complies with one of these standards. Where the standard is environmental, the label is an eco-label (see Box 5.3). Although most of the time products are not obliged to be labelled in order to enter and/or be sold in a particular market, they can, together with the standard behind the label, have an impact on the competitiveness of the product—indeed, that is their aim. We have seen in the market that labelled products have an advantage over non-labelled products where price and quality are perceived to be similar. The primary question that determines competitiveness, then, is whether the labelled producers can bring the goods to market without unduly increasing prices.

Most, but not all, VSSs are tools of supply chain management by the buyers. That is, the typical use of a VSS is as a demand by a major buyer that its suppliers or input producers comply with the standard. Some major home goods retailers, for example, have mandated that all their dimensional lumber should be certified as sustainably harvested by the FSC, a major VSS in the forestry sector. It is not usually a case of a producer deciding to attain a label and then marketing itself to final consumers.

Box 5.3: Eco-labels according to the International Organization for Standardization

Type I (ISO 14024) labels compare products with others within the same category, awarding labels to those that are environmentally preferable through their whole life cycle. The criteria are set by an independent body and monitored through a certification or auditing process. Ranking products in this way requires tough judgment calls: Consider two otherwise identical products, one air polluting, another water polluting. Which is superior?

Type II (ISO 14021) labels are environmental claims made about goods by their manufacturers, importers or distributors. They are not independently verified, do not use pre-determined and accepted criteria for reference, and are arguably the

least informative of the three types of environmental labels. For example, a label claiming a product is “biodegradable” without defining the term is a Type II label.

Type III (ISO 14025) labels list a menu of environmental impacts throughout a product’s life cycle. They are similar to nutrition labels on food products that detail fat, sugar or vitamin content. The information categories can be set by the industrial sector or by independent bodies. Unlike Type I labels, they do not judge products, leaving that task to consumers. Critics question whether the average consumer has the time and knowledge to judge whether, for example, emissions of sulfur are more threatening than emissions of cadmium.

There are a wealth of standardization and labelling programs run by governments, the private sector and NGOs. As indicated by the examples of VSS schemes (Box 5.4), these can vary tremendously in their scope, focus, government involvement, certification processes and other relevant characteristics.

Box 5.4: Examples of voluntary standards and eco-labels

The **EU Ecolabel** serves as a reference for consumers who prefer to purchase organic products and services. The label takes a holistic approach to product certification, defining requirements for the whole product life cycle. It is managed by the European Commission in cooperation with national bodies from EU member states and other relevant stakeholders. The criteria are reviewed every three to five years to take new technological and environmental developments into account.

Fairtrade Labelling Organizations International (FLO) is an international non-profit, multistakeholder association that develops requirements and criteria for fair and equitable trade, including rigid environmental criteria. This VSS scheme has been established with a special focus on small-scale farmers and production conditions in developing countries, to provide a tool to include small-scale farmers and producers in the global value chain.

The **Forest Stewardship Council (FSC)** is an international member association composed of businesses and NGOs that has created widely used criteria for sustainable forest management and harvesting. Several big buyers of timber resources and products, such as IKEA, have committed themselves to source only FSC-certified stocks. This commitment creates the demand needed to make a shift to sustainable management of forests while keeping production in the sector profitable.

The **ISO 14001 Environmental Management System Standard** is an example of a VSS at the international level. ISO 14001, helps companies to track, understand

and improve their environmental management. Under ISO 14011, companies set their own objectives and can “self-certify” compliance with the standard, although many seek independent verification through third-party certification.

5.3.2 VSSs and International Trade

Discussions at the WTO and in the broader environmental community focus on two main issues. On the one hand, developing countries are concerned that these tools constitute significant trade barriers. On the other hand, VSSs offer incentives for production and consumption patterns to become more sustainable without constituting a ban on international trade.

Since VSSs influence the purchasing decisions of consumers, they can shift consumer preferences to more sustainable products. This creates a disadvantage for producers who do not comply with a VSS. Compliance with standards may require substantial capital, time and skills, favouring large companies and diminishing the chances for small-scale producers to be certified. When a VSS sets very high standards, this can amount to a market access problem where certain countries will *de facto* be banned from exporting their products to a particular market. Exports from developing countries can be disproportionately affected due to a lack of capacity to comply with the VSS. With the appropriate technical assistance and capacity (see Chapter 7), however, VSSs have the potential to generate new export opportunities, including for small-scale producers.

At the WTO, the CTE and the TBT and SPS Committees have repeatedly discussed the relationship between VSSs and international trade. Numerous developing countries have expressed concern with the impacts of private labels on market access, since they might have difficulties in meeting standards or conditions to obtain the labels increasingly imposed by, for example, large supermarket chains. The TBT Agreement, however, does not cover standards set by private sector actors—only by governments and standard-setting bodies.

Even then, the TBT Agreement only imposes rules on standards bodies, whether governmental or non-governmental, that have agreed to accept the Code of Good Practice for the Preparation, Adoption and Application of Standards, found under Annex 3 of the TBT Agreement. Under this code, a standards body that accepts the code is committed to refrain from propounding standards or labelling requirements that create unnecessary obstacles to international trade. Moreover, they agree to apply the national treatment and MFN principles. It is therefore important to note that, in this context, even voluntary standards can be subject to WTO disciplines. WTO Members are obliged to ensure that their central government standards bodies adhere to the code, and also to take “such reasonable measures as may be available to them” to ensure that their domestic

local government and non-governmental standards bodies accept and adhere to the code.

5.3.3. Challenges of VSSs

No tool is perfect, and VSSs struggle with a number of challenges as vehicles for the green economy transformation. One challenge is diversity and lack of coordination. Many standards have similar purposes but different requirements and labels attached. In the forest sector, for example, the FSC and the PEFC (Programme for the Endorsement of Forest Certification) both offer standards for the same market. There exist a plethora of sustainability standards for coffee, including standards (private-sector, governmental and independent) for organic, rainforest-friendly and bird-friendly, as well as mixed environmental and social standards. This can create confusion and mistrust among consumers. Another example is organic labelling in Europe and the United States, two of the world's largest markets for organic produce. Both impose different requirements on producers. As such, until the signing of an equivalence agreement in 2012, many producers were only able to sell organically labelled products in one market to the exclusion of the other.

A number of different actors are addressing this challenge, usually through working for transparency of standards and labels, by encouraging agreements of mutual recognition that the different standards are equivalent, and/or by encouraging harmonized standards. The TBT Agreement (see Section 3.5.5) obliges Members to notify their TBT measures promptly. It also encourages harmonization of technical regulations, by providing legal preference for those that are based on international standards such as those developed by the ISO. The International Social and Environmental Labeling (ISEAL) Alliance, an association of some of the main non-governmental bodies developing and overseeing VSSs, provides guidance and best practices and focuses on transparency of standards requirements. Similarly, the Global Ecolabeling Network is an association of the main national eco-labelling programs with a focus on quality of standards, transparency and working toward mutual recognition. On organic standards in particular, as noted above, equivalence agreements have been negotiated among the big market players: the European Union, the United States and Japan. UNEP and the UN Conference on Trade and Development (UNCTAD) assisted the East African Community to create the East African Organic Products Standard. The International Task Force on Harmonization and Equivalence in Organic Agriculture—a joint effort of UNCTAD, the FAO and the International Federation of Organic Agricultural Movements—prepared a regional ASEAN standard for organic agriculture, and the UNFSS (see Box 5.5) is assisting in implementing it.

Another challenge is the satisfaction of multiple objectives. As a tool for improving production methods, environmentally and socially, VSSs seem to work well. But many VSSs—in particular fair trade and organic standards—also have the betterment of conditions for producers as an important objective, with most guaranteeing a premium price over what is offered to conventional products, and often the security of long-term purchase agreements. With the steady rise in commodity prices since the late 2000s, that premium has been shrinking. Aggravating this is the chronic problem in many commodity markets of oversupply of standard-compliant product, meaning a great quantity of sustainably produced commodities—over 50 per cent according to one 2014 estimate—are sold in the conventional markets for no premium at all. As well, the most successful participants in the VSS markets are larger producers from export-oriented countries, which limits the regimes' contributions to poverty alleviation.

Box 5.5: The UN Forum on Sustainability Standards

The UNFSS was launched in March 2013. The UNFSS is a joint effort of five UN bodies: UN Conference on Trade and Development, UNEP, the FAO, UN Industrial Development Organization and the International Trade Centre. As a response to rapidly expanding sustainability markets and the establishment of new and diverse standards by a large number of actors, including private sector players, the UNFSS is an information platform for developing country decision-makers and other stakeholders, such as the private sector and NGOs, to better understand the role and implications of VSSs and to maximize their utility for sustainable development.

5.4 The WTO and MEAs

MEAs have long been used as a concrete cooperative solution to potential trade and environment conflicts. For example, as trade in genetically modified organisms (GMOs) may have environmental consequences, the ideal path is for the affected countries (both importers and exporters) to come together to negotiate how such trade may be handled: what measures may be taken at the national level for environmental protection, what measures should be taken by exporters to help in those efforts, and so on. The Cartagena Protocol on Biosafety, to continue with this example, is a multilateral solution to a multilateral problem, and avoids unilateral approaches that might be unbalanced in the interests of either trade or environmental concerns.

Given the value of MEAs in this respect, it has also long been understood that the multilateral system of trade rules will need to find some accommodation

with MEAs and international environmental law, a separate body of international law that sometimes addresses the same issues. According to Agenda 21, the 2002 World Summit on Sustainable Development Plan of Implementation and numerous WTO declarations, the multilateral trading system and MEAs should be mutually supportive. The weight of those declarations stands in contrast to the slight progress actually made by trade negotiators in examining the issue; it has been on the agenda of the WTO CTE since its inception in 1995, with no clear result. The 2001 Doha Declaration mandated work on this issue (but only on a narrowly defined slice of the whole; see Section 6.1). No outcomes had been achieved on this work item under the Doha Mandate as of August 2014.

The trade-MEA relationship has three distinct components. One is the direct impact MEAs may have on trade. For example, the Montreal Protocol on Ozone Depleting Substances directly stops trade in certain types of products. It also has forced changes in production processes that previously used ozone-depleting substances, in effect excluding from trade products produced in the old ways. Once in force, the new Minamata Convention can be expected to have similar consequences with respect to international trade in mercury. This type of trade impact, discussed in Section 2.4.4, is a natural result of banning or restricting environmentally damaging products or processes and is, in fact, the central purpose of those measures.

Another component to the relationship is the potential for trade liberalization to affect the subject matter of MEAs. For example, liberalizing trade in computer chips might have repercussions for the objectives of the Montreal Protocol if it increases the production of chips in countries using ozone-depleting substances as cleaning solvents in chip production.

The present section, however, is concerned with a third type of relationship: the relationship between the body of international law represented in the MEAs and the body of international law represented in trade and investment agreements.

Of the more than 1,000 MEAs currently in existence, some 20 incorporate trade-related measures to help achieve their goals. Although this is a relatively small number of MEAs, those that use trade-related measures include some of the most prominent ones (see Section 2.4.2), and trade-related provisions are an integral part of the range of options negotiators consider in addressing global environmental issues. Section 2.4.4 discusses in detail why such measures are used, but one of the major uses is to control trade itself, where trade is perceived to contribute directly to the environmental damage that the MEA seeks to address, and where such international measures would be more effective than domestic environmental measures. CITES, which controls trade in endangered species, and the Basel Convention, controlling trade in hazardous waste, are good examples.

Another use of trade-related measures in MEAs is to improve the effectiveness of an agreement. Trade-related provisions can provide an additional incentive to join and adhere to the MEA by restricting (often barring) non-parties from trading in restricted goods with parties (though there are usually exceptions for non-parties with legislation that meets the MEA standards of protection). The Montreal Protocol, for example, bans trade with non-parties in ozone-depleting substances and products containing them, a provision that many observers agree was crucial to the wide international support the Protocol has achieved. Without such measures, the agreement would be easily scuttled by non-parties increasing production of the restricted goods and shipping them to the parties that have restricted their own production—a perverse result both environmentally and economically.

The problem is that some WTO rules may conflict with such measures. Chapter 3 describes the obligations of WTO Members to observe the MFN and national treatment principles, as well as provisions on eliminating quantitative restrictions (contained in Articles I, III and XI of the GATT). An environmental agreement that says parties can use trade restrictions against some countries (non-parties) but not against others (parties) could be seen as potentially violating some or all of these obligations. It would discriminate between “like” products based on their country of origin, impose quantitative restrictions, and treat imported goods differently than “like” domestic goods.

Such trade-restricting measures might be used in two ways. First, a party could use them against another party (for example, the PIC system of the Rotterdam Convention is used just among parties to the Convention). Most analysts argue that this is not a problem, since both countries have agreed to be bound by the MEA’s rules, including the use of trade-related provisions. Problems may arise, however, where the MEA just spells out general objectives and commitments, leaving it to the parties to design specific domestic policies to implement them. For example, for those parties to the Kyoto Protocol that have undertaken mitigation commitments for the Protocol’s second commitment period (2013–2020), the required level of emission reductions has been defined in the Protocol’s amended Annex B. While fully compatible with the UNFCCC and its objective of avoiding dangerous anthropogenic climate change, these commitments might very well be fulfilled through trade-restrictive domestic measures that contradict WTO rules. Although WTO Members have expressed hope that disputes between parties might be settled within the MEAs themselves, a party complaining about the use of such trade-related provisions could choose to take its case to the WTO, especially as binding interstate dispute settlement mechanisms are seldom available under MEAs.

Box 5.6: Specific and non-specific commitments in MEAs

Very few MEAs provide specific directions to parties to take trade-restrictive measures, a reality that belies the inordinate attention paid to this special case. Those that do have them are not likely a source of conflict with trade law. A more likely and difficult source is measures taken pursuant to MEA obligations that are *not* specific about how they are to be fulfilled. The Kyoto Protocol, for example, calls on Annex I parties to “ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the GHGs listed in Annex A do not exceed their assigned amounts” (Article 3). But neither the UNFCCC nor the Kyoto Protocol specifies what types of measures parties should employ (though the Kyoto Protocol gives an illustrative list in Article 2).

So imagine a case where a Member that is party to the Kyoto Protocol implements a BCA scheme (see Section 5.2) or uses trade-distorting renewable energy subsidies (see Section 5.8.3) to fulfil its non-specific Kyoto Protocol commitments, and another Member, also party to the Kyoto Protocol, complains that these are violations of WTO commitments. The defending Member argues that it is simply fulfilling its obligations under the non-WTO treaty.

This sort of conflict is much more likely than a conflict over trade-related environment measures specifically demanded by an MEA. It would be dealt with by resort to the international customary law on treaty conflict, in part as found in the Vienna Convention on the Law of Treaties. The important thing to note is that there is no inherent hierarchy that sets one treaty above the other, and the jurisdiction of the DSB cannot be taken for granted.

A second way trade-restricting measures could be used is a party using trade-related provisions against an MEA non-party, where both are WTO Members. Here, the non-party has not voluntarily agreed to be subjected to the MEA's trade-related provisions. As with party-to-party measures, the trade-restricting party may in principle be violating the non-party's rights under WTO rules, but here the non-party might take the matter to the WTO even if the measures are spelled out specifically in the MEA.

Very few trade measures associated with an MEA have ever been subject to a trade law challenge (*EC-Biotech* and the Cartagena Protocol may be one such case), and it may be that the lack of progress under the Doha-mandated MEA negotiations (see Section 4.1) is due to a lessened sense of urgency about the potential for such conflicts. While the early days of the trade-environment debates were characterized by fears that the WTO would run roughshod over environmental laws and protections, a series of trade-environment disputes with reasonable outcomes

seems to have dispelled some of the concern. The AB, in a series of early decisions (in the *U.S.–Gasoline* and *U.S.–Shrimp* cases in particular) rejected the inward-looking approach of the GATT panels in the pre-WTO era and held that trade law must be interpreted in the light of public international law more broadly. On more than one occasion WTO panels and the AB have used international environmental agreements and declarations to help them understand and interpret the rights and obligations found in the trade agreements. (See Sections 3.4 on core principles of WTO law and 3.5.2 on the GATT, as well as Box 3.3 on *U.S.–Shrimp* and Box 3.5 on *China–Raw Materials*.)

A number of agreements of specific concern to developing countries have also emerged that use trade-related provisions to protect their environmental interests; one is the Basel Convention, which controls international trade in hazardous waste. Combined with the growing sense of the capacity to generate mutually supportive agreements, this has eased some of the concern over MEAs being a new form of green protectionism.

Finally, there have been a number of hopeful signs that mutual supportiveness can be achieved in international negotiations. Although a number of MEAs throughout the 1990s had heated negotiations centred on the old dynamic of conflict and supremacy, in some subsequent cases the trade and environment communities seem to have worked out a way forward. A good example is the Cartagena Protocol on Biosafety, which describes the steps states may take to regulate trade in GMOs, a “hot” trade law issue. The preamble to the Protocol contains three paragraphs on its relationship with trade law: neither trade law nor the Protocol has a hierarchical position above the other, and where there is overlap, the interpretation of each should be done in a manner striving to find consistency between both. While some complain that this result is inconclusive, others argue that it may cause the AB in the event of a dispute to use the Cartagena Protocol to help interpret trade law; if this indeed occurred, it would be a truly mutually supportive result.

However, the case of trade in GMOs has also demonstrated that asymmetries in treaty membership can limit the role of MEAs in trade disputes. The panel found itself unable to draw on the Cartagena Protocol to help interpret the SPS Agreement in the *EC–Biotech* case (see Box 3.10), because one of the four complaining Members was not a party to the Protocol. The case was not appealed, so it is not known how the AB would have addressed the issue. In general, panels and the AB have been reluctant to fully rely on MEAs, even for the purposes of interpretation. By contrast, the AB in the *U.S.–Shrimp* case drew on the UN Convention on the Law of the Sea, the CBD and the Convention on the Conservation of Migratory Species of Wild Animals in making its groundbreaking determination that living things could be considered “exhaustible natural resources” (see Box 3.3).

Another negotiated approach to finding mutual supportiveness is to “carve out” certain MEAs in trade law. Under NAFTA, for example, there is a provision

whereby the rights under certain specified MEAs will prevail over the NAFTA obligations, as long as the NAFTA parties are party to the MEA and the measures taken are the least trade-restrictive available. Several subsequent bilateral trade agreements (for example, Canada–Chile, Canada–Costa Rica and Mexico–Chile) follow this example.

Both of these approaches show that negotiators have viable options to address the trade law–MEA relationship. Still, some argue that the current balance over-relies on the arguments of the WTO AB, the opinions of which are powerful guides for, but not binding on, future panels.

This concern motivated the inclusion of the relationship between the WTO agreements and MEAs as an element of the Doha negotiating agenda. However, the Doha mandate on MEAs is viewed by some as hamstrung by its narrow scope; it is only concerned with the use of what the WTO has termed “specific trade obligations” in a currently unspecified set of MEAs and, even then, only between parties to the MEA. In other words, only the least controversial (some would say uncontroversial) aspects of the relationship are being discussed. The negotiating mandate, in a passage that even further limits prospects for progress in these discussions, requires that the negotiations do not result in changes to the existing balance of rights and responsibilities of the WTO Members.

5.5 Intellectual Property Rights

Classical economics talks about three factors of production: land, labour and capital, and the green economy discourse adds natural capital to the mix. In recent decades, however, another factor has become increasingly important: knowledge. Knowledge is fundamental for ensuring competitiveness, technological advancement, and provision of goods and services needed by society. A transition to the green economy also requires further technological development and knowledge on “greening” key economic sectors. But knowledge is not a static factor; it is constantly developed and improved through, among other things, innovation and creativity.

IPRs have traditionally been a means to foster that sort of innovation and creativity. They grant an innovator or creator the exclusive ability to control the use of their innovation and creation for a fixed period of time. During that time, the IPR holder will usually try to market and sell the idea, seeking to recoup his or her investment in research and development and reward his or her innovative efforts.

IPRs should strike a balance between the welfare of the innovator or creator, whose efforts deserve compensation, and the welfare of society at large, which would benefit by having unlimited access to the innovation or creation. Creating the right balance between the necessary protection to foster innovation and the deployment of intellectual property is part of the enabling conditions that promote a shift

toward the green economy. Innovations, whether in energy efficiency, renewable energy supply equipment, green infrastructure, improved agricultural techniques, new medicines, and so on can be important drivers of the green economy, but only if they are widely disseminated.

In the multilateral trading system, IPRs were fully incorporated with the establishment of the WTO in 1995. The TRIPS Agreement was followed by the inclusion of IPR standards and enforcement obligations in many regional and bilateral trade agreements, and in stand-alone plurilateral arrangements (see also Section 3.4.4).

Furthermore, since the 1990s, the relationship between IPRs and sustainable development has gained prominence in international environmental law and policy making, especially under the CBD, the UNFCCC, and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). Environment and trade issues in relation to IPRs have also been debated in the World Intellectual Property Organization (WIPO).

WIPO is a UN agency that, in addition to the WTO, is the other main multilateral venue for addressing IPR issues. However, WIPO's mandate focuses exclusively on intellectual property, in contrast to the WTO's broader international trade mandate. One of WIPO's functions is to administer a group of IPR treaties (currently 26) that put forth minimum standards for member states. All international IPR treaties, save TRIPS, are administered by WIPO. WIPO also provides technical assistance on intellectual property. In 2012, WIPO launched a pilot version of a new platform known as WIPO GREEN, which is a sustainable technology exchange that promises to help facilitate the adaptation, adoption and deployment of climate-friendly technologies, particularly in developing countries and emerging economies.

How do strong IPRs, such as those embodied in the TRIPS Agreement, affect the balance between private and public interests?

On the positive side, they may help ensure that more innovation and investment will take place. Without the guarantee of such protection, the private sector would be reluctant to spend millions developing, for example, new software, drugs or environmentally friendly technologies such as renewable energy innovations that could then be copied by others and distributed at minimal costs. (Intellectual property often has high costs of development but low costs of reproduction once developed.)

Strong IPRs may also help new technologies—the products of innovation—get disseminated. Technology transfer is usually a commercial venture and happens through a number of means:

- Direct investment (for example, building a factory).
- Joint ventures with domestic firms.
- Wholly owned subsidiaries.
- Licensing (selling the rights to use the technology).
- Training and information exchanges.
- Sales and management contracts.

Innovators will be more comfortable using these mechanisms in countries that are obliged to enforce strong protection of IPRs. That obligation assures them that their innovations will not be freely pirated or copied without authorization. So strong IPRs can also increase the willingness of firms to disseminate their technologies in countries that adopt them.

On the negative side, protection of IPRs can have a number of undesirable effects. First, if it is too strong, it tilts the balance too far toward the innovator by making access difficult, raising prices, limiting follow-on innovation and impeding access to information necessary to reproduce inventions. Many developing countries and environment and development NGOs argue that TRIPS's long terms of protection—20 years for patents—over-reward the IPR holders and punish the public by keeping the protected innovation or creation too expensive for too long. Overly strong protection may thus slow down the spread of new technologies and innovation. Improperly applied, it may also stifle innovation, in part by impeding research and development that seeks to use the patented material as the basis for new innovations. Section 5.5.2, on TRIPS and agriculture, gives examples of how this might work. Finally, TRIPS-style protection may work against sustainable development objectives by making goods such as pharmaceuticals more costly and less accessible to the poor. Several developing countries, when implementing TRIPS, have had to dismantle domestic industries that produced less costly copies of foreign-patented drugs, forcing up prices dramatically.

Recognizing the potential negative effects of granting IPRs, the TRIPS Agreement contains important exceptions and mechanisms to address public policy objectives. For example, TRIPS contains an exception whereby WTO Members are not obliged to grant patents for products or processes where “the prevention within [national] territory of [their] commercial exploitation...is necessary to protect *ordre public* [law and order] or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment.” Also, countries may exclude plants and animals from patentability (though in the case of plant varieties there must be some other system of protection in place; see the discussion in Section 5.5.1). There is also provision for governments granting the rights to use the subject matter of a patent without the patent holder's authorization (compulsory licensing), though only in specific circumstances.

Perhaps the most important recognition of the tensions between broader policy goals and commercial protection plays out in the area of patents on pharmaceuticals. A long battle by developing countries produced, in an agreement that probably salvaged the launch of the Doha work program, the 2001 WTO Declaration on the TRIPS Agreement and Public Health. This instrument, specifically aimed at developing and least developed countries, affirms that the TRIPS Agreement allows governments the flexibility to grant licences to non-patent holders in the event of public health crises and other national emergencies, an action known as compulsory licensing. Brazil has used the threat of compulsory licensing to force pharmaceutical manufacturers to lower prices for drugs used by its national program to combat HIV/AIDS.

But many least developed countries have no domestic pharmaceutical manufacturers to which they could grant such licences. A subsequent 2003 WTO waiver offers a limited possibility for such countries to import drugs cheaply manufactured under compulsory licence in third countries.

Many of these exceptions and mechanisms are being steadily eroded by bilateral and regional trade agreements that explicitly strengthen IPR protection. So while there may be flexibility at the multilateral level, free trade agreement partners have agreed among themselves to pursue a less flexible path. These negotiations are often some of the most fractious of the entire agreement and typically pit developed countries making demands against reluctant developing country partners. The most worrying “WTO-plus” provisions, from a sustainable development perspective, incorporate obligations such as data exclusivity (withholding the test data used in drug approvals so that they cannot be used by generic manufacturers after the patent expires) and “evergreening” (the re-registering of a patent if a new use for the drug is found). Many agreements also fail to include TRIPS-type flexibilities such as the ability to exclude plants and animals from patentability.

5.5.1 TRIPS, the CBD and Traditional Knowledge

The CBD is an international legally binding treaty with three main goals: conservation of biodiversity, sustainable use of its components, and fair and equitable sharing of the benefits arising from the use of genetic resources. The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is a supplementary agreement to the CBD (see Section 2.4.2). It provides a transparent national and international legal framework for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising from the use of genetic resources (and associated traditional knowledge). The Nagoya Protocol opened for signature on February 2, 2011, and once it becomes operational (after ratification by 50 countries), it will provide the framework for the export of genetic resources from developing countries.

Genetic resources take the form of plant varieties with valuable genetic codes. An example of associated traditional knowledge is the oral history an indigenous community holds of the herbs and plants that have medicinal properties, information of great value to pharmaceutical researchers searching for new drugs. Genetic resources and associated traditional knowledge provide the foundation for new products such as pharmaceuticals and herbal medicines, and for technological applications in biotechnology, agriculture, medicine and other areas. They can also provide new genetic material for plant breeders, allowing them to confer desired traits such as pest and drought resistance to crop plants. In one case alone, incorporating disease resistance from a Latin American corn variety spared U.S. corn crops from devastation by corn blight, saving the industry an estimated \$6 billion.

The CBD requires parties to cooperate to ensure that patents and other IPRs “are supportive of and do not run counter to” its objectives, implicitly recognizing the potential space for conflict with certain features of the IPR system. The relationship between the CBD and the TRIPS Agreement has been the subject of long and passionate debate in the WTO. The Doha Declaration includes a mandate to examine the relationship between the two agreements, and discussions have also been held in the CBD and WIPO. The main potential problems stem from the CBD’s starting point: that parties have sovereign control over their own genetic resources. As a result, the CBD grants states the right to regulate and control access to genetic resources within their borders.

Among the basic “rules of engagement” spelled out by the CBD is that any access to genetic resources should be on mutually agreeable terms and subject to prior informed consent of the host state. As well, each party is to set up rules to ensure that a country providing genetic resources gets an equitable share of any benefits, such as revenues from commercialization of a new drug. This would mean ensuring that patent applications are not made on the basis of “pirated” genetic material—material obtained in violation of the rules of engagement. Therefore, a number of developing countries have argued in the WTO negotiations for a new provision in the TRIPS Agreement requiring patent applicants to disclose the origin of any genetic resources or traditional knowledge used in the subject matter, and/or to demonstrate that their appropriation of the resources or knowledge was done with the kind of prior informed consent and benefit-sharing required in the CBD. This would improve integration of the objectives of the two bodies of law. But key developed countries continue to oppose such provisions.

Of course, individual countries have the right to adopt higher standards than what the TRIPS Agreement requires, and they can address concerns related to the CBD by imposing requirements such as certification of origin. Countries can also create mechanisms within IPR law to achieve specific objectives, such as benefit-sharing. This type of legislation has been propounded in different ways by countries such as the Philippines, the Andean Community (Bolivia, Colombia, Ecuador, Peru and

Venezuela), Costa Rica, Panama, India, Brazil and Thailand. Of course, these sorts of higher standards will be much less effective if third countries continue to grant patents based on pirated materials.

Within WIPO, the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore has been undertaking text-based negotiations on international legal instruments that would ensure effective protection of traditional knowledge, traditional cultural expressions and genetic resources.

5.5.2 TRIPS and Agriculture

There are a number of ways in which the TRIPS Agreement affects agriculture and sustainable development. One set of impacts arises from the economic incentives that are created by strong IPRs. Strengthening any system of IPRs means, for the protected subject matter, greater potential profits from investments in research and development. In agriculture, this dynamic creates two troubling side effects from a sustainable development perspective.

The first is that the increasing returns on investment have helped shape an industry structure where bigger is better. It is not unusual for companies to invest tens of millions of dollars to bring new products to the market, but this magnitude of investment could not be made without the protection of some sort of IPRs. Since such investments are profitable, those firms capable of making them will prosper. This reality has led to a significant concentration of ownership in the seed industry, with those firms capable of very large investments increasingly buying out smaller firms to consolidate their market positions. One risk of such market concentration is higher prices for products based on intellectual property, such as seeds, since there will be less price competition among the few remaining firms.

A second concern is the rapidly shrinking genetic diversity of cultivated species as farmers switch from traditional varieties to new, high-yield strains developed by professional breeders. Beginning decades ago in the green revolution, farmers began to turn away from traditional varieties to adopt modern strains that promised better yields and better resistance to pests and disease. The result is a loss of an estimated 75 per cent of the diversity of planted crops in the last century, meaning a smaller pool to draw on when new forms of resistance are needed.

The protection of IPRs has been said to contribute to this decline—though it is only one of a host of factors—by giving better treatment to formal innovation than to informal innovation. Formal innovation is the type that is carried out in laboratories and test plots, with results that are reproducible on a consistent basis. This type of innovation is covered by patents and, therefore, benefits from economic incentives for research and development. Informal innovation is carried out by the actual user of the product or system. For example, farmers have

traditionally created innovative new plant varieties by saving seeds from previous crops, selecting and planting, generation after generation, those that perform best under their local conditions. The products of informal innovation are not protected under the TRIPS Agreement, which emphasizes conventional forms of intellectual property. By granting protection to formal innovators and not to informal innovators, IPR protection can contribute to the abandonment of the diverse mix of planted crops in favour of modern strains and contribute to a loss of biodiversity.

In Article 27.3(b), the TRIPS Agreement contains an exemption that allows WTO Members to refuse to grant patents for plants and animals (other than micro-organisms). However, if Members wish to deny patents for plant varieties, they must protect them by some “effective *sui generis* regime”—a system specially designed for a certain type of intellectual property—or a combination of the two systems.

Using patents to protect plant varieties can have different effects. In some cases, the patents may spur innovation. But in others they may stifle it. Traditionally, innovation has been based on existing varieties, which scientists use for improvements, and for which a breeders’ exemption (i.e., the right to use protected varieties in their research and claim ownership of the results) has been granted. Patents, however, do not provide for a breeders’ exemption, and researchers will have to pay for access to patented materials used in their research, if they are allowed access at all. Also, many firms engage in “patent stacking”: taking out patents for different aspects of a single innovation, forcing several royalty applications and payments. Finally, trends in patent applications allowing for broadly defined patents based on plant characteristics, rather than on the genes that produced those characteristics, may discourage further research. Patents have been granted, for example, for such broad categories as sunflower seeds with high oleic acid content. To the extent that such a patent stifles innovative research into improved ways of producing high oleic acid sunflower seeds, strong IPR protection might even defeat one of its main avowed goals. The lesson is that balance is required in how IPRs are formulated and applied.

In theory, a number of *sui generis* systems of protection are possible under Article 27.3(b) of the TRIPS Agreement. However, the review of Article 27.3(b) currently taking place in the TRIPS Council has revealed that the WTO membership is unclear as to what an effective *sui generis* system is or should be, leaving the matter open to interpretation.

Although not specifically referred to in the TRIPS Agreement, one of the *sui generis* systems—of which a number of countries are already members—is the International Union for the Protection of New Varieties of Plants (UPOV) Convention. Adopted in 1961 to protect breeders’ rights, and last amended in 1991, the UPOV Convention marked a philosophical shift away from national

sovereignty over biological materials as common heritage, toward private ownership by the developer of a new variety. The thrust of the treaty was to offer strong protection to breeders of new plant varieties, giving them greater incentive to invest and innovate. However, several developing countries have raised concerns over the UPOV Convention, arguing that:

- It has limited scope for the “breeders’ exemption,” the traditional free access of breeders to protected material for research purposes. And if the new variety is “essentially derived” from the original variety, the IPRs must be shared with the original innovator.
- It has strong protection of breeders’ rights, the IPRs of formal innovators, but no protection of farmers’ rights, the IPRs of informal (typically poor) innovators.
- It places strict limitations on the farmers’ right to re-use, sell and exchange seeds. For poor farmers in developing countries accustomed to saving part of each crop to use as next year’s seed, these limitations can be a serious hardship.

Box 5.7: 2009 UN study on UPOV

The UN Special Rapporteur on the Right to Food, Olivier De Schutter, in his study of UPOV in 2009 (A/64/170), found that intellectual property–related monopoly rights could cause poor farmers to become “increasingly dependent on expensive inputs” and at risk of indebtedness in the face of unstable incomes. Furthermore, the system risks neglecting poor farmers’ needs in favour of the needs of farmers in industrialized countries. This could lead to jeopardizing traditional systems of seed-saving and exchange, and losing biodiversity to “the uniformization encouraged by the spread of commercial varieties.”

The Southern African Development Community is currently working on a Protocol for the protection of new varieties. The draft Protocol (of November 2012) builds on “the need to have an effective *sui generis* system of intellectual property protection of new varieties” that meets the requirements of Article 27.3(b) of the TRIPS Agreement. However, in April 2013, a group of 80 civil society groups from Africa and elsewhere claimed in a submission that the draft Protocol does not reflect the concerns and conditions of African nations.

As a result of concerns that many developing countries have, some of them have developed or are developing their own *sui generis* systems in an effort to balance the breeders’ rights embodied in the patent system and the UPOV Convention with the rights of farmers to re-use, sell and exchange plant genetic resources as

part of the common heritage of humankind. This recognition is also embodied in the ITPGRFA, which entered into force on June 29, 2004. This treaty includes explicit references to “farmers’ rights” to re-use, sell and exchange farm-saved seeds. The farmers’ rights concept also includes recognition that farmers conserve and enhance plant genetic resources, but the treaty stops short of granting IPRs to informal innovations. The treaty establishes, in accordance with the CBD, a multilateral system of access and benefit-sharing for 64 of the world’s most important food and forage crops. Genetic material from these crops is freely available to all researchers, who must in turn provide a share of the benefits of any innovations they commercialize. Monetary payments are mandated by Article 13.2(d)(ii) of the ITPGRFA.

In 2006, the governing body of the ITPGRFA approved the standard material transfer agreement (SMTA) to be used for all transfers of materials in the treaty’s multilateral system of “access and benefit-sharing.” As an alternative to the payment under Article 13.2(d)(ii), Article 6.11 of SMTA introduced a “crop-based” modality of payment. However, the current mechanism of monetary payments does not meet the expectations of benefit-sharing generated by the adoption of the ITPGRFA. In this respect, the African Group proposed in April 2013 a reappraisal of the option offered by Article 6.11 of the SMTA that could lead to enhancing benefit-sharing under the ITPGRFA.

5.6 Green Industrial Policy

Industrial policy is a set of measures that selectively favour the development of certain industries over others. It usually aims to foster national firms that can eventually compete on world markets. *Green* industrial policy is any such policy that supports the development of industries that produce “green” goods, or goods that:

- Have better environmental performance in operation than their competitors (e.g., electric vehicles, renewable electricity technologies, LED light bulbs).
- Directly address environmental problems (e.g., environmental remediation technologies).
- Are produced in a way that is environmentally preferable to their competitors (e.g., organic agriculture).

The majority of green industrial policy currently in use is of the first type, and targets the development of new low-carbon energy technologies such as solar photovoltaic (PV) and wind turbines. Some is also focused on energy storage technologies and green automobiles.

Starting from zero disputes in the 2000s, such policies are now the subject of scores

of national trade remedies (including the largest trade-remedy case to date, brought by the European Union against Chinese solar PV imports), as well as several WTO disputes. Why the growth in disputes? For one thing, industrial policy is explicitly aimed at distorting the international flow of trade and investment, looking to grow so-called infant industries that will take market share from foreign competitors. For another thing, the value of the coming green economy is huge and growing, with the potential value of investment estimated at between \$1 trillion and \$2.5 trillion per year. Governments understandably want to direct their national economic growth toward these important markets of the future.

Supporters of industrial policy have always argued that such policies are justified by market failures. There may be, for example, an element of learning by doing that would let firms become competitive if only they could ramp up production, or it may be that costs of production in a given sector increasingly fall as production increases. In either case it might be argued that temporary government subsidies would allow firms to reach an efficient and competitive level of production.

Green industrial policy is distinguished from traditional industrial policy by a very large element of market failure: the failure of markets to price the environmental benefits provided by the firms' production. Utilities buying electricity generated from renewable sources, for example, will not normally compensate producers for their contributions to combatting climate change; they simply want to buy electricity. Yet these unpaid benefits to society are real, and absent payment the price to those producers might be so low that they cannot compete with conventional producers. So governments might step in to offer payments that compensate producers for the environmental benefits they create.

While such payments may be seen as subsidies under WTO law, the real problems begin when governments go beyond subsidizing environmental goods and begin structuring their support so as to create competitive firms in the supported sector—that is, begin using industrial policy. To continue with the example of renewable electricity, some jurisdictions offer the premiums described only if the producers are using locally manufactured components to produce the renewably generated electricity. These “domestic content requirements” would render the subsidies in violation of the SCM Agreement since that agreement prohibits subsidies tied to domestic content. They might also violate the TRIMs Agreement if the measures are defined as investment measures; the Agreement obliges Members not to use investment measures that offer some advantage to investors conditional on the use of domestic content. (See Section 3.4.7 and Box 3.12 on the *Canada–Renewable Energy* case.)

Green industrial policy measures may take a number of different forms, many of which are not a problem from a trade law perspective. Efforts to boost competitiveness across the board, such as infrastructure development, science and innovation policies, or education policies designed to produce more engineers are

generally fine. Policies that target particular sectors, however, may run into legal problems. Tax breaks for specific green industries, for example, may be found to be subsidies (though not all subsidies are legally problematic; see Section 5.8).

As discussed in Section 3.4.2, while there are exceptions to GATT law on environmental grounds (i.e., Articles XX(b) and (g) of the GATT), there are no similar exceptions for subsidies under the SCM. So even if the subsidies in question are legitimately aimed at environmental improvement, they may be found to contravene WTO obligations.

Does green industrial policy work, from a strictly environmental perspective? It's a complex question. If the tool is a subsidy, then the first question is whether the subsidy compensates for the costs of any action on which it is conditioned. For example, it is possible to set premium prices for green electricity so high that they will compensate investors for the increased production costs caused by domestic content requirements. And it is possible to be generous enough with land grants, tax breaks and below-market credit that it compensates producers for the costs of relocating production to the subsidizing jurisdiction. If the support is generous enough, it may mean more green goods sold as prices come down. This would be environmentally good (but potentially very costly for taxpayers).

In the case of domestic content requirements for electricity, though, if the compensation funds were spent instead on importing more (cheaper) foreign technology, the final result would be environmentally superior, at least in the short run. That picture would only change in the long run if the green infant industries grew up and became competitive innovators that could actually force down the global price of the goods they produce—this is the long-term hope on which green industrial policy is justified from an environmental perspective.

Generous support is not an unblemished environmental good; set high enough, it may allow the subsidized producers to flood the global market and kill off more efficient, innovative competitors. Some argue that this was the case for the hundreds of solar PV manufacturing firms in Europe and North America that were driven from the market in the early 2010s, though to others this was just a normal shake-out of an immature and fast-developing market. While the price reductions are environmentally good in the short run, encouraging more dissemination of the technology, the loss of innovative capacity may be environmentally damaging in the long run.

Box 5.8: International trade in electricity

International trade in electricity is an emerging trade issue with some special characteristics. There is a growing interest among WTO membership to consider the topic under the multilateral trade regime. This has to do, in part, with the growing share of renewable energy, which has increased the importance of cross-border electricity trade.

International electricity trade has three characteristics that make it special: first, it is intangible, unlike other goods, and second, it is limited by infrastructure requirements, as grid connections are needed between the trading countries. Traditionally, only neighboring countries have been able to trade electricity, although extensive interconnections are currently being considered in many regions, including Africa, Asia and Europe.

Electricity's third unique characteristic is that it has to be generated at more or less the same time as it is being used. It can currently only be stored in small quantities, although new technologies are being explored, developed and gradually commercialized due to the increasing interest in intermittent renewable energy sources such as wind and solar power.

While electricity trade falls under WTO rules, there are no specific provisions on electricity. One of the open questions is whether electricity should be considered as a good or a service under the WTO. This is important, as WTO rules treat goods and services differently. Electricity has been classified as a good in WTO tariff schedules, meaning that the GATT applies to it. Some aspects of electricity trade, such as transmission and distribution, could also be considered as services. The rules on services only apply to sectors where countries have undertaken specific commitments. Only a very small number of Members have done so with respect to energy services.

5.7 Agriculture and GMOs

In some countries (primarily the United States and Argentina), producers have been authorized to cultivate GMOs in agriculture. World market shares of genetically modified (GM) cotton, soybeans, canola and maize have become significant, and proponents claim that, properly used, GM products can reduce the use of harmful pesticides and boost yields. Environmental concerns over the use of GMOs include the possibility that the insect- or herbicide-resistant traits of GMOs will generate “super” weeds and parasites that develop resistance to conventional protective interventions. They also include the risk of crossbreeding with traditional relatives of the modified plants, raising the risk of reducing the variety available in the gene pool.

Predictions that GMO technology would become a trade issue have already been borne out; there have been two related cases before the WTO DSB. In one, the United States and others complained that the European Union suspended efforts to approve GMO imports (see Box 3.10), and in the other, Thailand complained about Egypt's ban on tuna canned in GM soy oil. These cases, and the GMO debate more broadly, highlight a number of the key trade-environment issues discussed above. For example, are GM commodities "like" traditional agricultural commodities and, if so, will treating them differently result in discrimination contrary to GATT requirements (see Section 3.4.2)? What kinds of precautionary measures can be taken in restricting their import without contravening the SPS Agreement (see Section 3.4.6)? What strength does the Cartagena Protocol on Biosafety have in the face of WTO rules, when it authorizes a precautionary approach? What do TBT rules requiring measures to be "not more trade restrictive than necessary" mean for labelling schemes that require producers to declare GM content in foods (see Section 3.4.4)?

The disruption of trade flows in agriculture due to fears over GM technologies causes problems beyond these two cases. In 2002, the governments of Zambia and some other African countries cited the fear of cross-contamination as their justification for refusing offers of U.S. food aid in the form of unmilled GM corn, despite facing famine. The African governments argued the corn might contaminate their native species, which could disrupt their exports to the European Union, their principal market and home of tough restrictions on GMO imports. In 2012 Kenya introduced a ban on all GMO imports and products and has been under intense pressure to rescind the law. The actual health impacts of GMO crops are still a matter of some controversy, though recent studies do confirm the predicted growing development of resistance to glyphosate, the herbicide used as the partner for many GM food crops.

The February 2004 Meeting of the Parties to the Biosafety Protocol agreed that countries should be able to demand clear documentation of GM imports (known under the Cartagena Protocol as living modified organisms or LMOs) at the border, including details on levels of GM contents and their origin (ensuring traceability, in case liability issues arise). Major GM commodity exporters unsuccessfully resisted this outcome, arguing it would impose unnecessary costs and stigmatize their export shipments. Despite such controversies, details of the labelling scheme were agreed at the third Meeting of the Parties in 2006, which specified requirements for documentation and identification of GM imports. Accordingly, parties are required to take measures to ensure that accompanying documentation clearly states that the shipment contains LMOs in such cases where the identity of LMOs is known, through means such as identity preservation systems. In other cases, where the identity of LMOs is not known through such systems, the accompanying documentation must state that the shipment "may contain" LMOs. In 2010, the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety was adopted to establish the rules for liability and redress in case of damage from trade in GMOs.

5.8 Subsidies

Subsidies are one of the clearest areas of shared interest for the trade and environment communities; so-called perverse subsidies—fossil fuel subsidies are a good example—are harmful to both the environment and the economy. Depending on the definition (defining what is a subsidy is often the greatest challenge), perverse subsidies worldwide range from \$500 billion to \$1.5 trillion a year. There is consensus that they can be a driving force for environmental damage and economic inefficiency. At the environment-trade nexus, a number of sectors are of interest, with agriculture, forestry, energy, transportation, water and fisheries being the most obvious.

Environmentalists and advocates of free trade dislike perverse subsidies because they distort prices. From an environmental perspective they are disliked because they artificially lower the costs of environmentally unsustainable business practices and encourage wasteful consumption. From a trade perspective subsidies can act as a powerful force to stymie the development opportunities that trade can bring; it is estimated that removing developed country subsidies and tariffs to cotton alone would increase real incomes in sub-Saharan Africa by \$150 million per year. The trade community also dislikes subsidies because, if left undisciplined, they can completely nullify any expected benefits Members might have thought they'd get from the tariff reductions they manage to wrest from their negotiating partners. That is, if countries simply could replace tariff walls with protective subsidies, it would make trade negotiations futile.

As well, subsidizing polluting sectors or technologies hampers the development of greener alternatives. The \$550 billion a year given worldwide in subsidies to fossil fuels alone, for example, artificially raises the return on investing in those sectors as compared with the relatively capital-starved renewable energy sectors, in which *total investment* in 2012 was less than half this amount.

It is important to remember that not all subsidies are perverse; that is, not all subsidies are necessarily harmful to both the environment and the economy. Some subsidies can be used to correct current market failures or support infant industries for environmental purposes. A subsidy that pays for previously unrewarded environmental benefits, for example, brings prices down to a level more closely in line with the true social cost of production.

The WTO at one time recognized that some sorts of subsidies are desirable, and provided exceptions in the SCM Agreement, including for certain subsidies to help firms to meet new environmental regulations. However, this exception lapsed in 1999 and has not been renewed (see Section 3.4.7).

5.8.1 Agricultural Subsidies and Domestic Support

The agricultural sector has significant environmental impacts. Irrigation is the single largest use of water in most countries. Agricultural runoff and seepage of fertilizers and pesticides are major sources of groundwater pollution. Changing patterns of land use, for example from forest to agriculture, can destroy habitats for plant and animal species. Intensive livestock operations in many countries have grown so large that they pose major problems of waste management and disposal, and are sources of air and water pollution. And by some estimates the agricultural sector broadly cast is responsible for as much as 40 per cent of anthropogenic GHG emissions. At the same time, agriculture can play a positive role in ecosystem management, and good agricultural practice has significant potential for reducing GHG emissions. Over centuries, agriculture has come to play an essential role in maintaining particular landscapes and the biological diversity they shelter.

Agriculture is intimately related to human development. Approximately 2.6 billion people directly depend on agriculture for their livelihood. Food insecurity and malnutrition are among the key concerns of developing countries.

Because of these factors, international trade and international trade regulation in the area of agriculture have major and complex implications for sustainable development, with an impact well beyond the 10 per cent of global agricultural production that is actually traded. In fact, trade concerns have dominated the debate on domestic agricultural policy all around the world for the past 20-plus years.

The globalized market for agricultural products has a number of complex environmental and development impacts. On the positive side, access to world markets can provide access to food when local harvests fail. Imported food can also provide a more sustainable alternative to farming marginal land, allowing better management of natural resources. Revenues from exported crops can be superior to the profits available through sales on local markets, providing much-needed capital to rural communities. And foreign direct investment (FDI) can provide the necessary capital to upgrade existing inefficient modes of operation.

On the negative side, developing country farmers have seldom been able to capture much of the benefit of exports, with the lion's share of rents being captured by others in the value chain: brokers, government marketing boards and multinational buyers with significant market power. And the strategy of relying on international markets to provide food security was dealt a body blow by the food price spikes of the late 2000s and the associated export bans of staples from some

countries. FDI can end up as damaging for the environment and development if not managed properly (see Section 5.12 on investment). Finally, the competitive pressures of a liberalized global market make it distinctly unprofitable to engage in models of production that focus on crop diversity and a moderate use of inputs; while these deliver large social benefits, those benefits are not priced in the market.

Agricultural support is also a key development issue. Many developing countries have an advantage in agricultural production compared with their developed country trading partners, but are unable to harness this potential engine for growth. Subsidized exports of surpluses from developed countries depress prices on the international markets, making agriculture a less profitable proposition for those whose governments cannot afford to subsidize. In many developing countries—even those where agriculture is not a large component of national GDP—agriculture is a vital basis of employment for a significant part of the population. The employment effect is seen to correlate with the level of sustainability of agricultural practices, with the FAO estimating an average 30 per cent job increase for sustainable agriculture, compared to unsustainable practices.

Given its importance to domestic well-being, it is not surprising that agricultural trade has always been, and continues to be, a key issue of controversy in multilateral trade negotiations. Previous to the establishment of the WTO, agriculture had been accorded special status under multilateral trade rules that allowed countries to protect their domestic production in ways not permitted in other sectors. The Uruguay Round's Agreement on Agriculture (AoA) was a first step to bringing agriculture under GATT disciplines.

The AoA called for caps and reductions on the use of agricultural export subsidies, domestic support programs and tariffs. When WTO Members signed the AoA in 1994, they agreed to review implementation of the Agreement five years after its coming into effect (in 2000). Agriculture was thereby made a central element of the Doha negotiations. The lack of agreement over agricultural disciplines was also the principal reason for the inconclusive outcome of the fifth WTO Ministerial Conference, held in September 2003 in Cancun. This failure effectively nullified the January 2005 deadline for conclusion of the overall negotiations, set in Doha.

To the extent the talks are proceeding at all, it is due to hard-fought agreement on how to advance on the agricultural issues. In December 2013 Members reached, as part of the Bali package, an agreement related to domestic support measures for agriculture, though that agreement, like all the Bali results, was not adopted (see Section 4.3). The Bali decision allows for agricultural subsidies to exceed the permitted support limits for reasons of food security and general services in rural areas (e.g., land reform and rehabilitation, natural disaster management and rural livelihood support). During an interim period of four years, while a permanent solution has to be negotiated, Members have agreed not to file any complaints against these support measures.

In the WTO context, great importance is attached to the distinction between those measures that distort production decisions and those that do not. For example, a subsidy paid for each hectare under cultivation affects production by encouraging more land to be cultivated. On the other hand, farm income insurance is a form of support that has no such undesirable incentives (though some economists argue that any payment to farmers distorts production decisions—even income insurance reduces risks and thus increases expected returns). This type of non-distorting support is termed “decoupled” and is given preferential treatment under WTO rules; trade-distorting subsidies are for the most part prohibited, while those that are non-, or minimally, trade-distorting are allowed under certain circumstances (see Box 5.8).

Box 5.9: The three WTO agricultural boxes

Agricultural support is classified into three types in the WTO: amber box, blue box and green box.

- **Amber box** support is labelled as trade distorting—as with support linked to exports, or to production levels—and is subject to reduction commitments.
- **Blue box** support may be linked to production levels, but is aimed at reducing production. It is, therefore, considered less trade distorting than amber box support. While there are limiting boundaries for total blue box spending, the limits are generous.
- **Green box** support is supposed to be non- or minimally trade distorting. It must be decoupled from production levels. Annex 2 of the AoA defines a number of types of green box support, including research and development, marketing support, food aid spending and environmental conservation programs. There are no limits on the levels of green box support.

Why the concern with production-linked support? While actual impacts will vary from scheme to scheme, such support oftentimes encourages overproduction, and overuse of chemical inputs. From an international trade perspective, this support and the overproduction exert pressure on international markets and prices. Subsidized producers gain a competitive advantage, which distorts the international trading system. The overproduction and increased use of chemicals also intensify the environmental problems discussed above. Supports schemes may also lead to abandoning traditional sustainable practices such as rotating crops and fallowing fields. Other forms of agricultural subsidies artificially lower

the prices of inputs, such as water, fertilizers and pesticides, encouraging their overuse.

The AoA allows support for certain policies determined by WTO Members to be both desirable and non-trade distorting (or minimally trade distorting). These are the green box types of support, including agro-environmental policies with insignificant impacts on production or trade, such as support for research, disaster payments and structural adjustment programs. The scope of these exceptions is the subject of some controversy in the current negotiations, particularly given the fact that it is up to Members themselves to declare—on the basis of vague criteria—whether their own measures fall into the green box. Thus the fear, noted above, that some forms of amber box and blue box support will be only marginally altered and then shifted to the green box.

It has been argued that agriculture is “multifunctional”: that agriculture produces food, but also protects biodiversity, conserves soil, ensures national food security and more. Proponents of multifunctional agriculture argue that these non-productive benefits should be paid for by the state (since the market will not pay for them), and that such payments should not be subject to spending limits under WTO rules, since they are market correcting and they do not encourage overproduction. Critics charge that the multifunctionality argument is simply a ploy to rebrand traditional support programs.

5.8.2 Fisheries Subsidies

Fish and fish products are the most traded commodity in the food sector and are of particular economic importance to many developing countries. Yet the world faces a crisis of sustainability in this sector; the FAO recently estimated that over 30 per cent of fish stocks worldwide are overexploited and 57 per cent are fully exploited, leaving only 13 per cent of global fish stocks that are not (yet) fully exploited. Besides the environmental consequences, this also has a negative economic and social impact by jeopardizing the livelihood of fishers.

Subsidies in the fisheries sector—which, depending on how they are calculated, range from \$15 billion to \$34 billion per year—contribute to this problem by lowering the cost of fishing, leading to overexploitation or overconsumption of the resource: too many fishers and too many boats chasing too few fish. While subsidies in the fisheries sector are widely designed with the objective of supporting poor fishers, they will, in the longer run, impair the sustainability of the livelihood of fishers and have an adverse environmental effect. Moreover, in regards to trade, since subsidies are a driver of overcapacity, the more subsidized fishers gain a significant competitive advantage over others.

The removal or reform of these subsidies can enhance the green economy transition. Indeed, the reform of fisheries subsidies is among the most promising issues at the trade and sustainable development interface, offering straightforward win-win situations for the environment and development. Moreover, progress in this area may serve as a precedent and stepping stone for progress in other sectors such as fossil fuel subsidies (see below).

Cutting fisheries subsidies may mean an initial loss of needed revenue for countries that sell the rights to fish their territorial waters. These types of considerations argue for a thorough impact analysis to precede any sort of subsidy reform and, in some cases, for flanking policies or bridging measures to cushion the blow of reform.

The WTO's Doha Declaration commits Members to "clarify and improve WTO disciplines on fisheries subsidies," and the 2005 Hong Kong Ministerial Declaration made it clear that the objective included "the prohibition of certain forms of fisheries subsidies that contribute to overcapacity and overfishing." It is worth noting that while overcapacity is a traditional trade policy concern with distortion of markets, overfishing is primarily an environmental concern, making the fisheries subsidies negotiations the first foray for the WTO into the area of environmentally harmful subsidies. This achievement was due to the efforts of a core group of countries known as the "Friends of Fish" wanting to see the relevant WTO disciplines improved.

With the support of NGOs and selected intergovernmental organizations, significant progress has been made on the issue of fisheries subsidies in the WTO negotiations, and the Chairman of the Rules Negotiations in 2007 issued a draft text for rules on fisheries subsidies that had sustainability criteria at its heart. However, given the slow progress in the Doha Round, the issue has not been actively discussed since 2008. Discussions in the run-up to the Bali Ministerial in December 2013 mainly focused on trade facilitation and agriculture, though a coalition of 13 like-minded Members did issue a Ministerial Statement in Bali pledging to "refrain from introducing new fishing subsidies that contribute to overfishing or overcapacity or extend or enhance existing subsidies, and work within the WTO and other fora to improve fisheries subsidies reform and transparency." Ultimately, the reform of fisheries subsidies remains an important item that offers substantial potential for the WTO to set a best-practice precedent and to demonstrate its capability to achieve win-win-win outcomes for trade, the environment and development.

5.8.3. Energy Subsidies

Two very different types of energy subsidies are relevant to the green economy and the trade and environment interface: fossil fuel subsidies and renewable energy subsidies. They are discussed separately below.

Fossil fuel subsidies

There are two types of fossil fuel subsidies: subsidies to producers to decrease the costs of production and subsidies to consumers to decrease the costs of consumption. The total amount of both dispensed globally is estimated at over \$550 billion a year. Of this, in 2011 roughly \$17 billion was given to producers (as tax breaks, R&D support, etc.), and \$544 billion was given to consumers, mostly through artificially low prices for fuel and mainly in oil- and gas-producing countries.

Fossil fuel subsidies are disastrous for the environment. Consumer subsidies in particular lower prices and so encourage the use of fossil fuels, which are responsible for two-thirds of all human-caused GHG emissions and also have other negative consequences. The International Energy Agency estimates that comprehensive fossil fuel subsidy reform would result in as much as 18 per cent fewer GHG emissions globally by 2050. To put this in perspective, this is roughly a quarter of the estimated 50 to 85 per cent of emission reductions needed by 2050 (relative to 2000 levels) to avoid dangerous climate change. As well, fossil fuel subsidies in 2012 were more than five times higher than subsidies to critically needed renewable energy technologies, making it harder for the latter to compete.

Fossil fuel subsidies are also an economic problem, being potentially a massive fiscal drain, particularly when global oil prices spike. National outlays for fossil fuel subsidies have at times outweighed budgets for education, health, social security and infrastructure combined. Some argue that consumer subsidies are a necessary part of national social welfare efforts, sheltering the poor from price increases. But empirical evidence shows that the bulk of such subsidies is untargeted and as such typically goes to the rich and middle classes, and that more targeted social welfare measures—such as direct payments or vouchers—would be a more cost-effective (and less polluting) way to help the poor.

Perhaps the most important thing WTO Members might do in service of the environment would be to agree that trade rules should help reduce or eliminate fossil fuel subsidies. There is some precedent for the WTO addressing subsidies at the sectoral level. As discussed above, the Doha Mandate includes an undertaking to reduce or eliminate fisheries subsidies in an attempt to eliminate trade and production distortions (thus also furthering environmental objectives).

But the experience with fisheries subsidies shows that this sort of effort is not easy and must find a way to accommodate those Members that see such subsidies as desirable or necessary. As well, it is not clear that fossil fuel subsidies could be found to be subsidies under trade law. The SCM definition requires, among other things, that the measure be specific—that is, that it be granted to a particular firm or sector, or that a particular firm or sector receive most of the benefits. Fossil fuel subsidies do not operate this way. Rather, they lower the cost of production for all

goods that use fossil fuels or fossil fuel-generated electricity as an input, which covers a broad range of sectors. At the end of the day, the real question is whether there is political will to address fossil fuel subsidies at the WTO, whether through a sectoral effort akin to the fisheries subsidies negotiations, or as a first step through demands for transparency and better reporting of subsidies—something that would help spur reform efforts. If the will is found, it is likely that any remaining challenges could be surmounted.

In 2009 the G-20 and Asia-Pacific Economic Cooperation (APEC) committed to phasing out inefficient fossil fuel subsidies, but progress since that time has been disappointing. To date, though, this is the only institutionalized effort at such reform, and it remains an ongoing effort.

Renewable energy subsidies

There are a number of ways that governments might subsidize renewable energy, including the following:

- Mandated premium rates paid by electric utilities to generators using renewable energy (feed-in tariffs, or FITs).
- Preferential long-term power purchase agreements for renewably generated electricity.
- Tax credits for producing renewable energy (production tax credit) or investing in renewable energy production (investment tax credit), or accelerated depreciation of capital.
- Low-interest loans to producers of renewable energy technology.
- Support for research and development.

While these measures might meet the definition of actionable subsidies under the SCM (see Section 3.4.7), in order for them to run afoul of WTO law they would have to be taken to dispute settlement by a complaining member that would have to prove that these measures caused injury to its producers, or that they nullified the expected benefits of tariff reductions.

Such a scenario is unlikely in the case of non-discriminatory measures like FITs and tax credits for energy production. These measures encourage demand for renewable energy technologies, and thus could benefit both domestic and foreign producers. The scenario is more likely in the case of measures like loans and R&D support to technology manufacturers, which benefit specific (almost always domestic) firms. A number of challenges to such measures have arisen in the last few years, but almost all of them have proceeded not as WTO disputes but through the vehicle of national trade remedies. That is, the SCM offers Members the choice of complaining about subsidies through the WTO dispute settlement process or determining at the national level that such problems exist and imposing

countervailing duties (see Section 3.4.7). Such national efforts must still respect the SCM, which lays out in great detail how claims of subsidy must be initiated, investigated and addressed. National subsidy investigations are usually also accompanied by investigations into dumping—in other words, selling products below the cost of production—and those investigations are also disciplined by the WTO, specifically by the Anti-Dumping Agreement.

Are these national trade remedies bad for the environment? This is a complicated question. Allowing for duties to increase the selling price of renewable energy technologies seems anti-environment on its face. To paraphrase the old economists' quip: a government's proper response to a flood of subsidized renewable energy good imports is to send a note of thanks to the exporter's embassy. A number of commentators have argued that climate change in particular is a serious enough problem that trade remedy laws should be temporarily frozen with respect to renewable energy. But the specifics of the case matter. If the subsidies are driving innovative efficient firms to bankruptcy, the environment may eventually suffer, even if it benefits in the short term from the low prices of subsidized goods.

Instead of national trade remedies, a few cases have gone through WTO dispute settlement. These have all been complaints about subsidies that are tied to exports or to the use of local content. The complainants are not objecting to the subsidy itself—the underlying FIT, for example—but rather to the conditions attached to the receipt of the subsidy, which are explicitly designed to alter flows of trade and investment (see Section 5.6 on green industrial policy). In the case of FITs, though, in order to prove that the subsidy has those conditions and is therefore prohibited, it is first necessary to prove that a FIT is in fact a subsidy (see Box 3.12 on the *Canada–Renewable Energy* case). Such a finding would open the door to complaints against the FITs themselves by, for example, foreign exporters of conventional electricity. Thus, even if the complainants have no desire to attack purely environmental policies like FITs, such policies may end up being collateral damage.

5.9 Biofuels

Biofuels are a case study in the complexities of the trade and green economy relationship. They are transport fuels, mostly produced from staple agricultural commodities such as corn, sugar cane, rapeseed oil, soybean oil or palm oil. There are two main types of biofuel: the first is ethanol, mostly made from corn, sugar cane, sugar beets or wheat; the second is biodiesel, mostly made from vegetable oils such as rapeseed (canola), palm and soybean. They are substitutes for gasoline and diesel respectively and can, with no or relatively simple modifications, be used in engines of the existing transport fleet.

Biofuels are highly traded. The global biofuels market was estimated at \$97.8 billion in 2013. The European Union is the major importer of biodiesel, and

Indonesia and Argentina are major exporters. The United States and Brazil are major consumers of ethanol, and Brazil has been a major exporter for many years. The United States has traditionally been a major importer of ethanol but is now also an exporter. Several other countries, including China, Thailand, Australia, Canada and Malaysia, are also significant producers and consumers of biofuels.

The promise of biofuels is as a climate-friendly substitute for fossil fuels, with lower emissions of carbon dioxide as compared to gasoline and diesel. Transport accounts for 13 per cent of anthropogenic GHG emissions. Biofuels also promise rural development benefits, since they provide an important market for agricultural production (more than 40 per cent of the U.S. corn crop in 2012 was devoted to biofuels, representing roughly 15 per cent of global production). And, where they are domestically produced and consumed, they contribute to energy security by lowering imports of fossil fuels.

For all those reasons, and because biofuels are not cost competitive with the fossil fuels for which they substitute, the major consuming markets strongly support them. Early support came in the form of R&D funding, and then excise tax reductions or credits, but now most support comes in the form of blending mandates. Both the European Union and the United States have legislation that obliges sellers of conventional fuel to blend in a certain minimum amount of biofuels (the Renewable Fuel Directive and the Renewable Fuel Standard, respectively). The International Energy Agency has conservatively estimated the value of support to biofuels in 2012—most of which came in the form of such blending mandates—at \$19 billion. It is not clear whether such mandates meet the WTO definition of a subsidy.

Much of that support, however, has difficulty finding its way to foreign producers, something one would expect if the policies were aiming for domestic rural development benefits. Until 2011 the United States assessed a punitive tariff on the import of ethanol, designed to offset a domestically granted excise tax credit, which effectively shut Brazil out of its market. Argentina and Indonesia have accused the European Union of using anti-dumping charges to unfairly block their market access for biodiesel, in disputes that are ongoing as of this writing (DS473; DS480). And Spain—one of the European Union's major consumers of biofuels—implemented the EU Renewable Fuel Directive by specifying that only biofuels from Spain or another EU member state could count toward fulfilling the obligations.

Argentina has also complained in the WTO that the European Union has unfairly administered its support regime and its mandate for biodiesel so as to favour domestic producers (DS459). The regulations at issue define sustainable biofuels as those that result in a certain amount of GHG savings versus conventional fuels, and those that were not produced in ways that harm the environment (e.g., by clearing land in areas of rich biodiversity or by planting in protected areas). Interestingly,

as of mid-2014 there has been no challenge to the notion that the European Union should discriminate on the basis of how the feedstock is produced—a classic PPM. Rather, the complaint is that the system for so discriminating is unfairly rigged.

From an environmental perspective, it matters a great deal how biofuels are produced. A host of recent research has called into question the environmental benefits of biofuels over their whole life cycle. Brazil's ethanol production typically fares well in such analyses, but corn-based ethanol in the United States, if the refiner uses coal-fired energy, has been accused of actually having a higher carbon footprint than conventional fuels. If this is true, then U.S. trade restrictions on Brazilian imports would be bad policy from both an environmental and a trade perspective. Other research has shown that clearing heavily forested land or draining peat swamps to grow palm oil for biodiesel creates more GHG emissions than could be balanced out by many years of biodiesel production and use. This is the rationale behind the European Union's sustainability criteria for biofuels, and would surely form the basis of any WTO challenge to those restrictions, relying on the environmental exceptions in GATT Article XX, or the space to pursue legitimate objectives under the TBT.

Even sustainably produced biofuel may indirectly damage the environment. Before there was any demand for biofuels, the feedstocks were cultivated and sold as agricultural commodities such as oil and sugar. If biofuel demand diverts those commodities into fuel production, new lands must be cleared to satisfy the original demand for agricultural commodities, in a dynamic known as indirect land use change (ILUC). Research has shown that where the ILUC involves marginal land, the climate impacts are clearly negative, erasing biofuels' promised GHG mitigation benefits. Given that negative ILUC impacts overpower impacts attributable to PPMs and end use, given the importance of certifying biofuels as sustainable for the purpose of fulfilling blending mandates, and given the methodological difficulties in establishing causation in complex global agricultural markets, there is still considerable controversy over whether to include ILUC in LCA of biofuels.

Biofuels have also been criticized for their impacts on food security, particularly in net food-importing countries. It has been estimated, for example, that the U.S. support for ethanol production raised the price of corn to the extent that from 2006 to 2011 it cost Mexican consumers \$1.5 billion and exacerbated ongoing global food price increases that pushed millions into food poverty. The next generation of biofuels, which uses agricultural and forestry residue as feedstock, will presumably not suffer from this problem, but it is not predicted to be commercially viable in the short term.

Biofuels make a telling case study of the green economy transition. They seem to hold great promise for lowering our environmental impacts at the same time as offering the promise of economic development, often in developing countries. But some of the support policies for biofuels, including trade restrictions, may have

unintended negative impacts on global poverty alleviation and the environment. In the end biofuels are a significant commercial sector, and it should be no surprise that they are subject to the same sorts of challenges that face other non-green sectors of the economy.

5.10 Sustainable Government Procurement

Government procurement is the government purchase of goods and services—everything from office supplies to jet fighters to consultants. Sustainable government procurement (also called sustainable public procurement) usually involves attaching environmental or social criteria to the government’s tender or to the scoring criteria for ranking prospective sellers. A government might, for example, solicit bids to supply it with paper but specify that it is only going to buy recycled paper. Some governments instead apply a price premium to goods and services with positive environmental attributes.

Sustainable public procurement has great potential for environmental benefits. One of the chronic difficulties faced by “green” firms, particularly as they struggle to break into new markets and to sell enough volume to become efficient (which allows them to lower prices and sell more—a virtuous cycle), is finding those initial buyers to support their early struggles. Even for mature producers, governments can provide valuable assistance by creating a strong and secure market for their goods and services.

The potential impact is significant. On average, governments spend 45 to 65 per cent of their budgets on procurement, amounting to 13 to 17 per cent of GDP in OECD countries. Many developing countries would have even higher levels, particularly if the procurement of state-owned enterprises were included in the mix. Even a small percentage of that spending, if devoted to sustainable procurement, would have a sizeable impact.

But government procurement is, for some Members, subject to WTO rules. Do those rules pose a barrier to discriminating in favour of green goods in public procurement? The short answer seems to be no.

The rules in question are found in the Agreement on Government Procurement (GPA). It is a plurilateral agreement, meaning not all WTO Members are parties (there are four other such agreements in the body of WTO law). Unlike some other plurilaterals, such as the Information Technology Agreement, the GPA does not require parties to extend its concessions to all WTO Members, just to those that are party to the Agreement (in practice, though, obligations like transparency in tendering will benefit prospective sellers from all countries). As of February 2014 the GPA had 42 Members (including the European Union, the United States and Japan) and 27 observers, of which 10 are negotiating accession (including China).

The Agreement is primarily concerned with ensuring that the tendering process,

including award decisions, is conducted fairly and transparently. It spells out how parties should write the specifications for a tender, how they may discriminate among suppliers in the tendering process and in making the final selection (i.e., not on the basis of nationality), and how suppliers might obtain review of a selection. While the original GPA entered into force in 1981 (before the Uruguay Round results), a 2012 Protocol to the agreement (not yet ratified by all parties) moved it forward substantively.

5.11 Environmental Goods and Services

Liberalizing trade in EGS has repeatedly been emphasized as one of the triple-win opportunities for the environment, development and trade, and could make a significant contribution in facilitating the transition to a green economy.

While there is no WTO definition of EGS, the OECD defines them as “goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil as well as problems related to waste, noise and ecosystems.” Examples might include certified agricultural goods including organics, aquaculture and timber; renewable energy goods, for example, solar PV cells and wind turbine components; cross-border provision of installation and maintenance services in those same wind and solar technologies; environmental protection or remediation products to clean up air, earth and water; renewable natural resources, including sustainable biofuels and biomass; and so on.

By definition, the deployment of EGS should have a positive effect on health and environmental sustainability. Liberalized trade in EGS can also facilitate transfer of know-how and expertise to developing countries and increase employment in green sectors. In 2010, more than 3.5 million people worldwide were estimated to be working, either directly or indirectly, in the renewable energy sector, and liberalized trade in these sectors could support the further growth that is expected. Estimates suggest that by 2030, 12 million people could be employed in the biofuel sector, 2.1 million in the wind sector and 6.3 million in the solar PV sector.

There is significant growth potential for EGS trade. Between 2001 and 2007, growth in the export value of environmental goods more than doubled, averaging 11 per cent growth per year. Over 90 per cent of total South-South trade (i.e., from and to developing countries) in EGS came from Asian developing countries, China being a major player among them.

Given the growing importance of EGS, and the desire of the trade community to be seen to be contributing to environmental objectives through trade policy, liberalizing trade in these sectors by reducing or removing tariff and non-tariff barriers has become an important national and international prerogative. The Doha negotiating mandate contains a commitment to reduce or, as appropriate, eliminate tariff and non-tariff barriers to trade in EGS (see Section 5.1). Other

initiatives (discussed below), such as in APEC, have also aimed at the same objectives.

It is important to underline that liberalization of trade in environmental goods and environmental services is mutually reinforcing. For example, solar or wind energy components require installation and maintenance services, and environmental mediation services will necessarily use remediation technologies.

5.11.1 Liberalizing Trade in Environmental Goods

Initiatives to liberalize trade in environmental goods and to negotiate better market access for them have been taking place both at the multilateral level, within the WTO, and at the regional level.

At the multilateral level, WTO Members committed themselves in the Doha negotiations to lowering or eliminating tariffs and non-tariff barriers on trade in EGS, but have yet to find agreement on the degree of liberalization. More fundamentally, even after years of discussion in the WTO Negotiating Group on Non-Agricultural Market Access as well as in the CTE, Members have been unable to agree on how to define environmental goods, though several different lists of candidate goods have been proposed.

At the regional level, in 2012 APEC reached an agreement to reduce tariffs on 54 environmental goods to 5 per cent or less by 2015. APEC members account for 70 per cent of global exports of the goods on the APEC list. This export capacity has been an important catalyst for APEC's successful negotiations, as has the relatively limited scope of the initial ambition (only tariff barriers, only goods, only a limited number of goods).

In part spurred by the progress in APEC and frustrated by the stalled Doha negotiations, in January 2014, 14 WTO Members, including China, the European Union and the United States, launched an initiative on the sidelines of the Davos World Economic Forum to engage in negotiations to reduce tariff barriers on environmental goods. The members that committed to the initiative will base their negotiations on the APEC list and have expressed the hope that they will be able to build on initial progress to advance a broader agenda that addresses non-tariff barriers and services, among other things.

The OECD has developed a list of around 200 environmental goods, mainly for research purposes and to illustrate the "possible universe" of environmental goods. But lists are not definitions, and definitions are helpful to negotiators. At least three types of goods have often been discussed by international organizations and policy-makers as candidates for environmental goods, all of which can be found in the "APEC+OECD" list:

1. Goods destined to be used in environmental remediation or cleanup (e.g., oil spill remediation equipment) or prevention of environmental damage in industrial processes (e.g., air pollution control, waste management, energy savings), or equipment for environmental monitoring or analysis.
2. Technologies and products that, in their use, are more environmentally friendly than the norm. This includes consumer goods such as electric cars and LED lights, and producer goods such as wind turbines and technology for cleaner burning of coal, both of which are used to produce electricity in relatively clean ways.
3. Goods that have been produced in environmentally friendly ways, such as organic produce and recycled paper.

However, there are three main challenges that stand in the way of progress. With regard to the first category of goods above, a number of them could be considered an environmental good but could as well have other uses. For example, while a thermostat is an essential good for heat/energy savings and could be considered an environmental good, it has other uses not related to environmental management. There are a number of such “dual use” goods that are not always primarily targeted at environmental purposes.

The goods in the second category cause a problem of comparison between two goods, one of which performs better with regards to environmental indicators. It is easy to see that an electric car is a different good than a conventional car and may deserve special treatment. But, if the principle is to reward those goods that perform better, where do we stop? Is a fuel-efficient car running on conventional petrol an environmental good? It does perform better than a “gas guzzler.” Moreover, and particularly in the absence of a foundational definition of environmental goods, having to decide what goods to de-list and what new goods to list, as technology progresses, would put the WTO in the position of setting and continually updating environmental standards, in effect designing a “living list” of environmental goods—a task for which the organization has little appetite, mandate or expertise.

The third category, particularly in the area of organic agricultural products, has great potential to benefit developing country exporters. This remains true for developing economies with little technical and financial capacity or manufacturing base. However, some of the key beneficiaries of liberalizing trade in this type of environmental good are also those who most staunchly oppose the prospect of discrimination on the basis of PPMs, fearing that it will be used to unfairly block their exports. Further, the tariff classification system used in world trade has no categories that can distinguish goods that were produced in environmentally preferable ways, making it difficult to commit to lowering tariffs on such goods. Countries have not yet resolved these conundrums.

5.11.2 Multilateral Liberalization of Trade in Environmental Services

The WTO negotiations on environmental services initiated by paragraph 31(iii) of the Doha Mandate take place within the Special Session of the Council for Trade in Services and have focused more on the degree of liberalization and nature of commitments than on definitional issues. However, the need to update existing classifications of environmental services in line with market developments has been discussed and debated.

WTO Members use the Services Sectoral Classification List, based on the UN Central Product Classification (CPC) system, to organize their commitments related to the wide variety of services that exist. However, every member is free to use any classification system it sees fit as long as the sectors committed are mutually exclusive. Within the CPC classification, environmental services consist of “sewage services, refuse disposal services, sanitation and similar services and other environmental services.” Proposals have been made to refine the identification of core environmental services, introducing specific sub-sectors under the CPC classification, but none have been formally accepted. Also, a number of other services sectors such as construction, energy and tourism have environmentally relevant activities. Proposals have also been made to capture such specific end uses of these other sectors as part of the liberalization package on environmental services.

Two types of such environmental end-use services might ultimately benefit from these talks, though to date there have been no explicit proposals to commit on them. One is ecotourism services: the provision of hotels and other tourism amenities to tourists looking for tourism experiences that have low environmental impact and are socially responsible. Such services may usually be classified under “tourism services” rather than the core environmental services list, but could be “captured” as part of an environmental services liberalization package that is broadly construed. Tourism services as an export are particularly important to many developing countries, with revenues in some countries that are multiples of the revenues from merchandise export trade, and ecotourism is a small but growing niche element of this sector.

When appropriately managed, tourism can, on the one hand, make a positive environmental contribution through responsible resource management and, on the other hand, meet and respect particular social needs and values of communities. From a national policy perspective, the question is whether or not to make liberalization commitments in the tourism sector to allow for ecotourism in particular to flourish. One challenge is that there is no classification that distinguishes ecotourism from tourism, so it is difficult to see how a commitment to liberalize trade in ecotourism services might be specified. More fundamentally,

the question is whether the environmental benefits of allowing foreign tourism operators to provide such services are outweighed by the fact of foreign ownership. Tourism is infamous for foreign-owned enclave development that provides only a few unskilled jobs and remits profits abroad. Ecotourism, if it could be singled out, might be different in that it strives to bring about local benefits, but the final judgment on the costs and benefits of liberalization must be done on a country-by-country basis.

In renewable energy, solar PV is particularly promising for creating jobs in the services sector. The great majority of jobs along the solar value chain are created in the downstream stages of system design and integration, installation, construction, sales and maintenance, all of which must be conducted domestically. Thus, important employment opportunities also exist in countries with ample solar radiation but without domestic manufacturing capacity. In addition, jobs relating to smaller solar PV systems may have a significant impact on employment across the developing world. Unlike in the ecotourism sector, it should be possible to specify the services to be liberalized in the renewable energy sector. The sector differs from ecotourism in other important ways as well. Like many other services, renewable energy services are a necessary ingredient to allow other economic activities to flourish. In this case, if the services of installation, financing, maintenance and system integration are not world class, the dissemination of renewable energy technologies (whether locally manufactured or imported) will suffer. There is still a need for policy-makers to balance the costs and benefits of liberalization, but in this case the argument for benefits may be more straightforward than in the case of ecotourism.

5.12 Investment

The green economy as a tool for achieving sustainable development focuses on mobilizing investment in protecting and rebuilding natural resources to create environmental, social and economic benefits. Investing in a green economy means shifting both private and public investments from “brown sectors” and turning them into more sustainable and forward-looking infrastructure, clean technologies, natural capital and human development. Examples include investing in the conservation and sustainable use of ecosystem services or shifting fossil fuel subsidies toward clean energy innovation; currently, fossil fuel subsidies are more than five times higher than all clean energy subsidies.

Investments are at the centre of a green economy transition because they shape the future of economies by choosing one type of infrastructure over others and promoting a specific type of production or technology. This will lock in certain technologies and lock out others.

Green investment has the potential to create multiple benefits, including greener growth of income and jobs, improved access to clean water and energy, increased transfer in green goods and services, reduced carbon emissions and waste, and the conservation of biodiversity, ecosystems and forests, among others.

UNEP's green economy report illustrated that an annual investment of 2 per cent of global GDP in greening 10 key sectors would lead to higher growth rates than in a brown economy in the medium and long run, while yielding significantly more environmental and social benefits.

Promoting the right type of investment is thus essential for sustainable development and a green economy transition, both of which involve fundamentally changing how we produce, distribute and dispose of goods. FDI necessarily plays a significant role in all countries, but especially in those where domestic sources of capital are scarce, as in most developing countries.

At the same time, not all investment leads to sustainable development, particularly where domestic institutions for managing investment are weak. A poignant example of this dynamic can be seen in what have been called "land grabs." Since the food price spikes of 2008 there has been an acceleration of foreign investment in land for agricultural production; in Africa alone an area the size of Kenya has been bought or leased by foreign agricultural investors in the last decade. This has great potential, since most developing countries are starved of investment funds, and agriculture has over the past few decades suffered from serious underinvestment. But too often the institutions for managing the deal—from the capacity to negotiate contracts, to existing land rights, to the monitoring and enforcement—mean that the results work against sustainable development. In the worst case scenarios people are forced off their traditional lands with little or no compensation, investors acquire priority water rights and a long-term commitment to "freeze" national regulatory burdens, and any production is destined for export, with few spin-off benefits for the local economy or capacity to contribute to local food security.

The legal governance of investment is also important from a sustainable development perspective. Some aspects of international investment agreements (discussed in greater depth below) may undermine the ability of governments to regulate in the public interest in areas such as public health and the environment.

At the multilateral level, two WTO agreements contain disciplines on investment, but neither is particularly extensive in coverage or protection. The GATS provides some basic rights to investors seeking to set up shop as service suppliers in a host country. The TRIMs Agreement prohibits certain demands that countries might put on foreign investors as a condition of establishment or operation. These "performance requirements" include requirements that investors limit imports, that they source from local suppliers or that they export a certain percentage of their production.

Broadly speaking, though, the governance of FDI at the global level falls outside the WTO system. Though investment is part of the Doha Mandate (see Section 6.1), a majority of the WTO's membership opposed launching investment negotiations at the 2003 Cancun Ministerial Conference. Earlier efforts at the OECD to negotiate a proposed Multilateral Agreement on Investment also failed. The near-term prospects for a multilateral pact are slim.

Instead, investment is governed largely by a patchwork of international investment agreements. Many of these agreements are purpose-built bilateral investment treaties (BITs)—of which there are more than 2,500 worldwide—while others are broader free trade agreements containing investment provisions. A large portion of investment is also governed by contracts between governments and individual firms. These latter typically cover large foreign investments in sectors such as mining and (as noted above) agriculture. In these sectors there are often also specific national laws or codes that govern investment at a broad level.

BITs, and investment provisions in trade agreements, are aimed at providing rights and protections to foreign investors. Common investment treaty protections include the following:

- A right to repatriate investment returns and profits.
- Guarantees of non-discriminatory treatment (national treatment and MFN).
- Compensation in the event of nationalization, expropriation and indirect forms of expropriation.
- Certain minimum standards of fair and equitable treatment.
- A right for foreign investors to directly compel host states into binding arbitration in the event of treaty disputes (investor-state dispute settlement).

The treaties typically cover a broad array of types of investment, including FDI, portfolio investment and various forms of debt, and have important implications for transitioning to greener economies.

Only a handful of investment treaties contain environmental provisions such as preambular references to the values of sustainable development or environment, or general exceptions akin to what is found in WTO's GATT Article XX, though the trend is clearly for new treaties to contain such features. These provisions, however, have not actually been resorted to in any case about which we know, though the hope is clearly that they will have prevented some disputes from proceeding.

A fast-growing number of disputes have seen investors use investment treaty protections to challenge public welfare regulation in areas such as waste

management, land-use planning or the regulation of pollutants or hazardous substances; as of this writing 45 such disputes are pending. The most worrying of these arguments from a green economy perspective hold that government regulation in these areas can amount to (indirect) expropriation, with the investor due compensation. This may lead to a regulatory chill, where policy-makers back off necessary but “risky” regulations. Other provisions are also troublesome; requirements for fair and equitable treatment, for example, are sometimes interpreted to mean that investors should face no unexpected regulatory changes. This can mean that governments must pay compensation should they decide to tighten up environmental or social requirements in ways that hurt profits. And the MFN provisions have been interpreted to allow investors to pick and choose legal elements from any BIT that a host state has signed with any third country and import them into a dispute. This means that it is not enough to reform just some of a country’s agreements to address the problems described above; if more favourable treatment is accorded to investors under any unreformed BIT, an investor may try to “import” provisions from that agreement.

At the end of the day, one of the key problems is that such interpretations are unpredictable. Each tribunal is assembled ad hoc, and while they may draw on past awards they are not obliged to do so. Starkly different interpretations of the same provisions continue to be handed down.

Investment contracts can have other language that is problematic for sustainable development. Many contain what is known as a “stabilization clause.” Such clauses promise the investor that over the lifetime of the investment (sometimes specified in terms as long as 99 years), government regulations will not alter the investment climate to the detriment of the investment. If, for example, a government decided to tighten up environmental standards during that time, the new legislation would simply not apply to the investment, or the government would owe compensation to the investor. This is particularly worrying for those developing countries wishing to embark on a transition to a greener economy through regulatory and fiscal adaptations and incentives.

The last decade has seen a surge in investor-state disputes brought under BITs and provisions in trade agreements. From 50 disputes in 2000, the numbers ballooned to over 560 at the end of 2013. This would not be a bad thing if the underlying law was not so troubling and the process was more legitimate; secrecy has been, and largely still is, the norm in proceedings, there is no appellate mechanism, and tribunal members are typically chosen from a tight cadre of lawyers that also act in other cases as counsel. There is no question that protecting investors from egregious treatment by host country authorities is important and necessary to stimulate flows of needed investment. But it is not clear that, as currently cast, international investment agreements are the right tool for the job. Nor is it clear that it is appropriate for ad hoc tribunals to be tasked with balancing investor rights against the broader public welfare as they review a wide range of government policies and measures.

Some efforts have been undertaken by a number of countries as well as by the UN International Centre for Trade Law (one of the key investment arbitral fora) to ensure more open dispute settlement procedures. Several newer treaties and national model treaties have taken some steps toward clarifying obligations in a helpful way. For example, they state that non-discriminatory regulation in the public interest (e.g., to protect the environment, public health and safety) will only rarely be considered expropriation or, in some cases, never will. But the majority of treaties still have not incorporated such clarifications, and even those that do still fail to address the broader institutional/procedural problems that plague international investment governance.

At the end of the day, a multilateral approach to investment governance would be a welcome development, if it ever emerges. Such an approach would surmount the challenge of individually revising the existing thousands of treaties and the risk of MFN provisions “importing” unwanted elements of treaties not yet revised. As well, a multilateral approach might deliver some sort of coherent case law, by means of a permanent roster of arbitrators and an appellate structure similar to what now exists in the domain of trade law. All of these changes would be welcome from a green economy and sustainable development perspective, since they would minimize the risk that environmental and social welfare policies currently face when confronted by a fragmented and unpredictable regime.

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6. Regional and Bilateral Trade Agreements

As described above, the number of regional trade agreements (RTAs) and bilateral trade agreements has increased exponentially. The second edition of this book noted that as of 2003, 273 such agreements had been notified to the WTO, more than twice as many as had been notified in the eight years since the creation of the WTO. Ten years later the number had more than doubled again.

RTAs vary widely in their approach to environmental and sustainable development issues, ranging from narrow economic agreements that do not directly address any environmental issues to broad accords that include cooperation agreements on economic, environmental and development issues. By their sheer numbers, their varied scopes and objectives, and their ability to go beyond what can be agreed in a larger negotiating setting, RTAs offer an interesting “laboratory” of different approaches to these issues.

Not all the regional and bilateral approaches, however, can be considered improvements on the multilateral approach. Section 5.12 highlights a number of problems with the investment provisions in most bilateral and regional agreements. And Section 5.5 cautions that these agreements may be undermining the progress made in the WTO on TRIPS and sustainable development. The general concern from a sustainable development perspective—though it is certainly not an inevitable result—is that negotiations at the bilateral and regional level more often tend to enact restrictions on domestic policies to support environmental and sustainable development goals.

There is also a broader discussion on the relationship between the multilateral system of trade rules and the explosion of regional and bilateral trade agreements. Some analysts argue that the “rush to regionalism” is damaging to developing countries, as it erodes the strength of the multilateral system, where they have greater negotiating strength. Others argue that advances in liberalization at the regional and bilateral level only benefit efforts to advance liberalization at the multilateral level.

While a survey of the individual regional and bilateral agreements is beyond the scope of this handbook, the section below will survey the key elements of the approaches many agreements take in addressing the issues at the nexus of trade and the green economy.

6.1 Environmental Provisions in Regional and Bilateral Trade Agreements

Not all RTAs consider environmental issues. In fact, the trend to include environmental provisions in trade agreements is relatively new, and the number of trade agreements with environmental provisions remains relatively small.

The extent to which environmental provisions are included differs considerably, depending on the parties as well as on the nature and scope of the agreement. While Canada, the European Union, New Zealand and the United States have been particularly active in incorporating environmental concerns in their trade agreements, environmental issues are also incorporated in some South-South trade agreements. As a notable example, Chile has included environmental provisions in most of its trade agreements with both developed and developing countries. Still, the need for inclusion of environmental provisions in trade agreements is not self-evident, and some countries prefer not doing so.

The inclusion of environmental provisions in trade agreements can be a way to ensure policy coherence, promote sustainable development and make sure that countries do not lower their environmental standards or derogate from them to gain trade and investment advantages. Some countries see RTAs as a faster and more efficient way to promote environmental objectives than MEAs. Some, including the United States and the European Union, have specific domestic mandates to ensure that trade and environment policies are mutually supportive, and that economic and environmental considerations are integrated in trade policy.

The most narrow way of incorporating environment and sustainable development in trade agreements is to recognize them as objectives in the preamble of the agreement. While preambular text does not have the same legal force as operative provisions within the treaties, it can provide *guidance* to parties and dispute settlement bodies in interpreting treaty language. For example, the outcome of the watershed *U.S.–Shrimp* case was influenced by preambular language on sustainable development in the WTO Agreement (see Section 3.3 and Box 3.3).

Increasingly, RTAs include substantive provisions on environmental protection in the body of the treaty itself. Such language has stronger legal relevance than the preambular type and typically creates *legally binding obligations* for parties. Environmental exceptions are the most common category of substantive environmental provisions found in RTAs. There are also some trade agreements that explicitly give priority to certain MEAs in case a conflict arises between the two agreements. Finally, some recent trade agreements incorporate provisions on a range of specific environmental issues, reflecting their parties' particular interests and concerns. The different categories of environmental provisions found in RTAs are described in detail below.

6.1.1 Provisions on Environmental Exceptions

Section 3.4.2 described Article XX of the GATT, featuring public policy exceptions to the obligations contained in the rest of the treaty, including two exceptions related to environmental measures. Most regional and bilateral trade agreements incorporate similar exceptions related to the trade in goods and services. In most

agreements, these provisions have been modelled after Article XX of the GATT and Article XIV of GATS, and in some cases they explicitly incorporate those texts into the agreement (as the trade agreement between the European Union and the Republic of Korea does with GATT Article XX, for example). In some cases (as in the agreement between China and New Zealand) the parties clarify that they understand the incorporated GATT Article XX exceptions to cover environmental measures and to apply to both non-living and living natural resources—points that are not explicit in the text of the GATT exceptions.

6.1.2 Provisions on Relationship to MEAs

As discussed in Section 5.4, some questions have arisen concerning the relationship between MEAs and WTO agreements in conflict situations. Against this background, the 1992 NAFTA was groundbreaking in that it included specific language on its relationship to three MEAs and four bilateral environmental treaties. Where there is conflict between NAFTA law and the obligations of certain trade-related MEAs (Basel Convention, CITES and Montreal Protocol), the latter shall prevail, provided that the measure chosen is the least inconsistent with NAFTA obligations. While such provisions can play an important role in clarifying the relationship between trade agreements and MEAs, it should be noted that the NAFTA parties are all signatories to these agreements, and much of the WTO controversy is over disputes between signatories and *non*-signatories.

For several years, this approach of clarifying the trade agreements' relationship to MEAs through explicit provisions was used only in a small number of trade agreements by NAFTA members. In recent years, however, some new trade agreements have incorporated even more extensive provisions on MEAs, for example, requiring trading partners to implement specific MEAs and even detailing the steps needed to do so. One of the main aims of such provisions is to ensure that trade agreements do not lead to the lowering of environmental standards. They may also act as a way of ensuring that MEAs are implemented and specifying the steps needed to do so.

As an example, the United States currently uses a template requiring its trade partners to implement seven MEAs. This template has been used in bilateral trade agreements that the United States has concluded with Panama, the Republic of Korea and Colombia. In addition to requiring the implementation of the seven MEAs, the United States–Peru Trade Promotion Agreement includes a groundbreaking annex on forest sector governance, prescribing specific policy changes needed in Peru to implement CITES. Another example of a trade agreement referring to specific provisions in an MEA is the Japan–Mexico trade agreement, which includes provisions on capacity building concerning the Kyoto Protocol's Clean Development Mechanism.

In the European Union's trade agreements, an explicit clarification is often included that the trade agreement is not meant to limit the parties' right to adopt

or maintain measures to implement MEAs. The most recent EU agreements go even further and require parties to adopt and maintain measures to effectively implement MEAs, either with a general reference to MEAs to which the countries are parties (as with the Republic of Korea) or by listing specific MEAs (as with Central America, Colombia and Peru). The MEAs listed are the CBD and its Cartagena Protocol, the Basel Convention, the Stockholm Convention, the Rotterdam Convention, CITES, and UNFCCC and its Kyoto Protocol.

Some South–South trade agreements also contain provisions on MEAs. For example, the Chile–Mexico Free Trade Agreement gives precedence to the Basel Convention, CITES and Montreal Protocol, as does the recent trade agreement between Chinese Taipei and Nicaragua.

6.1.3 Other Environmental Provisions in RTAs

In addition to environmental exceptions and provisions on MEAs, various other types of environmental provisions can also be found in bilateral and regional trade agreements. The objectives, nature and scope of such provisions vary depending on the parties and their specific concerns.

Some agreements explicitly provide that environmental standards should not be lowered to attract investment. Others go further, requiring parties to raise or maintain high environmental standards, or, in case of regional integration, harmonize them. The objectives of such provisions include ensuring that trading partners do not seek economic advantage by lowering environmental standards or derogating from environmental laws. Concrete examples include trade agreements between Canada and Costa Rica and Canada and Chile, which both include an obligation to maintain high levels of environmental protection. Some trade agreements by Canada and the United States also include an obligation to enforce environmental laws. The European Union's trade agreements with the Republic of Korea, Central America, Colombia, Peru and Singapore include provisions on adherence to key international labour and environment standards and agreements, the prudent use of natural resources such as timber and fish, and the promotion of practices favouring sustainable development, such as corporate social responsibility.

Trade agreements can also have detailed environmental provisions designed to address specific environmental concerns of their parties. Such provisions can address, for example, environmental goods, services and technologies, as well as SPS measures or intellectual property. For example, the EU–CARIFORUM (the Caribbean Forum of African, Caribbean and Pacific States) Partnership Agreement's provisions on IPRs contain a specific exception on genetic resources and traditional knowledge, while the Canada–Peru side agreement on the environment notes that parties will promote trade and investment in EGS. As explained above, the United States–Peru trade promotion agreement includes a

groundbreaking annex on forest sector governance, prescribing specific steps that Peru needs to take to improve the sustainable management of its forests. Through these steps, the parties seek to promote legal timber trade between the United States and Peru. The agreement also establishes procedures for regular audits of timber producers and exporters, as well as verification procedures to ensure that timber exports from Peru to the United States comply with Peruvian environmental laws and standards.

There are also various other examples of provisions in trade agreements. The free trade agreement between China and Peru includes provisions on environmental cooperation between the trading partners in the mining sector. The China–Costa Rica agreement contains provisions on environmental cooperation in the agriculture sector, and also refers to the CBD in the chapter on intellectual property. The reference is relevant, *inter alia*, because one of the objectives of the CBD is to protect traditional knowledge.

Some trade agreements feature environmental chapters or environmental side agreements, or both. Some of the key examples include NAFTA and Mercosur. Also, the Association of Southeast Asian Nations (ASEAN) and Economic Community Of West African States (ECOWAS) members have gradually expanded environmental cooperation.

Trade agreements can also establish mechanisms for environmental cooperation and capacity building. For example, the United States–Peru trade agreement creates an Environmental Affairs Council to review progress of cooperative environmental activities. Sometimes the scope of cooperation is broad, covering a range of environmental issues, as in the case of Euro–Mediterranean Association agreements concluded by the European Union. Sometimes such cooperative arrangements can be very narrow, related to parties’ specific interests. For example, the Japan–Korea trade agreement contains a commitment by parties to cooperate on compressed natural gas technologies.

6.2 Environmental Impact Assessment

Environmental assessments of trade agreements can be conducted before or during the negotiations (*ex ante*) or after the agreement has been concluded and some experience has been gained (*ex post*). Some countries conduct *ex ante* assessments of all their trade negotiations. This includes the United States, the EU countries as a group and Canada. New Zealand evaluates all new treaties, including for their environmental impacts. Also, the UN Economic Commission for Latin America and the Caribbean has conducted *ex ante* impact studies of trade agreements, addressing their sustainability.

In some cases, developed countries encourage and fund their negotiating partners to do their own exercises. The European Union’s assessments go beyond those

conducted by Canada and the United States to explicitly consider social and environmental impacts, and to consider in depth any impacts occurring in partner countries. This is an important distinction, since many of the potential environmental problems arising from changes in trade flows will manifest in the smaller countries signing any agreement—any changes in trade flows being proportionately more significant to them. Studies by the Economic Commission for Latin America and the Caribbean have assessed economic, environmental and social impacts in Chile. China is considering adopting a similar approach when revising its laws on environmental impact assessment.

NAFTA's environmental side agreement, the North American Agreement on Environmental Cooperation, includes a mandate to monitor NAFTA's environmental effects on an ongoing basis—a form of environmental assessment that is unique to that agreement. It remains the only systematic *ex post* assessment of the impacts of trade agreements.

By far, the norm for regional and bilateral agreements is not to perform any formal *ex post* environmental assessment of the treaty's impacts. There are some examples to the contrary, such as reviews of the European Union–Chile, United States–Jordan, United States–Chile, United States–Singapore and United States–Morocco agreements. The Dominican Republic–Central America FTA Environmental Agenda has also been reviewed three times by the Organization of American States.

6.3 Environmental Governance

Environmental governance in the context of regional and bilateral treaties refers to the mechanisms used to deal with environment-related disputes, to ensure enforcement of environmental laws and to foster environmental cooperation and capacity building on matters of shared concern. Many agreements only include general commitments to strengthen cooperation. Others offer a wide spectrum of approaches.

On enforcement and environmental disputes, NAFTA allows citizens to allege that the governments are failing to enforce environmental laws. The North American Agreement on Environmental Cooperation Secretariat, if the allegations are solid enough, may investigate the allegations and, in some cases, can issue a report that names and shames the party in question. There is no requirement for the offending party to change its practice, but negative public exposure may have some positive results. This approach has been copied in some subsequent treaties, including the Canada–Chile Free Trade Agreement, the United States–Central America/Dominican Republic Free Trade Agreement and the United States–Peru Trade Promotion Agreement.

Recent U.S. bilateral and regional trade agreements include the same dispute resolution processes and sanctions for environmental commitments as for commercial obligations. The coercive stage is preceded by consultations, and these dispute settlement mechanisms are yet to be used for settling environmental disputes. Most EU trade agreements favour cooperative approaches with the possibility of engaging environmental experts and MEA secretariats or compliance mechanisms in the process.

Environmental cooperation and capacity building is a widespread feature of bilateral and regional trade agreements. These provisions are often negotiated together with environmental commitments. Capacity building is usually aimed at increasing the capacity of a Southern partner to enforce and improve its environmental laws and policies. Some agreements focus on priority issues identified by a partner country, while others emphasize trade-related environmental issues. The United States and the European Union in particular have large budgets for cooperation and capacity-building efforts accompanying their bilateral and regional agreements. Many trade agreements also include institutional arrangements, such as working groups, environmental cooperation commissions or joint forums, possibly with stakeholder participation.

Environmental cooperation is often present in agreements among states that share borders and ecosystems. Some agreements that had no such mechanisms at the outset have developed them over time (e.g., Mercosur, ASEAN, West African Economic and Monetary Union). Others have included them from the start (e.g., NAFTA, various EU agreements). They usually involve formal bodies charged with identifying problems and making recommendations. As a result, their effectiveness is closely linked to the importance policy-makers attach to the problems in question.

In many cases, the cooperation in question is purely on environmental matters, having limited direct relevance to trade or to trade-environment issues. ASEAN, for example, has a strong program of cooperation on combating regional haze pollution. Of course, a stronger environmental regime makes trade-environment frictions less likely, so there is potential for substantial indirect effects.

6.4 Openness

Openness and transparency are long-standing principles in both environmental protection and trade regimes. But openness has not traditionally been standard practice in most regional and bilateral agreements. The negotiations take place behind closed doors. In the vast majority of cases, draft treaty texts are also kept secret. One attempted agreement—the Free Trade Area of the Americas—made it policy to publicly release negotiating drafts. There are, however, processes for formally garnering input on negotiating issues. In the European Union, for example, the European Commission consults stakeholders during the negotiating

process, analyzing and publishing the contributions received. It organizes civil society dialogues with NGOs, consumer groups, industry associations and other interested stakeholders, also giving them regular updates on the status of the negotiations. Also, other countries have national legislation or guidelines on public consultations and input to trade negotiations. Canada, the European Union and the United States also have processes for public participation in environmental reviews of the proposed trade agreements. Some trade agreements also include mechanisms for public participation in the implementation phase.

As to openness in dispute settlement, most bilateral and regional agreements traditionally rely on closed adjudication and arbitral hearings, keeping documents secret and restricting input to that received from the parties. In the past decade, transparency has been considerably improved under several multilateral and bilateral investment treaties. NAFTA took the lead in the early 2000s when its member governments pledged to try to open up all investor-state arbitrations to the public, and worked to facilitate the possibility of *amicus curiae*—“friends of the court”—submissions from non-parties. The United States and Canada also incorporated these changes in their model BITs. Similar provisions have been subsequently used in other geographic areas. Transparency has also been enhanced in proceedings at the International Centre for Settlement of Investment Disputes. Given the growing worldwide interest to increase openness, the UN Commission on International Trade Law (UNCITRAL) worked from 2010 to 2013 to prepare a legal standard on transparency and access to information in international investment disputes. These new UNCITRAL rules provide for open hearings and publication of documents, with the exception of confidential information. Third-party submissions to the tribunal are also possible. The rules will apply to UNCITRAL disputes concerning future investment treaties. They can also be applied to existing treaties where the parties decide to do so.

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7. Support and Capacity Building for Trade in a Green Economy

Chapter 5 described the various conflicts that might arise between the trade regime and the pursuit of a green economy. While it may be possible for the two areas of policy and law to be mutually supportive, there is nothing automatic about that result, and achieving it will often take proactive efforts. This chapter describes two such areas of effort: Aid for Trade and trade facilitation. Both seek to leverage an open system of trade to better achieve social policy goals such as economic development, particularly in developing countries. As shown here, they can also be used to help foster the transition to a green economy.

7.1 Aid for Trade

Aid for Trade (AfT) is any form of assistance specifically aimed at improving beneficiaries' capacity to trade. It particularly targets supply-side obstacles, such as physical, human and institutional capabilities, but may also address other trade-related development priorities.

The AfT initiative was launched in 2005 at the WTO Ministerial Conference in Hong Kong. It was designed “to help developing countries, particularly LDCs [least developed countries], build the supply-side capacity and trade-related infrastructure that they need to assist them to implement and benefit from WTO agreements and more broadly to expand their trade.”

There are five main categories of AfT support, as described by the WTO task force on AfT:

- **Technical assistance for trade policy and regulations.** For example, helping countries to develop trade strategies, negotiate trade agreements and implement their outcomes.
- **Trade-related infrastructure.** For example, building roads, ports and telecommunications networks to connect domestic markets to the global economy.
- **Productive capacity building** (including trade development). For example, supporting the private sector to exploit its comparative advantages and diversify its exports.
- **Trade-related adjustment.** Helping developing countries with the costs associated with trade liberalization, such as loss of tariff revenues, preference erosion or declining terms of trade.
- **Other trade-related needs.** If identified as development priorities in partner countries' national development strategies.

In 2011, disbursements of AfT were \$33 billion, with Asia being the largest recipient of commitments. Five donors provided 66 per cent of total AfT disbursements between 2006 and 2011. Japan was the largest donor, followed by the United States, the World Bank and the European Union.

The review of AfT by the OECD and WTO in 2013 reported that donor priorities reflect an increasing focus on the private sector and a shift in support to building productive capacity, particularly in the agriculture, fisheries and forestry sectors. In agriculture, there has been a recurring emphasis on food security and rural poverty. Donors are also active in textiles, clothing and tourism as well as transport, financial services, and business and professional services.

7.1.1 Why Is Environment Important to Aid for Trade?

The natural environment provides many services (such as land, air, water and biodiversity) that support the productive capacity of economic sectors. Most obviously, fisheries, forestry and other resource-based industries depend on sustainable management of environmental resources. Tourism, an important and expanding sector, also relies on a pristine environment to attract clients. Where the quality of natural resources is deteriorating due to climate change, urbanization, pollution and overuse, the competitiveness of these sectors will decline.

The rationale for integrating environment into AfT covers two broad areas: realizing market opportunities and reducing production costs.

Market opportunities. Consumer demand for food, textiles and clothing that are sourced ethically has created a premium price market and thus opportunities for suppliers in developing countries. Entering these niche markets requires compliance with private voluntary standards and regulations, such as organic and fair trade standards (see Section 5.3 on sustainability standards and eco-labelling). Compliance requires investment in more sustainable production techniques as well as improving working conditions and addressing gender issues. This imposes a cost burden for small and medium-sized enterprises (SMEs). Although the benefit may be improved market access and greater efficiency and competitiveness, there is still a need for support to firms striving to meet sustainability requirements. AfT offers the opportunity to exploit potential synergies between AfT and the desire for environmental integrity.

Reducing production costs. Beyond market requirements, shifting to cleaner production processes offers opportunities to reduce operating costs such as those for fuel and waste management. AfT in this area can support businesses in overcoming market failures, including access to financial capital and lack of awareness on energy issues and cost-saving opportunities. This is particularly likely with SMEs that do not have in-house expertise on these issues.

Integrating environment into AfT programming at the planning stage may help improve AfT outcomes in two ways. First, it may highlight the vulnerability of programming to environmental impacts. For example, expected impacts of climate change may change the types of crops that should be promoted in specific regions, or may shorten the expected lifetime of hydroelectric infrastructure development. An important sub-category of this type of vulnerability occurs when AfT programming risks promoting development of a resource in ways that undercut the viability of the resource itself—overexploiting forest or fisheries resources, for example.

Second, it may highlight complex environment-development trade-offs. Building a road, for example, might significantly improve access to market for agricultural crops. But depending on the location, it might also create access to wilderness that facilitates deforestation and loss of biodiversity, a dynamic that is costly for those (typically marginalized populations) that rely on the ecosystem services that forests provide. It is important to consider these sorts of trade-offs in the planning stage.

Box 7.1: Integrating environment into AfT

Integrating environment into AfT can include the following strategies:

Enhanced screening

Use of strategic environmental assessments allows the *ex-ante* assessment of the opportunities and risks in AfT programming. It informs planners on how to integrate environmental factors into strategic decisions to make development results more sustainable.

Enabling market access

Standards set in developed countries are highly relevant to developing country exporters, particularly SMEs, who often lack the technical know-how and access to finance to comply with their requirements (see Section 5.3 on sustainability standards and eco-labels). National infrastructure to support exporters in meeting trade-related environment standards is often inadequate, suggesting a clear role for AfT in support of, for example:

- Helping create a national standards body
- Fostering national- or regional-level accredited institutions for conformity assessment
- Fostering cleaner production

7.2 Trade Facilitation

The WTO's Bali Ministerial Conference in 2013 produced, among other things, a legally binding Trade Facilitation Agreement (TFA), though that agreement, like all the Bali results, was not adapted (see Section 4.3 on the Bali Agreement). The TFA aims to contribute to economic growth and poverty reduction by reducing trade costs and inefficiencies and increasing competitiveness and exports, and thereby boosting income, revenue and jobs.

Trade facilitation is about helping traded goods move more easily across borders. The WTO defines it as “the simplification and harmonization of international trade procedures,” with trade procedures being “the activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in international trade.”

Even before the conclusion of the TFA, trade facilitation was included in GATT Articles V (Freedom of transit), VIII (Fees and formalities connected with importation and exportation) and X (Publication and administration of trade regulations). In 2004 WTO Members formally launched negotiations to elaborate on and formalize the principles behind these articles as part of the Doha Development Round. In addition, the 2004 mandate on trade facilitation included negotiations on special and differential treatment (SDT) for developing countries, taking into account the need for technical assistance and capacity building.

The TFA consists of two main parts: substantive obligations to facilitate trade, and SDT provisions for technical assistance to help developing countries implement those obligations, which include the following:

- Timely notification and transparency on customs law requirements.
- Limitations on fees and charges for processing goods and services at the border.
- Simplification of border formalities via a single window.

The obligations clarify and expand upon the obligations in the original GATT provisions. The main aim is to cut red tape, thus reducing costs and delays and increasing the benefits which flow from trade.

Developed countries pushed strongly for the Agreement, arguing that it would benefit developing countries substantially. The OECD estimates that, depending on the time frame of the implementation of the various measures required by the TFA, the potential reductions of costs of trade can amount to 14 per cent for low-income countries, 15 per cent for lower middle-income countries and 12 per cent for the upper middle-income countries. Actual numbers are uncertain, but seem impressive: annually, a reduction of business costs between \$350 billion and \$1 trillion, an increase in world trade by between \$33 billion and \$100 billion in

global exports, and a rise of \$67 billion in global GDP. These are statistics in trade terms and do not account for the costs of externalities of increased trade, outlined below, such as natural resource drawdown, increased material throughput and possible climate change impacts.

Some developing countries argued (ultimately unsuccessfully) that easier trade without efforts to build productive capacity in their countries would simply mean more imports, yielding few of the benefits described above. They also argued that the costs of implementation were high, and not necessarily in sync with their development priorities, and they objected to the legally binding nature of what is billed as a development agreement.

7.2.1 Green Economy Challenges and Opportunities

The impact of the TFA on transitions to a greener economy is uncertain. Positive as well as negative consequences are anticipated after the Agreement comes into force and is implemented.

To the extent that the TFA will lead to more trade, its impact involves additional burdens on the environment in terms of increased GHG emissions from production and transport, and more consumption of natural resources, with attendant risks to water supply, fertile land and natural biodiversity.

On the positive side, the TFA offers opportunities for a green economy transition. Reduced costs and increased efficiency can reduce waste and negative environmental impacts. Disciplining additional costs at the border (Article 6) will enable importers to bring their goods with assurance that these will be permitted to cross the border and be sold, rather than be turned back and, in the case of perishable goods, spoiled. Pre-shipment inspections (Article 10) prevent later waste from rejection of goods on grounds of sanitary and phytosanitary conditions. While these efficiency measures all save time and effort, the most relevant article from the perspective of avoiding wasted gasoline and pollution from idling trucks, or avoiding wasting goods and all their inputs, may be Article 7 on Release and Clearance of Goods. Article 7 covers measures for pre-arrival processing, authorized operators, expedited shipments and perishable goods.

Moreover, the TFA may also allow for an increased trade in environmental goods, services and technology. In particular, the trade in these goods, services and technology to developing countries should be easier, leading, for example, to better deployment of renewable energy technologies. In combination with reducing other trade barriers (see Section 5.11 on environmental goods and services), an implemented TFA may well give an extra boost to this green trade.

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8. Conclusions

The main goal of this handbook is to make the complex relationship between international trade and the green economy more understandable and accessible to policy-makers and the broader policy community. In the process, the book should dispel any idea that the relationship between trade, the environment and development can easily be described as either negative or positive. It is an immensely complex interaction that varies from country to country, sector to sector, and firm to firm, and that bears challenges but also important opportunities for the transition to a green economy.

The challenge, for all these stakeholders, is to exploit the opportunities and reduce the threats, and in so doing to maximize the net positive contribution that trade can make to the transition toward a green economy. A broader and clearer understanding of the linkages between trade, environment and development is a prerequisite for seizing those opportunities, reducing those threats and in the end helping ensure that trade, enhanced human well-being, social equity and environmental protection can be mutually supportive.

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