

ENVIRONMENTAL HEALTH IMPLICATIONS OF TRADE AND GLOBALIZATION

**PREPARED BY
OFFICE FOR SUSTAINABLE DEVELOPMENT AND ENVIRONMENT
ORGANIZATION OF AMERICAN STATES
WASHINGTON, DC
October 2004**

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EXECUTIVE SUMMARY

Environmental health refers to the relationship between the environment and human life and to the impacts that environmental factors (physical, biological, social, psychosocial) have on human health. In the Americas, traditional risks, such as lack of access to drinking water, air pollution, the contamination of food with pathogenic substances, are some of the many ways in which environmental and health variables interact, and which contribute to the potential years of life lost¹ in the region. Recent estimates suggest that major environmental health risks account for one-fifth of the total burden of disease in the developing world (Prüss-Üstüm et al, 2003), with children, the elderly, the impoverished and other vulnerable groups disproportionately sharing the heaviest burden.

As a response to the threats posed to human and well-being by degraded environments, a number of countries have put forward constitutional guarantees to a safe and healthy environment, with these echoed in legislation and in jurisprudence throughout the region.² At the same time, since 1980 the region has undergone considerable economic reform and opening of trade markets. Latin American and Caribbean countries are still parties to the World Trade Organization (WTO) and have negotiated and signed numerous regional trade agreements. It is unclear to what extent the degradation of environmental health can be correlated with trade expansion, or whether any relationship is simply coincidental.

This paper offers an overview of some issues regarding environmental health in light of globalization and economic reform in the region. It presents a literature overview of some germane issues related to trade and environmental health linkages. In particular, the report puts forward case studies related to export markets in two areas of importance for the economy of the region, agriculture and aquaculture.³ The paper also examines specific impacts on the environment derived from foreign direct investment practices in the Americas, along with analyses of pollution associated with resource intensive sectors, such as timber and mining. This is a balanced paper that brings to light record and facts on trade, environment and health in the Americas and provides excellent analyses and examples of their interface. While intentionally inconclusive as to the overall impact that trade has on environmental health, whether positive or negative, the paper presents meaningful recommendations for consideration as globalization moves forward and new trade policies are developed. Some of the key recommendations include:

- Enhanced institutional cooperation among ministries of health, environment, and trade is crucial to ensure that environmental health and trade policies are mutually supportive.
- Institutional capacities must be strengthened at the national and municipal levels, in order to improve the monitoring of environmental health targets, and ensure the effective enforcement of regulations and standards related to environmental health protection. In addition, countries must ensure that national environmental health regulations and standards are adopted in a transparent manner, and do not constitute a disguised barrier to trade.
- National regulations related to environmental health must also be updated, where necessary, and efforts to support transparency among trading partners through notification of domestic standards and regulations should be actively supported.

¹ Years of Potential Life Lost is an estimate of premature mortality and days lived with disability that has been developed as an indicator by the WHO, and defined as the number of years of life lost among persons who die before a predetermined age.

² There are 109 national constitutions in the world that mention the protection of the environment and natural resources, and 53 of these call for a right to a healthy environment.

³ One of the better-documented case studies linking trade liberalization measures, macro-level trade effects, and the environment in the Americas is the Commission for Environmental Cooperation's maize study. Draft final chapters of the report are available online at <<http://cec.org/maize/resources/chapters.cfm?varlan=english>>.

- Environmental health pressures from trade expansion may increase, particularly involving the sustainable use of natural resources in the agriculture and aquaculture sectors. For example, increased trade in fresh produce could increase the spreading of certain diseases, while creating new pathways through which diseases could be spread. Efforts at the national level to assess the environmental health effects of trade liberalization should be encouraged and such assessments and reviews should take place prior to the implementation of trade agreements.
- Efforts to expand public-private sector partnerships in the promotion of sustainable and environmentally friendly production processes, particularly in the agriculture sector in developing countries, should be explored in order to support new export opportunities for those countries, and identify “win-win” environmental health and trade outcomes.
- The impacts of globalization and trade expansion should promote environmental health, help economies grow and contribute to the achievement of the Millennium Development Goals.

INTRODUCTION

Economic reforms and the globalization trend in the Western Hemisphere have generated debate regarding implications on different sectors, including environmental health. In order to understand the implications of trade and globalization on environmental health, it is necessary to review the possible links between different transactions driven by globalization and environmental health policies at the national, regional, and global level.

Environmental health refers to the relationship that exists between the environment and human life and, more specifically, to how environmental factors – physical, biological, social, psychosocial – directly impact on human health. In the Americas, human health is increasingly threatened by the continued environmental degradation in the region. Recent estimates suggest that premature death and illness due to major environmental health risks account for one-fifth of the total burden of disease in the developing world (Prüss-Üstüm et al, 2003). Traditional risks – such as lack of access to drinking water, domestic air pollution, contamination of food with pathogenic substances – and what many characterize as modern or emerging health risks – linked to industrial and agricultural processes, as well as transportation – increasingly contribute to the potential years of life lost⁴ in the region. In the early 1990s, 11.0 percent of non-accidental deaths were attributed to environmental health risks; by 2002 this percentage had risen to 18.0 percent (UNEP and UCR-Odd, 2004).

The region has undergone considerable economic reform and opening of trade markets. Since 1980, the contribution of exports to the gross domestic product (GDP) of the Americas increased from 12.6 percent to 20.6 percent in 2002. In that same period, imports rose from 14 percent to 19 percent (UN-ECLAC, 2004). Foreign direct investment (FDI) increased more dramatically.⁵ In 1990, FDI accounted for 5 percent of regional gross fixed capital formation. By 1999, FDI inflows accounted for 25 percent (UNCTAD, 2003). Economic reforms have been facilitated by the increasing engagement of the countries in multilateral and bilateral trade agreements. Latin American and Caribbean countries have become more involved in the World Trade Organization (WTO) and have negotiated and signed numerous regional agreements including the Andean Trade Preference Act (ATPA) and the Southern Common Market (MERCOSUR). Furthermore, countries in the region continue to pursue hemispheric integration through the proposed Central American Free Trade Area (CAFTA) and the Free Trade Area of the Americas (FTAA).

In the context of economic reforms, the terms ‘globalization’ and ‘trade’ are often used interchangeably; however these terms are not synonymous and, though related, should not be taken to refer to the same phenomenon. Globalization describes the trend of increased transactional exchange between parties located in different countries. It embraces a variety of cross-border transactions. Trade being one example of these type transactions is defined as: “the commercial exchange, [including] buying and selling on domestic or international markets of goods and services” (COGSCI Princeton, 2004). FDI serves as another example of transactions that characterize globalization. Thus FDI, trade, and globalization are not synonymous; rather, trade and FDI are the two main types of transactions that characterize globalization in general.

The Millennium Declaration states that one of the central challenges is to ensure that globalization becomes a positive force for all the world’s people. Developing countries and countries with economies in transition face special difficulties in responding to this central challenge; in order to make globalization

⁴ Years of Potential Life Lost is an estimate of premature mortality and days lived with disability that has been developed as an indicator by the WHO, and defined as the number of years of life lost among persons who die before a predetermined age.

⁵ FDI has been defined as “ownership and (normally) control of a business or part of a business in another country.” (Trebilcock and Howse, 2nd ed., at 335).

fully inclusive, efforts must be made to include policies and measures, at the global level, which correspond to the needs of developing countries and economies in transition (United Nations, 2004). Addressing key developing country concerns is an indispensable and imperative step towards more equitable globalization (United Nations, 2004).

It is unclear whether the relationship between degrading environmental health and increasing trade and globalization are related causally, with globalization and trade leading to increased environmental health concerns, or whether there is no correlation. The nature of the relationship serves as the central theme of this paper which reviews the available research to date on the subject and discusses some of the relevant policy issues. The following sections highlight both theoretical debates as well as provide evidence derived from the examination of case studies, legal frameworks, and trade agreements.

Section one of the paper provides a background and overview of the environmental health in the region including a summary of the International Environmental Health Agenda, within both the United Nations system and the Inter-American system, in order to establish the relevance of this issue at the international level in the Americas.

The interplay between existing and proposed trade agreements that involve member States of the Americas, and can impact upon environmental health policies, is examined in section two. This section will focus on measures which fall under the General Agreement on Tariffs and Trade (GATT), the Agreement on Technical Barriers to Trade (TBT), the Agreement on Sanitary and Phytosanitary Measures (SPS), the General Agreement on Trade and Services (GATS), and the Agreement on Trade-Related Intellectual Property Rights (TRIPS) and the way they have been used by governments to pursue environmental health objectives. In addition, the paper discusses regional and sub-regional trade agreements such as NAFTA, CAFTA, and MERCOSUR. This section concludes with a brief discussion on Multilateral Environmental Agreements of relevance to environmental health in the Americas.

Section three analyzes the expansion of international trade and its impacts on environmental and human health in areas of economic importance for the region, such as agriculture and aquaculture. This section also examines the linkages between infectious diseases and trade expansion. Finally, section four examines the effect of FDI, and its possible effects on environmental health. The section provides an overview of studies that link FDI with pollution that is associated with resource intensive sectors, such as timber and mining.

SECTION I - HUMAN HEALTH AND ENVIRONMENT

1.1 Background and overview of the region

The ever-evolving definition of environmental health encompasses issues related to the environment and to health. Together these two terms create a synergy where the sum is greater than its separate components. Environmental health comprises those aspects of human health, including quality of life, that are determined by physical, chemical, biological, social, and psychosocial factors in the environment. It also refers to the theory and practice of assessing, correcting, controlling, and preventing those factors in the environment that can potentially adversely affect the health of present and future generations (WHO, 2004).

The environmental health challenges in the region are many, and their impacts are often disproportionately borne by children, the elderly, the impoverished and other vulnerable groups. It is a known fact that every year 11 million children die before reaching their fifth birthday (PAHO, 2000), mostly from easily preventable or treatable causes; more than 250,000 of those deaths are related to environmental conditions (PAHO, 2000).

Health depends on the interaction between environmental influences, lifestyles and human nature. The impact that human activities have had on water, soil, and air has not always been positive. Some of these activities have caused environmental changes which in turn increased sickness and fatalities from infectious diseases prevalent in developing countries. By 1990, chronic or degenerative diseases⁶ accounted for 86 percent of all deaths, while only 6.0 were caused by communicable (or transmissible) diseases.⁷ That same year, in developing countries, chronic diseases caused 47 percent of deaths, and transmissible diseases 42 percent. At the end of that decade, non-transmissible diseases accounted for 49.7 percent of adult deaths in the Americas (UNEP and OdD, 2003).

Degraded environmental conditions have resulted in millions of deaths all around the globe, particularly affecting children, with 11.0 percent of potential life years lost in the region that can be directly attributed to poor water supply and sanitary services, urban air pollution, agro-chemical and waste, indoor air pollution, and vector-borne illnesses (PAHO, 2000).

As a response to the threats that degraded environmental conditions pose to human life, a number of countries have put forward constitutional guarantees to a safe or healthy environment. These guarantees are echoed in legislation and in jurisprudence throughout the region.⁸ In addition, declarations such as the Inter-American Democratic Charter treat environmental concerns as essential to integral development.⁹ The Pan American Health Organization (PAHO) has worked, since its inception, to prevent and mitigate illness and death from harmful environmental exposures. Years of work dedicated to sanitation, water management, chemical control, and other health threats have benefited the region as countries have undergone health sector reform. PAHO has also conducted regional assessments and developed a

⁶ A disease characterized by progressive degenerative changes in tissue.

⁷ Communicable disease: A disease, the causative organism of which are capable of being passed from a person, animal or the environment (which would include food and water) to a susceptible individual. (The Food Standards Agency, available online at <<http://www.archive.official-documents.co.uk/document/maffdh/fsa/glossary.htm>>).

⁸ There are 109 national constitutions in the world that mention the protection of the environment and natural resources, and 53 of these call for a right to a healthy environment.

⁹ The Inter-American Democratic Charter was adopted in Lima, Peru, on September 11, 2001. (Available online at <<http://www.cejil.org/otros/draft%20of%20the%20inter-american.pdf>>). *See also* Right to a Healthy Environment, Article 11, Additional Protocol to the American Convention on Human Rights in the areas of Economic, Social and Cultural Rights “Protocol of San Salvador” (1988).

regional strategy to improve environmental health of children such as Healthy Environments: Healthy Children (2002), and assisted countries in developing national profiles of children's environmental health and embark in national action planning to improve national and local environmental circumstances and thereby the status of children's health and well-being.

Article 25 of the Universal Declaration on Human Rights proclaims that “everyone has the right to a standard of living adequate for the health and well-being of himself and of his family...” Although there may not yet be consensus on the formal legal existence of a substantive right to a healthy environment, it is self-evident that there is causal relationship between environmental quality on the one hand and human health, welfare, well-being, and quality of life on the other. Where environmental degradation is not managed and minimized, it can threaten living conditions and even life itself. International conventions and declarations have linked human welfare to the environmental conditions that promote food security¹⁰ and safe drinking water.¹¹ As an example, the World Bank's new environmental strategy establishes three fundamental objectives, including improving the quality of life – people's health, livelihood and vulnerability – affected by environmental conditions.¹²

1.2 Overview of the International Environmental Health Agenda

Contaminated water and air pollution jeopardize the sustainability of human life, and therefore the degradation of the environment has a direct effect on its quality. There are many examples of how the environment affects human health; water is one example of an environmental service that is directly related to human health. Lack of access to drinking water is one of the major environmental health risks that results in illness and death. The UN Economic and Social Council (ECOSOC)¹³ in General Comment 15 recognized that the right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses. It also highlights that an adequate amount of safe water is necessary to prevent death from dehydration and to reduce the risk of water related disease.¹⁴

The continued lack of access to safe drinking water exists in direct opposition to what the UN Conventions, Declarations, and other international Instruments have established in their mandates related to health. Both the United Nations and the Inter-American systems have based their environmental health agenda on the principle that the right to life is the most important of the human rights and that a healthy environment is a main pillar for its enjoyment.

1.2.1 The United Nations system

The institutions and agencies of the United Nations have the common aim of promoting and protecting internationally agreed human rights: civil, cultural, economic, political and social. The aforementioned Universal Declaration of Human Rights first proclaimed these rights. The Office of the United Nations High Commissioner for Human Rights has the responsibility to strengthen the efforts of the United Nations to ensure these rights are respected.

¹⁰ See Convention on Economic, Social and Cultural Rights (1966); 1996 Rome Declaration on World Food Security; Food and Agriculture Organization Strategic Framework 2000-2015.

¹¹ See Second World Water Forum (March 2000) Thematic Session on Meeting Basic Needs.

¹² See also UN High Commissioner on Refugees Environmental Guidelines; World Health Organization Report on Progress in Implementing Agenda 21 (E/CN.4/1997/18).

¹³ Under the UN Charter, ECOSOC is responsible for promoting higher standards of living, full employment, and economic and social progress; identifying solutions to international economic, social and health problems; facilitating international cultural and educational cooperation; and encouraging universal respect for human rights and fundamental freedoms.

¹⁴ ECOSOC General Comment No. 15 (2002), The right to water.

Article 12 of the Covenant on Economic, Social and Cultural Rights includes, as part of the necessary steps required by States to achieve the full realization of the right to health, those steps necessary for the reduction of infant mortality and for the improvement of all aspects of environmental and industrial hygiene. Again, we face the strong linkage between environment and health conditions relevant to quality of life. In addition, the UN system addresses the right to life as defined in Article 6 of the Covenant on Civil and Political Rights, which establishes that every human has the inherent right to life, and that law must protect this right. As mentioned before, a clean and healthy environment is an essential component to achieving a healthy quality of life. Article 24 states that it is the right of every child to enjoy of the highest attainable standard of health and the right to facilities for the treatment of illness and rehabilitation of health (Alvarez, [n.d.]).

1.2.2 The Inter-American system

The Inter-American Human Rights System (IAHRS) was created in order to further respect for human rights in the Americas and is governed by the American Convention on Human Rights. The additional Protocol to the American Convention on Human Rights in the area of Economic, Social and Cultural Rights, or more commonly “the Protocol of San Salvador”, states in Article 11 that “everyone shall have the right to live in a healthy environment and to have access to basic public services.¹⁵ The States’ parties shall promote the protection, preservation, and improvement of the environment.”

As the principal organ of the OAS mandated to promote and protect human rights in the hemisphere, the Inter-American Commission on Human Rights has a unique role to play in assisting OAS member states in their efforts to respect and ensure the rights of the individuals subject to its jurisdiction. In addition, the Inter-American Court of Human Rights, as well as the Commission, works towards the enforcement of the American Convention on Human Rights.

The OAS is also working on how to better align environmental protection with economic development as economic and market integration continues, propelled by trade, investment and other links. Through its Office for Sustainable Development and Environment (OSDE), the OAS is supporting an environmental cooperation agenda that helps countries anticipate health and environmental standards associated with market access. The OSDE also supports work at the national level in assessing the environmental implications of trade. To date, some 12 country assessments are underway. These assessments have been key in terms of identifying current environmental health issues derived from trade expansion and integration in the region.

Together with PAHO, also an organization of the Inter-American system that works on environmental health issues, and the United Nations Environment Programme – Region of Latin America and the Caribbean (UNEP–ROLAC), the OAS, through the USDE, supports the Ministers of Health and Environment of the Americas and their joint agenda which has also been endorsed by the Summit of the Americas process. Immediate Americas-wide Ministerial level priorities have been defined as; (1) improving water and sanitation; (2) managing chemicals; and (3) developing common indicators for environmental health. These three priorities are directly related to the basic principle of the right to a healthy environment.

¹⁵ Additional Protocol to the American Convention on Human Rights in the areas of Economic, Social and Cultural Rights “Protocol of San Salvador” (1988).

SECTION II - TRADE RULES AND ENVIRONMENT-RELATED HEALTH POLICIES

Since the early 1990s, public concern has increasingly focused on the implications of free trade on environmental health. This shift was prompted by the completion of the Uruguay Round negotiations that led to the creation of the World Trade Organization (WTO) and the ratification of the North American Free Trade Agreement (NAFTA) with the adoption of an environmental side-agreement. Specific areas of concern include how WTO rules can affect the control of infectious disease, food safety, the regulation of tobacco, environmental regulations, international agreements, the affordability of and access to drugs, health service (including the liberalization of public health services), and trade in products made with or containing genetically-modified organisms (WHO – WTO, 2002).

Trade expansion can potentially affect environmental health through numerous avenues. For instance, increase trade in agricultural products can lead to the spread of plant disease across borders. Increase in marine shipping and farm trade can result in the dispersion of alien invasive species. Travel and expanding trade in goods can create the risk of spreading infectious diseases like salmonella, cholera, and Severe Acute Respiratory Syndrome (SARS).

The goal of the WTO and trade agreements is to strike a balance between the legitimate use of trade regulations (to secure public health, food safety, and environmental protection) and rules that hinder commerce or protectionist actions that hide under the guise of protecting public health objectives (Roberts, 1998). Striking this balance remains difficult, particularly as the pace of globalization quickens. There is a concern that in the event of an inconsistency between trade rules and environmental-health policies, the former will override or “trump” the latter. Following a limited number of highly publicized WTO cases involving public health, food safety, and environmental policies, non-governmental organizations, civil society, and academic researchers continue to examine the implications of the possible tension between trade expansion and environmental health priorities. As confirmed by the Uruguay Round texts and subsequent panel and Appellate Body jurisprudence, WTO Members have the right to determine their own level of health and environmental protection that they deem to be necessary and appropriate. However, some observers continue to examine whether WTO jurisprudence allows sufficient room for countries to maintain “regulatory autonomy,” (Marceau and Trachtman, 2002) and whether free trade is increasingly pushing countries towards regulatory homogeneity.

Trade agreements have the potential to act as a disincentive to adopt new regulations. Because the obligations in trade agreements are asymmetric – for example, they set limits on food safety standards but do not require any minimum level of food safety – governments can use the threat of trade-based challenges to discourage other governments from adopting new regulations. On the other hand, supporters of trade liberalization note that by reducing and eliminating restrictions and distortions on exports and imports, countries hold the prospect of increased rates of economic growth, particularly so in developing countries. Stronger rates of economic growth are in turn correlated with more general welfare gains as well as increasingly stringent environmental health standards, enforcement and conditions.¹⁶ Reducing tariffs applied to health and environmental equipment such as water quality monitors, cancer screening equipment, or sewage treatment machinery, represents lower costs and higher affordability for the importing country. Similarly, lowering international barriers among health professionals can result in increased benefits. Moreover, international trade cooperation can provide better conditions to adopt regional and global standards and norms for food safety, public health, and environmental protection.

¹⁶ A strong empirical link exists between free trade – measured by the extent to which a country is open to imports and exports – and rates of economic growth. Higher rates of economic growth can in turn lead to more general gains in welfare, as well as higher expenditures on public services, including expenditures on public health, environmental protection, public education, and other services.

International cooperation can also allow for the exchange of scientific information and research results, as well as best management practices. Finally, cooperation among international organizations – notably the WTO and World Health Organization – increases policy coherence between the trade and environmental health regimes. It is also worth mentioning the desirability of *ex ante* environmental analysis of trade agreements. The North American Commission for Environmental Cooperation (CEC) and the Organization for Economic Cooperation and Development (OECD) have both done reasonably extensive work on this issue. The United States government has adopted an executive order on environmental review of trade agreements, 64 Fed. Reg. 63,169 (Nov. 16, 1999), and guidelines implementing the executive order, 65 Fed. Reg. 79,442 (Dec. 19, 2000). Annex A presents areas of trade law and case histories of particular relevance to environmental health. Given the extensive academic literature dealing with trade law, the Annex neither intends to be exhaustive nor suggests a legal interpretation of particular WTO Uruguay Round agreements or other legal agreements.

2.1 Regional Trade Agreements

An estimated 250 regional and bilateral trade agreements have been notified to the WTO since 1995. While the basic principles of these agreements are guided by GATT/WTO principles, the reduction of tariffs and prohibition of export quotas at the national level vary widely in scope and level of commitment.

In the Americas, a growing number of regional and bilateral trade and common market agreements have been ratified or are in the process of negotiation, including common market agreements that comprise tariff elimination involving intra-regional trade as well as deeper customs harmonization procedures. Recent bilateral or regional free trade agreements such as MERCOSUR,¹⁷ CARICOM,¹⁸ NAFTA,¹⁹ and CAFTA²⁰ include commitments on government procurement, competition, investment, intellectual property, trade in services, and dispute settlement that increasingly extend the scope and level of liberalization beyond that which has been achieved to date in the multilateral framework of the WTO.

As noted, these agreements contain varying types and levels of commitment compared to WTO agreements. It is therefore extremely difficult to identify the effect that different regional and bilateral agreements have on environmental health policies when considered in the context of the WTO agreements. These questions have led public groups to express grave concern about the inclusion of more stringent intellectual property and patent protection rules within regional trade agreements and to voice concern over their implications for public health.²¹

¹⁷ Comprised of Argentina, Brazil, Paraguay, and Uruguay; the Andean Pact, involving Bolivia, Colombia, Ecuador, Peru, and Venezuela.

¹⁸ Comprised of Antigua and Barbuda, Barbados, Belize, San Cristobal, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago.

¹⁹ Comprised of Canada, Mexico, and the United States.

²⁰ Comprised of the United States, El Salvador, Honduras, Nicaragua, Costa Rica, and to include Panama and Dominican Republic. The ratification of CAFTA is still pending.

²¹ For example, in May 2004, 90 non-governmental organizations signed a joint letter to the US Trade Representative, that expressed the following “[we have] grave concerns regarding the potential impact of intellectual property provisions in regional and bilateral trade agreements initiated by the United States. These provisions, which far exceed international standards for intellectual property protection, threaten to dramatically reduce access to essential medicines for millions of people with life-threatening diseases throughout the developing world. In pursuing these agreements, the US is systematically undermining the international consensus reached in 2001 about the proper balance between the protection of private commercial interests on the one hand and of public health on the other.” Available online at <<http://www.cptech.org/ip/health/trade/ngos05272004.html>>.

2.2 Multilateral Environmental Agreements

Approximately 200 Multilateral Environmental Agreements (MEAs) have been signed by governments at the global level. In addition, an estimated 800 environmental agreements exist at the regional or bilateral level. These agreements address a number of transnational or global environmental issues, many of which are linked to the protection of human health and environmental health. Among the more prominent MEAs are those that address different aspects of environment-human health issues. An example includes the Montreal Protocol on Substances that Deplete the Ozone Layer (1987), which establishes a regime to reduce and eliminate the production, consumption and trade of certain ozone destroying substances (such as chlorofluorocarbons) in order to protect the stratospheric ozone. The Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal (1989), establishes a regime to control the international trade and final disposal of hazardous wastes. The Stockholm Convention on Persistent Organic Pollutants (POPs) (2004), establishes a regime to control the consumption, production and trade of 12 POP chemicals (aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, toxaphene, polychlorinated biphenols or PCBs, hexachlorobenzene, dioxins and furans). Finally, the Cartagena Protocol of the UN Convention on Biological Diversity establishes a regime to control the transfer and release of living modified organisms.²²

Among the tools contained in these agreements are specific trade obligations (STOs), which act in tandem with other measures, such as information exchange, technology transfer, and financial transfers, to achieve the objectives of the agreement. Examples of STOs include prior informed notification and consent procedures, export quotas or restrictions on trade among parties to the agreements, ban in trade for specified products, and the prohibition in trade between parties and non-parties to the MEAs. The issue of the relationship between STOs applied in MEAs and trade rules in general has been examined for more than a decade at the GATT, in the WTO Committee on Trade and Environment (CTE), at the OECD, UNEP, and the UNCTAD. In recent years, efforts have increased to ensure the effective exchange of information between the CTE and the individual Secretariats to a number of MEAs. Moreover, this exercise is widely regarded as enhancing coordination between the MEAs and trade agreements.

²² A Living Modified Organism (LMO) is defined in the Cartagena Protocol on Biosafety as any living organism that possesses a novel combination of genetic material obtained through the use of modern biotechnology.

SECTION III - TRADE EXPANSION AND ENVIRONMENTAL HEALTH

Bilateral and multilateral trade agreements currently being negotiated are the result of the trend towards economic neo-liberalism that began almost twenty years ago. To promote economic development these trade agreements have led governments in the Americas to reduce tariffs and other protectionist measures (Schalatek, ed., 2004). A challenge associated with increasing trade, as a result of the negotiation of the FTAA and future ratification of CAFTA, will be the increase in pressures exerted on natural resources. This is particularly the case for the agriculture and aquaculture sectors. For example, in the case of Mexico following the ratification of NAFTA, agricultural exports to the U.S. increased by 70 percent (Tsakok and Brizzi, 2002). This section analyzes the impacts of trade expansion on both environmental and human health and discusses linkages with infectious disease.

3.1 Trade and the impacts on environmental and human health

The increase in the exchange of goods, the provision of services, the sharing of information and technologies, and the migration of labor (either temporary, seasonal, or permanent) driven by trade expansion can greatly impact environmental health and human health. Through the analysis of case studies related to export markets in the region, particularly in Latin America, this sub-section will discuss the relationship between trade, environmental health and human health in two areas of importance for the economy of the region, agriculture and aquaculture.²³

3.1.1 Agriculture

As countries continue to strive for enhanced development and economic growth, the exchange of goods and services in the Americas increases. Most Latin American economies depend heavily on the agriculture sector, in terms of contributing to GDP, employment and foreign income generation. For instance, in Central America more than 50 percent of the land area is under land use systems associated with agriculture (Tsakok and Brizzi, 2002). Intensive use of water and soil resources, deforestation of watersheds, the expansion of crop and pasture land, and use of banned fertilizers are just a few of the many factors contributing to land degradation throughout the region. In order to present concrete examples of direct linkages between trade, environment and health, this section will focus on two agricultural exports of importance to the region – bananas and soybeans – the production of which are predicted to increase with trade expansion.

Bananas

In Central America, bananas remain the most important agro-export, accounting for 20 percent of the region's export earnings (Pomareda and Murillo, 2004). Banana plantations are characterized by high inputs of pesticides, fertilizers, and other agro-chemicals leading to soil, surface water, and groundwater contamination. Additionally chemical spraying and processing contribute to air pollution. At least 25 percent of the pesticides applied by aerial spraying never reach their target but are instead unintentionally applied directly into ponds and streams or onto surrounding farmland (American University, 2004). Blue plastic bags coated with the insecticide chlorpyrifos are still used to cover the bananas until harvest and often end up in water bodies causing additional pollution (PAN UK, 2004). Many of these agro-chemicals remain in the environment for long periods of time, affecting its health and the health of those who live and work in the surrounding areas.

²³ One of the better-documented case studies linking trade liberalization measures, macro-level trade effects, and the environment in the Americas is the Commission for Environmental Cooperation's maize study. Draft final chapters of the report are available online at <<http://cec.org/maize/resources/chapters.cfm?varlan=english>>.

The impacts of banana cultivation on human health are numerous. A study conducted by Castro-Gutierrez et al. (1997) in Nicaragua on the effects of exposure to paraquat, an herbicide used for the control of weeds, showed that workers experienced skin rash and indicated a high prevalence of respiratory symptoms associated with exposure (Castro-Gutierrez et al., 1997). A retrospective cohort study conducted by Wesseling et al. (1996) of banana plantation workers in Costa Rica in contact with dibromochloropropane (DBCP), a pesticide intensively used in their plantations, revealed an increased incidence of different forms of cancer among men and women, such as melanoma, penile cancer, cervical cancer, leukemia, and lung cancer (Wesseling et al., 1996) (See Box 1). Au et al. (1999) found other health impacts affecting banana plantation workers in Costa Rica, such as sterility and chromosome aberrations (Au et al., 1999). Banana plantation workers are not the only ones exposed to the effects of dangerous pesticides. Systemic pesticides, which remain inside the flesh of the banana, cannot be washed off and can be damaging to the unaware consumer (PAN UK, 2004).

Research advances are helping to find alternative to hazardous agro-chemicals to avoid negative impacts on human health but results are slow to be translated into practice. McDonald et al. (1997) suggest that a solution to improve the health of workers in banana plantations is a shift towards the use of pesticides such as ametryn which has a short half-life and degrades rapidly in tropical conditions (McDonald et al., 1997). This pesticide could well be used in the region instead of the ones currently being used, such as DBCP, or other ones already banned internationally but still used in some Latin American countries.

Due to consumer preferences in buyer countries, especially in Europe, as well as pressure from labor groups, a shift in banana production has begun in the region towards more environmentally friendly practices (See Box 2). One example is the introduction of certified 'eco labels' that require pollution control, reduced pesticides, and improved worker safety. Unfortunately, in the region there is no certainty that the producers who opt for certification or organic production will obtain a higher price in the national markets as compensation for the environmental commitment (UNEP and UCR-OdD, 2004).

Problems with pesticide use in developing countries are connected to the issue of trade controls to reduce the transfer of hazardous products from developed countries to developing countries (American University, 2004). Despite the serious and large damage caused by pesticides, most developing countries do not have regulations to address this issue. It is necessary to take immediate action in order to lessen the burden that current agricultural practices, such as the use of DBCP, exert over environmental and human health. Among the recommendations to achieve this goal are: encourage producers to use environmentally friendly production processes; promoting and funding research on new biological pesticides in order to limit or eliminate the use of chemical pesticides; and monitoring more closely the application of national environmental laws.

Box 1**Trade, environment, and banana plantation workers' health**

Tens of thousands of former banana plantation workers across the world have suffered severe health problems including sterility as a result of applying a highly toxic chemical - called DBCP - long after it was banned in the US. Costa Rican plantation workers are joining with their counterparts from other developing nations in suing American Companies responsible for the importation of DBCP during the 1970s and 1980s. They are suing for compensation for the irreversible biological damage caused by the use of DBCP. In Nicaragua, women in banana communities continue to give birth to babies with serious congenital defects as a result of previous contact with DBCP and other toxic chemicals in the course of their work.

Dole Food Company is now alleging that some of the banana workers and their legitimate trade union organizations in Nicaragua are lying about their health problems and the link with this chemical. Together with male colleagues, women banana workers are calling on Dole to drop this legal case as well as to accept responsibility for the high price workers have paid for the use of DBCP. Women who believe that they have been affected by the pesticide have had particular problems proving the link between their handling of the product and their subsequent health problems. Nicaraguan trade unions have launched an appeal for banana consumers around the world to write to Dole Food demanding that they comply with the judgments of the Nicaraguan court and drop their counterclaim.

Source: From Banana Link, Central American Women's Network, Nicaragua Solidarity Campaign, War on Want and Scottish Trades' Union Congress (available online at <<http://www.bananalink.org.uk>>), and American University - The Mandala Projects, *Trade and Environment Database Case Studies, Pesticide Hazard in Costa Rica* (available online at <<http://www.american.edu/TED/costpest.htm#r5>>).

Soybean

The reduction or elimination of trade barriers in the 1990s accelerated the production and exports of soybean. Argentina and Brazil have a combined 49 percent of the global soy export market (USB, 2004), and no reduction in their production in the coming years is expected. Other Latin American countries are also seeing an increase in soybean cultivation. For example, according to a study conducted by OAS and Instituto de Derecho y Economía Ambiental (IDEA) (2004) the possible ratification of the FTAA could result in the expansion of soybean cropland by 50 percent in Paraguay.

Increase in soybean production can result in serious threats to the rainforests of the region. For instance, the Food and Agriculture Organization (FAO) estimates that 21,000 square miles are deforested annually in South America, most of this in the Amazon Basin (FAO, 1994). In Brazil between the year 2002 and 2003 there was a 40 percent jump in deforestation in the Amazon, representing nearly 10,000 square miles (Common Dreams, 2004). Experts are concerned that with the anticipated expansion of soybean production such rainforest destruction will increase. As soybean farming continues to spread, the threat to the Amazon ecological system is likely to worsen in the next few years. Deforestation increases the amount of carbon dioxide (CO₂) and other trace gases in the atmosphere. Releasing CO₂ into the atmosphere has been linked to an increase in global temperatures. Deforestation can also cause the extinction of thousands of species annually and affect the hydrological regime of rivers (Heil Costa et al., 2003).

The expansion of soybean cultivation in the region has made producers turn to the use of genetically modified soybean for its economic advantages. Scientists worry that genetic engineering of food crops could facilitate the emergence of species-jumping diseases because the technology relies on “vectors” to ferry a foreign gene into the host organism (Forests, 2004). These vectors are constructed from genetic parasites and viruses explicitly designed to insert their own DNA into the genetic material of any kind of

cell – plant, animal or human. As the vectors shuttle between different hosts, they might be able to pick up and transfer genes from animals to humans (Forests, 2004). On the other hand, genetically engineered crops can provide benefits for both environmental health and human health. By inserting proteins to protect the plant from predators, right into the seeds that are planted into the ground, farmers need not apply pesticides, fumigation will cease and the ecosystem and the people stand to benefit from lower levels of ambient pesticide exposure.

Box 2

Grower certification for good agricultural practices

Food safety has become one of the most important minimum requirements for future trade with developed countries. The rapid increase in newly reported cases of outbreaks of food-borne diseases, particularly associated with fresh produce, has been the primary driver towards establishing minimum food safety standards. The global emphasis on safe and secure food supplies must also be seen against a backdrop of an increasing number of outbreaks of diseases such as cholera which is often caused by inadequate sanitary measures and contaminated drinking water. With respect to developed countries such as the European Union, the importance of food safety was emphasized by the recent outbreaks of BSE (Mad Cow disease) and Foot and Mouth disease as well as traditional concerns with environmental pollution, particularly pesticides, and the debate surrounding Genetically Modified Organisms (GMO). The main focus of concern in the United States of America are outbreaks of food-borne diseases associated with the consumption of fresh or processed food. These concerns have been the driving force behind the establishment of Good Agricultural Practices (GAP) policies and surveillance systems. Finally, most of the countries in Europe – a destination for many agro-exports from Latin America – support the EUREPGAP. While certification to EUREPGAP will result in additional costs to growers, there will be numerous benefits such as more environmentally sound farming practices, judicious use of chemicals, better working conditions with a subsequent increase in living standards, and the opening of new markets

Source: The South African Quality Institute, *EUREPGAP: grower certification for Good Agricultural Practices*. Available online at <http://www.saqi.co.za/QE_ar_0303_2.htm>.

The reduction or elimination of trade barriers has also allowed the increase in the imports of agricultural inputs including fertilizers, pesticides, and herbicides. In 2003 it was estimated that 86,000 tons of pesticides was applied to soybean fields (Csillag and Zorzetto, 2000). Glyphosate is the world's most-used herbicide. There are few studies of its impacts on environmental and human health, however some key studies have raised concerns over the safety of glyphosate, particularly considering the anticipated increase in environmental and human exposure to this herbicide. Exposure may occur from direct application, accidental releases or spray drift. Symptoms resulting from exposure to glyphosate include, recurrent eczema and cardiac and respiratory problems (Buffin and Topsy, 2001). The impacts of glyphosate on the environment include damage to sensitive plants, and as it can be readily released from certain types of soil particles, it may leach into water or be taken up by plants (Information Venture, 2004).

Besides glyphosate, soybean producers from Paraguay also use endosulfan (OAS and IDEA, 2004) even though the use of this pesticide has been banned due to severe adverse effects to human health. A study by Saiyed et al. (2003) suggests that exposure to endosulfan in male children may delay sexual maturity (Saiyed et al., 2003). In addition, endosulfan affects the central nervous system and prevents it from working properly. Endosulfan and its breakdown products are persistent in the environment; the pesticide sticks to soil particles and may take years to break down (New Farm, 2003). Exposure to endosulfan happens most often from eating contaminated food, but may also occur from skin contact (New Farm, 2003).

Summary

The possible ratification of trade agreements, such as the FTAA, will most likely translate into increasing agro-exports such as banana and soybean, thus inevitably increasing the use of agro-chemical products. Pesticides in general caused 10,840 poisoning cases and 224 deaths in Brazil (1998) (Csillag and Zorzetto, 2000), and 122 deaths in Paraguay (1999) (OAS and IDEA, 2004). With these figures likely to increase and replicate throughout the region, it is necessary that along with trade liberalization, governments involved in these negotiations revise outdated agricultural legislation, enforce them rigorously, and make them available to the public.

3.1.2 Aquaculture

The “blue revolution” in aquaculture has been touted as a way to increase an affordable food supply, improve nutrition, provide new employment, reduce extractive strains on wild fisheries, and boost export earnings from international trade. There has been an explosion of export-oriented, capital-intensive shrimp mariculture in the tropics of Latin America and Asia. By the early 1990s, 99 percent of shrimp cultivated globally was done so in the developing world, nearly exclusively for export to the United States, Europe, and Japan (FAO, 1994). Yet, environmental contamination from pesticides, the spread of disease from tanks into wild populations, and the environmental degradation of estuarine ecosystems are but a few of the impacts this industry has on environmental health.

Shrimp farms are predominantly located along Latin America’s Pacific coast, characterized by high yielding, semi-intensive commercial enterprises. Ecuador is one of Latin America’s largest producers of farmed shrimp, and its commercial successes spurred interest in the 1980s in Central America. From 1980 to 1992, cultured shrimp harvests in Central America grew from approximately 200 metric tons per year to more than 20,000 metric tons (Stonich et al., 1999). Honduras led this new sector followed by Panama where, by the mid 1990s, export revenues from shrimp were second only to bananas (Stonich et al., 1999, 216).

Shrimp aquaculture can cause environmental strain on nearby natural resources. In terms of impacts on coastal ecosystems, shrimp farming and the construction of ponds have been blamed for extensive destruction and transformation of seasonal lagoons, mud flats, and mangroves which provide critical nursery areas for numerous marine species, and recycle organic matter that serves as a primary source of energy for the aquatic food chain. Impacts on these ecosystems have direct adverse effects on wild fisheries and marine biodiversity in general. Other environmental impacts include the disruption of hydrological systems from the obstruction of water flow and sedimentation, the capture of wild post larvae, and the introduction of hatchery-raised seed stock.

Disease outbreaks in high-density tanks can be common and difficult to control. Stonich et al report outbreaks of *Vibrio* species (pathogenic bacteria that are associated to food-borne disease resulting, sometimes severe gastroenteritis in humans) and *Taura* virus (which attack juvenile shrimp) were first reported in Ecuador in 1992 and have spread rapidly through the shrimp-farming region (Stonich et al., 1999, 217). *Taura*, which was first identified in Ecuador, has spread as far as the Southern United States through the movement of infected post-larvae and broodstock. Effluent discharges from ponds containing chemicals for pest control, growth promotion, and disinfection have adverse effects on the health of the human population who conduct their daily activities in the surrounding areas of these polluted waters (Tobey et al., 1998).

Peru, Honduras, Colombia, and Mexico figure as the top shrimp-producing countries and most likely will continue to be with the expansion of trade. Unfortunately, in the past 30 years, Central American mangroves have been reduced as much as 50 percent. This is especially true for Honduras where 44

percent of the decline in high-quality mangroves was linked directly to the construction of shrimp ponds (Tobey et al., 1998, 219). With the expansion of trade, it is necessary that governments require that careful studies of impact to environmental and human health precede the construction of these practices, and that they remain effective over time (Boyd and Clay, 1998).

3.2 Infectious diseases linked to trade expansion

The increase of international trade has brought marked changes in the distribution of people and pathogens solidifying the link between globalization and infectious diseases. Aside from the emergence and re-emergence of disease in new and previously established locations, a less obvious impact further enhances the spread of infectious disease as a result of trade with poor and marginalized regions. The social inequalities that exist among nations and people and the integration of these increase risk, which may eventually result in a higher burden of infectious disease. Although there are many examples of linkages between infectious diseases and trade expansion, we focus in the following section on two examples, cholera and salmonella.

3.2.1 Cholera

The spread of cholera in the Americas illustrates how the spread of infectious disease can result from the increased travel and transport of food. To date, cholera has occurred in 21 of the 34 member countries of the Americas, including the United States. In Latin America there were more than 1.3 million cases and 11,000 deaths reported due to cholera (HCT, 2004).

Tauxe et al suggest that transmission of cholera in Latin America has been largely attributed to poorly maintained municipal water systems. Contamination of food is another manner in which cholera can be transmitted and is often a result of poor food handling by street vendors or in households, or associated with unwashed produce contaminated by river water during transport. The authors also found that other outbreaks followed the dormant transport of cooked crabs from Ecuador to the United States in travelers' suitcases (Tauxe, Mintz and Quick, 1995).

The economic impact of cholera can reach significant proportions. In Peru, for example, during the 1991 cholera epidemic, the estimated losses from import bans on agricultural products and from the decline in tourism, range from a low of US \$350 million to a high of US \$1 billion. Estimates, based on the assumption that the epidemic is likely to spread and import bans on agricultural products from Peru will continue, placed the loss in income from exports and tourism as high as US \$660 million for 1991, approximately 18 percent of the 1990 level of exports. If estimates of expenditures on health-related activities and losses in the domestic economy are included, these projections of the total cost of the cholera epidemic in Peru reach US \$1,060 million. A total of US \$60 to US \$70 million has been attributed to losses in tourism income alone.

3.2.2 Salmonella

In the last 20 years, infectious agents have been both newly described and newly associated with food-borne transmission. Infections caused by non-typhoid strains of *Salmonella* have increased each decade since the 1940s. In the last 20 years, *Salmonella* serotype Enteritidis appeared simultaneously around the world; and *Salmonella* Typhimurium Definitive Type (DT) 104 is now appearing in North America, Europe, and may spread elsewhere. Every year, approximately 800,000 to 4 million cases of *Salmonella* result in 500 deaths in the United States, affecting especially children (Wrong Diagnosis, 2004).

Salmonella can cause serious and sometimes-fatal infections in young children, frail or elderly people, and the immuno-compromised.²⁴

An increasing, though still limited, proportion of reported food-borne outbreaks is being traced to fresh produce (See Box 3). A series of outbreaks recently investigated by the Centers for Disease Control and Prevention (CDC) has linked a variety of pathogens to fresh fruits and vegetables harvested in the United States and elsewhere. The investigations have often been triggered by detection of more cases than expected of a rare serotype of *Salmonella* or *Shigella* or by diagnosis of a rare infection like cyclosporiasis (Tauxe, 1997).

An example of the effect of trade expansion on human health through the spread of infectious diseases can be found in the “Queso Duro Viejo” case. Hard Cheese, called in Spanish “Queso Duro Viejo,” made in El Salvador and imported to several states in the United States in May 2004 was contaminated with *Salmonella* when it was being packaged. The cheese products were distributed in Maryland, Virginia, District of Columbia, North Carolina, Georgia, New York, New Jersey, Texas, California, Minnesota, and Alabama, and were repacked for distribution nationwide to retail stores and deli counters (Find Law, 2004). In this case, although there was no illness reported related to the cheese because most of the product was recalled, the risk created by the globalization of food supply was evident. If the contaminated cheese had reached the public, many people could have been affected.

The likely increase in international exchange of fresh produce ignited by trade expansion will likely play a major role in the spread of diseases. As countries begin to trade their products it is essential to enforce the necessary regulations to avoid global outbreaks. As Tauxe (1997) asserts, the key challenge of food-borne disease lays in preventing the contamination of human food with sewage or animal manure and controlling contamination of feed and water consumed by the animals themselves.

²⁴ Healthy people infected with *Salmonella* often experience fever, diarrhea, nausea, vomiting and abdominal pain. In rare circumstances, infection with *Salmonella* can result in the organism getting into the bloodstream and produce more severe illnesses such as arterial infections (i.e., infected aneurysms), endocarditis and arthritis.

Box 3**Food-borne outbreaks traced to fresh produce 1990 - 1996**

Year	Pathogen	Vehicle	No. of Cases	Source
'90	<i>Salmonella</i> Chester	Cantaloupe	245	Central America
'90	<i>Salmonella</i> Javiana	Tomatoes	174	U.S.
'90	Hepatitis A	Strawberries	18	U.S.
'91	<i>Salmonella</i> Poona	Cantaloupe	>400	U.S./Central America
'94	<i>Shigella flexneri</i>	Scallions	72	Central America
'96	Cyclospora	Raspberries	978	Central America
'96	<i>E. coli</i> O157:H7	Apple juice	71	U.S.

Source: Adapted from Emerging Food-borne Diseases; an Evolving Public Health Challenge (Tauxe, 1997)

SECTION IV - FOREIGN DIRECT INVESTMENT AND ENVIRONMENTAL HEALTH

Foreign direct investment (FDI) is a cross-border transaction that serves as another important element of globalization. FDI is generally a long-term investment by a foreign party in a host country, often involving injections of capital into large infrastructural projects such as water and wastewater treatment plants, and waste disposal facilities (Trebilcock and Howse, 1999). This section will consider the economic, political and legal aspects of FDI and discuss their impact on environmental health.

4.1 International Investment Agreements and Environmental Health

FDI, like trade, operates within both a multilateral and a bilateral legal framework—sometimes within free trade agreements—that establishes the rights and obligations governing relationships between foreign investors and governments. International investment agreements, which are designed to invite and secure foreign investments, at least in principle have the potential to constrain national measures designed to further environmental health interests.

In North America, there has been concern that international investment agreements might provide a framework for foreign investors to challenge environmental regulations, given that NAFTA Chapter 11 strongly protects investors' rights. In considering regimes to protect investors' rights in new trade agreements such as CAFTA and the FTAA, it is helpful to be aware of the history of disputes raised under NAFTA, which suggest the desirability of considering mechanisms for insulating national measures designed to facilitate environmental health goals from inappropriate challenges.

4.1.1 NAFTA Chapter 11

Unlike the WTO and the trade in goods provisions of NAFTA, under which disputes can be commenced only by governmental parties, Chapter 11 of NAFTA establishes a mechanism for private party investors directly to initiate disputes against governments of NAFTA parties.²⁵ Under Chapter 11 foreign investors are assured that their investments will be protected from treatment that does not meet minimum international standards, discrimination, expropriation, or confiscation by host governments.

To date, Chapter 11 claims have amounted to considerable compensatory orders issued by adjudicative tribunals.²⁶ Many of the Chapter 11 disputes have been related to environment and natural resource management measures, “including cases involving hazardous waste management decisions, maintenance of clean drinking water, and gasoline additives barred in other jurisdictions” (IISD, 2001, 15). In these cases, foreign investors argue that environmental policies violate the rights that they are granted under Chapter 11. (See Box 4)

²⁵ Mexico, Canada, and the United States

²⁶ The precise number of cases is not publicly known. This is because under the Chapter 11 dispute resolution rules, there is no requirement to publicize a dispute. For further discussion of this point, see “Private Rights and Public Problems” at 42–46.

Box 4**Examples of Environmentally-Related NAFTA Chapter 11 Cases**

Company	Party	Issue
Ethyl Corp.	Canada	Import ban on gasoline additive MMT for environmental purposes
Metalclad Corp.	Mexico	State and municipal decision preventing the location of a hazardous waste facility
S.D. Myers	Canada	Temporary ban on PCB waste exports
Methanex Corp.	United States	State decision to increase controls on methanol emissions

Source: Adapted partially from Mann and von Moltke, 1999.

In article 1110, the prohibition of expropriation, has garnered the most attention in the conflict between investment and environmental health policies.²⁷ The Article provides the following:

Article 1110: Expropriation and Compensation

1. No Party may directly or indirectly nationalize or expropriate an investment of an investor of another Party in its territory or take a measure tantamount to nationalization or expropriation of such an investment (“expropriation”), except:
 - (a) for a public purpose;
 - (b) on a nondiscriminatory basis;
 - (c) in accordance with due process of law and Article 1105(1);²⁸ and
 - (d) on payment of compensation in accordance with paragraphs 2 through 6.

The Article does not define “expropriation” or “investment” and thus does not clearly distinguish between compensable expropriation and appropriate government action. Since the Article’s scope is not obvious, a proliferation of disputes has emerged. Chapter 11 features a regulatory exception, Article 1114, which establishes that NAFTA parties are entitled to enact measures to protect their domestic environments. Some argue that to clarify ambiguities in the Chapter, NAFTA parties need to draft an interpretative statement defining the scope of Chapter 11. An interpretive statement would serve as a means to clarify and reinforce the intended interpretations of the rights and obligations within the Chapter (Mann and von Moltke, 1999). This statement would support domestic governments’ entitlement to regulate without fear of compensatory orders in areas of domestic importance such as environmental health. In addition, Chapter 11 jurisprudence indicates that national governments are exposed to Chapter 11 claims when they attempt to introduce new environmental regulations that protect public health. This should be of particular concern for Latin American countries as they contemplate designing international free trade agreements that achieve both protection of the environment to guarantee a healthy life and investor’s rights.

²⁷ In addition to NAFTA article 1110 (expropriation), a number of the regulatory procedures challenges have relied in addition on article 1102 (national treatment) and article 1105 (minimum standard of treatment).

²⁸ Article 1105(1) requires minimal standards of treatment among NAFTA parties. For more information see the full text of NAFTA, available online at <http://www.nafta-sec-alena.org/DefaultSite/legal/index_e.aspx?articleid=160#A1105>.

4.1.2 Implications for Latin America and the Caribbean

NAFTA Chapter 11 disputes are relevant to Latin America and the Caribbean as they begin the process of ratification of CAFTA and as the negotiations of the FTAA advance. Both of these agreements feature sections on international investment rights and obligations. It is encouraging that the third draft of the FTAA features an elaborate section (Chapter 17) on investment that features a detailed ‘definitions section’, not included in NAFTA Chapter 11. The detailed definitions clarify the scope of the Chapter and thereby the infringement of investment rights onto environmental health.²⁹ However, CAFTA’s text is not quite as encouraging. The section on investment (Chapter 10) uses a language very similar to the language used in NAFTA Chapter 11. It does not include a ‘definitions section’; neither does it clarify the scope of the Chapter any more than is done in NAFTA.³⁰ It can be concluded that under CAFTA, Latin American and Caribbean governments would likely face the same issues in the environment and health sector that their North American counterparts are facing under NAFTA.

The possible impact of CAFTA on environmental health in Latin America and the Caribbean is illustrated by an ongoing dispute between the Government of Costa Rica and Harken Energy, a Texas-based oil company. The dispute arose when the government announced a moratorium on oil exploration and open-pit mining in Costa Rica. Harken, which allegedly had invested \$12 million on oil exploration, argues that the moratorium, which will force it to cease its operations in Costa Rica, will cost it up to \$57 billion in lost revenues. The National Technical Environmental Secretariat of Costa Rica (SETENA) in a public hearing decided a moratorium to be appropriate because of the lack of information in the environmental impact assessment regarding the scope of the area affected by the project, water pollution, and damage to marine ecosystems (Yáñez-Arancibia and Zárate Lomelí, 2002). Applying the precautionary principle and considering the potential impacts on health and the environment, the government argues that it is appropriate to prohibit further exploration. The case is currently on course to be decided through international arbitration.³¹

It is important to note that if the CAFTA provisions on investment were already in place, the Costa Rican government would have a weak legal case. In the absence of the ratification of investment provisions, the government is in a strong position and able to regulate environmental welfare by introducing the moratorium. The Harken dispute demonstrates the potential for investment disciplines to constrain national decision-making with respect to environmental health. Without commenting on the merits of this dispute or the consequences for foreign investment, it is reasonably clear that if the CAFTA disciplines on investment were already in place, the Costa Rican government would likely have a weaker legal case than it does now. Those provisions consequently could create a “chilling effect”, or act as a disincentive, for the government to regulate environmental welfare by introducing the moratorium in this situation or similar ones in the future.

4.2 Effects of FDI on Environmental Health in the Americas

The relationship between FDI and environmental health depends in part on the position foreign investors take towards the environmental objectives of the host country; this requires taking into consideration political and economic factors. The previous section discusses the role of host-country regulation potentially disciplined by international obligations related to foreign investment. This section, by contrast, addresses standards adopted by host-countries and foreign investors themselves, typically multinational corporations.

²⁹ To reference the full text of Chapter 17 of the FTAA, see <http://www.ftaa-alca.org/FTAADraft03/ChapterXVII_e.asp>.

³⁰ To reference the full text of CAFTA, see <http://ustr.gov/assets/Trade_Agreements/Bilateral/DR-CAFTA/DR-CAFTA_Final_Texts/asset_upload_file328_4718.pdf>.

³¹ See also Mark Engler and Nadia Martinez, *Oiled Again: Free trade agreement threatens Costa Rican environmental protections*. Available online at <<http://www.democracyuprising.com/articles/2004/oiled.php>>.

In many instances foreign investors are conscious of the environment and health implications in their operations. A number of factors explain this approach. In some cases, corporate traditions and policies counsel environmental consciousness and in the case of multinationals this translates into offshore operations in Latin-America. In the case of US multinationals with investments in other countries, US legislation is an incentive to protect the environment and has also brought to the public eye cases where there have been deficiencies in foreign operations, US corporations not protecting the environment abroad could, in principle, generate legal liabilities under the Alien Tort Claims Act (ATCA).³² Finally, technological and market-based factors also need to be considered.

Many multinational firms have very strict auditing procedures that cover issues such as environment and safety. Some firms have sustainable development policies³³ that consider the protection of life, health and the environment, looking at environmental protection as necessary for the health and safety of their employees and surrounding communities. In pursuit of the objectives set out in their sustainable development policies and other corporate government policies, foreign firms are constantly working to incorporate and develop environmentally friendly technologies in producing goods (Uceda, Brenes and Frias, [n.d.]). Policies such as these can provide a comparative advantage and can be a competitive tool that translates into enhanced business opportunities. Public perception and business partnerships are another incentive to uphold high environmental standards. Given that public companies do not want to be viewed as “environmental pariahs”, especially in the case of mining where community relations and partnerships are so important to operations (Uceda, 2004). (See Box 5)

Carlos Eduardo Frickmann Young, who studied foreign investment in the Brazilian timber industry, adds a related market-based argument. He argues that it is efficient for firms to employ environmentally friendly technologies:

[H]igher competition would close down companies operating with old and inefficient equipment. A more competitive atmosphere would force them to adopt modern methods of production, which tend to be more efficient in all respects, including environmental respects (in terms of emission avoidance and reduced wastage of raw materials). The reduction of barriers to FDI would favor the import of modern, state-of-the-art equipment. Since this machinery is developed to follow the more rigorous environmental standards of industrialized countries, the acquisition of this equipment would result in an overall improvement of the environmental performance of the importing country (Frickmann Young, 2004, 48-49)

To this extent, competition encourages utilization of environmentally conscious technologies. Young, like Uceda indicates that in many contexts there is a marriage between environmental and economic efficiency.

³² See 28 USC §1350. *Alien's action for tort* : “The district courts shall have original jurisdiction of any civil action by an alien for a tort only, committed in violation of the law of nations or a treaty of the United States.”

³³ See, for example, the following sustainable development reports: Falconbridge, Ltd, Sustainable Development Policy. Available online at <<http://www.falconbridge.com/>>., Noranda, Inc. Sustainable Development Policy, 2003. Available online at <<http://www.noranda.com/>>, and Working Responsibly At BHP Billiton: Health, Safety, Environment and Community Policy. Available online at <<http://www.bhpbilliton.com/bbContentRepository/Policies/HSECPolicy.pdf>>.

Box 5**US Multinationals and Environmental Health**

The Alien Tort Claims Act is a US Law that authorizes foreign individuals to bring certain tort suits in the federal courts of the United States. While this statute has been applied primarily to address human rights abuses, the business community has expressed concern that it might be utilized to seek monetary damages for U.S.-based multinationals' commercial activities in foreign jurisdictions. In *Aguinda v. Texaco*, 142 F. Supp.2d 534 (S.D.N.Y. 2001), *aff'd*, 303 F.3d 470 (2d Cir. 2002), residents of a region of Ecuador brought a class action in New York against an American oil company (Texaco) for environmental and personal injuries derived from the company's exploitation of the region's oil fields. Residents of Peru living downstream from that region brought a class action, *Jota v. Texaco*, asserting similar injuries resulting from these activities. According to the plaintiffs, Texaco released massive quantities of highly toxic petroleum wastes into waters people used for bathing, fishing, drinking, and cooking, and sprayed these wastes onto local roads. Those cases were dismissed. The plaintiffs in *Doe v. Unocal Corp.*, 110 F. Supp. 2d 1294 (C.D. Calif. 2000), *aff'd in part, rev'd in part*, 2002 WL 31063976 (9th Cir. Sept. 18, 2002), *reh'g en banc granted, vacated*, 2003 WL 359787 (9th Cir. Feb. 14, 2003), alleged that Unocal Corporation is liable for rape, murder, torture, forced labor and other abuses committed by the Burmese military during the construction of a gas pipeline. As of this writing, that case is still pending. The viability of these and other similar claims is uncertain after the recent decision of the United States Supreme Court in *Sosa v. Alvarez-Machain*, 124 S. Ct. 2739 (2004).

However, in instances where companies lack this entrenched tradition of environmental consciousness, and where market incentives do not encourage such consciousness, there is a temptation for firms to view Latin America and the Caribbean as *pollution havens*, which is a term of art referring to instances where “companies will move operations to developing countries to take advantage of less stringent environmental regulations” (Mabey and McNally, 1999, 5). According to the *pollution haven hypothesis*, “countries may purposely undervalue their environment in order to attract new investment.” (Mabey and McNally, 1999, 5). The result can be excessive pollution and environmental degradation committed by environmentally reckless firms.

Notwithstanding, the *pollution haven hypothesis* does not hold in all cases. Many scholars argue that the aggregate impact of FDI on environmental health depends on a variety of effects including: scale, structural, technological, and regulatory/policy effects. Scale effects refer to increases in environmental degradation that comes with increases in industrial production. Structural effects refer to changes in industrial practices. Technological effects refer to changes in technologies used by producers. Finally, regulatory/policy effects refer to policy changes that occur as a result of lobbying by foreign investors. In general, scale effects tend to have a negative impact on environmental health, whereas structural, technological and regulatory/policy effects tend to be positive. This is certainly not always the case. The magnitude of these very distinct effects will depend on the attitudes of foreign investors towards environmental health.

A study conducted by Grossman and Krueger indicates due to the North American Free Trade Agreement (NAFTA), Mexico received substantial FDI and, as a result, the scale of environmental degradation increased (Grossman and Krueger, 1993). Furthermore, a study conducted by Borregaard and Duffey shows that in the mining sector in Latin America “more investment will necessarily imply more environmental effect regarding the expansion of production” (Borregaard and Duffey, 2002, 11). This study, which focuses on Chile and Peru, found that air and water contamination increase as a result of growth in production spurred by FDI. Increased air and water contamination creates a variety of health hazards, including respiratory problems and malnutrition.

An additional case worth mentioning occurred in the Peruvian Andes involving the mining industry. As a result of mining activities in the Yanacocha mine, which began in 1992, serious air and water contamination occurred. “The local people described the water flowing downhill from the mine as having a foul odor and taste, appearing yellow or brown, carrying surface contaminants such as trash or sewage, and causing sickness to both animals and people” (Langdon, 2000). In addition to routine pollution, a serious mercury spill occurred on the mining site. This mercury was not cleaned properly and inhabitants of surrounding villages collected the metal, believing it to be valuable. Many of these people were hospitalized with symptoms of mercury poisoning, some of whom are still suffering from irreversible damage.

However, there are also examples of positive environmental impact by foreign investors, including instances where foreign firms design corporate sustainable development policies that govern firm conduct and satisfy corporate reporting requirements on environmental performance (Falconbridge, 2003). Furthermore, foreign investors in Latin America and the Caribbean often adhere to international environmental guidelines such as the International Standards Organization (ISO) standard 14001 in their production processes (Borregaard and Dufey, 2002, 10). These standards not only promote safety and environmentally sound practices but they also protect the health of workers and entire communities.

As discussed earlier with reference to FDI and improved technologies in the Brazilian timber industry, Frickmann Young concluded that “foreign owned companies tend to be more concerned with environmental issues, to invest more in “cleaning” their production processes, and to perceive the competitive advantages of environmental innovations” (Frickmann Young, 2004, 50). The practices employed by foreign companies made it more common to employ environmentally conscious production techniques (See Box 6). The result is decreased air pollution and water contamination and adoption of better management practices for waste disposal, both of which, it can be argued, translate into improved environmental health.

Box 6
Instances of Investment to Improve Productive Technologies in Latin America

Region/Country	Industry	Firm	Project
Peru	Mining	Southern Peru Copper	US\$445 million on modernizing the plant, improvement of tailing dams; this includes US\$135 million for a sulphuric acid plant
Peru	Mining	Sociedad Minera Cerro Verde	US\$485 million into new productive technologies
Brazil and Mexico	Automotive	Volkswagen	Large investments in waste water treatment
Colombia	Tanning	BCSD Colombia	Pollution cutting through implementation of cost-saving methods/technologies
Dominican Republic	Mining	Falconbridge	Construction of new dust-control system to reduce emissions

Sources: Borregaard and Dufey, 2002; BIAC, 1999; Falconbridge, 2003.

Finally, studies show that foreign firms lobby Latin American governments to adopt more stringent environmental regulations. For example, in Chile, foreign mining companies lobbied the Chilean

authorities to clarify and improve environmental regulations (Borregaard and Dufey, 2002, 17). Boregaard notes the following:

Positive effects from FDI in the mining sector lie especially in the upward pressure on domestic regulation, as illustrated in the Chilean case regarding the Environmental Impact Assessment system as well as decontamination plans (Borregaard, 2004, 19).

A paper by Maby and McNally for the World Wildlife Foundation (WWF) notes that the regulatory effect represents an important opportunity for foreign firms to engineer environmental improvement in host countries.

Higher quality FDI will support the development of host country regulation and improve the environmental performance of domestic industry, hopefully preventing any regulatory chilling by driving a “race to the top” in regulation and performance (Mabey and McNally, 1999, 7).

According to this hypothesis, foreign presence in host markets applies pressure on regulatory agencies to stiffen environment regulations. This pressure translates into more stringent environmental regulation and, correspondingly, improved environmental health. In addition, some international organizations have adopted non-binding guidelines addressed directly to private business as a source of corporate good practice standards.³⁴

Summary

The aggregate relationship between FDI and environmental health is still uncertain. The region has experienced both environmental benefits and degradation derived from FDI. The overall impact of FDI on environmental health will depend on the relationship between scale effects, and structural, technological and regulatory/policy effects. Ultimately, the magnitude of these effects will be determined by the attitudes that foreign investors take towards environmental health. The economic and political factors discussed previously are thus instructive of how a firm likely would behave and, correspondingly, how it would affect a host country’s environmental health.

³⁴ A good example is the Organization for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises, <<http://www.oecd.org/dataoecd/56/36/1922428.pdf>> , whose section V is devoted entirely to standards for multinationals in the area of the environment.

RECOMMENDATIONS

The increase in the exchange of goods, the provision of services, the sharing of information and technologies, and the migration of labor driven by trade expansion can greatly impact environmental and human health. In the Americas, the effect of agricultural expansion due to trade liberalization could be detrimental to the environment and to public health if sustainable practices are not implemented. Along with trade liberalization, governments involved in these negotiations should revise outdated agricultural legislation, enforce them rigorously, and make them available to the public. Recommendations to achieve this goal include encouraging producers to use environmentally friendly production processes; promoting and funding research on new biological pesticides in order to limit or eliminate the use of chemical pesticides; and monitoring more closely the application of national environmental laws.

Environmental contamination from pesticides, the spread of disease from industrial fisheries into wild populations, and the environmental degradation of estuarine ecosystems are but a few of the impacts that aquaculture industry has on environmental health. Governments should require that careful studies of impact to environmental and human health precede the construction of these practices, and that they remain effective over time (Boyd and Clay, 1998).

International exchange of fresh produce ignited by trade expansion will likely play a major role in the spread of diseases. It is essential that countries enforce the necessary regulations to avoid global outbreaks. The key challenge of food-borne disease lays in preventing the contamination of human food with sewage or animal manure and controlling contamination of feed and water consumed by the animals themselves (Tauxe, 1997).

The region has experienced both environmental benefits and degradation derived from FDI. The overall impact of foreign direct investment (FDI) on environmental and human health will depend on the relationship between scale effects, and structural, technological and regulatory/policy effects coupled with the attitude that foreign investors take towards environmental health.

The need to strengthen environmental institutions and to develop the environmental capacity of the governments of the region, together with a strong commitment from governments and stakeholders, are but a few first steps to achieve an equitable globalization in the Americas, particularly for developing countries and countries with economies in transition. Moving towards and achieving equitable globalization will be a step to get us closer to a successful achievement of the Millennium Development Goals.

ANNEX A

Selected WTO Agreements: Overview

The literature available to examine trade law and its impacts on public health and environmental policies is extensive. In order to examine the relationship between free trade and environmental health, this subsection provides a brief overview of the following WTO agreements³⁵:

- the General Agreement on Tariffs and Trade (GATT);
- the Agreement on Technical Barriers to Trade (TBT);
- the Agreement on Sanitary and Phytosanitary Measures (SPS);
- the General Agreement on Trade in Services (GATS); and
- the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)³⁶

General Agreement on Tariffs and Trade (GATT)

A number of key WTO principles were drawn from the original 1947 GATT (Jackson, 1997). The broad principles covering *trade in goods* are set out in the GATT, as well as in the TBT and SPS. The GATS sets out the broad principles covering *trade in services*. Both the GATT and GATS are complemented by thousands of pages of country-specific schedules of commitments relating to tariff levels or, in the case of agriculture, subsidies.

The two key principles set out in the GATT and the WTO agreement are the Most-Favored Nation (MFN) principle and the National Treatment principle. Under the GATT (Article I: Most-Favored Nation Treatment) and the WTO agreement, a country cannot discriminate among its trading partners. A right and obligation that is conveyed to one WTO partner must, under normal circumstances, be extended equally to all trading partners. For example, if country ‘A’ sets out in its schedule a tariff ceiling for medical equipment, or agrees to open its markets to vaccines or medicines, it must apply the same tariff ceiling to all Member countries of the WTO. This principle is also set out in the GATS (Article II) and in the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Article 4).

The principle of National Treatment (GATT Article III: National Treatment) requires that imported goods be treated no less well than “like” products produced domestically. This covers a range of measures ranging from ways in which goods are taxed, regulated, or inspected, to the competitive conditions and opportunities under which imported and domestically produced goods are treated. National treatment obligations under the GATT only apply after an imported good has entered the marketplace. Under the GATS, national treatment is not a general obligation and it applies only to sectors listed in the offers of individual Member countries.

³⁵ On 15 April 1994, following years of intensive negotiations under the GATT Uruguay Round, the final “Marrakesh Agreement” which launched the World Trade Organization was signed by Ministers from approximately 120 governments at a meeting held in Marrakesh, Morocco. The Agreement both introduced new disciplines, notably in agreements covering services, intellectual property rights and agriculture, as well as locked-in a timetable in over 30 other areas that had been under negotiation in the GATT for years. Examples of areas in the “built-in” agenda of the WTO include timetables covering intellectual property, agriculture, financial services, tariff bindings and textiles, apparel, and clothing.

³⁶ Although this Section examines briefly these WTO agreements, it is important to note that other WTO agreements – such as import licensing, subsidies and countervail measures, and prohibition of the use of export quotas may also affect public health policies. In addition, this section does not examine the relationship among the differing WTO agreements. It has been noted that, with the final push towards adopting the Uruguay Round, there was little attention paid by trade negotiators towards “the internal organization and hierarchy of WTO norms.” Indeed, it has been noted that a degree of intentional ambiguity in the language of different agreements was thought to increase the interpretative flexibility of those agreements. A decade later, it has become apparent that WTO panels and the appellate body have faced challenges in clearly defining the precise “legal parameters of the relationships among the provisions of different WTO agreements.” (Marceau and Trachtman, 2002).

In practice, both the GATT and WTO jurisprudence has involved the interpretation of the application of the MFN and National Treatment principles (Cottier and Mavroidis, 2000). As previously noted, the WTO allows Member countries to determine their own level of domestic public health, food safety, environmental regulations, and other laws. For instance, a WTO Member country can ban the import of a certain pesticide or chemical product if the country decides that it has an adverse impact on human or environmental health. Similarly, a WTO Member country can ban the import of fruits or vegetables that contain residues of banned pesticides and chemicals.

A joint report of the World Health Organization (WHO) and WTO notes that a Member country in undertaking such a ban in accordance with its domestic standards, the WTO also implies certain conditions. The report notes that an import ban:

...is a perfectly legitimate health concern translated into a regulatory action at the border, which, if applied in a non-discriminatory way, and based on scientific principles, is a justifiable trade barrier under WTO rules. In respect of discrimination, if the intention is to protect the consumer, it should not matter where the health risk originates, unless there is evidence that some countries have a higher level of risk (WHO – WTO, 2002).

The interpretation of the MFN and National Treatment principles has involved the elaboration of several key concepts including, “like products.”³⁷ In order to apply national treatment obligations, products must be determined to be “like”. Products that are unlike one another can be differentiated in tariff schedules and other market access commitments. Although this section does not allow sufficient room to discuss the evolution of the “like product” concept in WTO jurisprudence, the WHO-WTO joint 2002 study concludes that:

...even if imported product ‘A’ and domestic product ‘B’ are alike in many other respects, if imported product ‘A’ creates health risks that domestic product ‘B’ does not, it would be consistent with National Treatment under the GATT to ban or restrict [the importation of] A but not B (Howse, 2002).

In addition, the GATT contains general exceptions. In principle, the GATT allows Member countries to take measures that restrict the import and export of products when those measures are necessary to protect human, animal or plant life or health [GATT Article XX(b)], or the measures are related to the conservation of exhaustible natural resources [GATT Article XX(g)]. To invoke these exceptions, a WTO Member state must demonstrate that, in the case of human, animal or plant life or health, the measure is “necessary,”³⁸ or, in the case of exhaustible natural resources, the measure “relate[s] to...conservation.”³⁹

³⁷ Related to the like product debate within the WTO is the distinction in GATT law between products, and production process methods. For a recent commentary on product versus production processes, see John H. Jackson (2000), “Comments on Shrimp/Turtle and the Product/Process Distinction,” in *European Journal of International Law*, Vol. 11, Issue 2.

³⁸ An action is considered necessary if an alternative action that could be compatible with the public health or environmental objectives would not guarantee the required level of protection. The necessary test is satisfied so long as suggested alternatives are not reasonably available by reference to whether a proposed alternative contributes to the realization of the end pursued as identified by the Member maintaining the measure, see for example the recent decisions of the WTO Appellate Body in *Korea – Various Measures on Beef* and *EC-Asbestos*. In *Korea Beef*, the Appellate Body said that “[t]he more vital or important [the] common interests or values’ pursued, the easier it would be to accept as ‘necessary’ measures designed to achieve those ends.” This language suggests that the “necessary” test in Article XX(b) is considerably less rigorous than perhaps asserted by proponents of, for example, a “least trade-restrictive” test. Presumably public and environmental health will always satisfy the “vital or important...common interests” criterion.

³⁹ For a non-exhaustive reference to WTO jurisprudence, see *inter alia*, WTO Dispute panel and Appellate Body reports including *United States-Standards for Reformulated and Conventional Gasoline* [WT/DS2/AB/R (29/04/1996)], and *United States-Import Prohibition of Certain Shrimp Products* [WT/DS58/AB/R (12/10/1998)].

Agreement on Technical Barriers to Trade (TBT)

The Technical Barriers to Trade Agreement (TBT) seeks to ensure that regulations, standards, testing and certification procedures covering goods do not create unnecessary obstacles to international trade. The TBT Agreement recognizes that Member countries retain the right to adopt levels of standards they consider necessary to protect both the life and health of humans, and the health of the natural environment. The TBT Agreement is also intended to reduce distortions in trade, since multiple technical standards among the 147 WTO trading partners can lead to that kind of disruption.

The TBT Agreement encourages WTO Members to adopt international standards where appropriate. The most prevalent example of WTO-consistent international technical standards is contained in the International Organization for Standardization (ISO), referenced in the TBT Agreement. One example of ISO standards that involve environmental management is the ISO 14,000 series.⁴⁰ At the same time, the TBT does not require countries to adopt international standards if the net result impacts domestic health or environmental protection.

If a WTO Member decides to maintain its own level of domestic technical regulations or standards that do not comply with international standards, then the country must provide an advance notice to its trading partners of the technical standards, as well as allow the trading partners the opportunity to provide comments on those standards.

There has been very little Appellate Body jurisprudence under the TBT Agreement. Environment-related notifications represent one of the most important areas of TBT notifications. In 2000, environment-related TBT notifications comprised 15.2 percent of all TBT notifications.⁴¹ Examples of environment-related TBT notifications submitted by Member countries include those related to engine performance standards (including standards related to energy efficiency), the use of genetically modified organisms and biotechnology, organic agriculture, pesticides, fertilizers, wastes, ozone-depleting substances, hazardous materials and environmental and eco-taxes⁴² (See Box A-1). Compared with the SPS Agreement, the TBT Agreement relies much less on science.

Agreement on Sanitary and Phytosanitary Measures (SPS)

The SPS Agreement aims to create a set of multilateral trade rules that allows for the legitimate use of trade measures to protect public health and the environment from pests, diseases, and contaminants, primarily as they relate to traded agricultural goods. These measures include quarantine requirements for imported agricultural products, maximum allowable pesticide and other chemical residue for fruits and vegetables, and import restrictions and/or bans on certain imported food products that contain contaminants or additives. The SPS Agreement is intended to reduce or eliminate trade distortions that arise from SPS measures by promoting transparency, mutual recognition and equivalency of non-uniform but similar measures⁴³, and encouraging the convergence of regulations towards uniform international standards (Peel, 2004).

⁴⁰ In addition, the TBT Agreement contains a Code of Good Practice outlining procedures for preparing, adopting, and applying technical standards. It also sets out provisions describing how sub-federal entities and non-governmental bodies should apply their own technical regulations.

⁴¹ WTO Secretariat, Committee on Trade and Environment, *Environmental Database for 2000* WT/CTE/W/195. The database is highly useful in compiling environment-related notifications from the more than 100 different notification requirements set out in different WTO agreements. The last year for which figures have been published was 2000.

⁴² *Ibid.*

⁴³ For example, the SPS Agreement assumes that a WTO Members would accept the sanitary and phytosanitary measures of others as equivalent if the exporting country demonstrates to the importing country that its measures achieve the importing

Box A-1**Examples of Environment-Related TBT Notifications (Americas)**

COUNTRY	MEASURE OR PRODUCT	OBJECTIVE
Colombia	Requirements for imports of ozone-depleting substances (CFCs) and banning their production.	To protect the environment.
El Salvador	Compulsory standard establishing permissible limits for air contaminants from fixed and mobile sources, as well as limits for ambient air quality.	To protect the environment (among others).
Peru	Regulations on registration and control of chemical pesticides for agricultural use.	To protect the environment by reducing the risk of using pesticides (among others).

Source: WT/CTE/W/195 <<http://docsonline.wto.org/DDFDocuments/t/WT/CTE/W/195.doc>>.

In order to harmonize sanitary and phytosanitary measures, WTO Member countries are encouraged to base these measures on existing international standards, guidelines, and recommendations. For instance, the SPS Agreement refers to standards adopted in the Codex Alimentarius Commission for SPS measures dealing with food safety.⁴⁴

WTO Members may also retain or introduce new measures that diverge from the ones contained in international standards and that can result in stringent standards, provided that the domestic SPS measures have a scientific justification,⁴⁵ and are based on thorough and consistent risk assessment procedures.⁴⁶ The risk assessment “shall take into account available scientific evidence along with a range of other factors, including ecological and environmental conditions.”⁴⁷ The Agreement outlines procedures and criteria to determine if the risk assessment procedures are legitimate. The risk assessment is intended to provide a clear, systematic, and objective evaluation of the impacts traded products, such as pesticides, industrial chemicals, and genetically modified organisms, may exert on both public health and the environment (Janaoff, 1990). Annex A of the SPS Agreement contains the definition of risk assessment:

The evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary and phytosanitary measures which might be applied, and of the associated potential biological and economic consequences; or the evaluation of the *potential for adverse effects on human*

country’s appropriate level of health protection. The agreement includes provisions on control, inspection and approval procedures.

⁴⁴ Codex Alimentarius Commission exists as a joint FAO/WHO body.

⁴⁵ Criteria explaining scientific justification are outlined in SPS Article 5.

⁴⁶ According to Article 2.2 of the SPS Agreement, justification for risk assessment must be based on scientific principles and demonstrate sufficient scientific evidence. (Sanitary and Phytosanitary Agreement, Article 2.2, available online at <http://www.wto.org/english/docs_e/legal_e/legal_e.htm>).

⁴⁷ In accordance with WTO jurisprudence generally, the *EC-Hormones* Appellate Body report noted that specific determinations of measures based on science are done on a “case-by-case basis, after account is taken of all considerations rationally bearing upon the issues of potential health effects.” The Appellate Body report noted that “risk assessment could set out both the prevailing view representing the ‘mainstream’ of scientific opinion, as well as the opinions of scientists taking a divergent view. Article 5.1 does not require that the risk assessment must necessarily embody only the view of the majority of the scientific community.”

or animal health arising from the presence of additives, contaminants, toxins or disease-causing organisms in food, beverages, or feedstuffs.⁴⁸

As in the TBT Agreement, WTO Members are obliged to notify their trading partners of SPS measures that are not based on Codex Alimentarius or other international standards. In 2000, 468 notifications were issued under the SPS agreement, all of which were environment and safety-related.⁴⁹ Examples of such notifications are noted in Box A-2.

Among the highest profile cases in international trade law involving SPS rules figures the EC-Measures Concerning Meat and Meat Products (Hormones). The risk assessment and the scientific justification for the use of trade measures of this case were examined by both the WTO Dispute Body and the subsequent Appellate Body. Their reports on the case still have an impact on international commercial relations, specifically the extent to which precautionary measures are compatible with trade rules. This case underscores the simple but contentious reality that consumers may prefer foods that are free of hormones or not delineated from biotechnology-enhanced foods no matter what scientific evaluations conclude” (Roberts, 1998). Underlying to the WTO case about hormones is whether or not the market on its own provides sufficient information on both the product characteristics – such as the presence of pesticide residues – and the production characteristics –organic, GMO-free –. Labeling allows consumers to gain access

Box A-2
Examples of SPS Notifications (Americas)

COUNTRY	MEASURE OR PRODUCT	OBJECTIVE
Chile	Requirement to carry out a health study on the environmental health impact for eggs of salmonidae from Canada, Denmark, Scotland, United States, Finland, Ireland, Iceland, Norway, Sweden and other exporting countries.	Animal health
Mexico	Mexican Standard for Environmental Health, Water for Human Use and Consumption that must be met by germicides for water treatment.	Human health
Peru	Regulations on registration and control of chemical pesticides for agricultural use.	To prevent damage to the environment and protect human health

Source: WT/CTE/W/195 <<http://docsonline.wto.org/DDFDocuments/t/WT/CTE/W/195.doc>>.

to product-related information. Although labeling and certification are permitted in several WTO Agreements, WTO Members have expressed caution as to whether such labels may create *de facto* discrimination by treating non-labeled products as less commercially favorable.

⁴⁸ Available online at <http://www.wto.org/english/docs_e/legal_e/legal_e.htm>.

⁴⁹ WT/CTE/W/195, *supra* note 40.

General Agreement on Trade in Services (GATS)

The GATS was introduced at the Uruguay Round of WTO negotiations and is a recent innovation in trade law, since until then services were not included in trade liberalization agreements. Because GATS has been in existence for such a short time, its impact on environmental health is less certain. Therefore, this section discusses its potential effects rather than experienced effects.

Commitments under GATS are made by a “positive list” approach. This approach involves the selection of sectors and modes⁵⁰ that are open for liberalization by a given country. Only those sectors and modes chosen are subject to liberalization. Services of particular concern are grouped within the GATS⁵¹ under environmental services including sewage services, refuse disposal services, sanitation, and similar services. In addition, several countries have submitted commitments under the GATS that relate to public health and to environmental services.⁵² When Member countries make commitments to liberalize health and environmental services sectors, they create the potential for knowledge sharing and trade in service that could lead to greater efficiencies in these areas. (See Box A-3)

Agreement on Aspects of Trade-Related Intellectual Property Rights (TRIPS)

Like the GATS, TRIPS was established at the Uruguay Round and its effects cannot yet be determined. The TRIPS Agreement is intended to facilitate trade in goods and property subject to the protection of patent, trademark, and copyright laws by creating internationally-recognized minimum standards for intellectual property rights. However, TRIPS has the potential to be used to improve and protect environmental health since it enables countries to share environment-related ideas and techniques including conservation of resources, waste disposal, and pollution control. Angus Deaton (2004), in a paper for the Center for Health and Well-being, notes the following:

Health and life-expectancy of the vast majority of mankind, whether they live in rich or poor countries, depends on ideas developed elsewhere, so that it is the spread of ideas and techniques that is the fundamental determinant of population health (Deaton, 2004).

Although TRIPS presents tremendous potential for knowledge exchange, the agreement also creates barriers to sharing ideas and techniques. An example of the relationship between intellectual property rights and human health are patented pollution control technologies or patented alternatives to chlorofluorocarbons, and the ongoing dispute between developing countries and pharmaceutical companies over patented medicines. Developing countries argue that drugs are prohibitively expensive and that as a result they cannot afford to purchase life-saving medications. On their part, pharmaceutical companies reject compulsory licensing schemes and violations of their patent rights. Resolving the tension between human health and intellectual property rights is a serious challenge for TRIPS and its supporters. Examples

Nonetheless, TRIPS’ supporters suggest that the Agreement is sufficiently flexible to handle such a challenge. They argue that Article 8, which permits countries to adopt measures necessary to protect

⁵⁰ GATS modes are the ways in which services are traded. The modes under GATS are: (1) cross-border trade in services; (2) consumption of services abroad; (3) commercial presence; and (4) temporary presence of natural persons. Countries can liberalize different modes at different paces.

⁵¹ See w/120/CPC

⁵² The examples of commitments disclosed in the box below are not intended to be comprehensive. In some cases the commitments include exemptions with respect to certain modes of the described sectors. For a full display of the commitments and their associated exemptions, see <<http://tsdb.wto.org/wto/WTOHomepublic.htm>>.

public health and nutrition,⁵³ provides the legal mechanism to balance drug affordability and accessibility with patent interests, and the need to incentivize companies that invest in research to discover new drugs. In a statement that indicates a willingness to adapt the TRIPS Agreement in a way that would support health interests in developing countries, and in responding to concerns from these countries, the Doha Ministerial Declaration⁵⁴ identified the need to increase the flexibility⁵⁵ of the TRIPS agreement:

We agree that the TRIPS Agreement does not and should not prevent Members from taking measures to **protect public health**. Accordingly, while reiterating our commitment to the TRIPS Agreement, we affirm that the Agreement can and should be interpreted implemented in a manner supportive of WTO Members' right to protect public health and, in particular, to promote access to medicines for all.

Box A-3
Examples of Health and Environmental Commitments Made by Countries in the Americas under GATS

Service Sector	Countries Committed to Liberalization
Hospital Services	Bolivia, Costa Rica, Ecuador, Panama, Dominican Republic, Jamaica, Saint Lucia, St. Vincent and the Grenadines, Trinidad and Tobago.
Medical & Dental Services	Costa Rica
Private Hospital Services	Mexico
Environmental Impact Studies	Colombia
Sewage & Refuse Disposal Services	Ecuador, Canada, United States
Sanitation & Similar Services	Ecuador, Canada, United States

Source: <<http://tsdb.wto.org/wto/WTOHomepublic.htm>>

Despite the concessions and exemptions that have been made, compliance with TRIPS is still costly for developing countries. According to one analyst, TRIPS requirements represent a net cost to developing countries of US\$5 billion in terms of the cost of compliance (Finger and Schuler, eds., 2004). The welfare losses associated with TRIPS requirements in the area of patented drugs are particularly large. The issue over patented drugs illustrates the conflict that TRIPS faces. Nevertheless, it must be recognized that the Agreement has the potential for stimulating more knowledge sharing in the areas of environmental health technologies. The sharing of ideas and technologies could lead to massive improvements in environmental health in Latin America.

The WTO Council for TRIPS held sessions in June and September 2001 in Doha, Qatar to resolve the issue of access to medicines. Following the negotiations, Ministers adopted a Declaration on the TRIPS Agreement and Public Health. The Doha Declaration indicates the importance that WTO Members

⁵³ Trade-Related Aspects of IPR (TRIPS), Annex 1 C of the Marrakesh Agreement establishing the WTO, Article 8, available online at <http://www.wto.org/english/docs_e/legal_e/legal_e.htm>.

⁵⁴ The Doha Declaration captures the middle ground between the positions adopted by developing and developed countries. It embodies commitment to patent protection for the development of new drugs and to availability of these drugs for indigent populations. Although the TRIPS Agreement does not define what constitutes a national emergency or other circumstance of extreme urgency, the Doha Declaration does specify that HIV/AIDS, tuberculosis, malaria, and other epidemics are all instances of public health crises that can represent national emergencies or other circumstances of extreme urgency.

⁵⁵ Areas of flexibility identified in the Doha decision include domestic governments' powers to: (a) grant compulsory licenses; (b) determine the grounds for such grants; (c) determine what constitutes a national emergency or circumstances of extreme urgency, such as public health crises relating to HIV/AIDS, tuberculosis, malaria, and other epidemics.

ascribe to effectively addressing public health concerns, especially epidemic disease. The declaration includes a decision in support of WTO Members' rights to take measures to protect public health and clarifies provisions on compulsory licensing and exhaustion of Intellectual Property Rights (Abbott, 2002). It states, *inter alia*, that Article 31 of the TRIPS Agreement does not limit the grounds on which Members may grant compulsory licenses, and that each Member has discretion to determine the existence of a public health emergency (Abbott, 2002), that the TRIPS Agreement permits each Member to adopt its own policies and rules regarding the exhaustion of Intellectual Property Rights and parallel trade (Abbott, 2002).

The Declaration also states that "the TRIPS Agreement does not and should not prevent Members from taking measures to protect public health. Accordingly, while reiterating our commitment to the TRIPS Agreement, we affirm that the Agreement can and should be interpreted and implemented in a manner supportive of WTO Members' right to protect public health and, in particular, to promote access to medicines for all."⁵⁶ The Declaration acknowledges that HIV/AIDS, tuberculosis, malaria, and other epidemics are grave public health problems afflicting developing countries. It also reaffirms "the right of the WTO Members to use, to the full, the provisions in the TRIPS Agreement, which provide flexibility for this purpose."⁵⁷

⁵⁶ Declaration on the TRIPS Agreement and Public Health, WT/MIN(01)/Dec/2 P4 (Nov. 14, 2001), available online at <http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.pdf>. (cited November 2003)

⁵⁷ *Ibid.*

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