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25

Technical Handbook

Trade and Environment Issues

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INTRODUCTION

At the beginning of the 1970s, a large number of developed countries began to express concern over the environmental degradation that was affecting the planet, particularly the problems stemming from industrial pollution. During the 1980s interest in environmental issues intensified as problems of much greater proportions and of a global scale emerged, such as the depletion of the ozone layer and climate change. During the 1990s, the concept of sustainable development incorporated the environmental concerns of previous decades, but in a much broader sense; moreover, the globalization and integration processes of the world economy accelerated. It is precisely in this specific context that the relationship between trade and environment becomes obvious.

According to economic theory, international trade contributes to countries' economic growth and generates greater well-being; however, the debate regarding the best way to reconcile trade goals and environmental goals has shown how difficult it is to draw generalized conclusions.

In fact, there are many arguments in favor of and against international trade, as well as ways of assessing its possible effects on the environment. On the one hand, there are some ecologist groups who argue that trade liberalization is one of the main causes of environmental degradation problems, since it contributes to economic growth and increases world demand for natural resources. On the other hand, there are those who defend the liberalization of world trade with the argument that, in the long term, trade will have positive effects on the environment. They also insist that the growth of international trade will translate into higher income levels, resulting in increased demand for better environmental quality, which in turn will translate into stricter environmental standards and regulations and a greater willingness to pay for goods produced in environmentally-friendly conditions.

Between these two extreme positions there is an intermediate one, closer to the concept of sustainable development, which argues that growth driven by trade must be accompanied by appropriate policies and strict environmental protection rules to halt the degradation and depletion of the oceans, the atmosphere, freshwater resources, species, the soil and the climate. The defenders of this position, without rejecting free trade outright, tend to favor the inclusion of restrictions in multilateral negotiations as a means to control the destruction of resources and protect consumers from the import of hazardous products. This position recognizes that international trade can contribute to a more efficient and sustainable use of global resources, providing that the prices of these resources reflect the costs of actions that damage the environment. Equally, it recognizes that trade and investment can serve to increase the transfer of clean technologies that reduce the negative impact of production and consumption.

The linkage between trade and the environment is of particular importance in agriculture. Agriculture is the economic sector that is most directly related to the use of natural resources, especially water and soil. Agricultural productivity - especially in traditional agriculture - is closely linked to the use of those resources, along with other environmental services derived from biodiversity, such as pollination. Moreover, the expansion of agriculture is often accompanied by changes in land use, which imply the conversion of forests and environmentally sensitive lands. Agriculture is therefore a sector with potentially significant negative environmental impacts, which could be further increased in open trade processes that promote their expansion.

The relationship between trade and the environment is crucial for countries whose exports depend significantly on agriculture. This is especially true when those exports are destined for markets in developed countries, where environmental concerns are generally greater and are increasingly expressed in demands for healthier, safer products, produced in harmony with the environment.

The above situation poses significant challenges for the Latin American and Caribbean countries whose export

base is essentially agricultural. This requires a repositioning of agriculture based on a holistic vision of development that contemplates production-trade and ecological-environmental aspects in an integrated manner, and that also takes into account the socio-cultural, human and political-institutional aspects. Ultimately, the goal is the sustainable development of agriculture.

With the publication of this document, the Inter-American Institute for Cooperation on Agriculture (IICA) aims to contribute elements to help address the challenges involved in accomplishing this goal. This handbook seeks to provide systematized information and knowledge on trade and environment issues related to agriculture of interest to professionals and decision-makers who are new to this subject. Chapter 1 addresses general aspects of the effects of trade on the environment. Chapter 2 discusses the treatment of environmental issues in traditional and modern theories of international trade. Chapters 3 and 4 review the trade-related aspects of environmental policy and the environmental aspects of trade policy, respectively. Emphasis is placed on Multilateral Environmental Agreements (MEAs) of importance to international trade and to the treatment of environmental issues in trade policy. Chapter 5 discusses the compatibility between both types of policies and the way in which environmental issues are addressed in some free trade agreements. Finally, Chapter 6 offers some final comments and conclusions.

CHAPTER

1

The Effects of Trade on the Environment

The effects of trade on the environment have been classified in different ways. In its first work on the subject, the Organization for Economic Development and Cooperation (OECD) distinguished between effects of product, effects of scale and structural effects (OECD, 1994a). Later, the OECD proposed five types of effects: product, scale, structural, technological, and regulatory (OECD, 1994b). Although this classifies the effects of trade on the environment more broadly and completely, Abler and Shortle (1998) refute this, since they believe that the effects of product are accounted for twice and that the effects of environmental regulations are not included. The alternative classification proposed by Abler and Shortle (1998) includes the following effects: a) combination effects; b) scale effects; c) externality effects; d) technological effects; and e) policy effects. These effects are described below. The model proposed by Abler and Shortle (1998) to break down and analyze these effects is based on an economy divided into two sectors: agricultural and non-agricultural.

1.1 Combination effects

Combination effects (*mixed effects*) are environmental impacts derived from the change in the relationship between products produced and consumed that occurs as an outcome of international trade, maintaining the scale of economic activity constant. Combination effects can be positive or negative, depending on the relative impact that changes in production in each sector might have on the total *stock* of environmental capital (Abler and Shortle, 1998). This means that combination effects capture the environmental impact of the readjustment of the sectors that comprise the Gross Domestic Product (GDP), occurring as a result of international trade.

If international trade causes a reduction in agricultural production with respect to non-agricultural production and if the agricultural sector pollutes less, then, the environmental impact of the combination effect of products

is negative; by contrast, if the agricultural sector pollutes more, the environmental effect is positive.

1.2 Effects of scale

Effects of scale refer to the environmental impacts derived from changes in the scale of economic activity as a result of international trade, keeping constant the combination of goods produced. Increased international trade increases the scale of economic activity in all sectors; therefore, the environmental impact of the effects of scale is always negative (Abler and Shortle, 1998). In fact, environmental impacts due to the effects of scale justify the introduction of environmental policies.

Combination and scale effects assume that the impact of environmental externalities and other externalities in production and consumption is maintained constant, as well as the impact of changes on policies and on the technologies used in production (Abler and Shortle, 1998).

1.3 Effects of negative externalities [1]

The effects of externalities capture feedback effects on production and consumption that occur as a result of the environmental externalities and other externalities caused by production and consumption (Abler and Shortle, 1998). These feedback effects generate more environmental impacts in addition to those produced by the combination and scale effects.

In the model proposed by Abler and Shortle (1998), it is assumed that only environmental externalities exist and that these are stronger in the sector that pollutes the most. Under these conditions, the environmental impact of the externalities occurs in the same direction as the environmental impact of combination and scale effects.

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[1] When the term "externalities" is mentioned in this document, we are referring to negative externalities. When dealing with positive externalities, we indicate this explicitly.

Nevertheless, other types of externalities may occur in production, due to the effects that some sectors have over others that are not captured by the price system; moreover, externalities may also occur in consumption, such as the generation of solid wastes and emissions. All these externalities generate environmental impacts that are not reflected in the combination and scale effects.

1.4 Technological effects

Technological effects refer to the impacts that trade has on the environment through the creation and adoption of new products, new productive processes or new technologies for reducing pollution.

In fact, international trade can bring about technological changes that have simultaneous environmental repercussions. Abler and Shortle (1998) mention four reasons why these changes occur. In the first place, international trade can lead to the international dissemination of highly varied technologies, including those that do not harm the environment. In the second place, by increasing the potential size of markets, trade can place companies in a better position to take advantage of economies of scale in research and development. In the third place, by changing the relative prices of products, trade alters incentives for research in different sectors, because the rate of return on research efforts aimed at increasing production depends positively on the price of products; for example, if trade reduces the relative prices of agricultural products, it also reduces incentives for agricultural research (in relation to incentives for non-agricultural research). Finally, changes in the relative prices of products can affect the relative prices of production factors, which in turn generate changes in the proportion in which those factors are used in different sectors of the economy.

1.5 Policy effects

Policy effects refer to the environmental impacts stemming from changes in environmental policies and other public policies that occur as a result of international trade. In

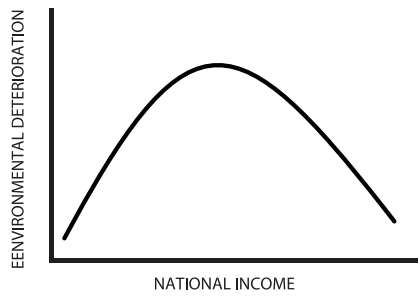
other words, the increase in international trade prompts the introduction or re-directing of policies and these in turn have environmental impacts. This argument refers to the effects of trade on policies and not on environmental changes or changes in international trade that occur in response to environmental policies.

1.6 The Environmental Kuznets Curve

1.6.1 Bases of the Environmental Kuznets Curve hypothesis

What happens with environmental degradation when income levels increase? This relationship between level of income and environmental degradation has been studied using the so-called Environmental Kuznets Curve [2] (EKC). According to the EKC hypothesis, the relationship between economic growth and environmental degradation is an inverted U (0); it proposes that demand for better environmental quality increases with increasing *per capita* income.

Figure 1. Environmental Kuznets Curve Hypothesis

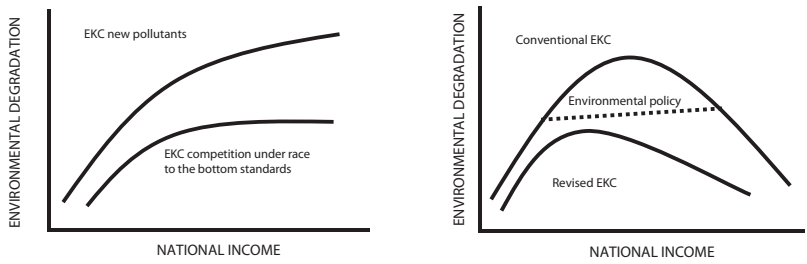


[2] In honor of Simon Kuznets, who originally proposed the existence of an inverted U relationship between the economic growth of countries and inequality in the distribution of income (Kuznets, 1955).

Several explanations have been offered for the relationship proposed in the EKC hypothesis from an economic theory point of view, including: a) the displacement of externalities, through the re-localization of the economic activities that generate them (*shiftable externalities*); b) changes in the composition of economic activities (the combination effect mentioned in section 1.1); c) greater technological efficiency; d) the impact of improvements on environmental regulation; and e) the presence of changes or differences in trade policy regimes (Cavlovic and others, 2000).

The relationship proposed in the EKC hypothesis has been refuted conceptually and empirically. In fact, other alternatives for the relationship between environmental degradation and *per capita* income have been suggested. For example, Dasgupta and others (2002) propose three other possibilities: a) a negative vision, which proposes the constant increase of environmental degradation in the case of the so-called "new pollutants," due to the continuous creation of new, unregulated pollutants with considerable toxic potential; b) an optimist vision, called "EKC revised,"

Figure 2. Alternatives to the EKC and the role of environmental policy.



Source: From Dasgupta and others (2002).

which proposes that growth will generate lower levels of pollution in the initial stages of development, thus reducing pollution to the lower income levels; and c) an intermediate position, in which levels of environmental degradation reach stable levels, without the possibility of significant reduction, because competition between countries leads to the leveling of environmental standards in a *race to the bottom* (see Figure 2).

The evidence that supports and refutes the EKC hypothesis is important for discussions about trade and environment, since it forms the basis of arguments over whether international trade has a long term, positive impact on environmental quality –assuming that national income levels increase as a result of international trade.

1.6.2 Empirical evidence for the Environmental Kuznets Curve

The empirical dispute over the EKC hypothesis has generally focused on establishing whether the relationship occurs for different types of pollutants. The results are mixed and basically show that it is not possible to reach generalized conclusions.

In a study on industrial water pollution, Hettige and others (2000) concluded that this pollution increases rapidly (to *per capita* income levels between US$5,000 and US$7,000 approximately) and then it remains relatively constant. This result, which rejects the EKC hypothesis, is derived from a compound index of water pollution. However, the relationship changes significantly when a measure based on discharges at the source (*End of Pipe Pollution*) is the only one used: in this case pollution intensity is reduced significantly and permanently with increasing *per capita* income.

Another important aspect of the empirical studies of the EKC is the determination of the income levels at which pollution begins to be reduced (*Income Turning Points*). Cavlovic and others (2000) used meta-analysis methodology to predict those income levels for 11 pollutants, using results obtained from other studies. Their results show that the income levels

at which the turning point occurs - when it actually happens- can be quite high with respect to the average per capita income level of most developing countries. For example, they are very elevated in the case of hazardous residues (more than US$20,000), carbon dioxide (more than US$25,000) and other pollutants derived from contamination (nearly US$20,000). By contrast, environmental degradation problems that start to become reduced at lower income levels are particulate air pollution (around US$1,600), toxic emissions pollution (around US$1,900), deforestation (around US$2,800), urban air pollution from smoke (around US$4,500), and urban water treatment aspects (water for human consumption and fecal coliforms) (around US$4,500).

The above results support the conclusions of other authors (e.g. Rothman and Bruyn, 1998; Dasgupta and others, 2002), that the pollutants that confirm the EKC hypothesis, at income levels relevant for developing countries, are those that have important effects on public health and whose reduction would not require considerable resources.

1.6.3 The Environmental Kuznets Curve and the Pollution Haven Hypothesis.

One important critical element of the EKC is the *pollution haven hypothesis (PHH)*. This hypothesis states that as restrictions to trade and foreign investment are reduced, polluting economic activities may move from countries with strong environmental regulations to countries with weak or non-existent environmental regulations; moreover, countries may promote environmental regulations that are not very stringent as a strategy for attracting investment to those areas. The PHH would explain the conventional form of the EKC in developed countries, as they would specialize in services and light manufacturing and progressively abandon heavy industries; however, it questions whether this relationship could occur in developing countries, since these do not have anywhere to displace their production, especially the production derived from their growing specialization in heavy industries (Cole, 2004). One important implication of the PHH is that economic growth is not necessarily a remedy for reducing environmental

pollution in developing countries. However, the empirical evidence does not conclusively support –or disprove– the PHH. In a study of trade flows of pollution-intensive products between developed and developing countries, Cole (2004) found evidence of the existence of pollution havens; however, he emphasized that the effects do not appear to be very widespread; in contrast, when these phenomena occur, they appear to be limited to specific regions and products.

1.6.4 The Environmental Kuznets Curve and measures to reduce environmental degradation

Dasgupta and others (2002) point out that for the reduction of environmental degradation proposed by the EKC to occur at lower income levels and for maximum levels of pollution to be reduced, it is essential that the largest number possible of economic and social actors react to economic growth and its positive effects (e.g. greater citizen awareness). They emphasize that recent empirical evidence supports this assertion and the possibility that developing countries effectively achieve significant reductions in environmental degradation (EKC revised).

One of the first options available to countries trying to achieve this objective is environmental regulation. This alternative is important given the lack of conclusive empirical evidence for rejecting the PHH. In fact, environmental regulation has been identified as the dominant factor for reducing environmental degradation, when countries exceed a certain level of middle income (Dasgupta and others, 2002).

Other alternatives mentioned by Dasgupta and others (2002) that would complement traditional environmental regulation, include: a) pressure by market agents (e.g. financial system, consumers); b) improvements in environmental regulation methods, for example, focusing efforts on factors that cause greater environmental problems or introducing instruments that allow more market-driven regulation, instead of traditional regulation using a command and control approach; and c) improving information channels and collaboration between the public sector and the private sector (these topics are discussed in detail in Section 3).

These authors also evaluate possibilities stemming from trade liberalization. Their main conclusion in this regard is that total pollution may increase if environmental regulation is not strengthened.

All these actions can be implemented in the context of countries' environmental policy. Their main objective is to prevent increased levels of pollution, which occur when countries achieve medium income levels; alternatively, they would seek to promote significant changes in the production structure, which would lead to changes in the relationship proposed in the conventional EKC, in the direction established by the revised EKC (Figure 2).

CHAPTER 2

The Environment in International Trade Models

Modern economic theory has developed several approaches to explain the benefits of international commercial exchange. On the one hand, we have the so-called, traditional approach, based on the work of the Swedish economists Bertil Ohlin and Eli Hecksher, and on the other, the alternative approaches or the "new modern theories of international trade." The traditional approach has been formalized into what is known as the Heksher-Ohlin model (H-O Model), and its distinctive feature is the assumption of perfect competition in the markets of goods and markets of factors. By contrast, the new theories of international trade developed by economists such as Joseph Stiglitz, Avinat Dixit, Elhanan Helpmand and Paul Krugman, among others, originated by challenging several of the assumptions of traditional theory.

This section reviews the principal components of both theoretical models of international trade, emphasizing the elements that are most relevant to environmental issues.

2.1 Traditional theory of international trade

The Heckscher-Ohline model is based on the following assumptions:

- two countries produce *n* goods with an endowment of *m* factors of production that differ between the countries;
- both countries produce with the same technology and constant returns to scale;
- the supply of factors of production is independent of prices;
- there is perfect mobility of factors within a country but not between countries;
- consumer preferences are the same in both countries;
- there are no externalities in production.

The main outcome of this model is that one country will have a comparative advantage in the production and export of the good whose production more intensively uses the factor that is relatively more abundant in that country, compared with another country.

Environmental elements may be included in this model in two ways: by considering the environment as a factor of production, or by changing the assumptions of the model.

2.1.1 Environment as a factor of production

The environment can be introduced into the model as one more factor of production, in addition to the traditional factors of capital and labor. Thus, countries with greater environmental wealth can develop a comparative advantage that will allow them to specialize in pollution-intensive goods, given their relatively greater capacity to assimilate these. The comparative advantage arises when the cost of environmental pollution or natural resource degradation is not accounted for.

In fact, countries that specialize in the production of pollution-intensive goods as a result of having abundant environmental resources run the risk of exhausting the assimilation capacity of those resources in the absence of environmental policies. Moreover, the environmental degradation caused by the export of relatively more polluting goods reduces trade revenues for the countries that produce them, because these would equal the sum of the benefits gained directly from trade minus the indirect losses resulting from environmental degradation.

2.1.2 Changes in assumptions of the model

The environmental aspect can also be included in the H-O Model by changing some of its assumptions. Two interesting cases are changes in the assumptions relative to the uniformity of technologies and the absence of externalities.

a. Technological differences

The "technological uniformity" assumption can be changed in two ways: a) by assuming that there are differences between sectors in the productivity of the technologies, or b) by assuming that the technologies vary between countries.

In the first case it is assumed that the same technologies are used in all the countries, but that their productivity varies from one sector to another; in other words, with the same quantity of inputs, the sector with the most productive technology obtains higher production. In the second case it is assumed that the technologies used in each country are different, which implies that with the same quantity of inputs, more production is obtained in the country with the most productive technology. In the first case, the technologies differ between sectors; in the second case, they differ between countries.

In the second case, a country could specialize in producing goods for which it does not have a comparative advantage derived from a similarity in technologies. For example, the environmental factor can be more productive in one country than in another, if the difference in technology allows a unit of environment to generate a greater quantity of production than in another country. In a situation like this the countries could change their specialization, which in the absence of adequate environmental regulation could promote the deterioration or exhaustion of natural resources.

b. Externalities in production

In this case, it is assumed that there are environmental externalities that can negatively influence the productivity of capital and labor. These externalities can be corrected by means of specific environmental policies.

By introducing an environmental policy into the model, costs to producers generally increase due to the investment required to internalize environmental costs (Anderson, 1992). The price of the product will then tend to increase.

Box 1. Environmental policy: large countries vs. small countries.

An important consequence of applying environmental policies is the concern among developing countries that their situation will worsen as industrialized countries adopt more rigorous regulations to limit pollution (Anderson, 2001).

This concern is valid when developing nations import goods whose production causes pollution, since their exchange relationship is harmed by the hike in pollution taxes in industrialized countries and by the increase in their own emissions, while they develop sectors of their economies that compete with the imports. Furthermore, if developing countries respond by introducing or increasing their own taxes on pollution, the exchange relationship will deteriorate even further, and will therefore limit the positive compensatory influence of this measure.

Moreover, if capital is static between countries, it is possible that when taxes on pollution in developed countries rise even more, there will be an even transfer of polluting production to developing countries (if the necessary capital is internationally mobile), making it probable that the latter will become exporters of polluting goods.

However, it should not be inferred that poor countries are not concerned about the environment. On the contrary, it is reasonable to assume that poor as well as rich countries have similar tastes and preferences with respect to all goods and services, including a clean environment (Anderson, 2001). The difference between the rich and the poor countries lies in their capacity to sacrifice greater consumption of goods in exchange for a less polluted environment.

The consequences of environmental policies will vary according to whether a country imports or exports an affected good. If the environmental policy is applied abroad via tariffs, then the international price of the good whose production is polluting will increase. The wellbeing of a small, open economy that exports this product will improve, despite the environmental harm caused by a greater production of that good, whenever a pollution tax is levied on national producers to help compensate the environmental harm caused by the production. By contrast, if the country imports the good, a hike in the international price will benefit it when:

- Reduction of national production of that product is promoted via governmental assistance to other, less polluting sectors of the economy, or
- There are other, more polluting sectors than the one that produces the good in question, in which case diverting resources toward the less polluting sector will improve the country's environment.

2.2 New theories of international trade

In recent decades we have witnessed the emergence of alternative approaches to the Heckscher and Ohlin model. These theories aim to fill the gaps and explain situations that are evident in international trade and to address situations that cannot be explained by an interpretation based on the proportion of the factors. For example, the H-O Model does not envisage the possibility of a two-way trade between two countries in the same good (e.g. Japan and the United States mutually export automobiles) and it does not explain why some global industries are dominated by only a few large firms. In general, these new theories provide extensions of the H-O Model to accommodate situations such as intra-industrial trade, growing yields, economies of scale in production, monopolistic competition and differentiation of products. Moreover, they incorporate game theory as an analytical tool, which is useful for modeling situations that involve a limited number of international players that may develop cooperative or competitive behaviors (van Beers and van den Bergh, 1996; UPL, 1998).

An important feature of these new theories of international trade is that they are based on models of imperfect competition, with the Dixit and Stiglitz (1977) theory being the most influential.

Using models of open economies with imperfect competition, van Beers and van den Bergh (1997) draw some important conclusions about the introduction of environmental policies. The analysis assumes that a good is produced by a company with monopolic power in the national market, but that there is perfect competition in the international market. Therefore, the monopolist receives an autarky price for production destined for the domestic market, but must accept the international market prices. The product can be exported or imported, according to price relationship, which means:

- If the international price is lower than the autarky price that would result under conditions of perfect competition in domestic markets, then the good is imported. In the absence of trade barriers the monopolist will lose his power in he market, which is analogous to what would occur in a case of perfect competition.

- If the autarky price, under conditions of perfect competition, is lower than the international price, the monopolist will be an exporter in competitive global markets.

- If the international price is lower than the price of the monopolist in autarky, the monopolist could export part of his production, provided this maximizes the benefits. In this case, the monopolist will produce an amount based on the equalization between his marginal cost and the global price, and will distribute production between exports and the domestic market. If the economy is open, this will allow the monopolist to sell part of his production at a higher domestic price than the global price and export the rest at the global price.[3]

Production of a good generates environmental externalities. In the absence of environmental policies, these externalities

[3] Production earmarked for the domestic market will be an amount determined by the equalization between the global price and the marginal income of the monopolist.

can be classified according to whether production is allocated to the domestic market or the global market. The introduction of an environmental tax[4] in an autarky situation increases the price for the monopolist, which leads the monopolist to reduce his production.

In an open economy, the effect of introducing an environmental tax will depend on the scale of the negative externality that is to be internalized. If the externality is not considerable,[5] only the autarky price of the monopolist will increase, but not the price at which he can sell his production on the domestic market. In this case, exports are reduced and the decrease in pollution is attributable entirely to the reduced production for the international market. By contrast, if the externality is of a considerable magnitude (if the equalization between the marginal social cost of the monopolist and his marginal income occurs at a level higher than the global price) the domestic supply is also reduced and the domestic price of the good increases. Therefore, under the conditions given, an optimal environmental policy will only affect the domestic market in cases of very large externalities (van Beers and van den Bergh, 1996: 155-156).

The above analysis focuses on a case where there is a monopoly. However, there are other market imperfections that could be analyzed, such as oligopoly situations or strategic behavior by corporations and governments. For example, Ulph (1998) concludes that, in the presence of externalities and environmental policies, an international trade strategy would favor standards on pollution rather than taxes on pollution, as environmental policy instruments. It has also been argued that the imperfect competition present in global markets is the reason why governments behave strategically in their domestic decisions regarding environmental policy (van Beers and van den Bergh, 1996).

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[4] In this case an environmental tax makes the monopolist produce according to the marginal social cost and not according to the marginal private cost; in other words, an optimal environmental tax, which manages to internalize the externalities that are derived from the monopolist's production. This tax has no effect on the global price.

[5] An externality is not significant if it results in a marginal social cost for the monopolist, who equalizes his marginal income at a level lower than the global price.

This is the case of *ecological dumping*. Under conditions of imperfect competition it is rational for governments to practice ecological *dumping*, since this would generate earnings that favor domestic producers.

In general, the imperfect competition models make the relationship among market structure, international trade and environmental policy evident. For example, they show that the effect of environmental policy on international trade flows depends on the type of competition present in domestic and external markets, and they determine that the combination of imperfect domestic and international markets has implications for optimizing the environmental policy (van Beers and van den Bergh, 1996).

CHAPTER

3

Environmental Policy

3.1 Environmental policy approaches and instruments

When the market fails to allocate resources, as occurs when there are negative environmental externalities, the Government must exercise its regulatory role to correct this omission. Externalities arise due to several reasons, including: a *lack of information* about the costs and benefits of regulation; the search for revenues by pressure groups that use the political process for their own benefit; the *public nature of losses*, which means that those who lose do not unite to oppose policies that affect them; and, finally, *failures in the implementation* of instruments or governmental regulatory measures, a situation that may ultimately turn out to be more costly than the externality itself.

The efficacy of each environmental policy instrument is determined by the objectives and characteristics of each particular case. Some instruments may be more effective at optimizing resources, others may be more equitable for the stakeholders, and some may even be easier to implement. The different environmental policy approaches that exist and their corresponding instruments are described below.

3.1.1 Direct regulation

This refers to environmental policy mechanisms through which: a) polluters are obliged to develop environmental behaviors and actions that are considered socially desirable; and b) controls are established to enforce those behaviors. This desirable behavior and mandatory compliance are defined in national laws or international agreements. The mechanisms for ensuring compliance with mandates are generally established in regulations[6]. It is the State that defines, applies and oversees environmental policy.

[6] The literature in English refers to command and control instruments

Table 1 lists the most common instruments used for direct regulation, as well as some of their advantages and disadvantages.

3.1.2 Market regulation

This refers to instruments that directly affect the prices of goods whose production generates pollution or the prices of inputs used in the production of those goods. These instruments seek to change the behavior of economic agents, making them pay for the environmental costs associated with production. The main instruments used for this purpose are taxes on emissions and subsidies for emission reductions, along with tradable emissions permits and deposit-reimbursement schemes.

The use of such mechanisms in environmental policies has increased significantly over the last decade. Table 2 lists some of these instruments, along with some of their main advantages and disadvantages.

Table 1. Instruments of Direct Regulation.

Type of instrument	Definition	Advantages	Disadvantages
QUALITY STANDARD	•Sets the maximum concentration at which a pollutant can be present in the environment without causing adverse effects to health or to the environment.	•Establishes the groundwork for assessing the regulation in force •Helps to set priorities and goals.	•Requires advanced scientific knowledge of the effects of pollutants. •Difficult to assess the combined effects of pollution.
DISCHARGE OR EMISSION STANDARD	• Establishes limits (median or maximum values) for the discharge of pollutants by individual sources and at specific points.	•Direct and practical means to control pollution. •Allows flexibility in the selection of control technology.	•High inspection costs for companies.

Type of instrument	Definition	Advantages	Disadvantages
TECHNOLOGICAL STANDARD	•Specifies the technology that the source should use. Example: better technology available.	•Allows maximum control.	•Does not give technological flexibility. •High cost of monitoring and compliance.
PRODUCT AND PROCESS STANDARD	•Establishes a "ceiling" on the discharge of pollutants, per unit of product or by process.	•Eliminates or reduces the emission of pollutants before they can occur.	•There must be substitutes for prohibited products.
PERMITS AND LICENCES	•Authorizes the operation of pollutant sources, through permits or licenses.	•Requires prior compliance with standards. •Facilitates sanctions for non-compliance.	•High costs of monitoring.
CONTROLS FOR USE OF SPACE	• Zoning of areas where pollutant sources can be located,	•Prevents the establishment of polluting activities in inappropriate places.	•Affects housing values. •Vulnerable to local pressure.
TOTAL EXTRACTION QUOTAS	•Establishes limits on natural resource extraction.	•Prevents the over-exploitation of resources.	•Generates high levels of economic inefficiency. •Reduces the extraction period.
CLOSED SEASONS	•Prohibits the exploitation of a natural resource in certain areas and seasons.	•Protects species that are endangered or in recovery. •Protects species during reproductive periods.	•High inspection costs.
RESTRICTIONS OF EFFORT	•Restricts the use of inputs in fishery exploitation, warehouse capacity, the number of trips, type of motor, etc.	•Allows inspections.	•Increased costs of capture. •Generates overexploitation since not all parameters can be controlled.

Source: O'Ryan (2002).

Table 2. Economic Instruments of Environmental Policy.

Type of instrument	Definition	Advantages	Disadvantages	Examples
POLLUTION TAXES AND CHARGES	• Charges for quantity or quality of a pollutant emitted into water or air.	• Generates income for the State. • Provides incentives to polluters to reduce emissions. • Promotes the reduction of costs. • Encourages the use of new technologies. • Useful when the damage per unit of pollution varies little with the quantity of pollution.	• Difficult to apply. • High inspection costs. • Potentially large distributive effects. • Environmental effects uncertain. • Generally requires data from monitoring. • Distorts the market.	• Charges for emissions. • Charges for effluents. • Charges for solid wastes. • Charges for sewers.
SUBSIDIES	• Assistance to agents that use, promote or research technologies or cleaner production methods.	• Politically popular. • Low costs of inspections. • Directed at specific activities.	• Perpetuates polluting industries. • Financial impact on Government budget. • Uncertain effects.	• Municipal sewer systems. • Use of soil by agriculture. • Industrial pollution.
DEPOSIT-REIMBURSEMENT SYSTEMS	• Agents effectively assume their responsibility by taking a voucher or reimbursable deposit for activities that harm the environment.	• Provides incentives for compliance with regulations. • Deters waste dumpers. • Encourages recycling.	• High administrative costs. • High transaction costs. • Product must be reusable or recyclable.	• Lead-acid batteries. • Containers. • Automobile chassis.

Type of instrument	Definition	Advantages	Disadvantages	Examples
MARKET PERMITS	• Assigns permits or rights to emit or discharge pollutants. Can be transacted in the market.	• Provides incentives to reduce costs. • Restricts pollution. • Incentives for techno-logical change.	• Potentially high transaction costs. • Requires variation in the costs of marginal controls.	• Emissions. • Effluents. • Access to fisheries.

Source: O'Ryan (2002).

In general, these types of instruments offer the following advantages:

- promote the achievement of environmental goals at minimum cost;
- promote the development of control technologies in the private sector, as well as greater practical knowledge;
- allow flexibility regarding the selection of technologies;
- provide the State with a source of income that can be used to improve environmental quality;
- eliminate the need for the regulatory body to manage a large amount of information about processes, technologies and techniques for resource exploitation;

On the other hand, their main disadvantages are:

- the results are less predictable;
- legal changes are required;
- can be perceived as a permit to pollute;
- require more sophisticated institutional systems for their application and control;
- their design requires a certain sophistication that makes them difficult to implement in practice.

3.1.3 Legal approach

This section examines the instruments that allow the economic agents involved in an environmental problem

(either because they cause it or because they are affected by it) to resolve that problem by themselves, through the legal system, without the intervention of an environmental authority. The main legal instruments used for settling environmental disputes are property rights and the rules of environmental responsibility or liability (Table 3).

Table 3. Legal Instruments.

Type of instrument	Definition	Advantages	Disadvantages	Examples
PROPERTY AND USE RIGHTS	•Defines who has the right to a resource or what use should be given to it.	•Internalizes the costs of pollution.	• Rights may be difficult to determine.	•Land titles. •Water rights. •Concessions.
ENVIRON-MENTAL LIABILITY	•Apportions liability for damage caused to natural resources, which may be applied through legal means, tax incentives or through liability insurance.	•-Provides strong incentives. •-The market can assume responsibility through insurance.	• Evaluation and litigation costs can be high. •Difficult to apply.	•Evaluation of damage to resources. •Disturbances, invasion of property.

Source: O'Ryan (2002).

Property rights. The absence of property rights over environmental resources generally results in their excessive use. This phenomenon is known as "the tragedy of the commons," since resources that belong to no one end up being used by everyone, resulting in their overexploitation. Granting property rights is one way to prevent this situation.

In the case of a resource that is affected by pollution, property rights can be assigned to those who pollute the resource, or to those who are affected by that pollution. According to one

well known result in economic theory, known as the Coase Theorem[7], regardless of who is granted property rights, the same optimal result will always be reached in which the interests of both the polluters and those who have been polluted are balanced.

However, for the property rights system to function properly, at least three conditions are required: a) property rights must be well defined, enforceable and transferable; b) there must be a reasonably efficient and competitive system so that the interested parties can meet and negotiate how the property rights will be used; and c) there must be a full array of markets, so that private property owners can capture all the social values associated with the use of environmental assets.

One problem with the property rights approach is transaction costs. This is particularly important when those affected are a very large group of individuals and there is only one polluter. The problem worsens if the number of polluters is increased. Therefore, this approach is not applicable to complex environmental degradation situations in which high transaction costs imply that there are great incentives for "free riders," meaning people who benefit without participating. Furthermore, to ensure the best use of the environmental resource, the owner must be capable of identifying all the social benefits derived from using it.

Environmental liability rules. Environmental liability rules or laws seek to hold polluters responsible for the damage resulting from their actions through the payment of compensation to the affected party. Thus, the expectation of having to pay compensation (the polluter pays principle) for damage caused is an incentive for polluters to modify their behavior. Environmental liability rules seek to reduce levels of non-compliance with environmental policy by raising the cost of "bad behavior."

There are two criteria for determining liability: a) *negligence:* the polluter is liable for the damage caused only if the actions that resulted in damage are not in compliance with

[7] In honor of Ronald Coase, winner of the 1991 Nobel Prize for Economics, who obtained this result.

the established standards; and b) *strict liability:* the polluter is liable for the damage caused regardless of the care taken to avoid the damage. The second applies mainly to extreme situations in terms of damage, if this occurs.

The purpose of environmental liability laws is not simply to compensate individuals after they have been affected. It is also - and more importantly - to force potential polluters to consider their decisions more carefully. By starting from the premise that they will be liable for damage caused to others, companies will be forced to internalize effects they might otherwise ignore.

3.1.4 Voluntary agreements

Voluntary agreements are not strictly environmental policy instruments; rather they are instruments of environmental management for companies. However, they can serve as a mechanism for supporting the implementation of environmental policies and defining standards in that area. Under this approach, the polluting entities undertake to improve their environmental performance, without a law or regulation requiring them to do so, and without any governmental economic incentives. This commitment is expressed in voluntary agreements signed by companies.

In fact, governments may promote such initiatives through positive incentives (e.g. subsidies, sharing implementation costs, etc.) or even negative incentives (e.g. delaying the regulation of the participants, etc.). Furthermore, companies may decide to embrace these systems before the authorities impose mandatory measures to force them to reduce pollution.

Voluntary agreements often arise in response to pressure from consumers or communities, from competition, from regulatory measures or taxes. Voluntary agreements can offer an individual solution as well as collective action. In individual solution agreements, the externalities are resolved by private means based on property rights, without government intervention. In collective action agreements, the economic agents cooperate to obtain higher earnings;

however, they must work to resolve the problems of *free-riding* and to decide how to distribute earnings from the agreement.

Businesses are encouraged to participate in programs of this nature for many reasons: because it allows them to project an environmentally responsible ("green") image; because consumers are more willing to pay for environment-friendly products; because better environmental management helps them improve their competitiveness; or because they avoid the costs of public regulation.

At the same time, the government also benefits, because by showing greater flexibility in pursuing its goals, it fosters efficient results, and this, in turn, promotes a proactive attitude in the industries regarding environmental problems and our shared responsibility in resolving them. These agreements also reduce the amount of time that governments must invest in designing and implementing a policy for reducing pollution and emissions.

Voluntary environmental agreements offer the following advantages:

- greater flexiblity with respect to the fulfillment of goals;
- lower costs from a public point of view;
- can be applied to many environmental problems;
- are useful for trying out new approaches;

There are several kinds of voluntary agreements:

- Unilateral initiatives: initiatives of a business or industry, without direct intervention by the government; for example, ISO 14000 Standards.
- Bilateral agreements: agreements negotiated between the business sector and the government; for example, agreements regarding CO2 emissions.
- Voluntary programs promoted by public initiative: government-designed programs that promote the voluntary participation of businesses and industries; for example, environmental quality initiatives, such as the "cleaner production" program that is being applied in Chile (O´Ryan 2002) to encourage small and medium-

sized businesses to take advantage of the benefits of less polluting production methods.

3.2 Criteria for evaluating environmental policy instruments

Different criteria may be used to evaluate environmental policies and environmental policy instruments, such as: a) economic efficiency (cost – benefit analyses); b) cost-effectiveness analyses; c) equity; d) incentives to promote competitiveness; and e) administration feasibility and cost.

3.2.1 Cost-benefit analyses

Cost-benefit analyses help determine the economic efficiency of environmental policies and policy instruments, i.e. their capacity to obtain emission reductions that would balance the costs of those reductions with the damage that the emissions cause. As the benefits generated by these policy instruments increase, with respect to the costs of their application, economic efficiency increases.

Applying a cost-benefit analysis has some limitations, such as: a) a broad planning horizon must be defined and an appropriate discount rate chosen; b) there is uncertainty about consumer preferences with respect to technological advances and population growth; c) it imposes many requirements for information about the regulator, which is necessary for an adequate appraisal of the most relevant benefits and costs.

3.2.2 Cost-effectiveness analyses

One of the greatest limitations of cost-benefit analyses is the difficulty of obtaining valid and reliable information about the benefits; cost-effectiveness analysis offers an alternative for situations in which only cost information is available. According to this criterion, out of two available alternatives, the one that achieves the established environmental protection goal at the lower cost should be selected.

Cost-effectiveness is a necessary but insufficient condition for economic efficiency; a policy can be effective in costs but not be efficient. Therefore, economic efficiency is the most important condition. However, due to the limited availability of information about the benefits of the environmental improvements, the criterion for cost effectiveness is more easily implemented.

3.2.3 Social equity

This refers to the equitable distribution of the costs and benefits of environmental protection policies among the different groups that comprise society. Equity and efficiency are two socially desirable objectives; however, there is no agreement on the weight each one should have. In some cases both objectives complement one another, but not always.

3.2.4 Administration feasibility and cost

Effective environmental programs require institutional infrastructure and resources for their design, implementation, evaluation, and enforcement monitoring. Therefore, the administration feasibility and cost of the instruments must be considered when choosing between different approaches. Administration feasibility and costs depend on factors such as:

- the amount of information required to implement, reassess and periodically revise the instrument;
- the amount of information required to monitor enforcement;
- the use of incentives for non-compliance;
- the costs of sanctioning non-compliance;
- the capacity of the agencies responsible for administering and supervising the implementation of the policy.

3.2.5 Other criteria

Other criteria that should be considered for evaluating environmental policy instruments are:

- Relocation of polluting activities: one desirable feature of environmental policies is that, in the long term, they promote economic activity in places with lower environmental risks.
- Promotion of competitiveness: environmental policies should ideally promote the development and adoption of technologies that are less resource-intensive and less hazardous from an environmental point of view.
- Environmental effectiveness: we must consider whether the application of the instrument achieves the environmental objective in the time specified and with the desired certainty.
- Flexibility: the instruments should be adapted to technological changes, the availability of resources and market conditions.
- Legal consistency: the instruments should be consistent with the institutional framework in force, the environmental policies and the applicable international agreements and principles in the country where they will be applied.
- Predictable: the instruments should be predictable, in the sense that the rules of the game are clear and stable.
- Acceptability: the instruments should be understood and accepted by the affected parties, and be politically viable.

3.3 Environmental policies and competitiveness

The effect of environmental policies on competitiveness can be seen from two perspectives: from a conventional point of view in which major environmental requirements reduce competitiveness; and from a standpoint that emphasizes the importance of environmental regulation as an instrument for increasing competitiveness.

The conventional vision focuses on the conflict that arises between the environmental gains derived from environmental regulation and the economic costs that compliance with those regulations entails. It is argued that major environmental requirements reduce competitiveness because they generate an increase in costs that is not

compensated for environmental gains, since the latter are perceived at a social level and not at the business level. However, many studies confirm that the cost of environmental regulations tends to be a very small portion of the average costs of industries. The reduction in the amount of goods produced is equally insignificant, although it should be noted that this reduction could be significant at a sectoral level.

The alternative vision emphasizes the synergy that exists between environmental regulations and competitiveness. According to this viewpoint, while promoting environmental improvements, businesses can economize on inputs, justify productive processes, take advantage of residues and differentiate their product (e.g. develop an exclusive product) and with this gain competitiveness. Compliance with the strictest environmental standards can lead to cost reduction processes and can even generate private economic benefits.

Therefore, the relationship between the environment and competitiveness should be analyzed, not just from the standpoint of the businesses, but also from a national perspective.

3.3.1 The competitiveness of businesses

Several studies have shown that businesses considered to be "environmental leaders"[8] do not necessarily pay a price —in terms of reduced benefits— for having embraced the environmental regulations in force. Furthermore, these companies can often recover costs in the market: first, because a considerable number of consumers are willing to pay higher prices for products that have some form of environmental certification; and second, because the companies that comply with recognized environmental management standards (e.g. ISO 14000) appear to enjoy certain competitive advantages, such as lower guarantees for backing loans, and better access to clients concerned about their own environmental reputation.

[8] "Environmental leader" businesses are those that use higher environmental standards than the average for the industry to which they belong.

3.3.2 Competitiveness at the national level

The loss of competitiveness that some sectors might experience at the national level by adopting environmental policies, could be counteracted through earnings obtained in other sectors. However, national wellbeing is not a simple linear sum of competitiveness, since other factors come into play such as technological innovation, investment, export and import prices, the trade balance and capital, working conditions, taxes, political stability, improvement of the environment and health, etc. Moreover, in evaluating national wellbeing, environmental benefits that result in cost savings must be discounted from macroeconomic costs-for example, lower health or forest rehabilitation expenses, lower incidence of water-borne diseases, etc.

The potential negative effects of environmental policies on competitiveness can be addressed with appropriate policies at the national and international levels. Such policies would be aimed at promoting entrepreneurial capacity, providing information, supporting innovation and access to technological advances, developing appropriate infrastructure, etc. In addition, representatives of industry, authorities, non-governmental organizations and other participants would be consulted on the design of environmental policies, in order to help set realistic requirements and guarantee the cooperation of industry.

Nevertheless, the possibility that environmental measures and requirements could have adverse effects on competitiveness and on market access opportunities for small and medium-sized businesses is still of concern, especially in developing countries.

3.3.3 Loss of competitiveness in exports is the main concern of developing countries

While the main concern in developed countries is that competitiveness prevents or postpones the application of stricter environmental standards, developing countries fear that environmental requirements, including those from foreign markets, will have a negative effect on the competitiveness

of their exports. More specifically, developing countries are concerned about situations such as:

i. The unilateral imposition of environmental measures for trade purposes.
ii. The use of environmental measures as instruments of pressure.
iii. The violation of the principle of non-discrimination in the use of environmental measures against countries that are not signatories of Environmental Agreements.
iv. Transparency in the design and implementation of trade-related environmental measures, such as eco-labeling, ecological packaging, recycling of materials, etc.
v. The use of environmental measures for competitiveness purposes.
vi. The indiscriminate and arbitrary use of anti-dumping measures to nullify legitimate comparative environmental advantages.
vii. The use of environmental mechanisms and measures to create non-tariff trade barriers.
viii. The extraterritorial application of national environmental laws and standards.
ix. The indiscriminate use of fines or trade measures to promote environmental measures.
x. Uniformity versus a diversity of environmental standards.

The sectoral composition of developing countries' exports can make them particularly vulnerable to environmental policies adopted in developed countries. In this regard, it is important to note that these exports are highly concentrated in a relatively limited number of products and sectors, and that it is precisely on those sectors that developed countries tend to target the application of environmental policies, standards and regulations.

Environmental policies and consumer concerns in developed countries are, to a large extent, centered on sectors such as fisheries and forest and agricultural products, leather and shoe manufacture, textiles and clothing. These sectors are faced with numerous requirements such as the prohibition on using specific chemical products or regulations

regarding packaging and eco-labeling. Since these sectors represent an important part of developing countries' total exports, and even the bulk of their manufacturing exports, environmental policies could, in theory, affect not just the competitiveness of those exports, but could also affect their export promotion strategies, which focus on expanding the trade in manufactured products.[9]

This situation directly impacts developing countries, since most of the companies engaged in international trade are small-and medium-sized businesses that face great difficulties in complying with environmental standards and regulations (0). Nevertheless, it is important to mention the benefits derived from the application of environmental practices by companies, for example:

- Protection of workers' health.
- Prevention of pollution at the source can encourage the adoption of technologies and productive processes that save on raw materials.
- Companies that remain ahead of environmental regulations may have an advantage over their competitors, because new processes and "green products" can increase consumer interest and open up new business opportunities.
- Enhancing a company's environmental reputation can improve its ability to recruit qualified personnel, raise worker morale, increase support from investors, improve relations with the community and increase respect for the management.

[9] Approximately one-third of the value of exports and half the value of manufactured products exported from developing countries come from sectors that could be affected by environmental requirements.

Box 2. Difficulties faced by small and medium-sized businesses in addressing environmental problems.

- Fixed costs of new environmental technologies.
- Variable costs: ecologically sound inputs can be a considerable part of the total variable costs, and they can be expensive.
- Difficulties in passing increased costs on to consumers, due to the highly competitive nature of the markets in which they operate (resistance to increased costs).
- Lack of financing for environmental investments (inhibits modernization of productive processes).
- Difficulty in accessing technologies that require economies of scale.
- Difficulties obtaining ecologically sound material inputs (access to imported inputs).
- Difficulty in accessing information.

CHAPTER

4

Trade Policy

4.1 The international trade system

4.1.1 Background

The foundations of the current international trade system were established in 1947 with the signing of the General Agreement on Tariffs and Trade (GATT). This agreement establishes two basic directives for the trade system: a) to create the necessary conditions to reduce and eliminate customs tariffs; and b) commitments to prevent or eliminate other types of barriers or restrictions to trade (non-tariff barriers).

Between 1948 and 1994, GATT organized several rounds of negotiations with the aim of strengthening the world trade system. The Uruguay Round was the last to take place and concluded in 1994 with the Marrakech Agreement, which, among other things, created the World Trade Organization (WTO). This organization entered into force on January 1, 1995 and is responsible for administering the international trade system.

4.1.2 The World Trade Organization

The main organs of the WTO are:

The Ministerial Conference. This is the highest authority of the WTO and is composed of the ministers of foreign trade of all the member countries. It is responsible for the organization's strategic planning efforts and for adopting final decisions regarding its agreements.

The General Council. The Council includes representatives of all the member countries. It oversees the organization's day-to-day activities and administration.

The Trade Policy Review Body. This is composed of representatives of all the member countries, it oversees the trade policy review mechanism established in the Uruguay Round; in other words, it periodically analyzes and reviews the trade policies and practices of the member countries and reports on these.

The Dispute Settlement Body. Composed of all the WTO's member countries, it oversees the correct application of the conflict resolution process in all WTO agreements, as well as the implementation of the rulings on disputes that arise within the organization.

The Council for Trade in Goods, the Council for Trade in Services and the Council for Trade-Related Aspects of Intellectual Property Rights (TRIPS). These bodies operate under the authority of the General Council and are made up of representatives of all the member countries. They serve as a mechanism to oversee the general and specific agreements on trade in the corresponding thematic area (goods, services and intellectual property rights).

The WTO Secretariat and the Director General are responsible for the administrative aspects of the organization. They do not have legal powers, but their function is essential and, often, they serve as counselors to those who do have such powers.

The Committee on Trade and Environment. The Committee on Trade and Environment (CTE) and the Committee on Trade and Development are of special importance within the WTO on matters of sustainable development. The background and functions of the CTE is described in the next section.

4.1.3 WTO provisions that affect national policies

The Uruguay Round established the three pillars upon which international trade negotiations rest: a) market access; b) the reduction of export subsidies; and c) domestic support. These pillars must also be the starting point for the definition of national policies.

Domestic support measures are classified in two categories:

a) measures that countries are not required to reduce; and
b) measures that countries are required to reduce over time.

a. Measures subject to reduction commitments

The measures that are exempt from reduction commitments, including measures to correct environmental externalities, are classified in four categories:

a) "Green Box" measures; b) "Blue Box" measures; c) Special and Differentiated Treatment measures for developing countries (SDT); and d) De Minimis exemptions.

Green box measures: these include subsidies that are totally decoupled from prices and production levels, and do not distort trade or production, or that have minimal effects on those activities. This support must be provided through government-funded programs; in other words, costs must not be transferred to consumers by increasing the prices of products. Such measures may be adopted by developed countries and by developing countries, and include:

- support services, such as research, pest and disease control, training dissemination, inspection, marketing and promotion services, and infrastructure;
- public food stocks for food security purposes;
- domestic food support; and
- direct payments to producers; for example, assistance in cases of natural disasters, environmental programs and regional assistance programs.

Blue box measures: these include direct support, partially decoupled from prices and from production, which the Agriculture Agreement of the Uruguay Round does not oblige to reduce and is considered to create relatively minor trade distortions. Direct payments made to producers in the context of programs to limit production are exempt from commitments to reduce domestic support, if these are based on surface areas (or, in the case of livestock on a fixed number of head of cattle) and fixed yields and are applied with respect to 85% or less of production levels.

Special and differentiated treatment (STD) measures: direct or indirect assistance measures, excluded from reduction commitments, and aimed at promoting agricultural and rural development. These form an intrinsic part of the developing countries' programs and include:

- Investment subsidies, generally available to the agriculture of developing countries;

- Subsidies for agricultural inputs, generally available to low-income or resource-poor producers in developing countries; and
- Domestic support provided to producers in developing countries to encourage crop diversification and the abandonment of crops from which illicit drugs are obtained.

De minimis exemptions: These refer to any support granted to a specific product that does not exceed 5% of the total production value.

b. Measures prohibited or subject to reduction

The measures that countries are required to reduce or that are prohibited fall into two categories: a) "Amber Box" measures; and b) "Red Box" measures.

Amber Box Measures: These include all instruments that must be significantly reduced or avoided, as they are considered to create significant trade distortions. For example, price support measures, and subsidies based on yields or on the volume of production.

Many countries, including the United States and the European Union, seek to transfer programs that currently belong to the "Amber Box" to the "Green Box".

Box 3. The WTO boxes

Green box: subsidies totally decoupled from prices and from production, exempt from reductions (trade distortions considered nil or minimal).

Blue box: direct support, partly decoupled from prices and from production. The Uruguay Round Agreement on Agriculture requires countries to reduce these (trade distortions considered relatively minor).

Amber box: instruments to be substantially reduced or avoided (trade distortions considered significant).

Red Box: prohibited instruments (trade distortions considered very serious).

Red Box Measures: these include all instruments that are prohibited because they create very severe trade distortions; for example, variable import quotas, quantitative limitations.

4.2 Trade policy approaches and instruments

For trade policy, as for environmental policy, various approaches and instruments have been implemented to regulate the exchange of goods and services. Some of these are described below.

4.2.1 Tariff measures

Tariff measures are taxes applied to the import of goods. Their purpose is to modify relative prices in order to protect national activities from foreign competition, influence the allocation of resources and the distribution of income and increase tax revenues. They are applied at the point where products cross the border of a customs territory. These measures increase the costs of imports by a fixed amount, which can be calculated on the basis of their value (*ad valorem* customs duties) or physical quantity (specific duties), respectively.

Tariff measures benefit national producers, since they increase the cost of imports enabling them to sell their products in the local market at a higher price than in the absence of the tariff. Moreover, as the import price increases, it diverts demand towards local production. All this contributes to generate profits for national producers.

4.2.2 Para-tariff measures

Para-tariff measures are non-tax measures that increase the cost of imports in a similar way to tariff measures, in other words, by a specific percentage or sum, calculated either on the basis of value or quantity. There are basically four groups of para-tariff measures: a) customs surcharges; b)

additional charges; c) domestic surcharges on imports and d) and decreed customs valuations.

4.2.3 Non-tariff measures

Non-tariff measures include any law, regulation, procedure, provision or practice that distorts free trade and that is not a tariff. Article VIII of GATT mentions a series of factors that may be considered non-tariff measures, which affect both imports and exports:

- consular transactions, such as consular invoices and certificates;
- quantitative restrictions;
- licensing;
- exchange controls;
- documents, documentation and certification;
- analysis and inspection;
- quarantine, sanitation and fumigation.

Para-tariff measures and non-tariff measures affect trade in a similar way to tariff measures. WTO member countries must "convert" their non-tariff measures into equivalent tariffs and set maximum tariffs to be charged (tariff consolidation).

Surcharges, anti-dumping duties and countervailing duties are tariff measures that must meet different requirements for their application. For example, if a country decides to increase its tariffs, in compliance with its international commitments, then, it must ensure that it does not increase the tariff rates beyond the WTO's consolidated tariff, or in line with bilateral agreements.

4.3 Multilateral environmental agreements relevant to international trade

In recent years, a number of multilateral environmental agreements (MEAs) have been signed, laying the foundations for environmental management based on international

law. The most important MEAs from the point of view of international trade are the following:

- ***The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).*** This is the "oldest" MEA (1973) and its purpose is to protect certain endangered species from over-exploitation by the international trade system (import-export).

- ***The Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol.*** The Convention was signed in Vienna, in March 1985, as a global response to growing evidence of the progressive depletion of the ozone layer and the potentially serious consequences for the planet's ecosystem and human life. This Convention aims to protect human health and the environment from the adverse effects produced by changes in the ozone layer. The Montreal Protocol, for its part, was signed in Canada in 1987, in the context of the Vienna Convention. Its main purpose is to protect the ozone layer through the adoption of precautionary measures, in the global sphere, which control the production, consumption and international trade of ozone-depleting substances.

- ***The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal***. The Basel Convention was internationally adopted in 1989, as the cornerstone of a global campaign to minimize the risks associated with the production and transportation of hazardous wastes. Its purpose is to reduce transboundary movements of hazardous wastes, as defined in the Convention, and dispose of these in an efficient and environmentally appropriate manner.

- ***The Convention on Biological Diversity (CBD).*** Its purpose it to promote the sustainable use of biodiversity components and foster an equitable distribution of the benefits generated from the use of genetic resources.

- ***The Framework Convention on Climate Change (FCCC) and the Kyoto Protocol.*** The main purpose of the FCCC is to promote coordination among countries to "achieve the stabilization of greenhouse gas concentrations in the

atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." The Kyoto Protocol was signed in the context of this Convention, and establishes binding commitments and quantified targets for the reduction of greenhouse gas emissions.

- ***The Rotterdam Convention on the Prior Informed Consent Procedure (PIC) for Certain Hazardous Chemicals and Pesticides in International Trade.*** Its purpose is to promote shared responsibility and joint efforts in the international trade of certain hazardous chemical compounds and pesticides, in order to protect human life and the environment.

- ***The Cartagena Protocol on Biosafety.*** This protocol aims to contribute to ensuring an adequate level of protection with regard to the safe transfer, handling and use of "living modified organisms resulting from modern biotechnology" that may have adverse effects on the conservation and the sustainable use of biological diversity, also taking into account risks to human health, and specifically focusing on transboundary movements.

In general, MEAs do not include trade measures, but their provisions may have important consequences for international trade flows. Four reasons have been used (IISD-UNEP, 2001) to justify the inclusion of trade measures in environmental agreements.

i. *Regulatory frameworks:* the economic agents involved in a market must be assured that the rest of the participants are subject to comparable regulatory restrictions and that these are properly enforced.
ii. *Containment:* in certain circumstances it is necessary to impose limits on market operations in order to effectively protect resources; for example, to limit the trade in endangered species.
iii. *Market control:* in their effort to satisfy demand, some producers might exhaust the natural resources on which their production is based. Market control is a mechanism to promote the sustainable use of natural resources,

through regulations that promote the internalization of environmental externalities, so that the prices of resources reflect their true scarcity.

iv. *Guaranteeing compliance:* the threat of imposing trade limits on countries that are not parties to an MEA can be more effective than other measures to ensure compliance. Clearly, it is important to ensure that the limits applied are neither arbitrary nor disproportionate.

4.4 Treatment of environmental issues in the international trade system

4.4.1 The Trade and Environment Committee

In 1971, in preparation for the UN Conference on the Human Environment to be held in Stockholm in 1972, the Secretariat of the General Agreement on Tariffs and Trade (GATT) prepared a study entitled "Industrial Pollution Control and International Trade". This study focused on the implications of environmental protection policies on international trade, and reflected the concerns of trade officials at the time that such policies could become an obstacle to trade and also constitute a new form of protectionism (i.e. green protectionism). This study was subsequently presented to the GATT members, who proposed that a mechanism be created within GATT to examine these implications more thoroughly, following the precedent of the Committee on Trade and Environment created within the Organization for Economic Cooperation and Development (OECD).

This resulted in the establishment of the Group on Environmental Measures and International Trade (known as the EMIT Group), a body that would be open to all GATT members, although meetings would only be convened at their petition. However, it was not until 1991, that the members of the European Free Trade Association (EFTA), comprising Austria, Finland, Iceland, Liechtenstein, Norway, Sweden and Switzerland, asked the Director General of GATT to convene a meeting of the EMIT Group as soon as possible, to discuss GATT's participation in the 1992 United

Nations Conference on the Environment and Development (UNCED), in Rio de Janeiro.

At the same time, with the growing volume of international trade flows between 1971 and 1991, the world gradually became aware of the impact of environmental policies on trade and realized that it could seriously affect the environment. This led to a number of debates:

- During the Tokyo Round of trade negotiations (1973-1979), delegates addressed the question of the extent to which environmental measures (in the form of technical regulations and standards) could become an obstacle to trade. This round produced the Agreement on Technical Barriers to Trade (TBT), also known as the "Standards Code". Among other things, it called for non-discrimination in the preparation, adoption and application of technical standards and regulations, and for these to be transparent.

- In 1982, a number of developing countries expressed concern that many products prohibited in developed countries (on grounds of being hazardous to the environment or human health or for safety reasons) continued to be exported to their countries. The countries argued that with limited information available on those products, they were unable to make informed decisions regarding their import.

- In 1991,a dispute between Mexico and United States (the Tuna-Dolphin case) put the spotlight on the linkages between environmental protection policies and trade. The case involved the embargo imposed by the United States on imports of Mexican tuna caught in a particular type of fishing net that caused the incidental death of dolphins. Mexico appealed to GATT on the grounds that the embargo was inconsistent with the rules of international trade. The Panel ruled in favor of Mexico based on purely commercial reasons, a move that was harshly criticized by environmental groups, who considered that trade rules were an obstacle to environmental protection.

- During the Uruguay Round (1986-1994) trade-related environmental issues were addressed once again; modifications were made to the TBT Agreement, and elements related to the environment were incorporated into the General Agreement on Trade in Services, and into the Agreements on Agriculture, Sanitary and Phytosanitary Measures (SPS), Subsidies and Countervailing Measures and Trade-related Aspects of Intellectual Property Rights (TRIPS).

As a result of these developments, GATT agreed to hold a structured debate on environmental issues through the EMIT Group. In accordance with its mandate to examine the possible consequences of environmental protection policies on the operation of the General Agreement, the EMIT Group studied the effects of the environmental protection measures on international trade (for example, eco-labeling programs), the relationship between the rules of the multilateral trading system and the trade provisions contained in multilateral environmental agreements (e.g. the Basel Convention), as well as the transparency of national environmental regulations with an impact on trade.

After the Marrakech Agreement, the EMIT Group became the Committee on Trade and the Environment- CTE (the ten points on which its mandate was based are listed in the point "0" of this document. In 1996 these points were divided into two groups: a) those related to market access; and b) those related to environmental management in the context of the trading system. Some points have not been discussed in depth, as in the case of the trade in services.

4.4.2 WTO regulations on environmental issues

Up until the beginning of the 1990s, the WTO's work had focused on matters directly related to market access and had left issues, such as the environment, in the hands of other specialized organizations. However, after the cases of "ecological dumping" and disputes such as the tuna-dolphin dispute conflict Mexico and the USA, the Organization began to consider its position on the complementary nature of trade policies and environmental policies. (Buchner, 2002).

The goals of the WTO, established in its mandate, are: to oversee the implementation and administration of the agreements signed; to provide a forum for negotiations; and to provide a mechanism for the settlement of disputes. However, these objectives must be achieved using global resources in pursuit of sustainable development and the protection and conservation of the environment. The WTO provisions related to the environment are presented in the point "0" of the document.

In Article XX of GATT, concerning General Exceptions, the following environmental provisions are mentioned:

- *Clause a) those necessary to protect human, animal or plant life or health;*

- *Clause g) those relating to the conservation of exhaustible natural resources, if such measures are made effective in conjunction with restrictions on national production or consumption.*

However, for a country to avail itself of this article, it must first demonstrate that the measure it intends to apply is necessary to protect the environment and, second, that the measure is the most efficient way of accomplishing this objective, i.e. that it is not an arbitrary measure or a disguised restriction to international trade.

Although these measures should normally be applied to protect the national environment, the ruling issued in 1998 by the WTO appeals body on the shrimp-turtle case[10] expanded the scope of the rule to include transboundary effects on water, air or endangered species.

[10] This case involved an appeal submitted to the WTO by India, Malaysia, Pakistan and Thailand against the USA after the US government banned the import of shrimp and other by-products from those countries, in May 1996, in compliance with a domestic regulation (Section 609 (b), Public Law 101-169) aimed at protecting sea turtles. The exporting countries argued that the embargo imposed by the United States Government was incompatible with the GATT/WTO legal system. Finally, the WTO declared it illegal and proposed other measures to regulate these types of imports.

Table 4. WTO provisions related to the environment.

- **Article 20 of GATT:** Trade-related policies aimed at protecting human, animal and plant health and life are excluded, under certain conditions, from the normal GATT disciplines.
- **WTO Agreement on Technical Barriers to Trade (TBT Agreement):** Refers mainly to industrial regulations and products. Environmental objectives are explicitly recognized. An agreement of major importance on trade and environment issues, since it includes aspects related to product characteristics. Eco-labeling is also covered by this agreement.
- **WTO Agreement on the Application of Sanitary and Phytosanitary Measures:** to the extent that this agreement is related to animal and plant health and hygiene, it is also relevant to environmental issues. The SPS Agreement explicitly recognizes environmental objectives.
- **WTO Agreement on Agriculture:** exempts environmental programs from subsidy cuts.
- **WTO Agreement on Subsidies and Countervailing Measures:** authorizes subsidies of up to 20% of the cost of adapting companies to the new environmental laws.
- **WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS):** Member countries may refuse to grant patents that threaten human, animal or plant life or health, or to prevent serious damage to the environment (Article 27).
- **General Agreement on Trade in Services (GATS):** Under certain conditions, policies that affect trade in services but are necessary to protect the life and health of people, animals and plants are exempted from the normal application of the GATS disciplines (Article 14). This article has a similar structure to Article XX of GATT.

This case also led to progress in the application of clause (g) of GATT Article XX, since it broadly defined exhaustible natural resources, and included concepts such as living and non-living, renewable and non-renewable resources; in addition, it clarified criteria concerning the type of evidence

that must be submitted in disputes related to the application of this clause (IIDS-UNEP, 2001). For example:

- a country cannot require another to adopt specific technologies or environmental measures; it must allow different technologies and/or measures that have the same final effect.
- when a measure is applied to other countries, the differences in the conditions prevailing in those other countries must be taken into consideration.
- before promulgating a trade measure, countries must try to negotiate with the exporting country or countries.
- foreign countries affected by trade measures must be allowed the necessary time to make the appropriate adjustments.
- foreign countries or producers must have access to a fair and transparent process, to an appeals procedure and to appropriate guarantees so that the application of the measure can be reconsidered.

The Agreement on Technical Barriers to Trade (ATBT) refers to measures that could constitute non-tariff barriers to trade, such as environmental, health, labor or other regulations. This agreement establishes the type of technical barriers permitted and the requirements that must be met. The basic obligation of the Parties is to ensure that technical regulations, standards, packaging, labeling and marking requirements and certification methods do not create unnecessary obstacles to international trade.

The Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) refers to the standards necessary to protect humans, plants and animals from specific dangers (for example, pests, diseases) associated with international trade, and also from hazards related to chemical products, fertilizers, pesticides, herbicides and medications. This agreement stipulates when such measures should be applied and the requirements that must be met.

4.4.3 The MEA and the WTO

Agenda 21 establishes that policies on international trade and environmental issues must mutually support each other.

As mentioned previously, some multilateral environmental agreements (MEA) contemplate trade measures to achieve their objectives such as the CITES Convention (1975), the Montreal Protocol (1987), the Basel Convention (1992) and the Cartagena Protocol (1993).

Measures that restrict member countries of an MEA in their trade with non-member countries are aimed at promoting accession to such agreements and ensuring their efficiency. For example, the Montreal Protocol prohibits the trade in substances harmful to the ozone layer between signatory and non-signatory Parties.

However, these measures may conflict with other WTO provisions. Among their obligations, member countries of the WTO must observe the principles of most favored nation (MFN) and national treatment - which are required for the compatibility of environmental measures with the GATT- WTO regulations - as well as the provisions for the elimination of quantitative restrictions (Articles I, III and XI). These measures must also be necessary and legitimate; in other words, they must be scientifically justified, the effects on trade must be minimal, they should not be applied to production processes or methods and should not be applied extraterritorially. If an MEA determines that the Parties may apply trade restrictions against non-signatory countries, but not against signatory countries, it would be violating the three articles mentioned, since it would be discriminating between "similar" products on grounds of country of origin; it would be imposing quantitative restrictions and it would be giving imported goods a different treatment from "similar" national goods (IIDS-UNEP, 2001).

A country that is simultaneously a signatory of a MEA and a WTO member may apply trade measures to a non-signatory country, providing that the latter is also a WTO member. However, according to WTO legislation, the signatory country of the MEA could be injuring the rights of the non-signatory country; in other words, although the measures are stipulated in the MEA, the non-signatory country can still take the signatory to the WTO. Although no dispute of this nature has yet arisen in the context of WTO/GATT, the possibility exists and could threaten the integrity of the MEA.

The above situations fall within the purview of the WTO's Committee on Trade and the Environment (CTE), which has made several proposals since its creation in 1995, including:

- Interpreting the general exceptions of Article 20 of GATT in order to create a "window" for the MEA;
- Seeking WTO exemptions for the MEA, on a case by case basis;
- Configuring a list of criteria to be followed so that a restrictive trade measure is accepted.

The WTO and the MEA have forged closer links in recent years. After the Doha Conference, the CTE held a meeting with the Secretariats of the MEA in order to exchange information and analyze the Ministerial Declaration of Doha. The meeting also served to review the existing agreements between the WTO and the United Nations, particularly the cooperation agreement with UNEP, reached in 1999 at the Ministerial Conference of Seattle. That agreement recognized the importance of cooperation and collaboration between the Secretariats. The objectives of this agreement are the following: a) to promote effective cooperation; b) to contribute to achieve the objectives of the Rio Declaration; and c) to improve working relations in the context of technical cooperation and research initiatives.

To fulfill the objective of improving work relations, the WTO began to organize regional seminars with the participation of officials of the ministries of Trade and Environment. In 1999, it began the practice of regularly inviting UNEP to the UNCTAD and MEA events to participate in these seminars with a view to disseminating, in the different regions, the experience and perspectives of other specialized international institutions in the areas of Trade and Environment (in 2002, seminars were organized in Latin America, in the Caribbean countries, in Africa, in Central and Eastern Europe, in Asia and in the Pacific).

In addition to promoting the participation of the MEA in the CTE meetings, at the beginning of 2002, the WTO began to organize technical assistance workshops in parallel to some of the main meetings of the MEA. Their purpose was

to improve understanding of the WTO rules and create a forum for the exchange of information between the WTO and the MEA Secretariats. These workshops are important: a) to inform the developing countries that have signed these agreements about the progress of the Doha Development Agenda (regarding trade and environment issues), and b) to keep the WTO Secretariat abreast of any new developments within the MEA.

In addition, joint documentation has been prepared regarding the provisions on compliance and settlement of disputes of the WTO and the MEA, together with up-to-date information on trade measures adopted in the context of some MEAs.

Despite this exchange between the WTO and MEA, it has been difficult to reach agreements between both parties. There are fears that acceptance of many of the restrictive trade provisions included in the MEAs could lead to other types of activities that favor protectionism in the context of the WTO. Moreover, those in charge of formulating trade policies would be able to issue rulings with respect to international environmental legislation. Despite all this, the agents involved with environment and trade issues remain interested in resolving the existing conflicts between both regimens.

4.5 Ministerial Conference of Doha and the Cancun Meeting

During the Fourth Ministerial Conference held in Doha (Qatar) in November 2001, the ministers of trade agreed to begin negotiations on specific topics related to the linkages between trade and the environment. The purpose of these negotiations was to clarify the relationship between the multilateral trade systems and the environment, improve the exchange of information between the WTO Committees and the MEA Secretariats, and ensure the free trade of ecological goods and services.

In order to fulfill those objectives, the first meeting of the Trade Negotiations Committee, held in February 2002,

agreed that negotiations on trade and environment would take place during special sessions of the Committee on Trade and Environment.

At the same time, UNEP and UNCTAD have implemented capacity-building activities —one of the objectives of the Doha Development Agenda— as an important complement of the WTO's technical assistance efforts and to foster links between the environment and trade.

Efforts have also been made to encourage the participation of WTO bodies in the organs of the MEAs and vice-versa. For example, in accordance with the Doha mandate, some MEA representatives have been invited to participate in the CTE as observers. For its part, the WTO participates as an observer in the UNEP Governing Council and regularly attends the main MEA meetings that discuss trade-related measures.

At the Doha meeting, the Committee on Trade and Environment was entrusted with the task of paying special attention to the following aspects:

i. the impacts of environmental measures on market access, especially in developing nations and, particularly, in the least advanced countries, and those situations in which the elimination or reduction of trade restrictions and distortions can benefit trade, the environment and development;

ii. the provisions of the Agreement on Trade-related Aspects of Intellectual Property Rights;

iii. eco-labeling requirements;

iv. technical assistance and environmental reviews;

v. the Doha Declaration, regarding the identification and analysis of aspects of the discussions related to development and the environment, in order to ensure that the negotiations adequately reflect the objective of achieving sustainable development.

At the last Ministerial Conference held in Cancun, Mexico, the Committee on Trade and Environment presented a report on the work entrusted to it in the Doha Declaration, during the period between the Fourth (Doha) and the Fifth (Cancun) Ministerial Conferences of the WTO. Below is a summary of the progress achieved in the main thematic areas included in that report. It is also important to mention the recommendation that the Ministerial Conference of Cancun examine the CTE's work program in order to determine whether it continues to satisfy the Members' demands.

On the question of **market access**, the CTE generally recognized that *better market* access for the products of developing countries was the fundamental objective of achieving sustainable development. It also emphasized that protecting the environment and health were *legitimate policy objectives* and that Members had a right to establish their own appropriate level of environmental protection to achieve those goals. However, it also recognized that environmental requirements could have unfavorable effects on exports. It noted that to strike a reasonable balance between safeguarding market access and protecting the environment it was necessary to examine *how* importing countries could design environmental measures in a way that would: a) be compatible with WTO rules; b) not be exclusive; c) take into account developing countries' capacities; and d) fulfill the legitimate objectives of the importing country. It also underscored the importance of participation by developing countries in the *design and formulation* of environmental measures as a way to attenuate the negative effects of trade. In the debate on the paths to be followed, several Members expressed the idea that greater importance should be given to *identifying* trade opportunities for sustainable growth.

On the question of **sectoral analysis**, the CTE examined various sectors, most importantly, agriculture. The report notes that the reform of agricultural trade offers a triple opportunity to favor the environment, trade and economic development. The subsidies that cause distortions in trade and production has negative impacts not only on the countries that applied those policies (incentive to intensive farming practices), but also on the environment of other countries, particularly developing countries; this, because

they increase the instability of international commodity prices, which leads to the reduction of agricultural yields in developing countries, and discourages production and investment. The report notes that reduction of agricultural benefits is linked to poverty, one of the main causes of environmental degradation. However, some Members expressed the view that a certain level of domestic support would be required to maintain various environmental benefits derived from agricultural production. These environmental benefits include the preservation of cultural landscapes, soil conservation, water resource management and biodiversity conservation.

Regarding the **Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS)**, the CTE discussed the possibility of modifying the TRIPS Agreement to accommodate some essential elements of the Convention on Biological Diversity (CDB). This modification would require individuals or firms applying for a patent related to biological materials or traditional knowledge to: a) reveal the source and country of origin of the biological resources and/or the traditional knowledge used in the invention; b) present evidence of prior informed consent through the approval of authorities; and c) present evidence of a fair and equitable distribution of the benefits. The CTE report also proposed designing an international instrument capable of providing *positive protection* to traditional knowledge at national and regional level. This would not only prevent misappropriation, but would also guarantee that national mechanisms and laws for the distribution of benefits would be respected all over the world. Also mentioned in the report was the creation of a database on traditional knowledge. This database could be useful to the authorities responsible for granting patents to determine the novelty of an invention based on traditional knowledge.

On the issue of **Labeling**, the report notes that voluntary, participatory, market-based and transparent eco-labeling schemes are *potentially efficient economic instruments in order to inform consumers about environmentally-friendly products.* It points out that developing countries, and their small and medium-sized businesses, in particular, face major difficulties due to the growing complexity and diversity

of eco-labeling systems in export markets; therefore, it is necessary to promote a greater participation by developing countries *in the setting of environmental standards and regulations*, either at national or international level.

Other matters discussed in the report included technical assistance, capacity building and environmental assessments at national level. Particular emphasis was placed on providing technical assistance in market access and the importance of environmental reviews in the WTO trade negotiations, which was confirmed in the Doha mandate.

CHAPTER 5

Compatibility between Environmental Policies and Trade Policies

5.1 Environmental issues in the Free Trade Agreements: illustrative examples

Free trade policies have often sidelined environmental issues based on arguments such as the following:

- Trade liberalization will be halted by the burden of environmental charges;

- Environmental problems must be resolved with environmental policy tools.

- High-income countries will impose very high environmental standards on low-income countries, depriving them of their natural competitive advantages and imposing trade barriers if they do not comply with these standards.

However, these arguments do not justify the total separation between environmental policies and trade policies. In fact, there is no conclusive empirical evidence to support the argument that environmental policies undermine trade agreements or trade liberalization. For example, recent studies show that the environmental agreements signed as part of the North American Free Trade Agreement NAFTA have not led to any reduction in the trade flows between the member countries of that Agreement (Esty, 2001).

Moreover, trade can have a positive effect on the environment, if trade liberalization is accompanied by an effective environmental policy. Trade policy can be an effective tool for reinforcing environmental standards if, for example, it promotes the internalization of environmental costs in the international sphere.

Of course, the use of trade policies to achieve environmental goals can lead to the application of non-tariff measures that limit trade. However, if the environmental policy is seen as part of a country's competitiveness policy, it should also contribute to achieving trade objectives.

The following sections present some examples of how environmental issues are addressed in various free trade

agreements. All the agreements mentioned have one point in common: they are free trade agreements in which some form of environmental cooperation agreement was signed.

These agreements recognize the right of each signatory country to establish its own level of environmental protection and development, and to implement the policies necessary to achieve this; however, the Parties also agree to enforce their own environmental legislation, to promote sustainable development, to ensure the effective application of environmental laws and regulations, to prevent the relaxation of environmental standards for the purpose of attracting investment and to encourage the protection and improvement of the environment.

All these agreements create some institutional body responsible for promoting environmental cooperation between the signatory countries. In the case of NAFTA, the Commission for Environmental Cooperation (CEC) was established; in the Chile/ Canada FTA, the Canada-Chile Commission for Environmental Cooperation; in the case of the USA/Jordan FTA, a Joint Forum for Environmental Technical Cooperation; and in the case of the Costa Rica/ Canada FTA, a contact point at country level.

Annex B contains further details regarding the Environmental Cooperation Agreements included in these free trade agreements.

5.1.1 North American Free Trade Agreement

As part of the North American Free Trade Agreement (NAFTA) between Canada, Mexico and United States, the parties also signed the North American Agreement on Environmental Cooperation (NAAEC). This Agreement, in turn, created the Commission for Environmental Cooperation (CEC).

The CEC promotes the settlement of disputes on environmental issues; it ensures compliance with national environmental legislation, through greater public participation; and it guarantees compliance in disputes

arising from omissions in the application of environmental legislation. Although the CEC does not set environmental standards for its member countries, it tries to harmonize these, ensuring their application and monitoring the environmental effects of the free trade agreement.

The NAFTA Environmental Conservation Agreement establishes that, in the event of incompatibility, the following international environmental agreements will prevail over the trade agreement:

- The Convention on the International Trade of Endangered Species of Fauna (CITES);

- The Montreal Protocol on Substances that Deplete the Ozone Layer;

- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal;

- And the following bilateral agreements: the Agreement between the Governments of Canada and the United States of America on the Transboundary Movement of Hazardous Wastes; the US-Mexico Convention for Cooperation in the Protection and Improvement of the Environment in the Border Zone.

NAFTA has also made important advances on the chapter related to investments, by recognizing that each country is free to adopt and enforce any environmental measure that is necessary to ensure that new investments within its territory do not degrade the environment, provided that these measures are applied equally to national and foreign investments. It also establishes that it is inappropriate to promote or retain investments by relaxing environmental standards or their application.

To guarantee the transparency of its procedures, NAAEC publishes and facilitates access to environmental information issued by the relevant public authorities of each country.

5.1.2 Free Trade Agreement between Chile and Canada

The objectives of the Environmental Cooperation Agreement of the Free Trade Agreement between Canada and Chile are:

- to encourage environmental protection and improvement in the territories of the Parties for the well-being of the present and future generations;

- to promote sustainable development based on mutual cooperation and support on environmental and economic policies;

- to increase cooperation between the Parties aimed at conserving, protecting and further improving the environment, including wild flora and fauna;

- to support the environmental goals and objectives of the FTACC;

- to avoid creating distortions or of new barriers to trade;

- to strengthen cooperation in designing and improving environmental laws, regulations, procedures, policies and practices;

- to improve the observance and application of environmental laws and regulations;

- to promote transparency and social participation in the design of environmental laws, regulations and policies;

- to promote effective and economically efficient environmental measures; and

- to promote policies and practices to prevent pollution.

In addition, any of the Parties may submit a written request for consultations regarding omissions in the effective application of the other Party's environmental legislation. In these consultations, the Parties must make every effort to find a mutually satisfactory solution to the matter in dispute.

5.1.3 Free Trade Agreement between Costa Rica and Canada

The objectives of the Environmental Cooperation Agreement signed as part of the Free Trade Agreement between Costa Rica and Canada are:

- to work towards the protection and improvement of the environment in the territories of the Parties for the well-being of the present and future generations;

- to promote sustainable development through environmental and economic policies;

- to strengthen cooperation in the formulation and improvement of environmental laws, procedures, policies and practices;

- to promote transparency and public participation in formulating environmental policy and legislation.

In addition to the institutional structure established to facilitate communications between the Parties, a mechanism was established through which both Costa Rican and Canadian citizens can request information on each Party's environmental legislation. The competent authorities of both Parties must respond to these requests.

This agreement is a legal instrument totally separate from the Free Trade Agreement and does not include trade sanctions or fines of any nature.

5.1.4 Free Trade Agreement between the United States of America and Jordan

The Free Trade Agreement between United States and Jordan entered into force in October of 2000. It addresses the principles of sustainable development through the Environmental Cooperation Agreement. Although this agreement has similar characteristics to those of the other agreements mentioned, it is important to note that it does not specify mechanisms for the participation of civil society,

or mechanisms to settle disputes between the Parties. Nor does it contemplate any type of sanction for contravening the agreement.

5.2 Environmental issues in the hemispheric negotiation processes

The relationship between trade and environment has been discussed in the hemispheric summits, in preparation for the possible signing of a Free Trade Agreement of the Americas. This process began at the Summit held in Miami in December 1994, where the Presidents and Heads of State pledged to create democratic institutions, promote free trade, eliminate poverty and discrimination and establish policies aimed at promoting sustainable development. However, there has only been progress on the second of these objectives, thanks to the negotiations on the Free Trade Area of the Americas (FTAA).

5.2.1 The FTAA process

Despite the fact that the Heads of State have attached great importance to sustainable development at the hemispheric summit meetings, this sentiment has not been reflected in the FTAA negotiations. The position expressed by countries in the process of building this agreement, both during the preparatory phase and in the current phase of negotiations, has been that environmental matters should not be an issue, and this attitude is reflected in the absence of this topic on the negotiation agenda. Some of the reasons cited as a justification are the following (CINPE, 2001):

i. lack of consistency in the formulation of environmental and trade policies by governments. This is confirmed by the fact that, while the Ministers of the Environment and the Foreign Ministries sign Multilateral Environmental Agreements, the Ministries of Trade and Economy or the Trade Divisions of the Foreign Ministries in the Trade Negotiation Forums oppose the inclusion of environmental issues.

ii. concerns that environmental issues may be used as a barrier to market access and that, in pursuit of environmental goals, companies' production costs may increase, with the consequent loss of competitiveness, at least in the short term.

iii. fears that trade sanctions may be used to enforce compliance with environmental agreements.

However, the positions within the FTAA on this matter have not been homogeneous. Thus, while the United States has wished to address environmental issues in the negotiations, Mexico, the Andean Community and the Central American countries have opposed this, while other countries such as Canada, Chile and MERCOSUR are willing to consider some discussion of the issue.

However, while the position of most countries in the FTAA has been to postpone the discussion on the environment and condition it to advances in the WTO Trade and Environment Committee, maintaining this approach implies a risk for countries, given that their most important trading partners (United States and the European Union) attach increasing importance to this issue. Thus, sooner or later, the FTAA countries will have to confront these realities, and by that time, the environmental and trade costs may be much higher.

To achieve an effective integration between trade and environmental objectives, and to address the above-mentioned situations, the following actions have been proposed (CINPE, 2001):

- National environmental assessments: provide technical assistance to developing countries to enable them to carry out national environmental assessments and conduct studies on the internal coherence of their environmental legislation and its applicability,

- Hemispheric environmental information: disseminate all the available information, particularly data on the health and environmental repercussions of economic integration.

- Coordinated technical assistance and capacity building: respond to requests for assistance from developing countries, in order to meet their needs in terms of environmental infrastructure and legislation, and coordinate these efforts at the hemispheric level in order to establish a standard with regional backing.

- An effective role for civil society: take advantage of the capacities of the private sector and non-governmental organizations in policymaking and the provision of technical assistance.

- Construction of an International Environmental Agenda: participate in the construction of an international environmental agenda defining the country's position after consultations and participation by civil society.

5.2.2 MERCOSUR

The Common Market of the Southern Cone (MERCOSUR) is a sub-regional integration Agreement involving Brazil, Argentina, Uruguay and Paraguay, with Chile and Bolivia participating as associate members. Currently MERCOSUR is a customs union, whose members all apply the same tariffs; however, the idea is to establish a common market that more closely resembles that of the European Union than that of NAFTA.

MERCOSUR also has established legal mechanisms linking trade and environment. For example, it has adopted resolutions regarding pesticides, energy policies and regulations on the transportation of hazardous products. In 1992, the Environment Ministers of the member countries signed the Canela Declaration, which laid the foundations for subregional cooperation and created a group called the Specialized Meeting on Environment. This group is responsible for reviewing environmental legislation, standards and practices in the four countries. This body in turn created Subgroup N° 6 on the Environment, recognized as MERCOSUR's technical working group for dealing with issues such as the environment and competition, non-tariff barriers to trade etc.. It is also considering the possibility of setting up an environmental information system.

It is important to mention that in recent years MERCOSUR has been negotiating a new protocol on the environment that promotes social participation, the harmonization of land use systems and greater cooperation in the management of shared ecosystems. Specifically, the Protocol contemplates:

- Provisions on environmental regulation instruments, including quality standards, methods for assessing environmental impacts, environmental cost monitoring, environmental information systems and certification processes;

- A chapter on protected areas and another on conservation and sustainable use of natural resources, as well as a wording proposal on biosafety, wildlife, forests, soils, air and water conservation;

- Provisions on the protection of health and quality of life, social participation, regional cooperation and other regional mechanisms for implementing the protocol.

In MERCOSUR, the role of civil society is established in the Ouro Preto Protocol, through participation in an Economic and Social Consultation Forum. This forum receives information from workers and consumers, and has an active role in the technical sub-committees of MERCOSUR.

5.2.3 The Andean Community

At the end of the 1990s the Presidents of the Andean Community countries entrusted the region's environmental authorities with the formulation of a community-wide policy on environmental management and sustainable development, in order to reinforce the Andean nations' negotiating capacity in international environmental forums.

In accordance with this mandate, the Andean Commission of Environmental Authorities proceeded to analyze the environmental issues of greatest priority in the subregion, as well as the commitments assumed by the Member countries in international forums, up until that time. Said analysis led to the formulation of Guidelines for environmental management and sustainable development in the Andean

Community a document that constitutes the first collective effort to address environmental issues in the Andean subregion.

The document contemplates both internal and external aspects. The internal aspects are related to environmental issues within the Andean integration process, and address issues such as the conservation and sustainable use of biodiversity and environmental quality. The external aspects are concerned with defining the Andean Community's position in international environmental and trade forums, and addressing trade and environment issues in the context of these forums.

The efforts described above mark the start of a process in which different national and regional stakeholders must continue to participate in order to identify environmental priorities and propose alternative solutions that can be consolidated into a regional management initiative.

5.3 The Winnipeg Principles

In an effort to integrate environmental and trade concerns, the International Institute for Sustainable Development (IISD) sponsored the formulation of a set of principles between 1992 and 1993. These became known as the Winnipeg Principles on Trade and Sustainable Development.[11]

The application of these principles in the FTAA negotiations - as occurred in MERCOSUR - could generate important benefits. It would allow the hemisphere's inhabitants to enjoy greater prosperity accompanied by a healthier environment, since issues such as agriculture, food safety, intellectual property and investment all have significant environmental components.

The Winnipeg Principles include the following:

[11] The IISD is headquartered in Winnipeg, Canada .

- Efficiency and cost internalization: supporting a more efficient use of resources and ensuring that their true value is reflected in the costs, through a more developed trade regimen in the Americas.

- Environmental integrity: developing trade systems in the Americas that contribute to preserve environmental integrity, taking into account the regeneration capacity of ecosystems, preventing irreversible damage and protecting areas that are threatened.

- Equity: supporting a fair distribution of physical and natural capital, knowledge and technology, both within a specific generation and between different generations in the Americas.

- International cooperation: developing trade systems that promote cross-border linkages and identities and improve international cooperation systems at all levels.

- Subsidiarity: ensuring that decision-making occurs at the most effective level possible.

- Science and precaution: respecting the precautionary principle in trade regimens, especially in short-term situations and when there is a lack of scientific evidence; this principle also emphasizes that the objective criteria of science can strengthen long-term decision-making.

- Openness: conducting trade negotiations in a transparent and participatory manner, with maximum participation by civil society.

CHAPTER

6

Some Final Thoughts

The trade – environment link is a two-way relationship: trade policy has environmental implications and environmental policy has trade implications. Trade policy – in principle– helps to stimulate economic growth, which can lead to an increased demand for goods that produce pollution, but also to greater demands for a cleaner environment. By bringing about changes in production volumes and in the composition of goods produced in the economy, trade policy can alter the scale and nature of environmental degradation problems. And, by generating changes in the localization of productive activities, environmental policy can also contribute to changing the spatial distribution of the sources of environmental degradation.

At the same time, by affecting domestic and international prices (in order to internalize externalities), environmental policy affects the terms of exchange, thereby producing changes in the volume and composition of trade flows between countries. Environmental policy can also help create new markets, which in turn gives rise to movements of goods and services between countries, for example, markets for goods that would probably be produced mainly by developed countries, such as cleaner technologies; markets for environmental services that would almost certainly be provided by developing countries, such as fixing carbon dioxide and protecting biodiversity; and markets for goods produced through more environment-friendly productive processes, such as organic agriculture. Differences in environmental policies can also prompt the relocation of productive activities from one country to another. For example, a country with few environmental regulations may encourage the relocation or installation of polluting activities; on the contrary, one with appropriate environmental regulations will attract activities in sectors that must comply with environmental quality standards in their production processes, due to changes in consumer demand.

In the last decade, the trend toward open markets and trade liberalization has fueled concerns in both areas. The sectors concerned with protecting the environment fear the damage that may be caused by opening up trade and international investment flows. However, those that favor trade liberalization are concerned that environmental

protection regulations will function as a non-tariff barrier that will interfere with free trade, with the aim of protecting national producers from international competition.

These divergent positions underscore the fact that there is an ideological-conceptual dimension to the relationship between trade – environment. This leads us to the question: what are the effects of international trade –and particularly, of increased trade liberalization– on the environment? The answer to a question of such scope –as is to be expected– has involved opposing theories and ideological points of view.

However, beyond the theoretical and ideological aspects, the answer to this question is, essentially, an empirical matter. In this case, it is also difficult to obtain conclusive results, even among economists. The world is possibly not as simple as suggested by the basic model of international trade, which is traditionally used as a frame of reference in empirical studies; in addition, the political and institutional context is important, as is the production structure of the countries.

Another major element in the discussions on trade and environment is the possibility of using trade policies for environmental purposes and environmental policies for trade purposes. For example, hard-line environmentalist groups would most likely favor the first option; by contrast, uncompromising defenders of free trade would probably oppose any type of environmental policy that could potentially interfere with trade, including legitimate policies to correct environmental externalities. They would advocate the subordination of environmental policy to the objectives of trade policy.

The vision of sustainable development in the design of public policies overcomes this argument by recognizing that environmental policies should pursue environmental objectives and that trade policies should pursue trade objectives; however, the trade objectives should not compromise the environmental goals and vice-versa. Furthermore, the vision of sustainable development proposes that both types of policies should contribute to achieve the sustainable development of agriculture and rural life, in

pursuit of competitiveness, equity and social inclusion and the sustainable management of natural resources.

A country's environmental policy should contemplate an appropriate combination of instruments, including market-based instruments, regulations and negotiations based on consensus with the relevant stakeholders. Environmental policy must have clear objectives in order to facilitate its monitoring and evaluation, and foster dialogue between the government, the productive sectors and other parties concerned with the environment.

To ensure that trade agreements are compatible with the environment and with environmental policy objectives, it is essential to strengthen citizen participation, the institutional framework and national and regional legislation. At the same time, it is important to facilitate access to information and promote the necessary technical and financial assistance to promote agreements and execute actions towards achieving sustainable regional development. In addition, it is necessary to design and implement methodologies for evaluating the environmental aspects of trade agreements, in order to ensure the complementarity and efficiency of environmental and trade policies and to maximize social well-being.

Another important action is to promote the application of "positive measures ", instead of restrictive measures, to support developing countries in their efforts to establish more rigorous environmental standards and to help them achieve the objectives agreed in the context of multilateral environmental agreements. These positive measures could be aimed at alleviating the sectoral vulnerability of developing countries; strengthening the competitiveness of small businesses; and mitigating the effects of the MEAs on trade and development.

The emergence of an anti-globalization movement in the last few years - in which environmental concerns are an important battle standard - and growing interest in the development of mechanisms to promote free trade (which captured public attention during the Symposium organized at the Cancun meeting) underscore the need for greater

dialogue between environmental policymakers and trade policymakers. Undoubtedly, this dialogue must increase significantly in the coming years, especially in the light of recent events such as the difficulties encountered in Cancun to achieve significant agreements. Undoubtedly, the discussion on trade and the environment must be a two-way process.

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ANNEXES

ANNEX A: Issues on the Agenda of the WTO Committee on Trade and Environment

The main tasks of the WTO Committee on Trade and Environment (CTE) are: to identify the links between trade measures and environmental measures in order to promote sustainable development, make recommendations and, where necessary, introduce modifications in the provisions of the multilateral trade system. The CTE's work agenda has been organized around the following issues:

i. The links between the provisions of the multilateral trade system and trade measures adopted for environmental purposes, particularly by virtue of the multilateral environmental agreements (MEA).

ii. The links between trade-related environmental policies and environmental measures that have significant effects on trade, and the provisions of the multilateral trade system.

iii. The links between the provisions of the multilateral trade system and charges and taxes applied for environmental purposes.

iv. The links between the provisions of the multilateral trade system and measures applied to products for environmental purposes, including technical standards, regulations and packaging, labeling and recycling requirements.

v. The provisions of the multilateral trade system regarding the transparency of trade measures used for environmental purposes and environmental measures and requirements that have significant trade effects.

vi. The links between the dispute settlement mechanisms of the multilateral trade system and those contemplated in the MEA.

vii. The effects of environmental measures on market access, especially in developing countries, and, particularly, in the least advanced countries, and the resulting environmental benefits of eliminating trade restrictions and distortions.

viii. The export of goods whose sale is prohibited in the country of origin.

ix. The relevant provisions of the Agreement on Trade-related Aspects of Intellectual Property Rights.

x. The Work Program contemplated in the Decision on Trade in Services and the Environment.

xi. Information to the competent bodies regarding the appropriate provisions that must be adopted in relations with intergovernmental and non-governmental organizations referred to in Article V of the WTO agreement.

ANNEX B: Environmental Cooperation Agreements included in Free Trade Agreements

Environmental Cooperation Agreements				
General Aspects	NAFTA	Canada-Chile	Canada-Costa Rica	USA-Jordan
Entered into force	1 January 1994	5 July 1997	1 January 2002	24 October 2000
References to environmental aspects contained in the free trade agreement.	The agreement contemplates cross-retaliation, using trade sanctions to enforce compliance with environmental regulations. Countries are discouraged from attracting investment by relaxing domestic environmental health or safety measures.	Complementary agreement to the FTA. Does not contemplate any type of cross-retaliation. Discourages the promotion of investment through the relaxation of domestic environmental health or safety laws.	Agreement separate from FTA. Does not contemplate cross-retaliation or any type of sanctions.	Parallel agreement. Does not contemplate cross-retaliation. Promoting trade by relaxing domestic environmental laws is considered inappropriate.
Maximum Authority	Commission for Environmental Cooperation (CEC), comprising representatives of all the Parties: of the Ministry of the Environment, in the case of Canada, the Environmental Protection Agency, in the case of the USA, and the Minister of the Environment and Natural Resources of Mexico.	Commission for Environmental Cooperation, comprising environmental authorities of both countries: for Canada, the Minister of the Environment, and for Chile, the Executive Director of the National Environment Commission.	Costa Rica's representative is the Vice-Minister of the Environment and Energy. Canada has appointed the Environment Directorate, the Americas Branch and the International Relations Directorate.	The agreement establishes the Joint Forum for Technical Cooperation but does not explicitly mention who will constitute the Forum.

Environmental Cooperation Agreements				
General Aspects	NAFTA	Canada-Chile	Canada-Costa Rica	USA-Jordan
Entered into force	1 January 1994	5 July 1997	1 January 2002	24 October 2000
Review	The NAAEC Council will oversee and review the operation and effectiveness of the agreement at least once a year at the regular meetings.	The CCRAEC Council will review compliance with the commitments contained in the Environmental Cooperation Agreement every two years.	The Parties will meet every two years or more often, as required, to review the progress of the agreement.	The Forum will meet on a regular basis, though the frequency is not specified in the agreement.
Institutional framework	The NAAEC establishes rules for the administration of the agreement, the settlement of disputes, and cooperation mechanisms and sanctions.	The CCRAEC establishes rules for the administration of the agreement, the settlement of disputes and cooperation mechanisms.	The CCRAEC establishes rules for the administration of the agreement, the settlement of disputes and cooperation mechanisms.	The agreement does not specify rules regarding its administration or dispute settlement mechanisms.
Cooperation	Cooperation between the Parties involves technical-environmental cooperation for the conservation, protection and improvement of the environment.	Cooperation between the Parties basically consists of technical-environmental cooperation for the conservation, protection and improvement of the environment.	Potential areas of cooperation would be aimed at strengthening environmental management systems. Also seeks to expand and strengthen the role of groups and sectors that do not participate in the design and execution of environmental policies.	Cooperation between the Parties will basically consist of technical cooperation on environmental issues.

Environmental Cooperation Agreements				
General Aspects	NAFTA	Canada-Chile	Canada-Costa Rica	USA-Jordan
Entered into force	1 January 1994	5 July 1997	1 January 2002	24 October 2000
Civil society	The agreement encourages civil society participation and provides a mechanism for organizations or individuals (fact file). Participation is regulated by the environmental laws and regulations of each Party.	Each Party commits to ensure that interested persons can ask the competent authorities to investigate alleged violations of environmental laws and regulations. For this, citizens are provided with access to legal or administrative proceedings.	Any interested party can request the investigation of alleged violations of environmental laws. The government will consider these requests according to the national legislation.	The agreement contemplates participation by civil society; however, the mechanisms for this participation are not specified.
Settlement of disputes	Any dispute will be settled through the consultation mechanisms established by the Parties. If the dispute persists within a period of 60 days after the meeting of the NAAEC Council, this body may decide, with the vote of two-thirds of its members, to form a panel.	Any dispute arising between the Parties will be settled via consultation mechanisms that effectively address those differences. If the dispute persists, an arbitration panel will be convened. If any non-compliance is determined the panel may impose a fine.	Disputes will be settled through the cooperation and consultation mechanisms established by the Parties.	The Environmental Cooperation Agreement does not establish a mechanism for settling disputes between the Parties.

Environmental Cooperation Agreements				
General Aspects	NAFTA	Canada-Chile	Canada-Costa Rica	USA-Jordan
Entered into force	1 January 1994	5 July 1997	1 January 2002	24 October 2000
Arbitration panel	The Panel will present a report on the results of the investigation to the Parties, within 180 days following the appointment of the last panelist. The final report will be presented 60 days later. The Panel may impose a monetary sanction on the accused Party, if the case merits this.			
Sanctions	A monetary sanction of up to 20 million dollars may be imposed where appropriate plus the suspension of the benefits derived from the FTA. The fine will be used to improve or strengthen the application of environmental legislation of the accused Party.	Imposition of a monetary sanction of up to 10 million dollars, which will be used to improve or strengthen the application of environmental legislation of the accused Party.	As dictated by domestic environmental legislation.	Does not contemplate any type of sanction.