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# TRADE AND THE ENVIRONMENT

Based on: *Environmental and Natural Resource Economics: A Contemporary Approach* by Jonathan M. Harris  
(Houghton Mifflin, 2002, <http://college.hmco.com>)

## 1. ENVIRONMENTAL IMPACTS OF TRADE

World trade expansion has raised the issue of the relationship between trade and the environment. Is trade good or bad for the environment? The answer is not obvious. The production of goods that are imported and exported, like other production, will often have environmental effects. But will these effects increase or decrease with expanded trade? Will they affect the exporting nation, the importing nation, or the world as a whole? And whose responsibility is it to respond to environmental problems associated with trade? Questions such as these have received increasing attention in recent years.

International attention was first focused on these issues in 1991, when the Mexican government challenged a United States law banning imports of tuna from Mexico. The U.S. Marine Mammal Protection Act prohibited tuna fishing methods that killed large numbers of dolphins, and banned tuna imports from countries that used such fishing methods. The Mexican government argued that this U.S. law was in violation of the rules of the **General Agreement on Tariffs and Trade (GATT)**.

According to the free trade principles that provided the basis for GATT and for its successor, the **World Trade Organization (WTO)**, countries cannot restrict imports except in very limited cases such as protection of the health and safety of their own citizens. A GATT dispute panel ruled that the U.S. could not use domestic legislation to protect dolphins outside its own territorial limits.

Although Mexico did not press for enforcement of this decision, the tuna/dolphin decision opened a major controversy over issues of trade and environment. In a similar case in 1999, the World Trade Organization ruled that the U.S. could not prohibit shrimp imports from countries using fishing methods that killed endangered sea turtles.

The implications of this and the earlier tuna/dolphin decision could affect many other international environmental issues, such as forest protection, ozone depletion, hazardous wastes, and global climate change. All these issues are linked to international trade.

NOTE – terms denoted in <b>bold face</b> are defined in the <b>KEY TERMS AND CONCEPTS</b> section at the end of the module.
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To address these questions, we need to examine the theory and practice of international trade. Most economists believe that expanded trade is generally beneficial, promoting increased efficiency and greater wealth among trading nations. But what if expanded trade causes environmental damage?

At the national level, the standard economic policy response to environmental impacts is to implement policies that internalize externalities. At the international level, however, the picture is more confused. The burden of environmental externalities associated with trade may be borne by importers, exporters, or by others not directly involved in the production or consumption of traded goods. The authority to formulate and enforce environmental policies usually exists only at the national level. This can create significant problems when environmental impacts are transnational, since most international trade agreements do not include any provisions for environmental protection.

### Comparative Advantage and Environmental Externalities

We can use economic theory to analyze some of the gains and losses associated with environmental effects of trade. The theory of **comparative advantage** tells us that both trading partners gain from trade through specializing in the goods that they can produce most efficiently. But this basic theory does not consider environmental **externalities** that may be associated with the production or consumption of goods. Consider Figure 1, which shows the welfare effects of an imported good, using automobiles as an example.

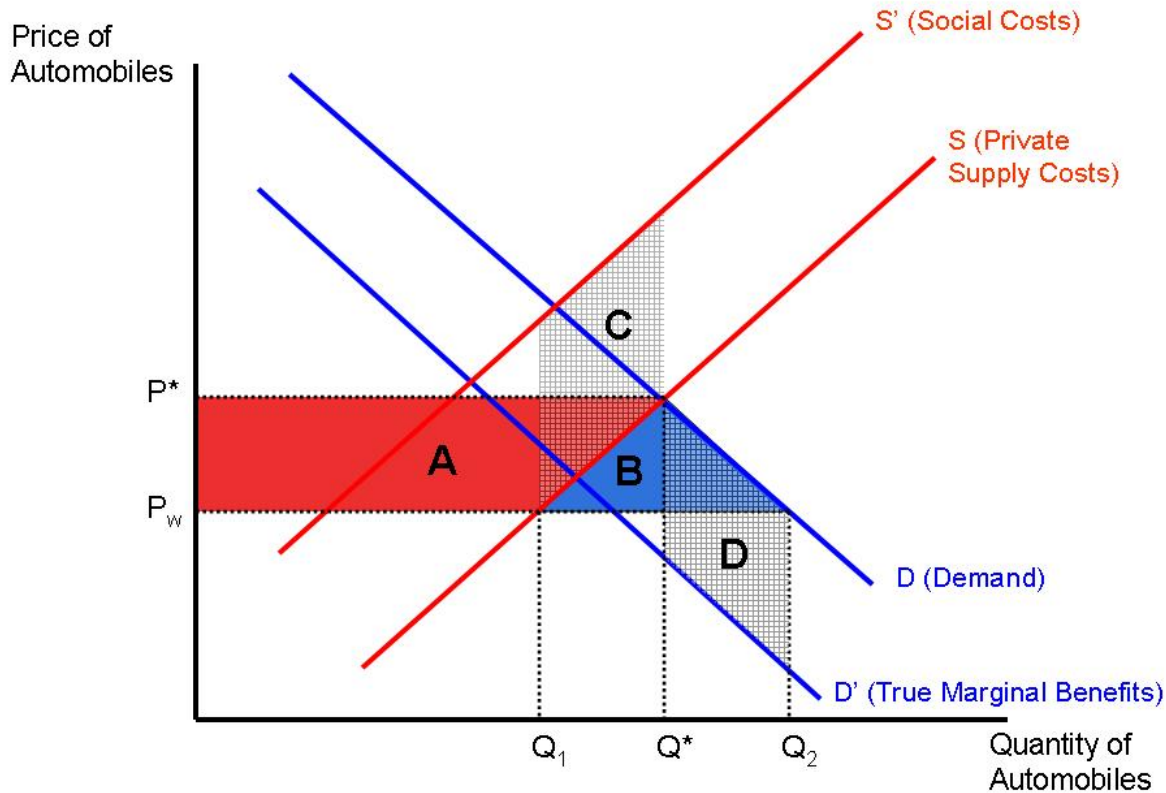
The supply curve  $S$  takes into account private costs, whereas  $S'$  shows social costs including both private costs and externalities.  $P^*$  is the domestic price in the absence of trade, whereas  $P_w$  is the world price, which will also be the domestic price under conditions of free trade.<sup>1</sup>  $Q^*$  is the quantity produced domestically with no trade, while with free trade  $Q_1$  is produced domestically and  $(Q_2 - Q_1)$  is imported, for a total domestic consumption of  $Q_2$ .

How does trade affect domestic economic welfare? Domestic producers of automobiles lose the shaded area  $A$ , since they now sell fewer cars at a lower price. Domestic consumers gain areas  $A+B$ , since they can now buy more cars at the same lower price. The net gain from trade is therefore  $(A+B) - A = B$ .

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<sup>1</sup> This example shows trade in a relatively small country whose demand has no effect on world prices - hence world price is shown as a constant.

**Figure 1. Gains and Losses from Importing Automobiles**



But this leaves out any environmental externalities associated with trade. If the production of automobiles causes environmental damage, then by lowering production the country gains cross-hatched area C in reduced environmental costs -- costs which are shifted to countries producing cars for export. On the other hand, if environmental damage is associated with the consumption and use of automobiles, lowering the true marginal benefits from consumption, then trade increases the environmental costs of consumption by the shaded area D.

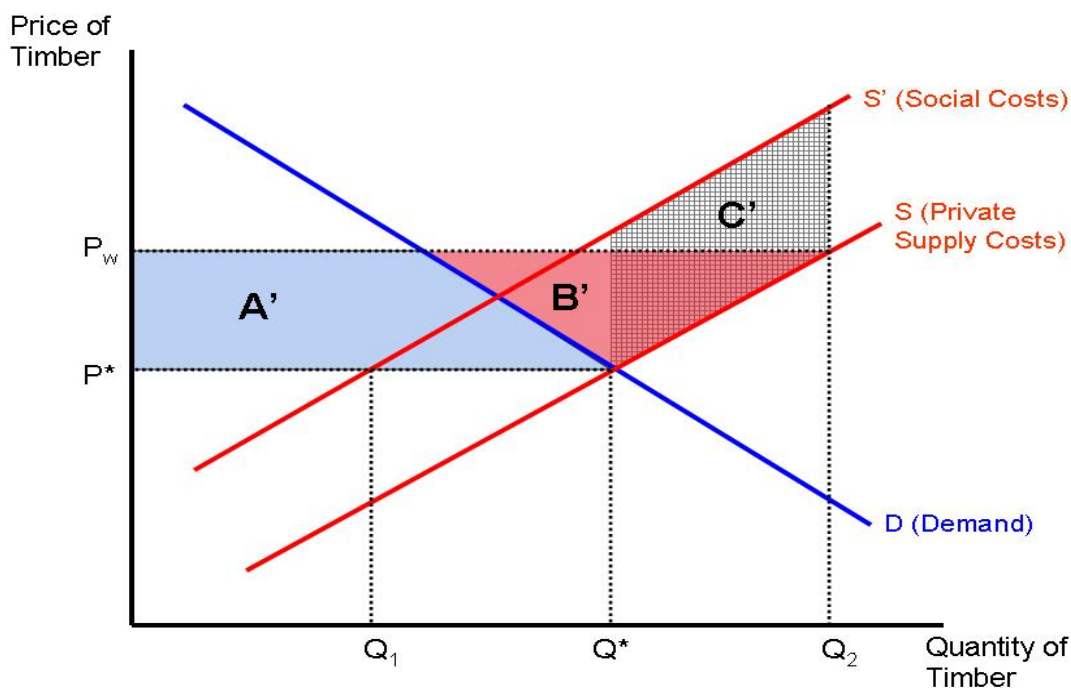
This has important implications for trade theory. In the basic trade case without externalities, we can state unambiguously that there are overall **gains from trade**. Even though one group (automobile producers) loses, the gains to consumers outweigh these losses. But once we introduce externalities, we can no longer be so sure that there are net gains from trade. It depends on the nature and size of the environmental damages C and D. Of course, there are policies that can internalize these external costs, such as environmental taxes, permits, or regulations. But unless we can be confident that such policies will be put in place, we cannot be sure that there will be a net gain from trade.

## Environmental Effects of Expanding Resource Exports

Environmental effects must also be figured into the analysis of the effects of trade on an exporting country. This is shown in Figure 2. Here we use timber exports as our example. In the ordinary analysis of trade without externalities, timber producers gain areas  $A' + B'$  since with trade they can produce and sell more timber, at the higher world price  $P_w$ . Domestic consumers of timber lose  $A'$ , being able to afford less timber at the higher world price. The net gain to the country is  $B'$ .

The external costs associated with higher timber production – which could include land and watershed degradation as well as user costs, option values, and ecological costs – are shown by the area of  $C'$ . We cannot tell for sure how  $B'$  and  $C'$  compare in size.<sup>2</sup> Thus we cannot say unambiguously that there are net benefits from trade to this exporting country. In more commonsense terms, it is not clear that the economic benefits of increased exports outweigh the environmental damage associated with expanded logging.

**Figure 2. Gains and Losses from Exporting Timber**



<sup>2</sup> Note that the reduced domestic consumption of timber might also reduce negative externalities associated with timber consumption, such as water pollution from the processing of timber into paper. Similar to Figure 1, this impact could be modeled with a demand curve shifted to the left to reflect the true marginal benefits.

It may be possible to **export pollution** by importing goods whose production involves high environmental impacts. In addition, expanded trade tends to increase the scale of production for the world as a whole, meaning that the total volume of pollution and environmental damage is likely to increase. Trade also necessarily involves energy use for transportation, with resulting air pollution and other environmental impacts. There can also be indirect environmental effects of trade, for example when peasant farmers are displaced by larger-scale export agriculture onto marginal lands such as hillsides and forest margins. Specific kinds of trade, such as trade in toxic wastes or endangered species, have obvious environmental impacts.

Trade may also have environmentally beneficial effects. Freer trade may facilitate the spread of environmentally friendly technology, and the tendency of trade to promote more efficient production will tend to reduce materials and energy use per unit of output. In addition, trading nations may come under pressure to improve environmental standards when product quality or transboundary impacts are at issue.<sup>3</sup> How can we balance the economic gains from trade against the reality that trade shifts environmental impacts, sometimes increasing and sometimes decreasing total external costs?

## 2. TRADE AND ENVIRONMENT: POLICY AND PRACTICE

Many developing countries grow agricultural crops for domestic sale as well as for export. With increased trade – which is often a major feature of **structural adjustment** policies required by international agencies such as the International Monetary Fund and the World Bank – the area devoted to export crops increases. What are the environmental effects of shifting to export crops? In some cases they can be significant, and harmful.

A study of Mali, for example, finds that the development of cotton as a cash export crop

“has substantially increased the cultivated area and markedly reduced the fallow period. . . the profitability of cotton led farmers to increase greatly the area cultivated, extending onto marginal land. There is evidence of farmers’ occupying and working land in excess of their real needs in order to forestall its use by others. Almost no fallowing is practiced in the region. The environmental effects are evident in land degradation and soil erosion owing to overcultivation, insufficient fallow, and the use of marginal land against a backdrop of increasing aridity.”<sup>4</sup>

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<sup>3</sup> Examples could include pesticide residues in food or water pollution.

<sup>4</sup> Reed, 1996, pp. 86 and 96.

On the other hand, export crops may sometimes be more environmentally friendly than the domestic crops they replace. In Latin America and Africa, tree crops such as coffee and cocoa can help to prevent erosion. In a more controversial case in Kenya, horticulture (growing flowers for the European market) provides a high-value export that is claimed to have little negative environmental effect, although concerns have recently been raised about the health and environmental effects of pesticide use in horticulture. In the Kenyan case, the flowers are flown to Europe by jet, so transportation energy use could raise an environmental issue – but proponents argue that the energy consumed in jet fuel is less than the energy needed to grow similar flowers in heated greenhouses in Europe.

Much depends not on trade alone, but on domestic political conditions. **Dualistic land ownership**, with large landowners wielding considerable political power displacing small farmers and growing crops primarily intended for export, can be doubly damaging to the environment. In Central America, for example, improved infrastructure for transportation and trade led to “a technical shift to higher-profit, input-dependent farming. Maize and beans gave way to cotton, tomatoes, strawberries, and bananas. The value of farmland naturally increased, which benefited privileged land-owning elites but led many poor farmers to be promptly evicted. These small farmers had no choice but to move on to drier lands, forests, hillsides, or lands with shallow and less fertile soils.” At the same time the affluent farmers “use their influence to demand environmentally damaging input subsidies, which in turn lead them to overmechanize, overirrigate, and overspray.”<sup>5</sup>

Health and safety issues arising in trade are not always easily resolved at either the domestic or international levels. Domestic regulations that prohibit the sale of, for example, a toxic pesticide, do not apply internationally. “Goods that are restricted in domestic markets, on the grounds that they present a danger to human, animal or plant life or health, or to the environment, may often be legally exported. This may cause a problem for the importing country, where information is lacking on whether and why the product is banned: exporters may make false declarations, customs authorities (particularly in developing countries) may lack adequate product testing facilities.”<sup>6</sup>

According to **GATT Article XX**, countries are allowed to restrict trade in order to “conserve exhaustible natural resources” or to protect “human, animal or plant life or health.” However, the interpretation of this special exception to free trade rules has led to fiercely contested disputes among countries.

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<sup>5</sup> Paarlberg, 2000, p. 177.

<sup>6</sup> Brack, 1998, p. 7.



For example, European nations have refused to allow imports of U.S. beef produced with hormone supplements. The U.S. has argued that since there is no *proven* harm to human health from the use of hormones, this is an illegal barrier to trade. The Europeans, however, cite the **precautionary principle**: since they fear the possible effects of hormones, shouldn't it be their prerogative to decide what they will allow for domestic consumption?

### Product and Process Issues

A similar issue has arisen over the use of genetically engineered crops. While unlabeled genetically engineered foods are allowed in the U.S., they are widely opposed in Europe. Should European countries be able to ban the import of genetically engineered foods? The issue has enormous implications both for agribusinesses who see great profit potential in genetic engineering, and for many consumers who strongly oppose it.

The issue is further complicated because much of the opposition to genetic engineering is based not on possible human health effects (which, if proved, would be a valid reason for trade restrictions under Article XX), but on the likely environmental impacts of genetically engineered crops. Pollen from such crops can easily spread into the environment, disrupting fragile ecosystems and possibly creating "superweeds" resistant to pesticides. But under GATT and WTO rules, the *process* by which a product is produced is not an acceptable cause for trade restrictions. Only if the *product* itself is harmful can a country impose controls.

For example, if pesticide residues at dangerous levels are detected on fruit or vegetables, import of those products can be banned. But if the overuse of pesticides is causing environmental damage in the producing areas, the importing nation has no right to act. Similarly, if rainforests are being destroyed by unrestricted logging, it is not permissible for countries to impose a ban on the import of unsustainably produced timber.

This **process and production methods (PPM)** rule removes an important potential weapon for international environmental protection. If a nation fails to act to protect its own environment, other countries have no trade leverage to promote better environmental practices. Only if a specific **multinational environmental agreement (MEA)**, such as the Convention on International Trade in Endangered Species (CITES), is in place are import restrictions permissible.

This principle was at issue in the tuna/dolphin and shrimp/turtle decisions mentioned earlier, in which trade authorities ruled that nations had no jurisdiction over extraterritorial environmental issues. But in an increasingly globalized world, such issues are more and more common. Simply waiting for the producing country to "clean up its act" is likely to be insufficient.

## Trade and Domestic Policy

Trade can impact domestic as well as international policy, weakening the autonomy of nations to define their own environmental and social policies. Concerns have arisen of a “**race to the bottom**”, in which nations reduce environmental and social standards in order to gain competitive advantage.

“Producers located in member states enforcing strict process standards will suffer a competitive disadvantage compared with producers located in member states enforcing less strict standards. All things being equal, this may result in increased sales, market share and profitability for those producers located in low-standard member states . . . faced with the prospect of their industries suffering a competitive disadvantage when compared with companies located in low-standard jurisdictions, member states may choose not to elevate environmental standards or may even relax current standards.”<sup>7</sup>

The North American Free Trade Agreement (NAFTA) has produced cases in which corporations have challenged environmental regulations as barriers to trade.<sup>8</sup> The Canadian asbestos industry sought to remove U.S. restrictions on the sale of cancer-causing asbestos products, while the U.S. pesticide industry challenged strong Canadian pesticide regulations. In one case, the Ethyl Corporation (based in the U.S.) successfully overturned a Canadian ban on the importation and sale of the gasoline additive MDMA, a chemical suspected to cause nerve damage. Canada was required not only to eliminate the ban, but also to pay \$10 million compensation to Ethyl Corp. for legal costs and lost sales.

Trade expansion may also have direct or indirect beneficial effects on the environment. According to the theory of comparative advantage, trade causes countries to become more efficient in their use of resources, thereby conserving resources and avoiding waste. Trade liberalization may also involve removal of distortionary subsidies and pricing policies, improving the efficiency of resource allocation. For example, widespread subsidies on chemical fertilizers and pesticides promote environmentally harmful farming methods – but such subsidies to domestic producers are generally prohibited in trade agreements. Eliminating these subsidies would promote both economic efficiency and environmental sustainability.

Trade may also encourage the spread of environmentally friendly technology. In energy production, for example, many developing and formerly communist nations are heavily dependent on old, inefficient, high-polluting power plants. Trade can facilitate the replacement of these plants with modern, highly efficient combined cycle facilities or

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<sup>7</sup> Brack, 1998, p. 113.

<sup>8</sup> The parties to the NAFTA are the United States, Canada, and Mexico. Discussions are underway to create a Free Trade for the Americas (FTAA), which would extend NAFTA-like rules to all of North and South America.

(as in India) encourage a growing wind-power sector. Multinational companies, sometimes seen as offenders in the exploitation of developing country resources, can also introduce efficient technologies into industrial sectors. Multinationals may be responsive to domestic political pressures to develop cleaner industrial processes, which they then disseminate throughout their worldwide operations.

“Foreign investment affects the environment in many ways. In resource-based industries, especially oil extraction and mineral mining, it can lead to significant local environmental degradation as demonstrated in, for example, Nigeria, Indonesia, and Papua New Guinea. Foreign investment in the manufacturing sector, on the other hand, can lead to the employment of later vintage and possibly less resource- and pollution-intensive technology”<sup>9</sup>

On the negative side, globalization of trade can also create “boomerang” effects through the transboundary exchange of externalities. Poor laborers who apply pesticides without safety precautions suffer harmful effects, as do adults and children who drink water from streams polluted by runoff. In addition, harmful effects return to the United States through fruits containing residues of dangerous chemicals.

The relationship between trade and environmental quality is clearly complex. Economic growth based on free trade reduces some negative environmental impacts but exacerbates others. (For more on the relationship between economic growth and environmental quality, see Box 1).

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<sup>9</sup> Neumayer, 2001.

## BOX 1. THE ENVIRONMENTAL KUZNETS CURVE DEBATE

Defenders of free trade have often relied on what has come to be known as the **Environmental Kuznets Curve (EKC)** principle, which asserts that environmental damage increases in the early stages of growth, but diminishes once nations reach higher levels of income (see Figure 3). According to this theory, after passing through a "dirty" stage of development, nations will put effort into "cleaning up" and may also shift to less-polluting production methods. More open trade will therefore accelerate the process of achieving both economic growth and a cleaner environment.

Is the EKC principle supported by empirical data? The picture is mixed. A study by Grossman and Krueger found it to be effective for a limited number of air and water pollutants.<sup>i</sup> But other important environmental pollutants, such as nitrogen oxides, carbon monoxide, carbon dioxide, methane, and tropospheric ozone, were not included, nor were municipal wastes or measures of ecosystem degradation such as species loss, soil degradation, or groundwater depletion.

According to a World Bank study, carbon dioxide emissions and municipal wastes continued to increase with economic growth. And even for those pollutants which seem to conform to an EKC the "turning points" are high enough, ranging from \$2000 to \$12,000 in income, to imply a considerable increase in pollution for most of the world's developing nations before any improvement would be noted. According to one EKC study, the estimated global "turning point" for sulfur dioxide would not come until 2085, by which time global emissions would be 354 percent above 1986 levels; suspended particulate matter would peak in 2089 at 421 percent higher emissions, and nitrogen oxides in 2079 with 226 percent higher emissions.<sup>ii</sup>

Another review of EKC studies suggested that "using different indicators, more explanatory variables than income alone, and the estimation of different models, the EKC results are generally not reproduced. This should be a warning to those who too superficially have concluded that economic growth is, by nature, a benefit for the environment and that economic growth can be proscribed as the remedy to environmental problems."<sup>iii</sup>

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<sup>i</sup> Grossman and Krueger, 1995. The pollutants they tested were: sulfur dioxide, smoke, and particulate matter in air; oxygen loss, fecal contamination, and heavy metal contamination in water.

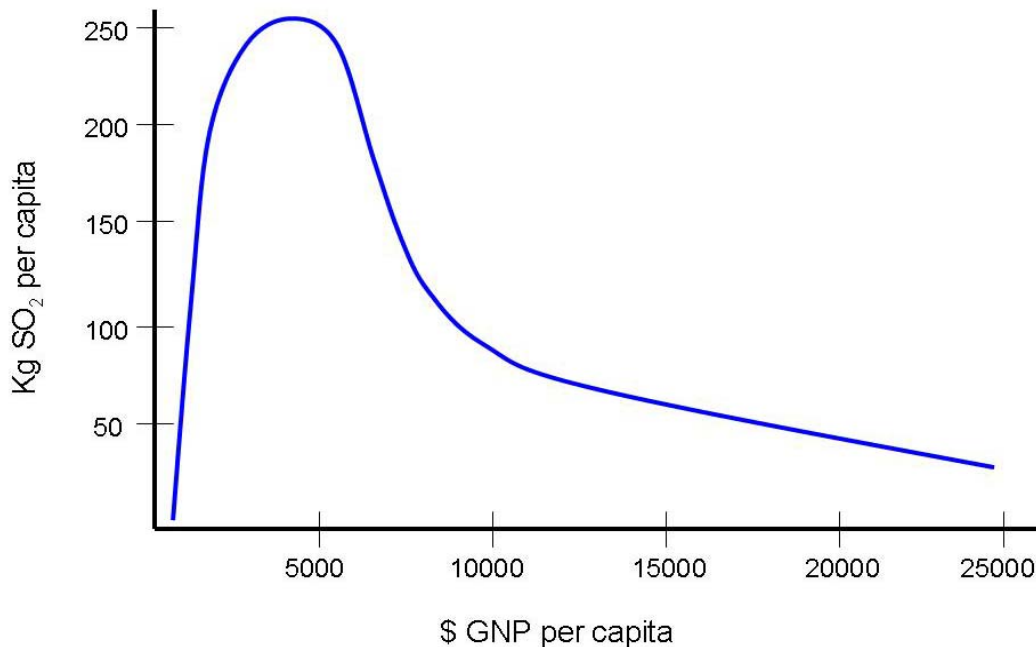
<sup>ii</sup> Selden and Song, 1994.

<sup>iii</sup> Rothman and de Bruyn, 1998. See also Stern, 1998.

## BOX 1. THE ENVIRONMENTAL KUZNETS CURVE DEBATE (CONTINUED)

Clearly, trade-led growth can have significant environmental impacts. Although economic growth may increase the capabilities of nations to promote environmental protection, avoiding unacceptable levels of environmental damage will require specific policies to reduce pollution.

**Figure 3. Environmental Kuznets Curve for Sulfur**



Source: Panayotou, 1993.

### 3. TRADE AGREEMENTS AND THE ENVIRONMENT

What institutions and policies can be effective in balancing the goals of trade benefits and environmental protection? A variety of approaches have been suggested, some similar to the standard free trade model, and some which are significantly different. These approaches include:

#### The World Trade Organization Approach

This approach retains the overarching policy goal of free or “liberalized” trade, pursued for five decades through “rounds” of trade agreements under the General Agreement on Tariffs and Trade (GATT), which became the World Trade Organization in 1994. The GATT and the WTO, whose membership now includes over 120 nations, have worked to

lower tariffs and nontariff barriers to trade, as well as to eliminate subsidies for export industries.

Although the WTO recognizes a special exception to trade rules under Article XX for resource conservation and environmental protection, its panel rulings have interpreted this narrowly. WTO authorities tend to be suspicious of “**green protectionism**” – the use of trade barriers to protect domestic industry from competition under the guise of environmental regulation. They are also unsympathetic to efforts by nations to use trade measures to affect environmental policy outside their borders.

From the WTO perspective, the responsibility for environmental policy should remain at the national level. As far as possible, decisions on international trade policy should not be complicated with environmental issues. This is consistent with an economic principle known as the **specificity rule**: policy solutions should be targeted directly at the source of the problem. Using trade measures to accomplish environmental policy goals is therefore a second-best solution, which is likely to cause other, undesired effects such as the reduction of gains from trade.

This argument, placing the responsibility for environmental policies on national governments, has been criticized on several grounds. It fails to consider the competitive pressures that may encourage trading nations to reduce environmental protections, as well as the inadequate institutional structures in many developing countries. It is also inadequate for dealing with environmental problems which are truly transboundary or global.

### [The North American Free Trade Agreement \(NAFTA\) Approach](#)

In 1993, the United States, Canada, and Mexico signed the NAFTA agreement, lowering trade barriers across the continent. During the negotiations for this agreement, environmental groups argued strongly that freer trade could lead to negative environmental consequences, pointing to the severe environmental problems already affecting the *maquiladoras* -- tariff-free industrial zones along the Mexican border. As a result, a side agreement, the North American Agreement on Environmental Cooperation (NAAEC), set up the tripartite Commission for Environmental Cooperation (CEC), while another side agreement, the North American Agreement on Labor Cooperation (NAALC), dealt with labor issues.

This specific attention to social and environmental aspects of trade was remarkable and almost unprecedented in trade agreements. While this unusual aspect of NAFTA persuaded some environmental groups in the U.S. to support the agreement, the CEC has few powers. It may respond to a country's failure to enforce existing environmental regulations, but its role is generally limited to producing a fact-finding report and recommendations to the government involved. In addition, promises of

funding to clean up environmentally damaged areas along the Mexican/U.S. border have generally not been fulfilled, while border conditions have continued to deteriorate.<sup>10</sup>

The opening of agricultural sector trade under NAFTA has both social and environmental effects, as small corn farmers in Mexico are able to compete with cheaper grain imported from the U.S. The migration of displaced farmers from rural to urban areas will intensify urban environmental pressures, as well as creating greater pressure for illegal migration across the U.S./Mexico border. In addition, the genetic diversity characteristic of small-scale farming may be threatened, which could result in the loss of a “living seed bank” of great importance to world agriculture.<sup>11</sup>

In the area of industrial pollution, NAFTA has had both positive and negative impacts. Mexican environmental enforcement has improved, but increased industrial concentrations have led to worsened local environmental quality in some areas. A recent review of NAFTA’s environmental provisions concludes that have “fallen well short of the aspirations of the environmental community” and “should be strengthened in the next phase of NAFTA.”<sup>12</sup>

### The European Union Approach

The European Union is unusual in being a free-trade area that has its own legislative and administrative institutions. Unlike the North American CEC, the European Union has the power to set environmental standards which are binding on its member countries. This is known as the **harmonization** of environmental standards. Note, however, that this policy involves more than free trade; it entails the creation of a supranational authority with the power to set environmental standards.

Regional trade area policies also raise the issue of “harmonizing up” versus “harmonizing down”. Some countries may be forced to tighten their environmental policies to meet EU standards. But other countries may find their environmental standards weakened. A law requiring returnable bottles in Denmark was overturned by the EU as a barrier to trade, and Norway chose not to join the EU in part out of fear that they would be compelled to modify strict domestic environmental regulations.

It is relatively rare for trade agreements to include the kind of enforceable supranational environmental regulations that exist in the EU. Although the Standards Code adopted after the Uruguay Round negotiations in 1992 calls for international harmonization of environmental standards, there is no basis for this process to be other than voluntary. Indeed, critics feel that harmonization undertaken in the closed, business-

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<sup>10</sup> Varady and Mack, 1996.

<sup>11</sup> See CEC, 1999, Issue Study 1: Maize in Mexico; and Nadal, 2000.

<sup>12</sup> Hufbauer, et al., 2000.

dominated atmosphere of the WTO standards committees would be likely to harmonize standards down rather than up in many cases.

### Multilateral Environmental Agreements (MEAs)

It has long been recognized that some environmental problems require international solutions. The first international treaty dealing with trade and the environment was the *Phylloxera* agreement of 1878, which restricted trade in grapevines to prevent the spread of pests that damage vineyards. In 1906 an international convention was adopted banning the use of phosphorus in matches. Phosphorous was responsible for serious occupational disease among match workers, but it was the cheapest ingredient for matches. An international convention was required to prevent any exporting country from gaining competitive advantage by using phosphorus in match production.<sup>13</sup>

Since then, numerous international treaties have been adopted to respond to specific environmental issues. These include conventions protecting fur seals, migratory birds, polar bears, whales, and endangered species. Transboundary and global environmental issues have been addressed in the Montreal Protocol on Substances that Deplete the Ozone Layer (1987), the Basel Convention on Hazardous Wastes (1989), the Antarctica Treaty (1991), and the Convention on Straddling and Highly Migratory Fish Stocks (1995). In 1997 the Kyoto Protocol on Climate Change established guidelines for reducing greenhouse gas emissions, including important trade-related measures.

These international treaties have addressed the environmental impacts of production methods in ways that individual nations cannot.

“The local imposition of PPM standard on domestic manufacturing industry is obviously a national prerogative, but it should not be used to restrict imported products, whatever the process used for their production. This kind of action would be in conflict with the GATT. If PPMs are included as appropriate measures within an Multilateral Environmental Agreement (MEA), however, this would be much more acceptable, as their imposition would be multilateral rather than unilateral.”<sup>14</sup>

Serious questions remain, however, about the compatibility of MEAs with WTO rules. Which set of international agreements should take precedence in the case of a conflict? For example, the Kyoto protocol encourages the subsidized transfer of energy-efficient technology to developing nations – but this provision could be in violation of the WTO’s prohibition of export subsidies. Whereas national laws such as the U.S. Marine Mammal Protection Act have been found incompatible with WTO rules, there has so far been no major test case involving conflict between an MEA and a trade agreement.

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<sup>13</sup> Charnovitz, 1996.

<sup>14</sup> Brack, 1998, p. 65.



## 4. STRATEGIES FOR SUSTAINABLE TRADE

The emerging twenty-first century global economy will be characterized both by resource and environmental limits and by a much more important role for the presently developing nations. Expanded global trade will bring benefits in terms of increased efficiency, technology transfer, and the import and export of sustainably produced products. But we must also evaluate the effects of trade in terms of social and ecological impacts.

A World Bank review of trade and environment issues finds that “many participants in the debate now agree that (a) more open trade improves growth and economic welfare, and (b) increased trade and growth without appropriate environmental policies in place may have unwanted effects on the environment.”<sup>15</sup> This implies that future trade agreements must take environmental sustainability more explicitly into account. Introducing sustainability into trade policy will require institutional changes at global, regional, and local levels.

### “Greening” Global Environmental Organizations

At the global level, a major reform proposal would be to set up a **World Environmental Organization (WEO)**<sup>16</sup> which would counterbalance the World Trade Organization much as national environmental protection agencies balance departments of finance and commerce. This would create a global environmental advocacy organization, but might lead to conflict and deadlock with other transnational institutions. Another approach would be to “green” existing institutions, broadening the environmental and social provisions of GATT's Article XX, and altering the missions of the World Bank and International Monetary Fund to emphasize sustainable development objectives.

The idea of a World Environmental Organization may seem visionary, but there is a good argument for its establishment. According to Sir Leon Brittan, former Vice President of the European Commission: “Setting environmental standards within a territory may be fine, but what about damage that spills over national borders? In a rapidly globalizing world, more and more of these problems cannot be effectively solved at the national or bilateral level, or even at the level of regional trading blocs like the European Union. Global problems require global solutions.”<sup>17</sup>

A World Environmental Organization could serve as an umbrella for the implementation of existing multinational environmental agreements, as well as promoting further agreements consistent with global sustainable development strategies. Global

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<sup>15</sup> Fredriksson, 1999.

<sup>16</sup> See Runge, 1994, Chapter 6, and Esty, 1994, Chapter 4.

<sup>17</sup> Brack, 1998, p. 19-20.

public goods such as biodiversity, protection of the ozone layer, climate stabilization, and the protection of oceans and water systems, would be the responsibility of the WEO.

A WEO could also play a role in the negotiation of trade agreements on agricultural subsidies, seeking to redirect of farm subsidies to soil conservation and development of low-input agricultural techniques. As global CO<sub>2</sub> emissions continue to rise, trade in the energy sector may need to accommodate a substantial carbon tax or tradable permit scheme. Global agreements on forest and biodiversity preservation are also likely to involve specific trade restrictions, tariff preferences, or labeling systems. In all these areas, the existence of a powerful advocate for environmental interests would have a major impact on the shaping of trade treaties and regulations.

### **Local, Regional, and Private Sector Policies**

The trend towards globalization, which increasingly makes communities subject to the logic of the global marketplace, is in conflict with the goal of strengthening local and regional policies promoting sustainable development. Reserving powers of resource conservation and management to local and regional institutions is important to the sustainable management of resources. Also, it is often difficult to make a match between centralized World Bank or institutional financing, even if "greened", and the local institutions that are crucial to effective implementation of resource conservation and environmental standards. Most environmental policies are implemented at the national level, and it is important to maintain national authority to enforce environmental standards.

In regional groupings such as NAFTA, that involve no supranational rule-making body, trade agreements could give special status to national policies aimed at sustainable agriculture and resource management. NAFTA rules currently give precedence to international environmental treaties (the Basel Convention on hazardous wastes, the Montreal Protocol on ozone depleting substances, and CITES on endangered species). This principle could be expanded to all national environmental protection policies, and effective sanctions for environmental violations could be established.

In regional trade and customs unions such as the European Union where elected supranational policy-making bodies exist, these bodies must take responsibility for environmental and social issues to the extent that their legitimate democratic mandate allows. Transboundary issues are a logical area for supranational bodies to be responsible for environmental rule making. Where they are empowered to intervene in national policy-making, the process must be oriented towards "harmonizing up" rather than "harmonizing down" standards. This means that countries within the common market must retain the power to impose higher social and environmental standards where they see fit.

Certification and labeling requirements for sustainably produced products help consumers make informed purchasing decisions. Germany's "green dot" system for

recyclable and recycled goods is one example. Private, non-governmental organizations have also set up certification systems for goods such as coffee and timber. To be effective in a globalized world, however, certification systems must be international. This requires support both at the national level and from corporations and international agencies.

In conclusion, it is evident that there are many different approaches to reconciling the goals of trade and environmental policy. In an article reviewing the debate on trade and the environment, Daniel Esty concludes that

“there is no real choice about whether to address the trade and environment linkage; this linkage is a matter of fact... Environmental rules cannot be seen simply as pollution control or natural resource management standards; they also provide the ground rules for international commerce and serve as an essential bulwark against market failure in the international economic system. Building environmental sensitivity into the trade regime in a thoughtful and systematic fashion should therefore be of interest to the trade community as well as environmental advocates.”<sup>18</sup>

Achieving this goal will be a major challenge for trade negotiators at both regional and global levels for the foreseeable future.

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<sup>18</sup> Esty, 2001. See also Harris, 2000.

## 5. SUMMARY

Trade expansion can often have environmental implications. Trade may increase environmental externalities at the national, regional, or global level. While it is usually economically advantageous for countries to pursue their comparative advantage through trade, environmental impacts such as increased pollution or natural resource degradation may also occur as a result of trade.

The effects of trade on the environment are varied. Agricultural cropping patterns altered by the introduction of export crops may involve environmental benefit or harm. Secondary effects of trade may arise from the disruption of existing communities, increased migration, and impacts on marginal lands. Industrial pollution may be increased, reduced, or shifted in regional impact.

International trade agreements make some provisions for resource conservation and environmental protection, but these are usually limited exceptions to a general principle of free trade. In the World Trade Organization, countries are allowed to take into account the environmental impacts of products, but not those associated with production processes. This has led to numerous trade disputes over whether specific measures are justified on the grounds of protection of life and health, or are simply disguised protectionism.

Policy responses to trade and environment issues can occur at the national, regional, or global level. The European Union is an example of a free trade area that has set up institutions for transnational environmental standards enforcement. The North American Free Trade Agreement was accompanied by a side agreement setting up an environmental monitoring authority, the Commission for Environmental Cooperation, but this body has little enforcement power.

Multilateral Environmental Agreements (MEAs) address specific environmental issues which are transboundary or global. Conflicts between MEAs and World Trade Organization rules are possible, but have so far been avoided. Proposals have been made for a World Environmental Organization to oversee global environmental policy, and to serve as an advocate for environmental interests in the world trade system.

Where effective environmental protection policies are lacking at the regional or global level, national policies are needed to address trade-related environmental issues. Certification and labeling requirements, instituted by governments or by private non-governmental organizations, can help to promote consumer awareness and “greener” corporate practices in international trade.

## KEY TERMS AND CONCEPTS

**comparative advantage:** the theory that trade benefits both parties by allowing each to specialize in goods they can produce with relative efficiency.

**dualistic land ownership:** an ownership pattern, common in developing countries, where large landowners wield considerable power and small landowners tend to be displaced.

**Environmental Kuznets Curve (EKC):** the theory that a nation's environmental impact increases in the early stages of economic development but eventually decreases as income levels rise past some tipping point.

**exporting pollution:** importing goods whose production involves environmental impact, thereby avoiding domestic production and impacts.

**externalities:** an effect of a market transaction on individuals or firms other than those involved in the transaction.

**gains from trade:** the net social benefits that result from trade.

**General Agreement on Tariffs and Trade (GATT):** a multilateral trade agreement providing a framework for the gradual elimination of tariffs and other barriers to trade; the predecessor to the World Trade Organization.

**GATT Article XX:** the provision of GATT stating that a country can restrict trade to conserve exhaustible natural resources or to protect human and non-human life or health.

**green protectionism:** the use of allegedly environmental measures to protect a country's industry from foreign competition.

**harmonization of environmental standards:** the standardization of environmental standards across countries, as in the European Union.

**multilateral environmental agreements (MEAs):** international treaties between nations on environmental issues, such as the Convention on Trade in Endangered Species.

**precautionary principle:** the view that policies should account for uncertainty by taking steps to avoid low-probability but catastrophic events.

**process and production methods (PPM) rules:** international trade rules stating that an importing country cannot use trade barriers or penalties against another country for failure to meet environmental or social standards related to the process of production.

**“race to the bottom”:** the tendency for nations to weaken national environmental standards to attract foreign businesses or to keep existing businesses from moving to other nations.

**specificity rule:** the view that policy solutions should be targeted directly at the source of a problem.

**structural adjustment:** policies to promote market-oriented economic reform in developing countries by making loans conditional on reforms such as controlling inflation, reducing trade barriers, and privatization of businesses.

**World Environmental Organization (WEO):** a proposed international organization that would have oversight on global environmental issues.

**World Trade Organization (WTO):** an international organization dedicated to the expansion of trade through lowering or eliminating tariffs and non-tariff barriers to trade.

## REFERENCES

Brack, Duncan ed. *Trade and Environment: Conflict or Compatibility?* London: Royal Institute of International Affairs, 1998.

Commission for Environmental Cooperation (CEC). *Assessing Environmental Effects of the North American Free Trade Agreement: An Analytic Framework and Issue Studies*. Montreal: CEC, 1999.

Charnovitz, Steve. "Trade Measures and the Design of International Regimes", *Journal of Environment and Development* Vol. 5, No.2 (1996), pp.168-169.

Esty, Daniel C. *Greening the GATT: Trade, Environment, and the Future*. Washington D.C.: Institute for International Economics, 1994.

Esty, Daniel C. "Bridging the Trade-Environment Divide," *Journal of Economic Perspectives*, vol. 15, no. 3 (2001): 353-377.

Fredriksson, Per G., ed. *Trade, Global Policy, and the Environment*. World Bank Discussion Paper No. 402. Washington, D.C.: The World Bank, 1999.

Grossman, Gene, and Alan Krueger. "Economic Growth and the Environment." *Quarterly Journal of Economics* Vol. 110, No. 2 (1995), pp.353-77.

Harris, Jonathan M. "Free Trade or Sustainable Trade? An Ecological Economics Perspective," Chapter 5 in Harris ed. *Rethinking Sustainability: Power, Knowledge, and Institutions*. Ann Arbor, Michigan: The University of Michigan Press, 2000.

Hufbauer, Gary C., Daniel C. Esty, Diana Orejas, Luis Rubio, and Jeffrey J. Scott. *NAFTA and the Environment: Seven Years Later*. Policy Analyses in International Economics 61.

Nadal, Alejandro. *The Environmental and Social Impacts of Economic Liberalization on Corn Production in Mexico*. London, England: World Wildlife Fund and Oxfam UK, 2000.

Neumayer, Eric. *Greening Trade and Investment: Environmental Protection without Protectionism*. London, England: Earthscan Publications, 2001.

Paarlberg, Robert. "Political Power and Environmental Sustainability in Agriculture," Chapter 7 in Harris ed. 2000.

Panayotou, T. "Empirical Tests and Policy Analysis of Environmental Degradation at Different Levels of Development" Geneva: International Labour Office Working Paper WP238, 1993.

Reed, David ed. *Structural Adjustment, the Environment, and Sustainable Development*. London: World Wide Fund for Nature, 1996.

Rothman, Dale, and Sander de Bruyn. "Probing into the Environmental Kuznets Curve Hypothesis" (Introduction to Special Issue on the Environmental Kuznets Curve). *Ecological Economics*, vol. 25, no. 2 (1998): 143-145.

Runge, C. Ford. *Freer Trade, Protected Environment: Balancing Trade Liberalization and Environmental Interests*. New York: Council on Foreign Relations Press, 1994.

Selden, Thomas M., and Daqing Song. "Environmental Quality and Development: Is There a Kuznets Curve for Air Pollution?" *Journal of Environmental Economics and Management*\_Vol. 27, No. 2 (1994), pp. 147-62.

Stern, David I. "Progress on the Environmental Kuznets Curve." *Environment and Development Economics* 3 (1998): 173-196.

Varady, Robert, and Maura Mack. "Transboundary Water Resources and Public Health in the U.S./Mexico Border Region." *Journal of Environmental Health* 17, 4 (1996), 23-25.



## DISCUSSION QUESTIONS

1. What are the welfare implications of trade in toxic wastes? Should such trade be banned or can it serve a useful function? Who should have the power to regulate trade in toxic wastes, individual nations, local communities, or a global authority?
2. Can harmonization of environmental standards solve the problem of environmental externalities in trade? How would the issues of harmonization differ in NAFTA, the European Union, and the World Trade Organization? Would harmonization promote economic efficiency as well as environmental improvement, or might it lead to lower environmental standards?
3. What should be done if the provisions of a Multilateral Environmental Agreement are in conflict with the principles of the World Trade Organization? Which should take precedence and who should have the authority to decide? Which economic, social and ecological principles should be used to decide such issues?

## WEB LINKS

1. [http://www.wto.org/english/tratop\\_e/envir\\_e/envir\\_e.htm](http://www.wto.org/english/tratop_e/envir_e/envir_e.htm) The World Trade Organization's web site devoted to the relationship between international trade issues and environmental quality. The site includes links to many research reports and other information.
2. <http://www.oecd.org/ech/> The web site for the trade division of the Organisation for Economic Co-operation and Development. The site includes many publications on trade issues, including trade and the environment.
3. <http://www.cec.org> Home page for the Commission for Environmental Cooperation, created under the North American Free Trade Agreement "to address regional environmental concerns, help prevent potential trade and environmental conflicts, and to promote the effective enforcement of environmental law." The site includes numerous publications on issues of trade and the environment.