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International trade and environmental policies

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4.1 Introduction

The linkages between the environment and international trade have been the subject of much debate in recent years. At the same time, as a result of experience and growing research, it has become clear that the relationship between trade and the environment is extremely complex and characterised by contradictions, painful dilemmas and trade-offs. This makes it impossible to make simple generalisations such as 'trade is beneficial for the environment'.

International trade is, by definition, a set of economic relationships between countries. These relationships are regulated by international policy. Trade has impacts on the environment and, in terms of policy, there is a consequent relationship between trade and environmental protection. Three types of interrelationship between trade and the environment can be identified and each of these demonstrates the problem of trying to assess whether trade is beneficial or detrimental for the environment.

The first is that trade is based on comparative advantage. That means that production of specific commodities tends to be concentrated in countries where the factors of production (resources, labour or capital) are cheapest for the production of those commodities. Production will lead to trade in those goods in which countries have comparative advantage. But this may result in exhaustive and polluting production, such as mining minerals and the growing of cotton in certain countries. On the other hand, international trade also fosters a more efficient use of resources, which means less environmental damage per unit of product.

The second interrelationship arises as a result of the impact of national policies on trade. Instruments of domestic environmental policy such as prohibitions, levies, taxes and subsidies have an influence on the international competitiveness of industries. As a consequence, industrial pressure groups lobby their governments and international organisations in order to secure what they believe is the optimum policy. Indirectly,

this may have different outcomes for the environment. In extreme cases, a 'green' policy may be advocated in order to achieve greater protectionism. Conversely, the adoption of liberal economic policies may lead to the attraction of industries that deplete resources or pollute the environment.

Thirdly, there are those interrelationships that are created by the impact of action by one country (or countries) on others. Action may be taken to limit the trade undertaken by a certain country in order to force that country to adopt environmental measures that one or more other countries deem necessary. The United States, for example, banned imports of tuna from Mexico in order to make Mexico adopt US rules for the protection of dolphins. The economic and environmental consequences of this measure were controversial, as we shall see later in the chapter.

A major objective of this chapter is to describe and clarify the relationships between trade and the environment in order to see how trade can be made to contribute to the sustainable development of the world economy. The relationship between trade and the environment cannot be isolated from the unequal distribution of wealth over the globe. The fight against poverty necessitates more production, as well as a more equitable distribution of income, both within many countries and among countries (see Box 1). As it is not likely that rich countries will cut back their levels of production and consumption, the growth of world production is unavoidable. This will put more pressure on the environment. One of the major challenges of the coming decades will be to eradicate poverty and simultaneously to protect the environment in order to enable future generations to satisfy their needs. International trade has an important role to play in this respect.

Section 4.2 will discuss the role of trade in relationship to its environmental impact. It will present some basic facts about international trade and then examine the theoretical arguments about whether or not trade is beneficial to the environment. The relationship between the development of poor countries, trade and the protection of the environment is the subject of Section 4.3.

The chapter then goes on to consider issues of international policy. The protection of the environment is complicated by the existence of a large number of national jurisdictions. An international environmental policy requires national jurisdictions to adapt to internationally agreed measures; this entails a generally time-consuming process of compromise and negotiation. Most of the multilaterally agreed rules on international trade are to be found in the General Agreement on Tariffs and Trade

The Rio Declaration on Trade

The fifth principle of the Declaration on the Environment and Development adopted at the UN Conference in 1992 reads as follows:

All States and all people shall co-operate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

(GATT) incorporated in the new World Trade Organisation (WTO). These rules will be discussed in Section 4.4. The question is whether the GATT rules form a constraint on or an opportunity for the realisation of the objective of making trade contribute to sustainable development.

Section 4.5 gives a review of the criteria which an optimum international environmental policy needs to meet with respect to international trade. Various international environmental agreements that incorporate trade measures are reviewed in Section 4.6. Section 4.7 presents a review of the main conclusions of the chapter.

4.2 International trade and resource use

Trends in trade

International trade in goods has grown at a very rapid rate since World War II. Its real value (i.e. discounting rises in prices) increased by a factor of more than ten between 1950 and 1990 (French, 1993, pp.6 *et seq.*). On a global scale, trade has increased faster than production. Figures 4.1 and 4.2 show that this conclusion also applied in the turbulent 1970s and 1980s to the world as a whole and to East Asia and the Pacific,

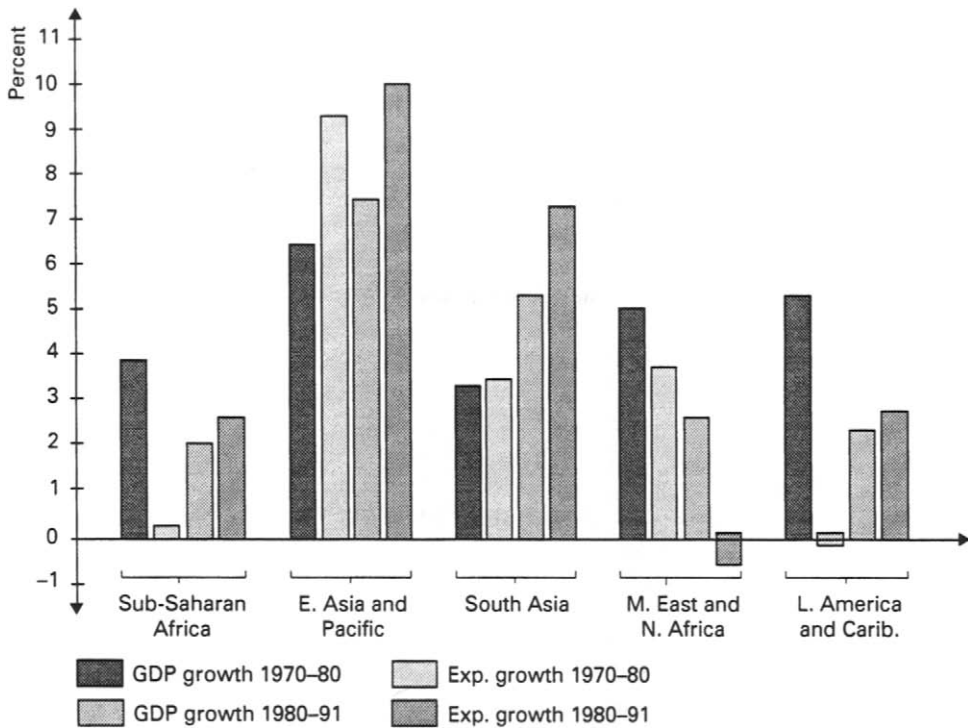


Fig. 4.1 Growth of GDP and exports of groups of developing countries, 1970-1980 and 1980-1991. Source: French, 1993

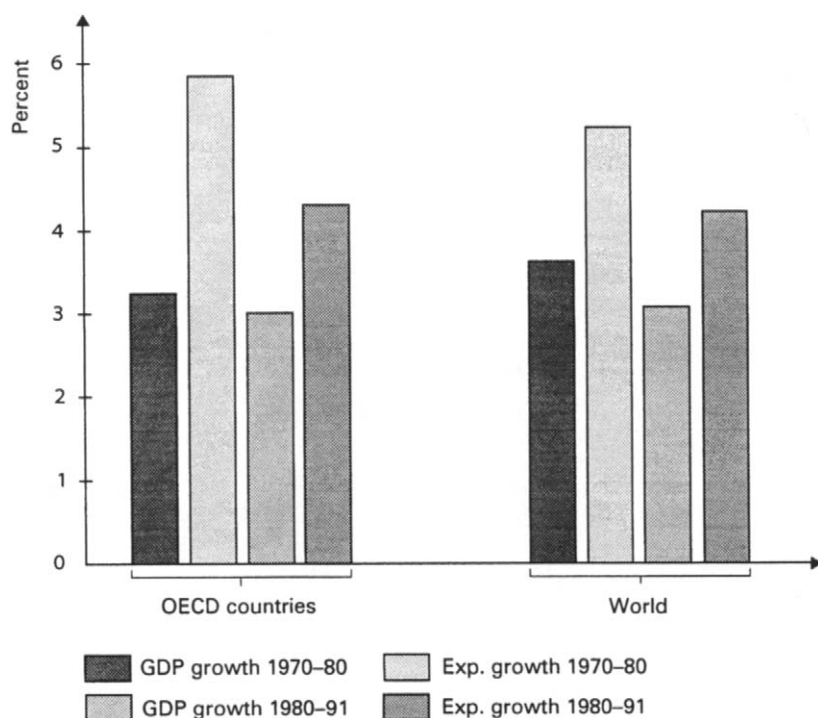


Fig. 4.2 Growth of GDP and exports of OECD countries, 1970–1980 and 1980–1991. Source: French, 1993

South Asia and the OECD in particular. After 1980, Latin America and sub-Saharan Africa showed the same tendency. The transition to a market-based economy of the centrally planned closed economies of Eastern Europe and China will undoubtedly increase the gap between the growth rates of trade and production.

To the extent that trade grows faster than production, economies become more open and interdependent. Open economies also appear to achieve more rapid economic growth. Conversely, measures which reduce imports and exports have an adverse effect on growth in developing countries (Faber, 1990, p.32). Some developing regions are showing extremely high rates of export growth (i.e. East Asia and the Pacific and South Asia; see Figures 4.1 and 4.2) in combination with relatively high rates of production growth. East Asia and the Pacific are narrowing the wealth gap with the industrialised countries. Export-based industrialisation is the strategy that these countries are following.

The first consequence of this growing interdependence is that international trade is increasingly determining what is produced and where and how production takes place. This also has an impact on the site, nature and intensity of the environmental effects that result from production. The second consequence of growing interdependence is that the competitiveness of a country's economy is a crucial condition for stable economic growth. National environmental policies that may undermine competitiveness have a political cost, as economic interest groups will put pressure on politicians.

At the same time, we should stress that, in many large trading areas, such as the European Union and the United States, the share of GNP that is traded internationally has remained relatively stable at 12% and 10% respectively. This means that of every US\$100 that are earned from the production of goods, US\$90 are consumed domestically. In the case of the services sector, an even higher share is consumed at home. As a result, there is scope in these trading areas for a relatively autonomous environmental policy.

The environmental impact of trade: conflicting views

Observers of the relationship between trade and the environment often have conflicting views. Looking at the extremes, one may distinguish two schools of thought on the issue. The first school believes that international trade and international specialisation give rise to a concentration of production and consumption of goods that have been produced in a resource-intensive manner in different countries. As a result, consumers have no idea of the environmental cost at which these goods are produced; after all, these costs are incurred in the exporting country. International trade is said to enable the importing industrialised countries to appropriate a disproportionate share of the world's natural resources. As world market prices do not reflect the relative scarcity of environmental goods in the present or in the future, the exhaustion of the environment is accelerated above an economically justified rate (Ritchie, 1990; Shrybman, 1990, 1991).

The second school of thought stresses the gains that can be earned from free international trade. Such trade is said to lead to maximum production (given the limited amount of resources) and to the highest possible level of prosperity in the participating countries. International trade is said to force producers to use resources as efficiently as possible and this helps to save natural resources. This school claims that restrictions on international trade are an inferior way of protecting the environment and are often counterproductive.

In short, it is not possible to make one simple statement about the effects of international trade on the environment. There is no clear-cut answer. There are examples where international trade has had a beneficial effect on the environment, such as when the success of Japanese car imports forced American car manufacturers to reduce the excessive fuel consumption to which their models were prone. However, there are also plenty of instances of adverse effects: the deforestation of Sarawak and Sabah in Malaysia as a result of the export of tropical timber is one such example. Nor may it be claimed that the manufacturing sector in countries with a relatively closed economy, i.e. a low ratio of trade to their gross domestic product (GDP), is generally less environmentally damaging than in countries characterised by an open economy. The former centrally planned economies of Eastern Europe provide perhaps the most obvious illustration of this point. They were relatively isolated from world trade but experienced much higher pollution levels per capita than in Western Europe with its much higher production levels.

The theory of international trade

The environmental impact of international trade depends on several factors. In order to understand these factors, we need first to discuss a general theoretical approach to international trade and then to turn to individual cases afterwards.

The general theory that explains international trade, the theory of comparative advantage, is based on a number of assumptions. Among the most important are perfect competition, which means that no single market party can exert influence on prices in a particular market; the absence of market interventions by official bodies; and the equality of private and social costs and benefits. The latter assumption implies that the costs and benefits on which private economic subjects (i.e. individuals and privately owned organisations such as firms) base their behaviour should be equal to the costs and benefits as perceived by society. It can be shown that, if these conditions are met, free trade gives rise to a maximum level of prosperity in the trading countries (see, for example, Lindert, 1991, Chs. 2 and 3). The reason for this is that each country specialises in the production of those goods in which it is most efficient and imports those goods which it produces least efficiently. The general presumption is that any limitation of international trade will reduce the wealth of the countries concerned.

In specific real-world situations, however, the general presumption may have to be modified. This is the case if there is a significant diversion from the assumptions underlying the theory. It may be that production (or consumption) gives rise to environmental damage and that the producer (or consumer) is not required to pay for this damage. In this case, the private cost of production (or consumption) may be lower than the social cost because the cost of the 'services of Nature' is not reflected, or not fully reflected, in the prices that producers (or consumers) have to pay for their inputs and for their harmful byproducts (e.g. emissions of polluting gases). In this situation, market prices do not reflect the true scarcity of products and resources. This implies that exporting countries do not receive full compensation for all the resources that have been used to produce the exported products concerned, whilst importing countries pay a price that is too low.

Attempts to introduce a more realistic pricing policy unilaterally may protect the environment while damaging the economy. Let us assume that the government of an exporting country introduces an environmental policy that increases the cost of production to a level that incorporates the social cost, thus including the cost of unpriced services of Nature. This increases the price that the producers need to charge in order to stay in business. The consequence will probably be a fall in exports. As long as there is trade, the country's social prosperity is still higher than it would be in the absence of trade. The exports may not be competitive on world markets any more; this means that the comparative advantage ceases to exist if the unpriced services of Nature are taken into account.

The upshot of this argument is that, even in the case of an environmentally damaging production process, international trade in the commodity thus produced will increase the social prosperity of an exporting country, even if the government takes steps to include the cost of unpriced services of Nature in the market price. This is illustrated in Box 2. For the importing country, the gains from trade are reduced as the import price increases. At the same time, however, the level of prosperity is higher than it would be in the absence of international trade (Anderson, 1992). So, for all countries concerned, international trade is still advantageous, as long as there is government intervention to equalise private and social costs. A second conclusion is that the exporting country's government should intervene to equalise social and private costs in domestic production in order to maximise the nation's social prosperity. A third

Exporting shrimps in Asia

A good illustration of the inequality of private and social cost is provided by the production and export of shrimps. Many countries in Asia have expanded their production and exports of shrimps. This has led to the clearing of large areas of coastal mangrove swamps (e.g. in the Philippines). It has recently become clear that mangrove ecosystems play a critical role in protecting coastlines and serving as spawning grounds for oceanic fisheries, as well as providing food for local people (French, 1993, p. 17). Thus, the clearing of mangrove swamps gives rise to higher public spending on coastal defence works, lowers the catch and probably the income of fishermen and forces local people to turn to alternative foodstuffs that are probably more expensive.

Selling shrimps (on both the domestic and the international markets) without taking into account the adverse effects on the prosperity of non-market parties means selling shrimps below their social cost. The public authorities can translate this social cost into private cost, for example by limiting the clearing of mangrove swamps and by setting up a licensing system for shrimp production in designated areas. The proceeds earned from the distribution of licences can be used to finance coastal defence works and to compensate local people.

conclusion is that the degree of scarcity of natural resources differs from country to country and that different countries attach different social values to them. It is precisely this type of difference that gives rise to comparative advantages and disadvantages in international trade. Equalising these values and the environmental policies based upon them would take away comparative advantages and mitigate the beneficial effects of trade on the environment. However, where the international commons are at stake (e.g. the climate), international co-operation is needed with respect to protection levels and measures, a point I shall return to later.

The environmental implications of trade policy

An optimum policy is both effective, i.e. in the sense that its objectives are achieved, and efficient, i.e. in the sense that the objectives are achieved at minimum cost. A policy that does not achieve its objectives is basically pointless. A policy that squanders scarce resources (i.e. is inefficient) will lose the support of society. In practice, it may be difficult to design and implement a policy that is both effective and efficient. Nevertheless, optimality is a good yardstick for evaluating policies and for ranking alternative policies and instruments on a scale from best to least good.

In the case of environmental policies, the objective is to reduce certain kinds of pollution or to lower the level of exploitation of a natural resource. Which instruments are chosen depends partly on the objectives. A rule of thumb is that an intervention that is made in order to redress distortion in the economy, i.e. the inequality of social and private cost, should be made as close as possible to the source of the distortion. An intervention that is made away from the source is likely to produce indirect effects or side effects that lower the efficiency of the policy. An example may serve to clarify this

point. The large-scale production of pork in intensive cattle breeding areas may cause emissions of substances that lead to acid rain. This is the case if the manure that is the by-product of pork production is distributed over an acreage that is too small fully to absorb the manure and to convert it into vegetable growth. These substances are also emitted directly from pigsties. In order to lower the emissions of substances producing acid rain, the government could limit the production of pork. Cuts in production will also reduce the personal wealth of the producers (in the form of lower profitability, lower wages and perhaps more unemployment) and of consumers (in the form of higher prices). These adverse, indirect effects can be avoided, at least partially, if the government takes measures that limit the level of emissions in a direct way, e.g. by taxing emissions, by introducing a system of tradeable emission permits or by prohibiting emissions beyond a certain level. These measures will induce producers to invest in emission-decreasing devices and pigsties in order to keep production as high as possible within the emission limits. Thus, the objective of the policy will be realised at a lower cost in terms of social prosperity.

The key question is: 'What is an optimum environmental policy and how is it related to international trade?' Governments have a wide range of instruments at their disposal for achieving their goals: rules (i.e. prohibitions, limits and standards), taxes, subsidies, etc. For our purposes, it is useful to make a distinction between instruments that intervene primarily in the domestic economy and instruments that operate at the country's borders. The latter heading includes import and export levies, quantitative restrictions, technical standards for products and downright prohibitions on trade. The main focus of our attention is import measures which are aimed at limiting trade flows in general terms. Trade policy measures, such as levies, quantitative restrictions and import prohibitions, are less efficient as they do not meet the criteria of optimality indicated above. Trade is the link between production and consumption. Environmentally detrimental effects are almost invariably the result of production or consumption. As a result, policy measures that seek primarily to influence trade do not tackle the problem at its source and are thus seldom efficient or 'first best'. A number of specific cases will now be discussed to illustrate this argument.

- It has occasionally been proposed that the exploitation of the environment should be reduced by means of an export tax or a quantitative limitation of exports. It is doubtful whether this measure would be effective, as the price of the product affected would fall on the domestic market, as would the value of the natural resources on which the exports rely (see Box 3 on the ban on ivory exports). Additionally, production for the domestic market would not be directly affected. This is irrational, as production for the domestic market is just as harmful as production for the world market. A side effect is that domestic demand would probably grow as a result of the price decrease and this would boost production again after some time.
- In the case of a large number of products, the same countries are both importers and exporters. This phenomenon is particularly common in the industrialised countries. This is called intra-industry trade, in which industrialised countries export certain products (e.g. cars) of which they are also importers. If a country introduces an environmental policy to solve a purely local environmental problem, this will

increase the private cost of production, so that the country's domestic industry will become less competitive with respect to the same imported products. The domestic industry will probably demand that the government levy a tax on imported products that have been produced in countries where the environmental policy is less strict.

It is probably inefficient to yield to these demands. First, the competing country may have sound reasons for not introducing an equally strict environmental policy, which means that there is already an optimum situation of social prosperity before the introduction of import levies. It may be, for instance, that the competing country is exploiting its resources without compromising sustainability whereas the importing country has already gone beyond the limits of sustainability.

Secondly, the introduction of 'green' import tariffs offers pressure groups of industries an additional opportunity to lobby for protective trade measures. It is very difficult to fix a tariff that exactly taxes away the difference between the two sets of environmental policies and this may induce politicians to fix the levies at a 'safely' high level. Thirdly, the import tariff does not tackle the environmental problem, as the trade flow concerned only represents part (and perhaps only a small part) of total production. But it may take away the comparative advantage of an exporting country based on a more abundant supply of natural resources relative to the importing country.



Plate 4.1 The illegal trade in endangered animal species. On 5 June 1992, customs officers at Amsterdam's Schiphol Airport came upon a consignment of 81 African elephant tusks and 20 rhinoceros horns during a routine check of a container bound from Malawi to Taiwan. Photo: ANP Foto

The African elephant and trade in ivory

In the framework of the Convention on International Trade in Endangered Species (CITES, see Section 4.6), an international ban was imposed on the trade in ivory. It was thought that this ban would make the 'harvesting' of ivory unattractive and that this would save the African elephant from unlimited shooting. However, a number of former exporting countries complained that this ban made it very difficult for them to bring about or maintain a policy for the sustainable management of their elephant herds. A regulated culling programme may make it possible to carry on a trade in ivory, while maintaining a viable population of elephants. Zimbabwe had already implemented such a policy before the ban came into effect. The problem is that a ban on ivory trade decreases the economic value of elephants. The opportunity to sell ivory brings a wealth gain to the exporting country and this is an incentive not to destroy the source of the export. The ban takes away this incentive. As a result neglect, poaching and smuggling may lead to an even faster deterioration in the elephant population than was the case before (Barbier *et al.*, 1990).

- A trade policy measure may be used in order to force a country to adopt certain environmental measures. Examples may be found in US trade law. The US Congress adopted legislation in 1987 under which unilateral sanctions were threatened against countries that did not enter into international agreements to monitor drift net fishing practices or that did not enforce their own drift net fishing laws (Charnovitz, 1993). The problem that arises here is that most international environmental problems can be solved only by international co-operation. This requires, first, that the problem is perceived by all countries concerned in more or less the same way. Secondly, there has to be agreement on the way the problem should be tackled and on the distribution of the policy's gains and costs over the various countries. It is doubtful whether an effective international agreement can be realised by an individual country forcing other countries into it. If a government is not convinced of the existence of an environmental problem or thinks that the distribution of gains and losses is unfair, the country in question is likely to cheat and to obstruct an efficient and effective implementation of the 'agreement'. A more adequate strategy is to negotiate an agreement that is acceptable to all countries concerned (Sebenius, 1991). The potential role of trade policy measures in the framework of such an agreement is discussed in the following sections.

4.3 Development and trade

Poor countries are often referred to as developing countries. Development is, however, a much broader concept than simply poverty reduction or economic growth. Development is defined by Todaro (1981) as 'a multi-dimensional process involving major changes in social structures, popular attitudes and national institutions, as well as the acceleration of economic growth, the reduction of inequality and the eradication of absolute poverty' (p.70). Nevertheless, for our purposes, we shall concentrate on



Plate 4.2 Coffee beans being washed and peeled on a coffee plantation in San Juan Laguna, Guatemala. The beans are destined for the export market. Photo: Sean Sprague/Lineair

economic development. Since the Second World War, a large number of countries in Asia, Latin America and Africa have tried to increase their domestic output of goods and services in order to arrive at a higher level of prosperity. Some countries have achieved spectacularly high rates of growth (e.g. the so-called newly industrialising countries, including the four Asian 'tigers': South Korea, Taiwan, Hong Kong and Singapore), while others have not succeeded in attaining such a rapid rate of economic development. Figure 4.1 (page 81) clearly indicates these differences. Some of these fast-growing countries are approaching levels of prosperity that can be found in industrialised countries. Most developing countries have serious environmental problems, caused by poverty, population pressure and the process of urbanisation and industrialisation (World Bank, 1992). We shall discuss these problems only insofar as they are trade related.

Generally speaking, economic development is characterised by industrialisation and increasing urbanisation. At a later phase of development, the services sector becomes the fastest growing part of the economy. The exports of developing countries diversify during this process. It is in the early phases of development that primary products are the main export products; in later stages of development, industrial products become more important. Many developing countries that have recently become industrialised are affected by serious environmental problems; however, these do not fundamentally differ from the environmental problems in traditionally rich countries. We shall concentrate here on the trade-related environmental problems of the poorest countries.

Developing countries at a very low level of development are often dependent on only one primary product, or a very limited number of primary products, for their

Table 4.1 Developing countries earning 60% or more of their export receipts from one commodity (excl. oil), 1989–1990

Name of country	Commodity	% of exports (value)
Burundi	coffee	76
Cuba	sugar	77
Dominica	fruits and nuts	60
Guinea	base metal, ores	84
Jamaica	base metal, ores	63
Malawi	tobacco	66
New Caledonia	pig iron	63
Niger	radio active material	80
Réunion	sugar	75
Rwanda	coffee	69
Uganda	coffee	90
Zambia	copper	82

Source: UNCTAD, Handbook of international trade and development statistics (New York, 1993), p. 195 et seq.

export earnings. Table 4.1 shows the developing countries which in 1989–1990 earned 60% or more of their export receipts from the trade in one single commodity. If oil were included, the table would double in length. Such a high level of dependency makes these countries vulnerable to falling world market prices. Insofar as certain trade-related environmental problems are typical of developing countries, these are largely to be found in situations of dependency on one, or a few, primary export products. The production of primary products is by its very nature resource-intensive. Agriculture is based on the fertility of the soil, which may be depleted by overproduction and the use of chemical substances. Irrigation may cause salinisation of the soil. Obviously, the production of minerals depletes the stocks of the mineral resources concerned; additional harmful effects may consist of pollution in the vicinity of mines, particularly as a result of the first stage of the processing of ores. The production of tropical timber may lead to deforestation and erosion. An additional problem often associated with the large-scale production of primary products is that the environmental effects are greatly concentrated in certain regions and in the form of damage to particular environmental resources.

Many of these countries have been forced to restructure their economies in order to service their debts. These structural adjustment programmes may give rise to environmental effects: these countries badly need every unit of foreign exchange, so they have strong incentives not to make their primary products more expensive or less profitable by levying taxes on producers or by limiting the use of scarce natural resources. On the other hand, structural adjustment will probably increase the domestic prices of agricultural products, which is likely to induce farmers to invest more in soil conservation and land improvement (Heerink and Kuyvenhoven, 1993).

Trade-related environmental problems in developing countries exporting primary products are closely linked to the problem of development as such. This means that they can only be solved in a structural manner by development in general. As has already been indicated, development will bring about a diversification of production and this means less one-sided environmental effects and more environmentally

friendly production. This will lessen dependency on one or a few primary products. The abolition of trade barriers imposed on processed products would be one way in which developed countries could stimulate this. A more generous debt restructuring programme (including debt relief) for the poorest countries would also relieve the pressure placed on such countries to exhaust their environmental resources for the sake of export production, although it is no guarantee that the natural resources concerned will receive full protection. Proposals have also been made for including environmental tasks in commodity organisations and agreements, for instance by compensating producers who use environmentally friendly production techniques or by transferring clean technologies to developing countries in combination with eco-labelling by the exporting country (French, 1993, p.19; Kox, 1991, 1993). Development generally enhances governments' ability to adopt and implement policies for realising objectives of social justice and environmental protection.

So far this chapter has considered the relationship between trade and the environment and the impact of trade on development. Now, we shall turn to the application of international trade policy in practice.

4.4 The international trading order: GATT/WTO

The world trading order is based on the principles and rules that have been agreed by a process of multilateral negotiation. Rules and principles are intended to guide the behaviour of states and stimulate the orderly development of an international market economy. These principles and rules have been laid down in the General Agreement on Tariffs and Trade (GATT), which was recently incorporated in and expanded to form the World Trade Organisation (WTO) by the signature in Marrakech (Morocco) of the Final Act of the Uruguay Round of trade negotiations in April 1994. The organisation is referred to as the GATT/WTO in the rest of this chapter. The WTO has reached agreement on a large number of trade-related issues and services and on a dispute settlement system. The guiding principles of the GATT/WTO are non-discrimination, transparency, national treatment and reciprocity.

Non-discrimination

The principle of non-discrimination is fundamental to the GATT/WTO legal order. It is implemented by most favoured nation (MFN) treatment, which means that a concession agreed between two parties is automatically extended to all parties to the GATT/WTO. As a result, competition between producers in different countries is distorted to the least possible extent.

Transparency

In order to make trade policies transparent, the parties to the GATT/WTO have agreed to use tariffs as the only instrument of trade policy (art. XI). This instrument has several advantages: price competition among exporting countries remains intact, while the protective effect of a given *ad valorem* tariff may decline over time as the loss of

comparative advantage in the importing country continues. Moreover, a tariff is easiest to apply in a non-discriminatory fashion. Tariffs have the additional practical advantage that they are very easy to negotiate.

National treatment

This entails the equal treatment of domestically produced and imported goods (with the exception of agreed trade policy measures). This makes it difficult or impossible for governments to introduce all kinds of prescriptions and rules that discriminate against goods produced in foreign countries.

Reciprocity

The principle of reciprocity is used as a means of balancing the rights and obligations and costs and benefits of the countries that are party to the GATT/WTO.

The GATT/WTO interferes with domestic policies only in a small number of cases, viz. those that have a particularly marked influence on trade (e.g. subsidies). Although the Uruguay round of multilateral trade negotiations has extended the impact of GATT to some new areas of domestic policy (such as rules on intellectual property rights and on direct foreign investment), it may be said that the GATT/WTO does not interfere with most domestic policies. GATT/WTO rules are applicable when goods cross borders. Basically, the way in which they are produced is not a concern of the GATT/WTO; the GATT/WTO does not relate to production processes. This entails, first, that

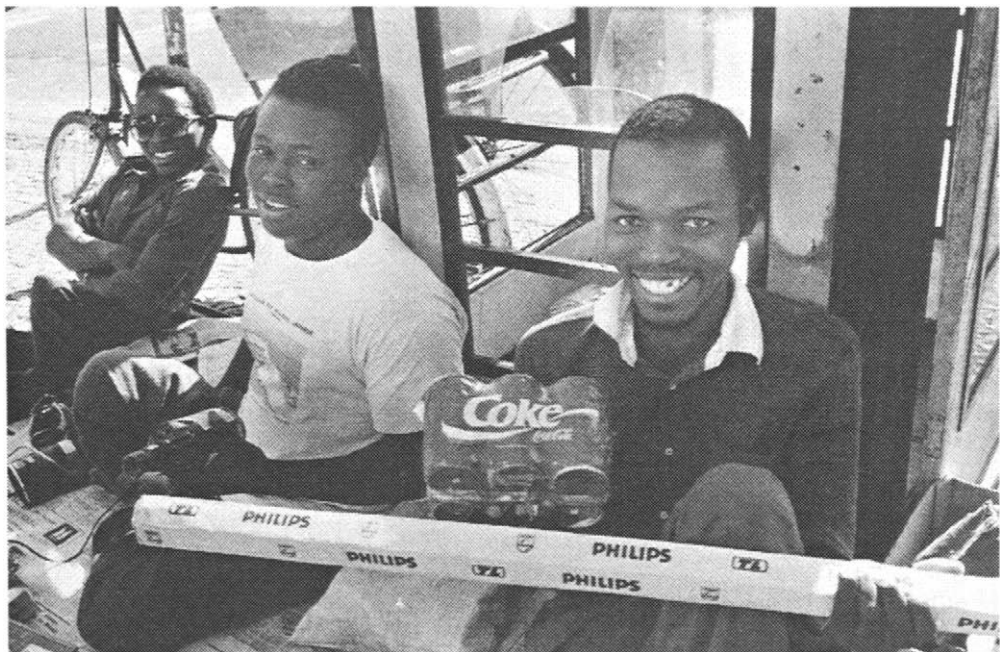


Plate 4.3 Street trade in Western products, Maputo, Mozambique. Photo: Ron Giling/Lineair

governments are not constrained by the GATT/WTO as to enact rules with respect to the way in which goods are produced within their jurisdiction. Conditions in the workplace, the prohibition of the use of certain inputs and, generally, limitations on the freedom of producers to choose inputs, technologies and the scale and geographical site of production may form part of the environmental policy of the nation concerned. The GATT/WTO does not limit national sovereignty in this area. The second implication is that countries are not allowed to introduce prescriptions with respect to the production processes of imported goods. As a result, an individual GATT/WTO member state is not allowed, for example, to require that imported wooden furniture should be produced from timber produced by environmentally safe production methods, even if this requirement is also applied to domestic production. This would constitute a process standard. As will be discussed below, process standards play a significant role in international environmental agreements and conflicts (for instance, in the dolphin case which is discussed below in this section).

Non-governmental organisations working in conjunction with private firms may offer a suitable alternative to official process standards. By monitoring production at the place of origin, conducting information campaigns and using targetted labelling, they can make consumers aware of their role and responsibility in environmental protection.

The contracting parties to the GATT/WTO enjoy a high degree of sovereignty over product standards that prescribe the technical specifications (i.e. quality) of goods, as long as these are implemented in the same way in relation to both domestically produced and imported goods alike. For instance, the parties are allowed to require that cars, both imported and home produced, should be fitted with catalytic converters.

Although these rules would appear to be unambiguous, they cannot preclude conflicts in the practice of international trade policy for two reasons. The first is that it is not always possible to make a clear distinction between a product and a process. This applies particularly to food and beverages, where the production process affects the taste and physical composition of the products, although they serve the same purpose and have most properties in common. A good example of this, which has a bearing on environmental matters, is the dispute between the EU and the US on the use of hormones in beef production. The EU wishes to ban all imports of beef produced with the aid of hormones. The US maintains that the hormone residues in the beef pose no threat to the health of consumers.

The second reason is that an unambiguous, non-discriminatory product standard may discriminate in practice, given that domestic producers are in specific circumstances that make compliance with the standards easy, while foreign producers may find it extremely costly to do the same. Denmark, for example, requires all soft drinks to be sold in returnable containers. The European Commission considered this to be discriminatory in relation to producers exporting to Denmark, for whom it is more costly to set up a collecting network for empty bottles. The regulation was therefore deemed to be a barrier to the free movement of goods in the EU and was forbidden. However, the European Court of Justice ruled in favour of Denmark; one of the considerations was that the protection of the environment may take precedence over free trade (Sorsa, 1992b). The contracting parties to the GATT/WTO have tried to solve such problems by drawing up an Agreement on Technical Barriers to Trade

which sets rules with respect to technical standards which products may be required to meet. The basic rule is that a technical standard should serve a legitimate objective (environmental protection is explicitly cited as being one of these) and that it should distort trade as little as possible. The Agreement prefers harmonised, international standards (Sorsa, 1992a). From 1980 to 1990, the signatories to the (former) Code on Standards notified 211 technical regulations to the GATT Secretariat which were intended to protect the environment (GATT, 1992). Examples of such regulations are those relating to the composition of exhaust gases emitted by cars and the composition of pesticides and herbicides.

The general trend is that trade policy measures are not permitted to be used as instruments of environmental policy, which is in line with the general conclusion drawn in the previous section based on economic reasoning. At the same time the

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The dolphin case

The most important issue with respect to the application of article XX of the GATT is whether trade policy measures may be used in one country to force other countries to adopt certain environmental policies (this is called the extraterritorial effect of domestic laws). In the dolphin case, Mexico lodged a complaint in 1991 against the US, as the US had banned imports of tuna from Mexico. The problem is that, in the eastern Pacific Ocean, shoals of yellowfin tuna often swim under schools of dolphins. When tuna is fished, dolphins may be killed in the nets, unless they are released in time. The US Marine Mammal Protection Act sets limits on dolphin catches for the domestic fishing fleet. This act also prohibits the importation of tuna from countries that have a higher rate of dolphin mortality in the catching of tuna than 25% above the US level (Charnovitz, 1993). The US claimed that, as art. XX does not state where the object of protection has to be, the exception constituted by this article could be used in an extraterritorial way, which meant that US laws could be implemented in order to influence behaviour in foreign countries, i.e. to adapt Mexican rules and practices to US standards. The GATT panel that investigated the complaint and reported to the GATT Council concluded that:

- 1 the US was using a *process criterion* (i.e. the way tuna has been caught), which was not in conformity with GATT rules
- 2 an embargo was not 'necessary' in the terms of art. XX; the US could have done more to bring about an international agreement on the protection of dolphins
- 3 article XX (b and g) could not be used *extraterritorially*
- 4 article XX could not be invoked in order to limit imports for the reason of differences in environmental regulations applied to producers (Sorsa, 1992b).

The upshot of this panel report is that a country is not allowed to use trade policy measures in order to force its trading partners to adopt the same internal policies, in this case measures to protect dolphins. The panel was of the opinion that, if dolphins were to be protected, this should be brought about by international co-operation; the US could not demonstrate to the panel that it had exhausted all options that would have been consistent with the GATT. Interestingly, the US received very little support from other contracting parties to the GATT.

GATT/WTO does not limit national sovereignty in terms of a nation's ability to pursue domestic environmental objectives with the aid of other instruments.

In particular circumstances, however, the contracting parties are allowed to deviate from these rules by virtue of article XX of the GATT '... nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures ... (b) necessary to protect human, animal or plant life or health ... (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption ...'. The measures should be necessary and implemented in a non-discriminatory manner. It is generally accepted that 'necessary' means that other measures which do not have the effect of distorting trade are not available. The dolphin case is a good illustration of the disputes that may arise about the interpretation of this article (see Box 4).

Although some countries continue to contemplate the extraterritorial application of their laws, the dolphin panel report has clarified this issue to a very great extent. However, other questions remain with respect to the definition of the concept of 'necessity' and the scope of art. XX. In both theory and GATT/WTO practice, trade measures are deemed to be less than 'first best', which means that they become necessary only in the absence of 'first best' measures. Other trade-distorting environmental measures, including product standards, should also be 'necessary', which entails making some very difficult judgements about the relative distorting effects of alternative measures. Germany obliges car manufacturers to dispose of old cars in order to reduce waste and resource use. Is this the least distorting way of tackling the problem? With respect to the scope of art. XX, the question remains as to what is covered by the phrases 'the protection of human, animal or plant life' and 'exhaustible natural resources'. In the dolphin case, experts stated that the dolphins that were the object of protection were not members of an endangered species. The question therefore arises as to why dolphins should be protected and why tuna may be caught freely for commercial purposes.

4.5 Criteria for an optimum policy

In the above sections, we have discussed effectiveness and efficiency as criteria for an optimum policy. In this section, the discussion will be extended to various other principles that may be taken to underlie optimum policies: the principle that the user of an unpriced natural resource, e.g. a polluter, should pay for the exploitation of the resource (the polluter pays principle or PPP) and the principle of equity. These concepts warrant discussion in the context of international trade, as they may give rise to a number of specific issues and suggest solutions to international environmental problems. The PPP states that the user of a scarce service of Nature should pay the collective owners of nature, i.e. society, in order to rectify the damage caused or to compensate those whose welfare has been affected by the use of the natural service. The result should be that the scarcity of unpriced natural resources is a factor that is included in the market price. The principle of equity entails that the costs of environmental protection should be borne by those who profit or have profited from environmental degradation, bearing in mind their capacity to pay.

The application of these principles may pose difficult questions in the case of international environmental problems. Climatic change, the depletion of the ozone layer and acid rain are examples of international environmental problems where these questions arise.

The protection of the ozone layer necessitates a complete prohibition of the use of CFCs. In a purely technical sense, it is feasible to replace CFCs with other materials in almost all their applications. A complicating factor is, however, that the technical know-how has been developed by private enterprises in industrialised countries. Developing countries have argued that the decrease in the use and production of CFCs, as proposed by the industrialised countries, is not equitable. This is because, first, the latter countries have in the past emitted a large quantity of CFCs and are thus largely responsible for the problem. The second argument is that developing countries need all their scarce resources to improve their level of prosperity and cannot allow some of them to be diverted in order to buy ozone-safe technologies from private enterprise in industrialised countries (Vorlat, 1993, p.147). A number of large developing countries (such as Brazil, China and India) refused to sign the Montreal Protocol in 1987 for this reason, even though the period for phasing out the use of CFCs had been prolonged by ten years for these countries. They continued to demand additional concessions and financial and technological assistance in order to facilitate compliance. In the end, a CFC fund was created for this purpose and Brazil and India accepted the Protocol. The example shows that, in order to realise an agreement that is acceptable to all parties, the PPP may have to give way to the principle of equity. The alternative would have been to use the trade measures in the Montreal Protocol against countries that are not party to it. The parties to the Protocol may ban trade in CFCs and related products with non-parties. Given the fact that a number of large developing countries producing over 20,000 tonnes of CFCs each year refused to accept the Protocol, it is not likely that this strategy would have had much success.

The same problem occurs with respect to the issue of global warming. The UN Framework Convention on Climate Change differentiates between developed and developing countries and Article 3 states that the former 'should take the lead in combating climate change and the adverse effects thereof' (a more detailed discussion will be found in Faber, 1993). The industrialised parties recognise explicitly that their responsibilities differ in view of their historical contribution to global environmental degradation.

Developing countries weigh up the costs and benefits of participation in international environmental agreements, just as the rich countries do. The difference between the two groups of countries is that the immediate benefits of protecting global environmental resources (such as the climate) have a lower social value in developing countries than in rich countries. The opposite applies to the costs. This means that the option of staying outside an international agreement to protect certain elements of the environment, i.e. becoming a free rider or not solving the problem in hand, is more attractive for developing countries than it is for developed countries. The solution to the free rider problem in international environmental agreements may be found in the incorporation of special facilities for certain parties for which the agreement as such is not attractive. This may be a deviation from a strict application of the PPP, but is necessary on grounds of equity in order to bring about a viable agreement. The options

that have been presented for protecting tropical forests (see Box 5) are a good example of the choice of instruments that has to be made.

It may prove impossible to solve the free rider problem by means of co-operative solutions. For this reason, many environmental agreements have trade provisions, in order to impose sanctions on parties to the agreement who do not comply with their obligations or to make it unattractive for non-parties to behave like free riders. A total of 127 multilateral environmental agreements were signed during the period between 1933 and 1990. Of these agreements, 17 included trade provisions, such as the above-mentioned Montreal Protocol (GATT, 1992, p.11). The question is whether the discrimination between parties and non-parties violates the non-discriminatory principle of the GATT/WTO and whether these trade provisions can be enforced under art. XX of the GATT. This is doubtful at the very least as this article was not formulated in

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How should tropical forests be protected?

There are good reasons for protecting tropical forests: biodiversity is very high, they provide a means of livelihood for indigenous peoples and they absorb a massive amount of greenhouse gases. However, industrialised countries generally attach a higher value to these factors than developing countries. As a consequence, industrialised countries have sought ways to encourage developing countries to give a higher level of protection to their tropical forests. It has been suggested that a ban should be imposed on imports of tropical timber that is produced in a non-sustainable manner. This would force the developing countries concerned to harvest their forests in a careful and sustainable manner.

If one takes the facts of tropical timber production into account, however, it is very doubtful whether a ban on imports would be effective. A ban on the import of logs produced in developing countries would not have much effect, as only about 0.5% of log production in these countries is exported (GATT, 1992). If the ban were extended to cover sawn wood and wood panels made from tropical logs, this would amount to about 1% of the trees felled in developing countries, which is again insufficient to be effective. Approximately 80% of the trees felled in developing countries are used for fuel or simply disappear in the process of clearing land for agricultural production. A ban on the import of tropical timber could even reduce the incentives to manage tropical forests in a sustainable way, as the price of tropical timber would fall as a result of declining import demand.

More positive measures could create better results. If rich countries wish to maintain tropical forests, they may have to pay the developing countries for this service. It has been suggested that development contracts should be signed for the sustainable management of tropical forests and that these should include the provision of financial and technical assistance. Another proposal involves eco-labelling. If this increases the price of tropical timber produced in a sustainable manner, there will be more of an incentive to protect the forests. Given the pressures on forests that flow from poverty and land scarcity, a combination of development-related strategies is necessary.

At best, trade measures can be used as a sanction in clearly defined situations, i.e. where timber exports are the dominant cause of deforestation (which is not generally the case). A sanction is implemented after other, more efficient instruments have failed.

order to change the policies pursued by other countries, as should be clear from the dolphin case (see Box 4). Using it for this purpose might encourage its use outside the multilateral framework, perhaps for protectionist purposes.

A better solution would be to change the GATT/WTO rules. This could be done either temporarily by a waiver or permanently by amending the GATT/WTO itself. Waivers of specific GATT/WTO obligations may be granted 'provided that any such decision shall be approved by a two-thirds majority of the votes cast and that such a majority shall comprise more than half of the contracting parties' (art. XXV of GATT). However, waivers are granted in 'exceptional circumstances' only and the prevailing view is that they are of a temporary nature (GATT, 1992). A change of GATT/WTO rules will therefore be necessary in order to accommodate trade measures in environmental agreements that are of a permanent or long-term nature. This can only be brought about by unanimity.

The relationship between trade and the environment will be an important issue in the new WTO. The first paragraph of the preamble of the Agreement establishing the WTO reads:

Recognising that their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand and expanding the production and trade in goods and services, while allowing for the optimum use of the world's resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and enhance the means for doing so in a manner consistent with their respective needs and concerns at different levels of economic development.

At the request of the countries of the European Free Trade Association (EFTA), the GATT Council decided in 1991 to convene the Group on Environmental Measures and International Trade in order to look into the compatibility of trade measures in existing multilateral environmental agreements, the multilateral transparency of national regulations which are likely to have trade effects and the trade effects of new packaging and labelling requirements aimed at protecting the environment (GATT Focus, October, 1991, p.1). This Group has been preparing the way for negotiations on these issues in the period from 1992 to 1994 (GATT Focus, No.105). In 1994, a subcommittee of the WTO PrepCom was established to take up the issue of trade and the environment.

4.6 International environmental agreements

The GATT/WTO is not a serious constraint on the introduction of domestic and international environmental policies. Whether individual countries are pursuing adequate domestic environmental policies and whether there is sufficient co-operation among the states in order to preserve the global environment are two entirely different questions. The answer to both questions has to be in the negative. With respect to international co-operation, although a large number of international agreements have been concluded in different areas of the environment (on which more will be said below), a great deal has still to be done.

A number of international environmental agreements, incorporating trade measures, have now been signed. Table 4.2 indicates the number of such agreements that have been made. The most important of these are reviewed below (Sorsa, 1992b, provides a more detailed review).

Table 4.2 Multilateral environmental agreements by subject, 1933–1990

Subject	Total	With trade provisions
Marine pollution	41	0
Marine fishing and whaling	25	0
Protection of flora and fauna	19	10
Nuclear and air pollution	13	1
Antarctica	6	0
Phytosanitary regulation	5	4
Locust control	4	0
Boundary waters	4	0
Animal cruelty	3	1
Hazardous wastes	1	1
Other	6	0
Total	127	17

Source: GATT (1992)

Whaling

One of the oldest agreements is the International Convention for the Regulation of Whaling, which came into force in 1948. Its objective is to secure the proper conservation and development of whale stocks. The agreement was ratified by 24 countries, including the most important whaling states. The International Whaling Commission, the managing body of the Convention, introduced a moratorium on whaling from 1986 onwards. Despite this, countries were allowed to continue to catch whales for 'scientific' purposes and Japan, Norway and Iceland made particular use of this opportunity. These countries have tried to persuade the International Whaling Commission to reopen the whaling grounds to normal fishing. Whaling has decreased considerably since the 1970s. In the spring of 1994, it was decided virtually unanimously (with only Japan voting against the motion) to prohibit all whaling south of the 40th parallel of the Southern hemisphere in order to create a safe haven (i.e. a reserve) for whales.

Endangered species

The Convention on the International Trade in Endangered Species of Wild Fauna and Flora (CITES, which came into force in 1975) specifically limits international trade in species that stand to become extinct. Three lists of species have been drawn up to this end. The species on the first list are in acute danger of extinction; trade is very strictly regulated and allowed only in exceptional circumstances. The parties to the Convention are required to take measures to enforce the Convention and in particular to penalise

trade in these species and to return any specimens impounded to their country of origin. The Convention has been effective to a certain extent (some species have been moved from the first to a lower list as the threat of extinction has receded). Yet efficient solutions can be achieved only by internationally co-ordinated domestic policies that protect and improve the ecosystems of which these endangered species are part, as has been demonstrated by the ban on the ivory trade. At best, trade policy measures can support domestic policies. They are not substitutes for an adequate domestic policy that directly addresses the problem. The impending international agreement on biological diversity that was signed at UNCED in 1992 may be a step in this direction if it is given effect on a sufficiently wide scale.

The ozone layer

The Montreal Protocol on Substances that deplete the Ozone Layer is associated with the Vienna Convention for the Protection of the Ozone Layer. The Protocol came into force in 1989 and was renewed in 1990. The objective of the Protocol is the progressive elimination of the production and consumption of substances that deplete the ozone

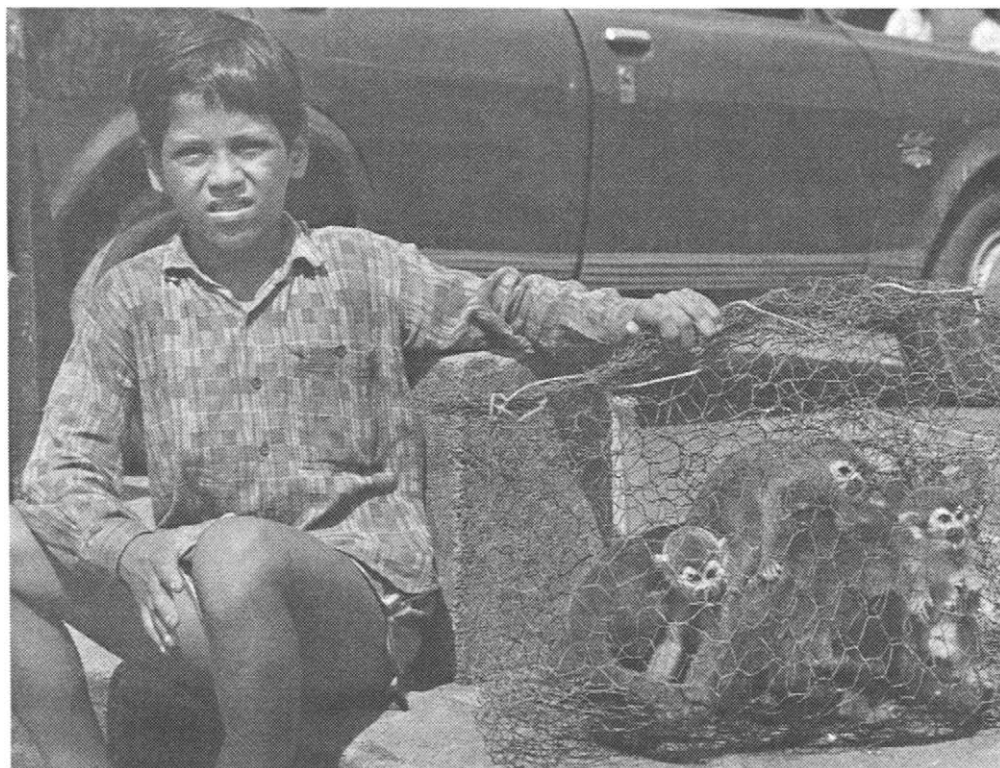


Plate 4.4 A boy selling monkeys in the centre of Parimaribo, Surinam. As a result of lax law enforcement, people are more or less free to catch any animals they like in the enormous Surinam jungle and then sell them for a profit. Photo: Ron Giling/Lineair

layer (i.e. CFCs and halons). A large number of countries, representing 90% of global consumption and most of the production capacity, have ratified the Protocol. Annex A of the Protocol lists the substances that are the object of control. Trade measures are highly restrictive: trade with non-parties is completely banned.

Hazardous wastes

The Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal (which took effect in 1992) is aimed at protecting countries from the dumping of hazardous waste by controlling its trans-border transportation. A number of important net importers and net exporters of waste (including the EU) are not party to the Convention. Parties are entitled to prohibit the import of hazardous waste and are bound to prohibit its export if the importing country does not consent in writing to the specific import. It is prohibited to trade in hazardous waste with non-parties and exports are allowed only if the exporting country itself does not possess the technical means of disposing of the waste. In March 1994, 64 countries (including Australia, Canada, the EU, Japan and the US) agreed on an immediate prohibition of exports of hazardous waste to developing countries. Waste that is intended for recycling in developing countries is exempted from the prohibition until 1997.

The definition of hazardous waste is fairly broad. There are many borderline cases, such as scrap metals. It is expected that the Convention and the agreement prohibiting exports of hazardous waste to developing countries will affect the trade in various scrap metals, making the recycling of metals more expensive, particularly by non-member parties. The reason for this is that the Convention makes clear that hazardous waste should be disposed of in its country of origin. Where least-cost solutions for the disposal of waste (including scrap metals) are located in foreign countries, the costs will rise.

The trade measures will be beneficial to developing countries. These countries can save the cost of setting up and maintaining the staff and infrastructure which are needed to monitor imports of potentially dangerous substances.

This brief review shows that international co-operation has led to agreements in various areas of environmental policy. The Whaling Convention and the Montreal Protocol are agreements that address narrowly defined problems for the solution of which both technical means and public support are available. Under these conditions, international co-operation has the best prospects. For broad and complex problems such as climate change and the management of the oceans, effective international co-operation is much more difficult to organise. The interests of states and pressure groups are diverse and this may make it difficult to formulate coalition-building compromises. Public support is not easily forthcoming in very complex matters. The Framework Convention on Climate Change that was signed in Rio de Janeiro in 1992 addresses such a difficult and complex problem. The mitigation of the growth of energy use and its transformation is far from costless and the distribution of gains and losses over countries and individuals poses very sensitive political problems.

A second conclusion which may be drawn from the above review is that trade measures are used as a supportive device and are necessary in order to make free riding

unattractive to non-parties to the agreements. The exceptions to this rule are CITES and the Basel Convention that were formulated expressly with the aim of regulating the international trade in endangered species and in hazardous waste. Neither of these agreements, CITES in particular, has proved to be very efficient.

4.7 Conclusion

I have argued that international trade as such may stimulate production that causes environmental damage. However, international trade and competition may also contribute to the economic use of scarce natural resources. Production processes often exploit the environment at a rate that is not sustainable and is incompatible with social preferences. The consumption and transport of traded goods may have the same effect. I showed that it would not be wise, in terms of environmental policy goals, to curtail international trade. This would be both ineffective and inefficient. Both economic theory and the GATT/WTO would assert that trade policy measures are not the best instruments of environmental policy. Policy measures that directly address sources of environmental damage in production or consumption are more effective and more efficient.

Developing countries wish to grow and to export goods in order to achieve higher levels of prosperity. The challenge of sustainable development is to bring about growth without causing environmental destruction. As far as trade is concerned, the diversification of exports by improving market access and the transfer of 'clean' technologies have been suggested as means of contributing towards sustainable development. It may be necessary to have trade policy instruments at hand as a last resort in the framework of international environmental co-operation, in order to forestall free riding by countries that do not accept reasonable obligations.

Most industrialised countries and many developing countries have introduced environmental policies that attempt to reduce the environmental pollution caused by production and consumption. The GATT/WTO is not much of a constraint as long as no trade measures are used. Specific instruments can be implemented in exceptional cases and if certain conditions have been met (see art. XX of GATT and the GATT/WTO Agreement on Technical Barriers to Trade). The fact that international environmental policies have not yet succeeded in bringing about sustainable development throughout the world cannot be blamed on restraints imposed by the GATT/WTO. The divergent needs, interests and insights of countries and groups within countries have apparently prevented the states of the world from tackling the global and continental environmental problems in a more effective manner.

It has been decided to start negotiations in the new World Trade Organisation (WTO) on the relationship between trade policy and environmental policy. In the preceding sections, a number of issues where international agreement does not exist or is incomplete were discussed. One issue is the problem of the interpretation of the concepts of 'necessity' (i.e. have potential alternatives to trade measures been fully exploited?), 'proportionality' (is the damage to international trade worth the environmental benefit that is generated?) and 'transparency' (are the measures clear, simple and is information readily available?). Clarification is needed. A second issue relates

to the meaning and role of scientific evidence and methodologies for risk assessment and risk acceptability. Another issue is whether the trade provisions in a number of multilateral environmental agreements are compatible with the GATT/WTO.

The issue of the protection of the environment by the use of trade barriers will be hotly debated during the remainder of this decade. Uncompetitive industries will use environmental arguments to obtain protection. Developing countries need growing exports for their development and cannot be expected to apply standards which the industrialised countries have only recently introduced. The governments of large countries will try to get their way by taking unilateral action in order to achieve political success. The risk is that the multilateral world trading order will be the victim of such action. This would be detrimental to the opportunities for fostering the development of poor countries and for creating a climate conducive to international environmental co-operation.