AN ENQUIRY INTO THE USE OF INTERNATIONAL TRADE MEASURES AS ENVIRONMENTAL POLICY INSTRUMENTS

by

Derrick G. Wilkinson

Submitted for the Degree of Ph.D.

at the

London School of Economics and Political Science

ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346

AN ENQUIRY INTO THE USE OF INTERNATIONAL TRADE MEASURES AS ENVIRONMENTAL POLICY INSTRUMENTS

ABSTRACT

The links and overlapping areas of concern between international trade policy and environment policy are many and varied, and a number of often competing interests at stake, each of which must be accommodated. Thus far, the debate on this issue has been characterised by a distinct lack of agreement on how to proceed, due to a lack of a common analytical framework; each of the main communities in the debate have sought to impose their agendas, priorities and analyses.

In light of this, the first purpose of this thesis is to determine whether or not there exists a legitimate role for international trade policy instruments in the conduct of environment policy.

This enquiry takes to be indisputable that the protection and maintenance of a healthy and stable environment must be accorded a higher priority than anything else, including the international trading system, to the extent that they are otherwise irreconcilable. Therefore, Chapter 2 examines the basis on which environmental standards should be established, and the extent to which they should be harmonised. To determine whether the use of trade policy instruments to achieve the necessary environmental standards should be considered legitimate, Chapters 3, 4 and 5 present and discuss three tests. It is argued that the

use of trade-related environmental policy instruments (TREPI) should be considered to be legitimate only if it meets all three of these tests. This three-part legitimacy test describes a decision-making process, and is a useful way of organising and analysing policy problems concerning the relationship between international trade policy and environment policy. Chapter 6 considers two actual disputes and a potential case to show how this legitimacy test might work. This latter case involves the analysis of significant new evidence about the commercial impact of environmental and animal welfare regulations on UK agriculture.

By adopting the simple approach proposed in this thesis we seek to avoid the fundamental conflict caused by the epistemological and analytical assumptions and biases of each of the three communities: the international trade community, the environmental community, and the development community. Instead a more objective means of considering the complex of issues is proposed. The three tests are independent of any of the three communities and, in their simplicity, could be applied to a wide range of problems. Applied to the trade and environment issue, they demonstrate their objectivity by the conclusions they lead to: on some points they lend support to the interests of each of the three communities, while on others they do not.

To the extent that an appropriate role for trade policy instruments in the conduct of environment policy is found, the second purpose of this enquiry is to consider whether or not, and in what ways, the current international trading system frustrates or facilitates such a use. Chapter 7 discusses, in three parts, the environmental effects of international trade liberalisation. In Chapter 8, the scope for possible amendments to the GATT system is considered by reference to the environmental provisions

of the NAFTA. Finally, the use of domestic trade remedy laws as environment policy instruments is considered in Chapter 9.

AN ENQUIRY INTO
THE USE OF INTERNATIONAL TRADE MEASURES
AS ENVIRONMENTAL POLICY INSTRUMENTS

TABLE OF CONTENTS

LIST OF ACRONYMS

BISD: Basic Instruments and Selected Documents

CCA: Compliance Cost Assessment

CUSTA: Canada-US Free-Trade Agreement

EC: European Commission

GATT: General Agreement on Tariffs and Trade

GETS: Global Environment and Trade Study

IPPC Integrated Pollution Prevention and Control Directive

LDC: Less-Developed Country

MAFF: UK Ministry of Agriculture, Fisheries and Food

MFN: Most Favoured Nation

NAFTA: North American Free-Trade Agreement

NVZ: Nitrate Vulnerable Zone

OECD: Organisation for Economic Co-operation and Development

OMA: Orderly Marketing Arrangement

PPM: Production and Process Methods

PPP: Polluter Pays Principle

SPS: GATT Code on Sanitary and Phytosanitary Measures

TBT: GATT Code on Technical Barriers to Trade

TREPI: Trade-Related Environmental Policy Instruments

UNCED: United Nations Conference on Environment and Development

UNCTAD: United Nations Conference on Trade and Development

UNEP: United Nations Environment Programme

VER: Voluntary Export Restraint Agreement

WTO: World Trade Organisation

PREFACE

In 1991 Mr. Charles R. Carlisle, then the Deputy Director-General of the General Agreement on Tariffs and Trade (GATT), reportedly predicted that the relationship between international trade policy and environment policy would be "the number one trade issue of the 1990s"[1]. He argued that "trade and environment could be central to GATT's next Round, which could become, who knows, the 'Green Round'?"[2] This view was all the more remarkable in as much as the relationship between international trade and the environment was almost entirely ignored in the Uruguay Round of GATT negotiations. The rise of this issue can be ascribed primarily to the interaction of two developments: continued economic globalisation, and the very rapid resurgence of environmental concerns during the latter half of the 1980s.

Under the heading of economic globalisation two issues are particularly prominent. First, the sheer scale of current economic activity

---

1 Financial Times, 12 April 1991, reporting a speech he gave before the Second World Industry Conference on Environmental Management, organised by the International Chamber of Commerce, in co-operation with UNEP and UNCED, in Rotterdam, 10 April 1991.

2 See GATT Focus (86) Nov./Dec. 1991, p.6, reporting on a speech by Mr. Carlisle on 19 November 1991 at the Malente Symposium IX, sponsored by the Drager Foundation, in Timmendorfer Strand, Germany.

is unprecedented. Because of a rapidly rising population and a similarly rapid increase in the technological capacity to exploit nature, the use of natural resources and the concomitant production of waste is beginning to strain the ability of the natural ecosystems to cope and so is resulting in ever more ecological damage.

Second, globalisation has resulted in increased international competition for both productive capacity and markets. This is largely due to successive rounds of GATT negotiations which have resulted in historically very low tariffs throughout the industrialised world. At the same time, in many sectors, international and global arrangements of production and consumption have been developed[3]. In light of these processes, the attention of trade policy analysts has more recently begun to refocus away from traditional border restrictions and toward differences in internal political-economic constitutions and behaviour. Amongst these hitherto largely domestic issues is much of the environmental policy that has been developed to date.

Corresponding developments have occurred with respect to environment concerns. During most of the past 30 years or so, since environmental issues began to rise to public prominence, attention has largely been focused on local or regional problems. Many of these local and regional issues remain no less urgent today. Added to them, however, is a more recent recognition of international ecological interdependency and the existence of a number of global environmental problems. In short, environmental issues have historically been of a largely domestic nature but increasingly include international and global

3 Dicken (1992) provides an excellent discussion of these developments.

concerns. International trade policy, on the other hand, has historically been mainly concerned with border measures which affect the international exchange of goods, but has recently also become concerned with domestic issues.

From this confluence of policy interests arises a complex of questions about the relations between international trade and the environment. Given that the authorities responsible for trade and environment policies are territorially bounded, this relationship is not limited to the interaction between the international trading system and the environment, but extends also to the interactions amongst and between the commercial and environmental policies of the various jurisdictions. Therefore we will be interested in this enquiry in elucidating whether there is an appropriate role for trade and trade policy in the conduct of environment policy, and what that role might be.

The use of trade restrictions in support of environment policy is not new. There is a long tradition of quarantine to contain the spread of contagious diseases, and for much of this century sanitary and phytosanitary regulations have included restrictions on the importation of flora and fauna. Thus there is an acknowledged right, which overrides commercial considerations, for a population to protect itself from coming into contact with things which have been found to be unhealthy or environmentally damaging. But the interaction of environment policy and international trade relations is much more complicated than that.

What happens if a jurisdiction wishes to restrict the importation of a product which, although perfectly safe in itself, is produced by what is seen to be an environmentally damaging method? This they may wish to do for any of a number of reasons. They may themselves feel some of

the environmental effects of the production process; for example, transborder acid rain emissions. It may be the case that the production process adversely affects some aspect of the global commons, or even only the environment at the point of production, and the importer disapproves of that activity. There are, after all, precedents for the use of trade restrictions as sanctions against behaviour which one or more of the international community disapprove[4].

Alternately, it may be felt that failure to implement particular environmental measures may convey a competitive advantage, and as such are a form of unfair trade behaviour. But it must be remembered that environmental measures should be designed for particular environmental problems, and that environmental differences, including geographical and climatic differences, are an important part of the theory of comparative advantage on which the international trading system is ostensibly founded.

Similarly, there are a variety of reasons why export restrictions may be implemented to give effect to an environmental policy. Export restrictions may be an important part of efforts to conserve a natural resource, or necessary to control the dissemination of environmentally dangerous goods such as toxic waste. To others, however, such restrictions may be seen as efforts to support local processors, either by curtailing the supply of inputs to foreign competing processors or by way of the lower domestic input prices which can result from the artificially increased domestic input supply.

Environmental regulation can also increase the operating costs of business. For this reason there is sometimes resistance to environmental

---

4 Charnovitz (1991) provides a useful account of the recent history of trade restrictions in the

measures because of fears of being competitively disadvantaged vis-à-vis those not subject to such regulation. This may then lead to calls for import restrictions on competing products or for government assistance with the cost of complying with these regulations. But to others this may be seen as unfair, anti-competitive and/or protectionist behaviour resulting in escalating trade friction.

A corollary concern is that such environmental regulatory differences might induce prospective investors to site their investments in the least regulated jurisdictions -- the pollution havens. This, it may be argued, is both bad economic policy and bad environmental policy. It is bad economic policy because it drives away from those with high environmental standards many potential investments, and the jobs, skills and incomes associated with them. It is also bad environmental policy because it tends to reward with investments the jurisdictions that have the worst environmental regimes.

Clearly it will be important to ascertain if and when any such environmental regulatory differentials are necessary or desirable and when they are not. More generally, we will need to disentangle legitimate environmental motives from protectionist or otherwise economically-rooted motives. This is necessary to avoid the implementation of any spurious, unnecessary or inappropriate environmental measures which may tend to impair the functioning of the international trading system, as well as to minimise the possibility of needed environmental measures being successfully resisted.

By discussing this complex of questions it will be possible to elucidate means by which policies might be better harmonised in the

---

conduct of environmental policy.

development of environmentally sustainable international trade policy. However, to be effective this requires amongst other things that all of the principal interests be accommodated in the necessary bargains. As a result of global interdependencies both in the economic system, as well as in the natural environment, the principal interests which must be accommodated necessarily include Third World development concerns in addition to the concerns of trade and the environment as such.

While problems arising from the relationship between international trade relations and environment policy have risen rapidly on the international policy agenda since 1990, they are not new: analyses of them can be traced to the early 1970s.

Chapter 1

A Review of the Debate

It will be useful at this point to look at the development of the debate regarding the relationship between international trade and the environment. By doing so we will elucidate the problem that this thesis seeks to address. We will look first at the two main phases of interest in this issue, and then look at the three key communities of interest that emerged during the second phase. From this, it will be shown that these communities approach the problem from radically different world views. As a result, while all to varying degrees are now beginning to recognise the need for a mutually satisfactory conciliation, the search for a resolution to the debate is impaired by their lack of a common analytical framework. This thesis contributes to the development of such an analytical framework by articulating neutral criteria for evaluating when it would be legitimate to use trade measures as environmental policy instruments.

The First Phase: Interest in the relationship between international trade and the environment can be traced at least to July 1971, and a report written by the GATT Secretariat for the 1972 Stockholm Conference. This report looked mainly at the implications of increased environmental regulation for industrialised countries and

their international competitiveness. Shortly after this, in November 1971 the GATT established a committee under the chairmanship of Ambassador Hidetoshi Ukawa of Japan, called "The Working Group on Environmental Measures and International Trade", to consider the issue further, but the committee never met until 1991, nearly 20 years later!

As Ugelow (1982) and Dean (1991) have shown, however, private research on aspects of the trade-environment relationship continued throughout the 1970s, long before the environment and development communities took an interest. Accordingly, Western trade analysts carried out most of this research. Mainly they examined the same three issues first discussed in the GATT report: the effect of environmental regulation on comparative advantage, the possible loss of international competitiveness, and the effect on decisions concerning the location of foreign direct investment. Interestingly, relatively little consideration was given to possible policy responses to any commercial losses which might be seen to arise from environmental regulation.

The analytical methodologies employed by the various authors varied, thus making direct comparisons difficult. Even so, a number of general conclusions were common: that environmental regulation had little effect on competitiveness, and that it was at best a minor factor in investment location decisions. Of more interest to this thesis, a further point of commonality is that they were almost exclusively analyses employing the tools and preconceptions of professional Western economists. Thus, Magee and Ford (1972), Walter (1973), Richardson (1976) and Walter (1982), for example, all employed traditional microeconomic analytical tools, including linear

programming, in their research. Similarly, OECD (1978) extended the analytical toolbox somewhat by demonstrating the usefulness of macroeconomic analysis.

It may come as little surprise, then, given the absence of influence by the environmental and development communities, that most official and academic research at that time provided defences against the view that international trade rules may need to accommodate environmental objectives. As Dean (1991) summarised, "it is doubtful that [stringent environmental regulations] would yield a significant impact on trade patterns...there is no role here for countervailing duties or an international environmental standard...subsidies are likely to be guises for trade barriers, and should in general not be accommodated... [and] trade barriers will be, at best, a second-best means of reducing environmental damage."

The end of this first phase of research, it may be suggested, can be dated to the publication of Rubin and Graham (1982). This study, published under the auspices of The American Society of International Law, and drawing on the earlier work of economists and trade analysts, was the first major work on the trade and environment conducted mainly by lawyers. Accordingly, it can be seen as adding a new analytical dimension to the debate. It concluded that "current efforts to reduce unnecessary friction between trade and environment policies should concentrate upon procedural issues: the fairness of consumption pollution standards applied to imports; methods of financing the additional costs of pollution control; procedures for developing trade and environmental policies internationally and within nations; and development of more reliable information with respect to the economic effects of pollution control. These are the areas in which

some tangible results have been achieved already, and in which progress is possible in the near term" (p. 163).

As already noted, during this first phase of the debate, environmental and development interests paid these issues little attention. As a result much of the research was little noticed and so relatively uncontentious. No doubt the global economic slowdown during the first half of the 1980s contributed to a decline in interest in these issues and to a shift in economic research priorities. A few papers, such as Siebert (1985) and Pasurka (1985), were published, but it was not really until after the Brundtland Report in 1987, and with the negotiations on the NAFTA and Uruguay Round Agreements, that the relationship between trade and the environment began again to attract the attention of analysts.

The Second Phase: At the request of the Swedish delegation, at the beginning of 1989 the OECD Trade Committee began a systematic investigation of the relationship between trade and the environment. Regrettably, most of the discussion papers produced during this investigation remain unpublished. The resurrection in 1991 of the 1971 GATT Working Group on Environmental Measures and International Trade was at the request of the Nordic countries, but much of its work was also conducted largely in secret. Most other official organisations, including the United Nations Conference on Trade and Development (UNCTAD)[5], did not take up this issue in a systematic way until a few years later, after the Rio conference in 1992.

This second phase of research into the trade-environment relationship continued the analysis of the three primary issues of the 1970s -- the effect of environmental regulation on comparative advantage, on competitiveness, and on investment decisions. Robinson (1988), for example, updated and reconfirmed the conclusions of Walter (1973). Similarly, Tobey (1990) used a Heckscher-Ohlin-Vanek model to evaluate the effect of environmental compliance costs on patterns of trade. He found no evidence to support the view that strict environmental regulation affects trade patterns.

In addition to these issues, the second phase has seen a number of other aspects emphasised. These include: 1) a greater interest in possible policy responses to environmental regulation which impairs competitiveness, 2) transnational pollution, 3) hazardous substances and endangered species, 4) the relationship between the WTO agreements and the Multilateral Environmental Agreements (MEAs), and 5) production and process methods (PPMs).

Since 1993, in the aftermath of the United Nations Conference on Environment and Development (UNCED), there has been a significant increase in institutional work on aspects of the interactions between international trade policy and environment policy. For example, the International Institute for Sustainable Development, in Winnipeg, Canada, is a direct offshoot of the UNCED and has developed an extensive research programme on the trade-environment issue. Similarly, the Centre for Development and the Environment, at the University of Oslo in Norway, is undertaking a

---

5 Although UNCTAD did develop a number of excellent papers on this issue in preparation for the Rio conference, formally known as the United Nations Conference on Environment and Development

major new research programme on environment, trade and industrialisation. Within North America, the Commission for Environmental Co-operation has been established under the North American Free-Trade Agreement (NAFTA) to consider all matters regarding the interaction of trade and the environment within that region. Research of internet sites suggests that since 1993 dozens of similar groups and organisations, large and small, have arisen throughout the world to examine aspects of the trade-environment issue. Amongst these is the Global Environment and Trade Study (GETS), directed by Steve Charnovitz. Established in 1995, this was an internet-based international conference for the international exchange and discussion of information, ideas and documents on issues regarding international trade, environmental protection, the use of natural resources, and sustainable development[6].

Of greater importance to this thesis, the second phase has differed from the first by the very prominent participation of analysts sympathetic to the priorities of environmentalists, in addition to those of the free trade and business communities. This was the case, for example, in North America during the negotiation and implementation of the Canada-US Free-Trade Agreement in 1988 (CUSTA), the North America Free-Trade Agreement in 1992 (NAFTA), and the Uruguay Round GATT (1994). These new contributors[7] to the debate achieved two main objectives: the explicit provision of environmental concerns in the NAFTA, including substantive agreements to protect the

---

UNCED in 1992.

6 Subsequently the name was changed to Bridges Weekly Trade Digest, and it is now published by the International Centre for Trade and Development.

7 These include Steven Shrybman of the Canadian Environmental Law Association, Charles Arden-Clarke of the World Wildlife Fund for Nature, Mark Ritchie of the Institute for Agriculture and Trade Policy, and Steve Charnovitz, amongst many others.

environment from possible deleterious effects which may arise as a result of the NAFTA; and they were instrumental in getting the matter firmly back on the international trade policy agenda.

As we have already seen, also of great importance in the recent trade-environment research has been that the interests of the developing world have now become inextricably intertwined in the trade-environment relationship. This has occurred for two main reasons. First, the UNCED in 1992 raised the prominence of the relationship between development and the environment. Second, because developing countries constitute the majority of members in the WTO, the demands of the industrialised countries to have the trade-environment issue included on the new international trade policy agenda required the agreement of the developing country members who, in turn, demanded full accommodation of their concerns in any discussion of the relationship between international trade and the environment.

Accordingly, the second phase has seen the debate about the relationship between international trade and the environment develop into one between three communities: international trade liberals, environmentalists and developmentalists.

While both official and unofficial research on this topic grew quickly during the first few years of the 1990s, it was not until 1994 with the publication of "Greening the GATT" by Daniel C. Esty that a unified, systematic treatment was undertaken of the whole complex of issues that constitute the relationship between international trade and the environment. Subsequently, research into this topic has mainly been kept to paper-length treatments of specific aspects of the debate. Low (1992) and Anderson and Blackhurst (1992) provide very

useful edited compendia of research on, and analysis of, aspects of the trade-environment issue. But since Esty (1994), only Uimonen and Whalley (1997) have so far published a work that attempts to bring the whole issue within a single, coherent framework of analysis. This lack of substantiated proposals for unified, broad ranging analytical frameworks has impaired progress in the debate.

It will be shown that the central problem in reconciling these interests is in the profound clash of the cultures and world views held by each of them. This leads to each community developing radically differing priorities for both the objectives and the costs of achieving those objectives, as well as a different evaluation of the balance of risks. Slow progress in resolving the debate is causing all three communities to begin to realise that 'winning the intellectual battle' is not possible and they need to consider and propose new ways forward.

It would be mistaken to view these communities as internally homogeneous or uniform. Advocacy of a liberal international trading system is widely tempered by the special arrangements in place for such groups as agriculture, steel, semiconductors, automobiles, defence-related equipment, textiles, and so on (see also Shutt, 1985). Similarly the range of views proffered by environmental interests is quite vast, extending from a "deep green" primitivist autarky on the one hand to a full acceptance of the status quo and minimally disruptive incrementalism on the other. Likewise the concerns and policies of the less developed countries (LDCs) are no more uniform than are the LDCs themselves[8].

---

8 See, for example, Finlayson, J, 1990, where it is argued that "growing differentiation among the states comprising the South, coupled with other recent trends in international relations, are transforming the ways in which many developing countries define their interests and participate in international regimes and institutions. A principal consequence of these developments will be the continued fragmentation and unravelling of the developing country coalition that traditionally has played a critical role in pressing for

The **international trade community** is largely composed of economists and business people who analyse the issue with the tools and analytical preconceptions of liberal, neo-classical economics. They emphasise the benefits of, and are concerned to protect the international trading system that they see as being under threat. Institutionally the WTO, the OECD, the International Chamber of Commerce, and similar groups give such interests expression. Broadly, these are the "big business" interests that are concerned with the maintenance and further development of the open multilateral trading system as it has developed over the post-war period.

As we saw, analysts from the international trade community dominated the first phase of this debate. Accordingly, the history of this community during the second phase has been one of coming to terms with, and adapting to the interests and ideas of the environment and development communities.

In April 1991 the US Council for International Business articulated their view of the appropriate principles that should inform the trade and environment debate. They argued that "economic growth is necessary to improve general social welfare and to provide the conditions and resources to enhance environmental protection. Open trade is indispensable to economic growth and therefore a necessary element for enhanced environmental protection. In fact, economic growth, open trade and environmental protection are complementary objectives that are compatible." Accordingly, "the GATT role should remain focused on

---

fundamental changes in the principles, rules and institutional arrangements characterising international trade regimes. The 'bloc' approach to global trade negotiations long favoured by the Third World is thus increasingly outmoded, and is likely to be left behind altogether in the 1990s" pp.3-4 .
( )

preventing national implementation of environmental policies in a way that creates economic distortions" (Inside US Trade, April 5, 1991).

A leader in The Economist (January 26, 1991) put the concerns of the business community in rather more blunt and derisory terms. According to this leader, "deep green environmentalists are nervous of free trade. They see in it a threat to the right of each country to protect viridian quirks; quaint old farming practices, bottle-recycling schemes that depend on local breweries or milkmen. "The leader concluded that "greenery will become one more excuse to foul up trade."

Anderson and Blackhurst (1992) provided a more serious analysis of the relationship between trade and environmental policies. This edited compendium of papers addressed the "concern that environmental issues are creating indirect as well as direct opportunities to erect new barriers to trade." (p. 6). Employing the traditional tools of professional Western economists, the common conclusion of the book's contributors "is that trade policies are not the best instruments to use in dealing with environmental problems. This follows from the fact that trade *per se* is not a direct cause of environmental problems" (p. 20). Indeed, as Sorsa (1992) concludes "overall, it would be reasonable to argue that the GATT is more in need of protection from poorly reasoned demands for reform based on environmental arguments, than the environment is from the rules of the international trading system." (p. 12).

Vogel (1995) addressed the concern of environmentalists that free trade undermined environmental protection head on. "I demonstrate how [trade liberalisation] can, and frequently has, strengthened [national environmental regulation]. Rather than weakening the power of nongovernmental organisations in 'greener' nations, trade liberalisation

and agreements to promote it can enhance the ability of NGOs to strengthen the regulatory standards of their nation's trading partners. In fact, increased economic interdependence has been associated with stronger, not weaker, consumer and environmental regulations. By contrast, 'ecoprotectionism' threatens both free trade and, ironically, the improvement of environmental quality and consumer protection as well."(p. x)

In their submission to the UK Parliamentary Inquiry into World Trade and the Environment in 1996, Imperial Chemical Industries emphasised their concerns about the scope for protectionism in environmental regulation. "Linking trade to the environment is 'manna from heaven' for those wishing to take a protectionist stance against trade."

Over the past two years or so, a shift in approach and emphasis can be detected. "In the longer term we believe that both the debate over trade and environment policies and the growing number of clashes between them will force consideration of a more explicit linkage than currently exists between the two policy subsystems. [However, this] is likely to be difficult to achieve because the objectives that the two subsystems set for themselves are so different and the connections between trade policies and environmental resources are complex." (Uimonen and Whalley, 1997, p. 145). While identifying this fundamental problem, they do not proffer a way forward.

Further progress in moving away from the conflictual nature of the debate can be seen in the European Commission's Strategy Paper on Trade and Environment in the New WTO Round (23 February 1999). "Specific problems of perception arise at the trade and environment

interface due to differing points of view on the relationship between trade and environment." As a result a mutually satisfactory outcome can be achieved only by "overcoming misperceptions and clarifying the relationship between WTO rules and environment policies". However, as the paper admits, "solving ...these problems will not be easy".

UNICE, the European federation of employers, has also adopted a rather more forward-looking and conciliatory position recently. It has argued that "European industry is committed to the principle of sustainable development [and the WTO] is expected to incorporate environmental aspects in its decisions, following the principle of sustainable development." To help do this, UNICE suggest an institutional way forward. They argue that "only if we have similar organisations and structures will the pressure on the WTO ease and will the WTO not be held responsible for subjects for which it has no mandate whatsoever." (UNICE, 1999). This follows the call in Ruggiero (1998) for an appropriate institutional arrangement for environmental concerns. He emphasised "the need to strengthen existing bridges between trade and environmental policies – a task that would be immeasurably easier if we could also create a house for the environment to help focus and co-ordinate our efforts."

As we shall see, this institutional solution was first proposed by the environment community; a demonstration of their growing influence on the course of the debate. Aside from the resistance of the developing countries to this approach, an institutional solution is unlikely to bring about agreement among the interests on its own. As Sylvia Ostry has suggested, "there are enormous difficulties in formulating operational policies to deal with trade, environment and development. The trading system operates on the notion of diffused reciprocity...this is alien to

environmental issues, which are global-commons concerns. If something is not worked out, the legitimacy of the WTO is at stake." She argued "there are two possible routes: one, which she cautioned against, is the litigious route, wherein governments continually seek legal redress for their disputes. The other is a political route involving negotiations." (IISD, 1999). Currently, the lack of progress between the three communities means WTO dispute settlement panels, such as "Tuna/Dolphin", "Reformulated Gasoline", and "Shrimp/Turtle", enjoy enhanced importance in carrying forward the debate. The establishment of a common analytical framework would facilitate a negotiated solution.

While the analysis and proposals of the international trade community regarding the trade and environment debate appear to be adapting to new ideas, a number of "core beliefs" remain. The US National Association of Manufacturers, for example, continue to argue strongly "that multilateral trade rules must not allow the use of unilateral trade measures or sanctions for environmental purposes", (IISD, 1999).

In contrast, **environmentalists** see the international trading system at best as merely a tool for advancing material well-being. Of more fundamental concern to them are the threats they perceive are imperilling the environment. Indeed, often they will view liberal economics and the international trade system as root causes of the environmental degradation that has occurred this century. Given these fears, the environmental community have sought to influence the development of new international trade rules and considered their involvement in the negotiations as imperative. Such interests are expressed by non-governmental organisations like Greenpeace, Friends of the Earth, and the World Wildlife Fund, as well as by the official national and international environmental organisations, departments, and agencies.

Within the context of the Canada-US Free Trade Agreement, Shrybman (1988) argued that "the enormity of the trade deal's environmental implications is truly breathtaking,...[and that] the trade agreement reveals that it has profound and disastrous implications for the Canadian environment, and may fundamentally undermine the principles of environmental protection and sustainable resource management." Similarly, Arden-Clarke (1991) suggested that "the provisions of the GATT constitute potentially serious barriers to the implementation of environmental protection and sustainable use of natural resources." Moreover, "the wide-ranging and more enforceable GATT set to emerge from the Uruguay Round negotiations could create even more conflicts with standards, legislation, and international agreements currently being formulated to conserve the environment and natural resources."

These fears were echoed by Verbruggen (1990): "The conflict between trade and environmental policies is that the policy instruments being introduced under the heading of environmental policies are the same as those being eliminated in the framework of international trade negotiations...From the point of view of trade rules, all these environmental regulations and financial incentives can and are in fact seen as non-tariff barriers to trade." (p. 3).

In a similar vein, Ritchie (1990) concluded "the GATT talks will set the international economic agenda, rules, and relationships far into the next century. They can be used to vastly improve the situation, or they can be a disaster. The environmental community must act now, or face the possibility that all the important gains we have made in environmental protection and regulation will be overturned in the future by GATT acting as a global supreme court." (p. 12).

Mead (1992) summarised this view of the GATT as "a kind of free-trade World Government...all Bottom Line: a global corporate utopia in which local citizens are toothless, workers' unions are tame or broken, environmentalists and consumer advocates outflanked...regulations of all kinds will be lax: factories will be dangerous and their waste will be toxic...".

Unfortunately, throughout the 1990s, despite some moderation in the approach of the international trade community, such views changed little. Many environmentalists still see the international trade regime as a threat to proper environmental management, and consequently call for greater participation in the formation of trade rules by environmental groups. Shrybman (1999), for example, argued that "the WTO is a constitution for corporations. Its rules take little or no account of people or the environment." He went on to explain "why the WTO is such a threat."

Attempts by the environmental community to get environmental considerations explicitly included in the Uruguay Round of GATT negotiations were not successful. However, the Preamble to the Uruguay Round Agreements declares the importance of members balancing the need to raise standards of living, ensure "full employment and a large and steadily growing volume of real income and effective demand, and expanding the production of goods and services," to balance that against "allowing for the optimal use of the world's resources in accordance with the objective of sustainable development, seeking both to protect and preserve the environment and to enhance the means for doing so". Given the reluctance of the developing countries to have environmental issues considered at all by the WTO, this reference in the Preamble concludes by stating that

the protection and preservation of the environment should only be undertaken "in a manner consistent with their respective needs and concerns at different levels of development."

Further commitments can be found in other parts of the Uruguay Round Agreements. Whether they will prove to be effective or not remains to be determined. The General Agreement on Trade in Services (GATS) contains a provision that is identical to the Article XX (b) exemption in the General Agreement on Tariffs and Trade (GATT). Both the new Agreement on Technical Barriers to Trade (TBT) and Agreement on Sanitary and Phytosanitary Measures (SPS) encompass regulations, standards and measures for the protection of the environment. The Agreement on Trade Related Intellectual Property Rights (TRIPS) agreement specifically excludes the patentability of inventions that could "seriously prejudice" the environment. The revised Agreement of subsidies lists as non-actionable subsidies to promote the adaptation of existing facilities to new environmental requirements. The Preamble to the Agreement on Agriculture reiterates the commitment to reform agriculture in a manner that protects the environment, and subsidies under certain environment programmes are exempt from commitments to reduce overall support. Finally, two Ministerial Decisions were taken, on Trade and Environment and on Trade in Services and Environment, instructing the new Committee on Trade and Environment (CTE) to undertake further research.

The CTE was established within the newly formed World Trade Organisation (WTO) with an extensive work programme. Its broad mandate is to identify the relationship between trade measures and environmental measures in order to promote sustainable

development, and to make appropriate recommendations on whether any modifications of the provisions of the multilateral trading system are required. The CTE was also given a detailed, ambitious work programme covering most of the key aspects describing the current situation.

The CTE are required to address:

- The relationship between the WTO rules and trade measures for environmental purposes, including in MEAs,
- The relationship between environmental policies relevant to trade and environmental measures with significant trade effects and the WTO rules,
- The relationship between the WTO rules and environmental charges and taxes, and with environmental product standards,
- The transparency of trade measures for environmental purposes,
- Dispute settlement in the WTO and in Multilateral Environment Agreements (MEAs),
- The effect of environmental measures on market access, and
- The issue of exports of domestically prohibited goods.

In a new spirit of openness, in September 1995 the WTO began to publish some of the papers of this Committee on the internet. The environmental and development communities did not accept this as sufficient, however. Documents were almost always released only long after the event, and they lacked much detailed analysis. They conveyed little beyond the lack of progress in its consideration of the issues under its work programme. According to the WWF, "since the flurry of discussions and negotiations ahead of the First WTO Ministerial in Singapore in 1996, which resulted in a 'status quo' report

from the CTE, this committee has failed to make any detectable progress on WTO reform." (WWF, 1999).

More recently meetings and symposia on trade, environment and development have been held by the WTO, in March 1997, March 1998 and March 1999, with a view to broadening and deepening a constructive dialogue between the three communities of interest on the relationship between international trade, environment policies and sustainable development. In January 1999 the European Commission also held a formal consultation with the environment and development communities on the subject of trade and the environment.

While these symposia and consultations have been well attended and may have led to greater mutual understanding, the lack of tangible progress is beginning to concern a number of participants, (WTO Focus, March 1999). The WWF, for example, in their comments to the 1999 High Level Symposium on Trade and Environmnent expressed their "deep concern" about the apparent "low or zero commitment to action on the environment by WTO members", (WWF, 1999). On the same occasion, Greenpeace complained of a "lack of transparency and adequate consultation with all stakeholders".

Overall, then, efforts to reconcile the environmental and international trade communities has been slow. The radically differing priorities and analyses within the three communities has impaired progress.

Esty (1994) recognised that "some work has been done to link trade and environmental policymaking, [but] serious confusion and misunderstandings remain." He argued that "the trade and environment

debate can...be seen as a clash of paradigms: the environmentalists' law-based worldview versus the trade community's economic perspective." (p. 37). Given this analysis of the problem, Esty's proposed solution is somewhat surprising. In his view, "the optimal approach to making trade and environmental policies work to mutual advantage is...the establishment of a Global Environmental Organisation." As we saw earlier, this proposal has subsequently been adopted by some key players from the international trade community. To help find a common, integrated way forward, the need for the involvement of environmental groups in international trade policy making was explained by Mabey (1998): "I would say it was because [of] a fundamental clash between two different world views. He went on to argue for the need to counter the "economic vision" with a vision of sustainable development and human rights."

The environmental community has also influenced the course of the debate by the introduction of environmental reviews of trade agreements. In October 1992 the Canadian government published an environmental review of the recently concluded NAFTA, the first time a trade agreement had undergone an environmental review.

The review examined the "likely consequences of the environmental provisions of the Agreement...the impact of the NAFTA on Canada's air, water, land and natural resources...the possibility of industry and investment leaving Canada for Mexico for environmental considerations...[and] future action on environmental co-operation." It concluded that it was "unlikely that the NAFTA will have a significant impact on the environment in Canada...." The review concluded that, as a result of the NAFTA, "future economic development will be implemented with greater environmental awareness. It will be subjected to increased

environmental monitoring and enforcement. In turn, additional resources that would flow from increased economic activity should enhance efforts to address environmental concerns in North America."

As the Canadian government point out, the review differed from an assessment, because " a policy such as a free trade agreement cannot be subjected to the same type of quantitative analysis associated with the assessment of a project such as construction of a dam, a mine or a factory. In fact, the potential environmental impacts of certain policies can be neither appraised nor fully anticipated in advance. The environmental effects of the NAFTA will depend on the trade action and investment decisions taken as a result of the Agreement."

As novel as the Canadian environmental review may have been, it was insufficient in the view of the environmental community. In April 1998 WWF International launched a project on the environmental *assessment* of trade liberalisation agreements. "The project focuses on the Uruguay Round Agreements and the extension of negotiations implied by the 'built-in agenda' and the possible Millennium Round. The purpose is to contribute to a better understanding of the trade-environment relationship by analysing the broad developmental, social and ecological implications of trade, their interlinkages, and to underline the need and develop the methodology for environmental and social assessments of trade liberalisation from the outset of negotiations."

The WWF have adopted methodologies building upon the OECD 1993 Procedural Guidelines on Trade and Environment. On the basis of these principles, they propose five main points should underlay the environmental assessment. The assessment should "be conceived as a dynamic and on-going process...initiated early in the policy cycle,...

promote 'win-win' situations and strategies,...consist in promoting a transparent, open and public debate at different stages and levels of the negotiation process,...be based on empirical evidence, [and]...involve an assessment of social effects."

Even with these far-reaching proposals being based on OECD procedural guidelines, they are unlikely to be taken up by governments in the near future. They may, however, have provided an impetus to the European Commission committing itself to the more limited Canadian "review" approach, and study "the likely impact on sustainable development of a Round based on the proposed Millennium Round agenda." The US have also pledged to conduct an environmental review of the next round of multilateral trade negotiations, (IISD, 1999).

As with the trade community, in the environmental community there is a growing, if still somewhat ill-defined view that a mutually satisfactory resolution of the trade and environment debate will only come about by working together, and by identifying and building a common understanding of the issues. This may entail and be advanced by some new institutional arrangements as proposed by Esty, the UNICE, Ruggiero and others, as well as by environmental reviews and assessments of trade agreements. Ultimately, however, a common, unified analysis, underpinned by common principles will be essential.

The **development community** has yet a different world view. It emphasises the perceived structural inequalities in the world economy and its institutions, and views with suspicion attempts by environmentalists to constrain their efforts to improve their economic well-being. Sometimes, for them, suggestions that environmental priorities should take precedence over development priorities are seen as a new

form of imperialism. (see, for example, Shahin, 1998). The concerns of the development community are those given voice by such official groups and organisations as the United Nations, especially UNCTAD, and the Group of 77, together with a large number of non-governmental organisations such as the Environment and Development Resource Centre and the International Institute for Environment and Development.

Flanders (1990) provided an early statement of the developing country analysis of the trade and environment debate. She argued that "Trade policies of the North have sought to increase prosperity through freer trade. Free trade, however, has contributed to the dependency of less-developed countries and the adoption of environmentally inappropriate policies. [Accordingly], essential to the debate are the views and needs of the Third World which must be made an integral part of the dialogue in the process towards ecologically sustainable trading systems...It is futile to attempt to deal with environmental problems much less those related to international trade, without a broader perspective that encompasses the factors underlying growth, inequality and poverty." (p. 2).

This analysis was developed further in UNCTAD (1991). "The interactions between trade and the environment are manifold and complex, and they vary greatly among countries. Differences in the overall level of economic development, the economic structure, the size of the domestic market, the dependence on primary production and foreign exchange all have different implications for the domestic environments in developing countries. Also, there are large differences among countries and regions in the Third World with regard to climatic conditions, the stock and quality of renewable and non-renewable resources, population densities and existing levels of pollution and natural resource exploitation.

Therefore, it is clear that any broad assessment of the interaction between trade and environment in the Third world has quite different implications for individual countries. (p. 4). From this perspective came the constant insistence of Third World countries that standards of environmental protection must be developed and enforced in a manner "consistent with the countries' needs and concerns at different levels of economic development."

A further theme of the developmentalist analysis is the importance of "positive measures" in the enforcement of international environmental agreements and domestic measures with international trade effects. Positive measures are designed to facilitate environmental progress while at the same time assisting economic development by improving access to and transfer of technology, capacity building and access to finance. As explained by the Indian delegation to the 1999 WTO High Level Symposium on Trade and Environment, "poverty is the biggest environmental problem facing the world."

Generally, throughout the 1990s, efforts to introduce environmental exceptions within the international trade rules have been faced with consistently strong opposition by developing countries. Their fear is of "eco-imperialism". According to the Malaysian Prime Minister, "It is wrong that we [the South] should be made scapegoats for the sins of the North. The North is still subjecting us to imperial pressures". (Financial Times, 30 April, 1992, p. 4). Likewise: "To them, it is the developed countries who have industrialised and grown over the past two hundred years, and who have caused today's environmental problems. Developing countries see themselves as being asked to restrict their trade, thereby truncating their growth and development, as the mechanism to deal with a developed-country-created problem, and one which is being given higher

priority by high-income countries than poverty alleviation and growth in low-income countries." (Uimonen and Whalley, 1997, p.67).

More importantly, however, for the purposes of this thesis, is the shift in the views of the three communities on the relative priorities between international trade and environmental concerns; from concerns about potential conflict, towards seeking points of agreement and conciliation. Like in the free trade community and in the environmental community, important indicators are becoming apparent that the development community too is looking for areas of common ground and analytical approach.

Shahin (1998) reports that "Rubens Ricupero, the Secretary General of UNCTAD, perceives this complex and cumbersome relationship, as two poles in a dialectical thesis, where the resulting synthesis should conciliate the two ends. Different from what many would like to conceive that the trade and the environment aspects are but two sides of the same coin, Ricupero stresses that linking trade to environment does not come as something natural. It necessitates tremendous sacrifices to reconcile these two ends, where environment should not be treated as a late consideration or an afterthought, because this will only render things more difficult. One should think of how to integrate environment in the decision-making process from the very beginning rather than attempting to rectify wrong-doing at the end by having recourse to sanctions and trade embargo." Having said that, he reiterated that "technology, financing, market access, knowledge and expertise are essential for the preservation and protection of the environment."

Thus a slight shift in emphasis can be detected in all three communities away from ideological confrontation. Reflecting this, in addition to Ricupero, a more conciliatory, inclusive approach now appears to be gaining favour at the highest levels of international trade policy making.

Renato Ruggiero, as Director General of the WTO, sees the way forward in a conciliation of interest, as opposed to intellectual confrontation. He argued that "if we want to succeed...both the trade community and the environmental community...have to define the real challenges we face; and not create false obstacles. To pretend that environmental concerns stand in the way of free trade is to create false obstacles. To pretend that free trade stands in the way of environmental concerns is also to create false obstacles. And if we focus our attention on these false obstacles instead of the real problems that we face, we are losing time and resources without coming any closer to reaching our shared goals." (Ruggiero, 1998). Likewise, Brian Wilson, UK Minister for Trade said that "protecting the environment and maintaining an open, non-discriminatory and equitable multilateral trading system are both essential to achieve our objective of sustainable development." (Wilson, 1998).

More recently Sir Leon Brittan, speaking for the European Commission, argued that "sustainable development must be placed at the heart of WTO decision making – including within the Millennium round...we need to reconcile the competing demands of economic growth, environmental protection and social development. Pursuing any of these three at the expense of the other two will inevitably lead to an unbalanced approach. If we get the balance wrong in one direction or another, we will end up either with inadequate recognition in trade policy

terms of legitimate environmental concerns, or with 'green protectionism'", (Brittan, 1999)

How then can these disparate world views of this complex problem be drawn together? Clearly a balanced accommodation of the interests of the three communities cannot exclude the interests of the powerful international trade community. At the same time environmental degradation poses the most serious challenge to the international trading system that it has faced; failure to accommodate environmental concerns successfully could well lead to erosion of the natural base upon which the economic system is built and, consequently, to its collapse[9]. More immediately, public confidence in the WTO and in the international trading system is imperilled.

Environmentalists, however, need to acknowledge the powerful commercial interests in maintaining the existing system, and the benefits as well as the problems that arise therefrom. Otherwise their efforts will give rise to unnecessary conflict and the development of less than optimal results. This occurred, for example, in the US and Canada with respect to the negotiation of the NAFTA; opposition by environmental groups was met with suspicion by the governments and business groups in favour of the agreement. A compromise, reluctantly proffered by the US Administration, was finally agreed to by the US Congress, whose approval was needed to authorise US participation in the negotiations, whereby environmental considerations would be considered in parallel to, not as

---

9 This has been well documented elsewhere. See for example, Lester R. Brown et al, State of the World, (New York: WW Norton & Company, Inc., various editions); World Resources Institute and International Institute for Environment and Development, World Resources 1986: An Assessment of the Resource Base that Supports the Global Economy, (New York: Basic Books, Inc., 1986), and subsequent annual volumes; World Commission on Environment and Development, Our Common Future (London, Oxford University Press, 1987).

part of, the free-trade negotiations[10]. As a result of continued pressure by environmentalists during the negotiations, the NAFTA did make provision for some of the concerns raised about it, but suspicion between the trade interests and environmentalists remained strong.

Development concerns must also be given their full weight, otherwise efforts by the rich countries to impose solutions will face suspicion and resistance which could have been avoided; programs to address a number of crucial environmental problems could be quickly overwhelmed and negated by contrary or discordant actions by the poor. Across a wide range of important issues, such as global warming, stratospheric ozone depletion, and the maintenance of genetic diversity, the full participation of the poor in the formulation and implementation of appropriate solutions is crucial.

Alliances Amongst the Communities: Complicating the debate, these three communities may also form alliances with each other, three of which are of particular interest: alliances between the environmental community and development community; between the international trade community and the development community; and between the environmental community and protectionists.

Alliances between environmentalists and the development community, although often productive, may also break down. While recognising the increasing heterogeneity of the "South" (see Finlayson, 1990), it is probably safe to argue that the poor countries have shown no more interest in environmental issues than the rich, indeed often less.

---

10 Further details of this compromise can be found in the Response of the Administration to Issues Raised in Connection with the Negotiation of a North American Free Trade Agreement, transmitted to the US Congress by President George Bush on May 1, 1991.

It was the LDCs, for example, who sought and obtained agreement at the Governing Council of the UNEP, in May 1989, to qualify and expand the definition of sustainable development adopted by the General Assembly in 1987 to ensure that it does "not imply in any way encroachment upon national sovereignty...includ[es] assistance to developing countries in accordance with their national development plans, priorities and objectives...and does not represent a new form of conditionality in aid or development financing" [11].

Understandably their primary concern is economic development, and the environmental concerns expressed by the rich provide the poor with considerable leverage in that regard. MacNeill et al (1991) observed that "[t]his was evident in the 1989 session of the UN General Assembly. Many in the Group of 77, which brings together most of the developing countries in the UN, saw an opportunity to hold the environment hostage to the resolution of certain equity, debt, technology transfer, trade, and other economic development issues" (p. 62). More recently, at a High Level Symposium on Trade and Environment sponsored by the WTO, India "underscored the importance of common but differentiated responsibilities of countries toward the goal of environmental protection and sustainable development", IICD, (1999).

Arising from these concerns, and having left behind much of their statist heritage, LDCs are increasingly at the forefront of efforts to promote open markets and trade liberalisation[12], while it is the richer countries who are the more susceptible to growing political pressure by the

---

11 See, UNEP Governing Council Decision 15/2, Annex II, and the report of the Governing Council on the work its fifteenth session, UNEP/GC.15/12, paras. 54-60.

12 This was one of the main trade policy trends identified in the UNCTAD Trade and Development Report 1991. See UNCTAD Bulletin No. 11, September-October 1991, p. 7.

environmentalists to impose trade restrictions to protect the environment. Accordingly, alliances between environmentalists and the development community can be expected to cover only a limited range of issues.

Likewise the international trade community and development community will not always be in accord. The fundamental areas of conflict in this regard were very much in evidence at the Indonesian conference in 1994 to begin the negotiation of an Asia-Pacific Free Trade Area. This was especially the case in the relations between the US or the EU, and the Asia-Pacific or South American regions. On the one hand are concerns about possible neo-colonial dominance by the older and larger industrialised countries, while on the other hand are concerns about when developing countries should assume the full range of responsibilities and obligations of the international trading system.

A potentially more stable alliance, between environmentalists and protectionists, may also occur across a wide range of issues, as we shall discuss in this thesis. The primary concern that this alliance gives rise to is that environmental issues may be used as a legitimising cover to advance a narrow protectionist cause. Vogel (1992) has called such an alliance a Baptist and bootlegger alliance. The term arises from certain states in the US that maintain local prohibitions against alcohol. The Baptists support the prohibition for religious reasons, while the bootleggers support it because it underpins their income. Such covert protection needs to be guarded against if unnecessary economic costs and unnecessary resistance to needed environmental regulation are to be avoided. As Low (1992) argued, "issues relating to environmental policy and competitiveness are really about avoidance of the protectionist capture of ecological arguments", (p.6)

Attempts have been made toward reconciling these three broad communities of interest at the Meetings and Symposia on Trade and the Environment and Trade and Development sponsored by the WTO over the past two and a half years, as well as that held by the European Commission in March 1999. As already noted, however, the environmental community is growing impatient with the lack of "measurable progress". Hopefully efforts will continue within the next round of multilateral negotiations. The European Commission, for example, in an informal discussion paper on their thinking on the aims and scope of the negotiations to be launched at Seattle in December 1999 argue that, "trade and environment policies should play a mutually supportive role in favour of sustainable development. The extent to which existing WTO rules accommodate trade measures taken for environmental purposes is still, however, to a certain degree, in a situation of legal uncertainty. It is in the interests of both the global environment and the open trading system and hence of all WTO members to clear this up", (European Commission, 1999).

Thus, it is increasingly recognised that it is vitally important that a balanced accommodation of all interests be found. Moreover progress in resolving the relationship between international trade and the environment requires the establishment of common ground; each group needs to be accommodated within a common analytical framework. As Burke (1998) argues, "we really are going to have to look for some way of achieving a much better shared analytical base for policy-making".

This thesis contributes to the development of a common analytical framework by articulating neutral criteria for evaluating when it would be legitimate to use trade measures as environmental policy instruments.

Objectives and Summary

The links and overlapping areas of concern between international trade policy and environment policy are many and varied. At the same time there are a number of often competing interests at stake, each of which must be accommodated. Thus far, the debate on this issue has been characterised by a distinct lack of agreement on how to proceed, due to a lack of a common analytical framework; each of the main communities in the debate have sought to impose their agendas, priorities and analyses. In seeking to contribute to an accommodation of these communties, this thesis has two main purposes:

1) The first purpose is to determine whether or not there exists a legitimate role for international trade policy instruments in the conduct of environment policy.

This enquiry takes to be indisputable that the protection and maintenance of a healthy and stable environment must be accorded a higher priority than anything else including the maintenance of the international trading system to the extent that they are otherwise irreconcilable. Therefore, Chapter 2 examines the basis on which environmental standards should be established, and the extent to which they should be harmonised. To determine whether the use of trade policy instruments to achieve the necessary environmental standards should be considered legitimate, Chapters 3, 4 and 5 present and discuss three tests. It is argued that the use of trade-related environmental policy

instruments (TREPI) could be considered to be legitimate only if it meets all three of these tests.

This three-part legitimacy test describes a decision-making process, and is a useful way of organising and analysing policy problems concerning the relationship between international trade policy and environment policy. In light of the discussion in Chapter 2, where inadequate environmental standards exist an environmental policy problem exists. The first question, then, is whether an authority has the right to respond to that environmental problem. Accordingly, Chapter 3 examines the issue of international interdependency as it relates to the relationship between trade and the environment, and presents the first test of legitimacy: whether the authority proposing the use of trade policy instruments in the conduct of its environment policy is materially affected by what it seeks to address. If the authority does have the right to act in response to the environmental policy problem, the question then turns to defining the set of effective options. The issue here is whether trade policy instruments would be amongst such a set of options. Finally, are any trade policy measures that are contained in the set of effective options the "least-cost" of such options? If trade measures meet all of these criteria, then their use as environmental policy tools should be considered legitimate. Chapters 4 and 5 describe these second and third tests: whether the trade policy instrument in question would be effective, and whether it is the least-cost effective alternative. Chapter 6 considers three cases and demonstrates how this three-part test might be used.

By adopting the simple approach proposed in this thesis we avoid the fundamental conflict caused by the epistemological and analytical assumptions and biases of each of the three communities: the international trade community, the environmental community, and the

development community. Instead a more objective means of considering the complex of issues is proposed. The three tests are independent of any of the three communities and, in their simplicity, could be applied to a wide range of problems. Applied to the trade and environment issue, they demonstrate their objectivity by the conclusions they lead to: on some points they lend support to the interests of each of the three communities, while on others they do not.

2.) To the extent that an appropriate role for trade policy instruments in the conduct of environment policy is found, the second purpose of this enquiry is to consider whether or not, and in what ways, the current international trading system frustrates or facilitates such a use. Chapter 7 discusses, in three parts, the environmental effects of international trade liberalisation. In Chapter 8 the scope for possible amendments to the GATT system is explored with reference to the environmental provisions of the NAFTA. Finally, the use of domestic trade remedy laws as environment policy instruments is considered in Chapter 9. A summary and the main conclusions are in Chapter 10.

CHAPTER TWO

ENVIRONMENTAL STANDARDS

This enquiry begins by taking to be axiomatic that environmental needs are of a higher significance than, and where irreconcilable with must take precedence over, international trade needs. A complex, highly productive economic system may contribute to a happy and fulfilled existence, but without a healthy, stable natural environment existence itself is not possible. Accordingly, the first objective of this thesis is to describe the proper basis of environmental standards. This will show both the minimum standards necessary for sustaining the physical environment, and discuss when environmental standards should be differentiated and when they should be harmonised. To begin, it will be useful to review the three main economic functions of the environment[13] -- resource supply, waste assimilation, and other environmental services -- and how these relate to the establishment of environmental policy.

1.) Resource Supply: Economic activity entails the consumption of natural resources, either as goods in themselves or as inputs for processed and manufactured goods and services. Three types

---

13 See also Jacobs, 1991, Ch. 1, and Pearce and Turner, 1990, Ch.'s 2-3.

of natural resources are provided by the environment: non-renewable, renewable, and continuing.

Non-renewable resources include minerals and fossil fuels. There is no consumption of these resources other than human consumption which permanently reduces the remaining supply. It is true that lower available supply may lead to higher prices and so make available supplies which were not economic at the lower price. Similarly, technological progress may make available supplies which had been hitherto unobtainable. Nonetheless, the total stock of the resource is reduced as it is consumed. Some non-renewable resources, such as some metals, are also recyclable. But while recycling extends the usefulness of the available stock, it cannot expand the available stock, nor replace any which has not or cannot be recycled; the natural limits of the total stock are unbreachable.[14] Fortunately the main non-renewable resources, including minerals and fossil fuels, are in relatively plentiful supply.

Renewable resources are those which are naturally replaced or regenerated over time. If the human rate of consumption plus the natural rate of consumption is less than the rate of replacement then the available supply will not be reduced. Flora and fauna fall into this category as do the atmosphere and hydrosphere. If they are used faster than the rate of replacement the equilibrium stock of the resource may be re-established only if its ability to renew itself is not undermined, either by excessive depletion or damage to other key elements of the relevant ecosystem. To return to its equilibrium requires an appropriate period of under-consumption to offset any over-consumption.

---

14 The limits to the long-term effectiveness of recycling are given by the Second Law of Thermodynamics much emphasised by the economist Nicholas Georgescu-Roegen (1971) By this it is recognised that as resources are used by the economy entropy is increased; they become increasingly dissipated, disordered, and so unavailable.

Continuing resources are a small but important group which include solar, wind, tidal and geothermal energy, the consumption of which does not affect the remaining supply: effectively the supply is infinite.

2.) Waste Assimilation: Waste is produced at every stage of the production, distribution, and consumption of goods and services. The total amount of this waste is equal to the amount of natural resources utilised.[15] Such waste is normally in the form of any of heat, gases, liquids or solids. An essential function of a healthy ecosystem is to reuse and recycle waste, but this capacity to assimilate waste is strictly limited. Just as with the sustainable use of renewable resources, respecting the limits of this assimilative capacity is the key to ensuring the sustainability of the service. Such limits can be expected to be a function of the characteristics of the relevant ecosystem, the waste to be assimilated, and the rate of flow of the waste into the environment. Like renewable natural resource use, the total flow of many forms of waste includes waste from natural sources and processes which must be included in calculations of assimilative capacity.

3.) Other Environmental Services: The environment also provides two main categories of other services. Difficult to incorporate into economic calculations, these are not always fully acknowledged. They are nonetheless essential.

The first is the life support system. This includes such specific services as the maintenance of genetic diversity, stabilisation of

15 This we know from the First Law of Thermodynamics, the importance of which to economics was first emphasised by the economist Kenneth Boulding (1966). This law affirms that we can neither create nor destroy energy and matter, we can only transform them and dissipate them.

ecosystems, maintenance of the composition of the atmosphere, and regulation of the climate.

The second is the provision of amenities. These include recreation, aesthetic and spiritual enjoyment, and a source of ideas, knowledge and object of scientific study.

In the light of these three primary functions of the environment, two basic rules for the establishment of environmentally sustainable standards have been proposed, (see Pearce and Turner, 1990):

a. Utilise renewable resources at rates less than or equal to the natural rate at which they can regenerate. Likewise, waste flows must be kept at or below the assimilative capacity of the environment.

b. Optimise the efficiency with which non-renewable resources are used, subject to possible substitutions between renewable and non-renewable resources, and the effects of technological changes.

Figure 1 may help to understand sustainable environmental standards establishment by providing a graphical representation of the key relationships between economic activity and consumption of the environment.

In Figure 1. Y represents the level of economic activity, and E represents the environmental impact of that economic activity or, in other words, the consumption of the relevant environmental endowment. *Emax* is the maximum sustainable environmental impact, as described

by the two basic rules above; it is a given characteristic of the relevant ecosystem. The term *f(trans)*, which is not necessarily linear, is the

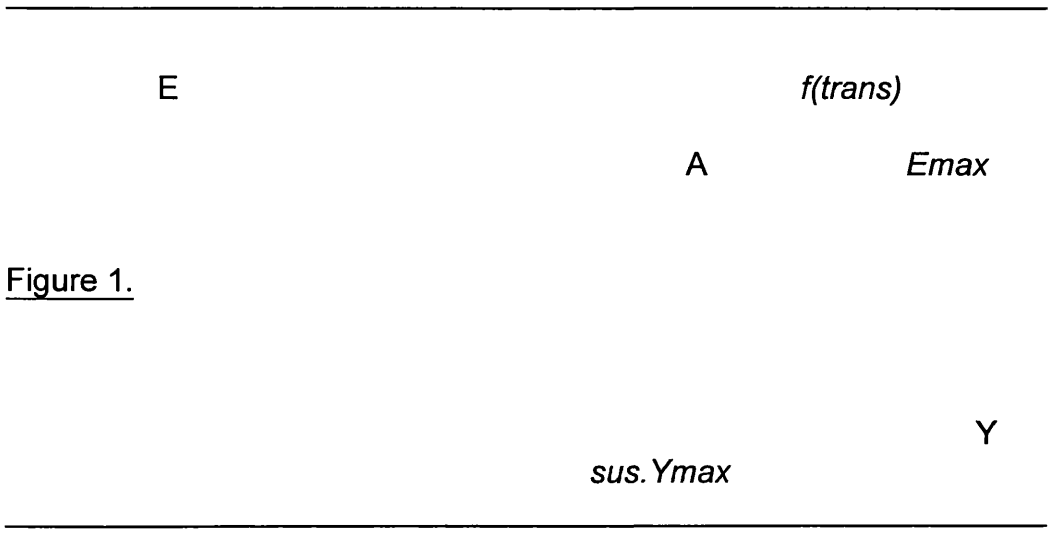


Figure 1.

environmental transformation function which describes the locus of best available options for the transformation of the environmental endowment into economic goods and services. Since zero economic activity would imply zero environmental consumption, this function begins at the origin. The slope is determined by the transformational efficiency of the available technology and economic organisation. Seen another way, *f(trans)* delimits the minimum environmental impact of various levels of economic activity; for any given Y it identifies the minimum resulting E. Choices may be above *f(trans)* but cannot be below it.

This highlights three matters which are crucial to ensuring environmentally sustainable activity:

First, regardless of cost, the limits of the environmental endowment described by *Emax* must be respected.

Second, the available transformational efficiency is vitally important. A less advanced economy with access to less efficient

technology and organisation would have an environmental transformation function with a slope greater than that of a more advanced economy.

Third, this suggests that, with identical environmental endowments, for any desired level of economic activity the less advanced economy would cause more environmental problems than would the more advanced economy. It is important to recall that this refers to total economic activity. Accordingly, activities in a low per capita income but vastly populated area can have an equal, or even greater, environmental impact than activities in a high per capita income but sparsely populated area.

Only the environmental transformation function and the desired level of economic activity can be varied as a matter of policy. *Emax*, by contrast, varies naturally within and between jurisdictions, depending on the relevant economic activity. Accordingly, two approaches for environmental standards establishment are distinguishable.

One is to address environmental consumption taking the transformational efficiency as given, which may imply lower economic activity. Such standards may refer to depletion rates of natural resources or to the volume or rate of permissible emissions. If the actual transformational efficiency employed is less than the best available transformational efficiency, that is above *f(trans)*, then environmental consumption can be reduced without corresponding reductions of economic activity. Otherwise *f(trans)* describes a direct relationship between the level of economic activity and the degree of environmental consumption.

The second approach to establishing environmental standards is to address transformational efficiency. Here standards bring about environmental savings while retaining or increasing economic activity. Examples include fuel economy (miles per gallon) and particulate or other waste recapture or recycle rates. Any such increases of transformational efficiency imply that, for a given amount of environmental consumption, the corresponding level of economic activity is raised. Likewise for any given level of economic activity environmental savings would result from such transformational efficiency improvements. These types of environmental standards are not, of course, mutually exclusive.

Two broad categories of standards are now apparent: basic environmental standards, and supplementary environmental standards.

1. Basic Environmental Standards: Basic environmental standards conserve the economic functions of the environment, and are directed at economic activities above *Emax*. They are established with reference to the relevant ecosystem. Thus biospheric concerns could be addressed by globally harmonised basic environmental standards, while regional and local issues could be differentiated according to the regional and local environmental endowments and preferences. In practice, it may often be useful to harmonise local and regional environmental standards as well wherever the environmental effects of a particular economic activity do not differ greatly.

This approach implies an important limitation to the property-rights and other market-based mechanisms for environmental management, including the widely-accepted Polluter-Pays-Principle, (see Chapter 8). Because the functioning of the environment is independent of human preference, the equation of marginal social cost with net marginal private

benefit to determine optimal pollution levels is not always tenable, (see Pearce and Turner, 1990). While such anthropocentric, market-based mechanisms may be seen to bring about an optimal allocation of resources below *Emax*, above that level they should be supplemented, or if necessary supplanted, by command-and-control mechanisms to the extent needed to ensure that the economy does not operate above *Emax*; they should be the first line of defence, but not the only one.

2. Supplementary Environmental Standards: It cannot, of course, be assumed that the maximum economic activity consistent with the environmental endowment (at point A) will always be chosen. If the environment is seen as a positive good, then consumers may choose to forego other economic goods and services for a more pristine environment. In addition to basic environmental standards, some jurisdictions may choose to establish higher environmental standards. These supplementary environmental standards are choices below *Emax* and reflect additional local preferences. Such local preferences raise issues similar to those arising from different tastes and cultural preferences and should be accommodated.

In addition to the ecosystemic differentiation of environmental standards emphasised here, some commentators have suggested that environmental standards should be differentiated according to whether they are being applied to developed or to developing countries. It is felt that high standards enforced by the richer, developed countries would unfairly disadvantage the developing countries who are unable to afford to meet such standards. For example, in Chapter 2 of "Agenda 21", as agreed at the 1992 UNCED in Rio de Janeiro, governments agree on the importance of ensuring,

> "that special factors affecting trade and environment policies in the developing countries are borne in mind in the application of environmental standards as well as in the case of the use of any trade measures. It is worth noting that standards that are valid in the most advanced countries may be inappropriate and of unwarranted social cost for the developing countries." (para. 2.22(g)).

Thus there is anxiety amongst the LDCs, and the "economies in transition", that environmental standards will be set so high by the developed countries that market access for their exports will be seriously impaired. Such concerns arise largely from the very limited resources available to these countries for environmental purposes. The provision of derogations from environmentally sustainable standards for their exports has been suggested as a solution. However, this view is too simple.

The question of whether or not market access restrictions should be used in support of environmental standards will be taken up later in the thesis. At this point, it is useful to distinguish between consumption- and production-related environmental standards.

Consumption-related environmental concerns: Consumption-related environmental standards are also referred to as product standards. They are about product characteristics, consumption-effects, and disposal. Consumption pollution is often far more dis-aggregated than production pollution; it is the result of the activities of billions of individual consumers. Often consumption-related standards are expressed in terms of pollution per unit. Many of the costs of consumption pollution are borne by the country consuming the goods or services in question, and the trade policy concerns which have arisen have focused mainly on market access. As the 1991 German recycling regulations suggest, however, some investment relocation issues may

also arise[16]. Consumption pollution can also be of great consequence outside the country of consumption. Indeed a number of the environmental problems of greatest global significance, such as carbon emissions and stratospheric ozone depletion, are a consequence in large part of consumption pollution. Accordingly there will be interest in environmental standards establishment and enforcement in response to consumption pollution which has multi-jurisdictional effects.

At the same time, it would be difficult to argue that sub-standard products should be accepted simply because they originate in developing countries. It is likely that many such products, even if permitted entry to the market, would meet with consumer resistance. Accordingly we can expect that consumption-related environmental standards will be applied without regard to the origin of the product.

Production-related environmental concerns: These concerns arise from resource-base use, production processes, and distribution. Many of the resulting environmental effects occur entirely or predominantly in the country of production of the commodities or products in question. The trade policy concerns arising from production-related environmental measures have tended to focus on resource access, investment location, and the effects on relative competitiveness. Production-related environmental standards are sometimes referred to as production and process method (PPM) standards. This can be misleading, however, because PPM standards may also be directed at consumption-related environmental concerns; sanitary regulations affecting the production of imported foods, for example.

---

16 See The Economist June 15, 1991, pp.89-90, and the Financial Times June 28, 1991, p.6. A fuller account of this recycling initiative, and the concerns it has raised, is given in the Financial Times August 14,

Whether or not trade measures could legitimately be used in response to production-related environmental concerns is a matter discussed in subsequent chapters. At this point, however, a few preliminary observations can be made.

As to the concerns about the trade effects of high standards in the industrialised countries, with production-related environmental standards we should first distinguish between traded and non-traded products. Clearly, environmental issues arising from the production of non-traded goods and services will not be affected by foreign market access restrictions in support of foreign environmental standards. Moreover, a broad range of the most pressing environmental issues in the LDCs are not associated directly or primarily with traded-goods production. These include access to clean water, sanitation services, adequate nutrition, birth control and other medical services, and education, as well as land tenure reform and facilitation of greater local participation in decision making. Accordingly we should not expect to find a direct conflict between many of these LDC environmental priorities and the product standards enforced in the developed countries.

Even with regard to trade goods, arguments for differentiating the application of production-related environmental measures according to the wealth of the country of production are inconclusive.

In the case of traded products it has been estimated that in 1980 developing countries would have incurred direct pollution control costs of $5.5 billion to meet the prevailing US standards with respect to their exports of manufactures to the OECD countries, which were approximately $48 billion. This would have been 11.5 per cent of the total

---

1991, p.10.

value. If the pollution control costs associated with the inputs to those manufactures is included the total required expenditure would have been $14.2 billion, an increase in the cost to 29.6 per cent of the value (UN 1990, p.105, fn.2). This can be compared with estimates of the pollution abatement costs to US firms as a percentage of the value of industry output. In 1988 these were of the order of only 0.54 per cent; ranging from 0.01 to 3.17 per cent (Low 1992, Annex Table A, pp. 113-4).

Some Northern industrialists are concerned that their products may be unfairly disadvantaged with respect to those from the developing countries in the absence of off-setting measures. It appears then that these concerns are probably unfounded; regulations to enforce pollution abatement measures costing an average of only 0.54 per cent of the value of output, and at most only 3 per cent, should not be seen as a serious impairment of competitiveness. On the other hand, however, there may be substance to the concern that Northern environmental standards may place a disproportionate burden on LDC economies; pollution abatement costs of between 11 and 30 per cent are not insignificant.

If there is free trade, Anderson (1992) finds that LDC concerns about tightening pollution standards in the developed countries "are not justified if the advanced countries' imports are relatively pollution-intensive in their production (p.44, see also p.8). In other words, rising production-pollution standards in the advanced countries could benefit the LDCs, if such production shifted to LDCs with lower environmental standards and no obstacles to the trade of those products are raised. Indications of a shift of pollution-intensive production toward the LDCs are discussed in Lucas et al (1992).

There are also indications that suggest that, even with restrictions on the trade of the affected products, the application of strict environmental standards by the developed countries may be to the advantage of the LDCs. UNCTAD (1991b) argues that in the cases of raw agricultural materials, food products, minerals and metals, metal and wooden products, basic chemicals and chemical specialities, leather and textiles, motor vehicle engines, industrial and power equipment, and consumer durables, stringent environmental standards in the developed countries could provide significant benefits for the developing countries, (paras 39-45). In some instances simple and/or relatively inexpensive substitutions of inputs or processes are all that would be required; and such substitutions would benefit the developing country regardless of the external environmental standards considerations by being less pollution intensive and/or adding greater value. This would be the case with many raw agricultural and food products, as well as with textiles and some leather, metal and wooden products. With other products, while the costs of adjustment would be somewhat greater, most of the environmental benefits would accrue to the developing country. Such cases include food processing, and some leather, metal and wooden products. Where meeting the developed country standards is not feasible, and market access is impaired, benefits could arise from the resultant impetus to greater domestic processing, as with many metals and minerals, as well as from the further development of South-South trade. In this latter regard, "it is quite conceivable that for certain products a kind of dual world market will emerge: one of relatively expensive, high-tech, high quality, more environmentally advanced products in the developed world and another of relatively cheap products, less sophisticated or with a greater impact on the environment but adapted to the specific economic and environmental conditions in the developing world", (UNCTAD 1991b, para. 46).

A further matter of concern when considering the special problems faced by LDCs in meeting Northern product standards is who precisely is producing the exports at issue. While a particular country may be very poor, the company in question is not necessarily also poor. It may be a large trans-national corporation (TNC), or another large foreign or local firm with the resources to meet the highest standards. The Mexican Maquiladora is a case in point, where many of the factories are branches of, or largely dedicated to, larger US firms including a number of transnational corporations. For such companies there should be no special consideration with respect to meeting the product standards necessary to access their developed country export markets. Where necessary, there could also be assistance with enforcement of the environmental standards of the host country. For foreign direct investment (FDI) this could be done by providing for enforcement of host country environmental regulations in the courts of the home country of the FDI, if the administrative capacity of the host country is inadequate.

This does not mean that there should not be any special or differential treatment for LDCs with respect to the relatively strict environmental product standards of the developed countries. Such treatment could be provided by the traditional means of preferential access, such as tariff reductions to offset the increased costs incurred to meet the high environmental standards, rather than by lowering environmental standards. Further reduction of tariff escalation, for example, would greatly help in this regard. As well environmental standards enforcement could be furthered by establishing facilities to promote new, modern investment in LDCs, by full payment for genetic materials, and by providing more generous financial and technological transfers, all of which would decrease the slope of *f(trans)* and provide

substantial amounts of resources for environmental protection in the LDCs. This would enable them to meet the Northern standards better; standards which it is in the interests of the LDCs to meet as soon as possible.

That environmentally unsustainable environmental standards are not in the interest of the LDCs, even for a short period of time, can be demonstrated quite simply. Assume that urgent and effective action is taken to increase LDC development, and that over the next ten years global per capita income, and hence environmental consumption, is raised to the 1990 OECD average. Quite clearly the simple calculation of OECD per capita consumption times the global population shows that the resulting total environmental burden would be intolerable.

Conclusions

Environmental standards must be established with reference to the characteristics of the relevant ecosystem. Moreover, environmental sustainability requires that economic activities do not breach the limits of the ecosystem's capacity. Suggestions that environmental standards should also be differentiated according to income, between poor and rich countries, may be misguided. There appears to be little compelling reason for making such a distinction, and in some instances it may even be counterproductive. This does not mean that special and differential treatment for the products of the poorer countries cannot be provided in other ways. Nor does it mean that market access restrictions or other trade impairments should be employed unilaterally to enforce environmental standards. The issue of the legitimacy of using these and other trade related environmental policy instruments is the subject to which we now turn.

CHAPTER THREE

THE FIRST TEST OF LEGITIMACY

To establish, enforce and maintain sustainable environmental standards whenever environmentally unsustainable economic activities occur is held to be the proper purpose of environmental policy. In this enquiry, we are interested in whether trade measures can be legitimately used in the conduct of such environmental policy. This chapter looks at the interaction of the three structural features of the international system that give rise to and condition the relationship between trade and environmental policies. From this, a first test of the legitimacy of using trade measures as environmental policy tools is disclosed and examined.

To understand the relationship between international trade policy and environment policy we must first look at three fundamental aspects of the international system: the economic dimension, the ecological dimension, and the political dimension.

1. The economic dimension is composed of three interrelated elements: national, regional and global economic relations. Both national and regional economic relations have long histories of mutually

interdependent development, with regional economic relations being understood mainly as the sum of their constituent national economic relations. Indeed, throughout history regional economies have been identified to a large extent simply as areas of particularly substantial international trade; national economies were the salient objects of analysis. At the same time international trade flows have historically been aligned with, indeed are often an integral part of, colonial political relations. National tariff structures have maintained and supported these nation-centred economic and political relations; historically, international trade has been rooted in the nation-state system. Technological advances in productivity, transportation, and communications have provided an impetus for, as well as facilitating the integration of, economic relations both within and between regions to give rise to a truly global economy.

In addition to the erosion of the salience of the nation state in international trade relations, the constitution of international trade has also changed. Until very recently, international trade consisted almost exclusively of crude goods for production -- raw materials and commodities -- on the one hand, and finished consumer goods on the other. Technological change during the 20th century, especially regarding information processing and telecommunications, has facilitated the expansion of international trade in terms of both volume and geographical coverage. At the same time, it has also caused a change to the constitution of international trade by causing and facilitating an increase in the trade of intermediate goods.

In other words, the production arrangements themselves expand beyond, and function without regard to political borders. This change to the constitution and scope of international trade means that the

international economic system can increasingly be understood in its own right as a global economic system, rather than as traditionally portrayed: in terms of the interaction of its constituent parts. Political borders and economic "borders" are less and less the same. To an extent these global economic relations can be conceptualised as a border-less economic continuum with primary regions of activity corresponding to the European, North American, and Asia Pacific markets. The international trade system is an essential and integral element of this new transnational economic structure of production, distribution and consumption.

The development of this transnational economic structure has given rise to unprecedented levels of global economic interdependence. Local and regional economies continue to contribute much to the character of the global whole, while the global system is increasingly of crucial importance to the behaviour of local and regional economies. Local and regional economic activities must be seen in light of this reciprocal interdependency, and much of economic policy analysis does in fact take account of it. A main purpose of regional integration programs, for example, is often to make the participating regions more competitive within the global economy and/or to enhance the region's economic negotiating leverage within it. Whether at the world scale or the regional or national scales, this means that analyses of the relationship between international trade and the environment cannot ignore the development of this global economic interdependency.

2. The ecological dimension has two main elements: the natural integration of ecosystems, and the scale of the human effects on those systems.

Natural environmental integration is similar to, though is not necessarily coextensive with, economic integration. Ecosystems are in some cases local, that is, they are within national political borders. In some cases they are regional, in that they cross national political borders and so cover more than one jurisdiction. Finally, there is the global biosphere. Each of these types of ecosystem is fully and fundamentally integrated with the others. This gives rise to a natural interdependency.

Added to this, the effects of the global economy have, in many instances, become so large that they are beginning to be on the same scale as fundamental natural processes. This provides an additional dimension to global ecological interdependency. Whether with regard to resource utilisation or waste assimilation, until recently the scale of economic activity meant that the environmental effects of that economic activity were effectively benign or were of largely local concern only. The economy functions on a global scale now and many environmental effects are no longer benign. Accordingly, global economic and ecological interdependency necessitate the development of new means of conceptualising and evaluating the environmental consequences of economic activities. Importantly, in so emphasising the international interdependency element of the trade-environment issue, it may also prove helpful in developing a sense of common cause to facilitate a more harmonious relationship between environmental and international trade concerns.

To an extent, ecological interdependency is not new. Few, if any, economies are ecologically self-sufficient; the natural resource needs of all but the smallest and most primitive economies are unlikely to be met by the local ecological capital. Throughout history two primary means have been used to meet this problem: nomadic migration, and trade.

Nomadic migration means that the users of ecological capital move between resource bases. Trade, by contrast, involves the movement of natural resources amongst the various users. Accordingly, trade can be understood as an exchange of ecological capital. Ecological interdependency, then, can be understood in terms of the content of trade, as well as a product of the scale of economic activity.

3. Along with these economic and ecological dimensions a third, political dimension, is essential to understanding the relationship between international trade and environment policies. The last chapter demonstrated that environmental standards must be established with reference to the relevant ecosystem. However, within the transnational economic and ecological interdependencies, economic and environmental policy-making remain within the bailiwick of discrete, territorially-bounded authorities. There are few corresponding regional or global authorities with the authority to implement whatever policies may be appropriate at those levels.

The interaction of all three of these dimensions of the international system are essential to understanding the trade-environment relationship. The economic dimension transmits the economic effects of environmental policies as well as producing ecological effects which necessitate environmental policy responses. The ecological dimension transmits the ecological effects of environment policies and of economic activities. But the full scope of such effects are not necessarily contained within or coextensive with the territorially bounded authorities whose policies give rise to the effects, while no supranational sovereign authorities exist.

The interaction between these three structural features of the international system gives rise to the fundamental problem of how and in

what ways territorially-bounded authorities can exercise their rights and responsibilities to manage their economic relations in an environmentally sustainable manner, while at the same time managing their environmental policies in an economically responsible way. Accordingly, it will be useful to develop a taxonomy of the jurisdictional aspects of the trade-environment issue. In turn, such a taxonomy will help to identify the first test of the legitimate use of trade measures for environmental purposes.

The First Test of Legitimacy

Disputes may arise over environmental standards or the trade-related environmental policy instruments (TREPI) used to implement them. Moreover, environmental measures may be implemented by and/or affect the country where the environmental consumption occurs and/or another jurisdiction, or the effects of the environmental consumption may be felt only in the country of origin, also in another jurisdiction, and/or in an extra-jurisdictional area.

Because neither economies nor ecosystems necessarily correspond with jurisdictions, a taxonomy of the jurisdictional distribution of the environmental concern and of the economic costs of any proposed countermeasures will be useful. There are two primary jurisdictional issues to be considered.

1. For jurisdictional issues which arise from the environmental effects of economic activities, there is the case in which there are environmental effects only in the country in which the economic activity occurs, and the case in which there are effects in another jurisdiction, or in an area under no single jurisdiction such as the oceans, the atmosphere, or outer space.

2. A second set of jurisdictional issues arise from the economic effects of environmental policy measures. In this case the effects may be entirely local or there may be extraterritorial consequences.

For each of these sets of issues legitimacy may be indicated by whether or not one is materially affected by that which one is reacting to.

Accordingly,

> The first test of legitimacy is whether an authority is materially affected by what it proposes to act toward.

In principle this "affected by" test is analogous to the injury tests, including the de minimis standards, of countervailing and antidumping duty laws. Thus, one jurisdiction could not legitimately act against environmental concerns occurring entirely within another jurisdiction. Likewise, if a measure has no extraterritorial economic effects it should be considered legitimate. It is important to be clear that this taxonomy only discloses the first test of the legitimate use of TREPI. Two additional tests, described in subsequent chapters, must also be considered before the use of TREPI in any particular instance would be legitimate; all three tests are essential to determining the legitimacy of a proposed action.

There are three categories in this jurisdictional taxonomy: uni-jurisdictional, non-jurisdictional, and multi-jurisdictional.

1. Uni-jurisdictional issues occur when both the environmental damage and any costs of remedies are borne entirely within a single

jurisdiction. These should not normally be the subject of international attention or scrutiny.

An exception may be where the consequences of consumption pollution occur only in the country of consumption but the consumption pollution measures are implemented by another country, such as the country of production. The transportation of toxic materials for recycling or disposal is an example. In this case agreement with the country affected would seem to be a necessary precondition of any measures being imposed.

2. Non-jurisdictional issues, by contrast, are those where environmental damages occur in an area outside any jurisdiction. Such areas include most of the oceans, the atmosphere, outer-space, and the land mass of Antarctica.

Of course, unilateral environmental measures could legitimately be implemented providing they do not entail any multi-jurisdictional economic costs. Examples of this type of issue include domestic requirements that nationals return all wastes produced while operating in extra-jurisdictional territories, against dumping wastes at sea, or imposing atmospheric emissions limitations on domestic products. In such cases it is unlikely that anyone would object. Unilateral trade restrictions impose costs on others, however, so they would be illegitimate. In part, this was the finding of the GATT panel on the Mexican tuna dispute. As a rule international agreement would be a necessary precondition to measures which entail economic costs accruing outside the jurisdiction of the authority implementing measures in response to non-jurisdictional issues. The trade-related measures sanctioned by the Montreal Protocol are a case in point.

When dealing with non-jurisdictional issues, although the level of jurisdiction in the area may be equally non-existent for all parties, the level of legitimate interest in the area will vary. For example, there is no single authority with jurisdiction in the North Atlantic, but countries such as Canada and Iceland would clearly have a greater interest in the fisheries there than would Australia. While a "legitimate interest" in an area is certainly much less than recognised sovereign jurisdiction, with many non-jurisdictional issues there will be "shades of grey" as to who has what rights.

3. Multi-jurisdictional issues will be the most common and also probably the most difficult to resolve. Three sub-categories of multi-jurisdictional issues arise.

a) First, the environmental effects could be felt in more than one jurisdiction while the costs of remedying those effects, whether they arise from a measure being implemented or not being implemented, are borne entirely within the originating jurisdiction. An example of this type of issue would be transboundary emissions of acid rain. Here any remedial costs should simply be borne. If adequate or effective environmental measures are not implemented, for the countries suffering the consequences of any such non-localised pollution, resort to appropriate and effective compensatory or countervailing measures may then be justifiable. While current international trade rules permit only limited action against producers in response to methods of production, where such production pollution adversely affects another jurisdiction, proportional countermeasures may justifiably be undertaken. Legal justification could arise from the accepted right of countries to erect barriers to trade where necessary to protect the life or health of humans, animals or plants within

it, (see GATT Article. XX(b), for example). Clarification of the question of legitimacy in a particular instance, however, would involve the additional consideration of the tests reviewed in Chapters 4 and 5. It is always preferable, moreover, that measures not be unilaterally imposed. To the extent possible, the use of multilateral dispute settlement procedures should precede and approve any measures which an authority may wish to resort to.

b) Second, environmental measures implemented in response to entirely local concerns may have extra-jurisdictional commercial effects. Natural resource conservation programs and waste disposal regulations are examples. In principle the extra-jurisdictional commercial effects in such instances are no different than those that arise from other domestic policy measures, and for which exceptions are provided in the international trade rules. Here also, criteria need to be established by which disputes may be resolved.

International economic effects could also occur because there are no environmental measures, or only weak ones. This is a frequently voiced concern with respect to imports from many developing and emerging economies, as was found, for example, during the negotiation of the NAFTA. In considering such cases, it is important to recall that the appropriate referent of environmental measures is the affected ecosystem. As well, necessary basic environmental standards should be distinguished from any optional supplementary environmental standards which some may perceive as desirable. Finally, specific environmental subsidisation -- those occasions where a firm or industry is externalising environmental costs within an otherwise adequate domestic environmental regime -- and general environmental subsidisation -- where it is the jurisdiction as a whole which, by way of generally lax

environmental standards or standards enforcement, is able to effect a general competitive advantage -- should also be distinguished. It could be argued that specific environmental subsidisation should be actionable by way of a multilateral dispute resolution mechanism. General environmental subsidisation, however, is less likely to be as susceptible to international arbitration. These issues will be considered during the course of this enquiry.

c) Third, both the environmental effects and the commercial costs of any remedial actions are felt in more than one jurisdiction. Examples are stratospheric ozone depletion, and atmospheric carbon accumulations. Here the optimal solution would involve the development of an agreed course of action by the parties affected. As it relates to non-participants, any such arrangement should be subject to the same legitimising criteria as are applied to domestic measures.

Conclusions

The interaction between locally-, regionally-, and globally-interdependent economic and ecological dimensions of the international system, with discrete, territorially-bounded policy making authorities, provides a useful means by which to begin to understand the links and areas of common interest between trade policy and environment policy. Moreover, it suggests the first test of the legitimate use of TREPI; that an authority may legitimately act only when it is materially affected by that toward which it proposes to act.

CHAPTER FOUR

THE SECOND TEST OF LEGITIMACY

The last chapter argued that the first test of the legitimacy of an action is whether or not an authority is materially affected by what it is reacting against. This chapter provides a further test of legitimacy. The second test asks: will the proposed action be effective? In this case we will be interested in whether trade-related environment policy instruments (TREPI) are effective means of achieving environmental policy objectives. The TREPI we will consider are border measures such as quantitative or financial import restrictions, or quantitative or financial export restrictions, and domestic measures such as subsidies and taxes.

The Second Test of Legitimacy

By the second test, use of a TREPI is legitimate only if it would be effective. To analyse the effectiveness of TREPI it is important to clarify the objectives which they are to achieve. There are four principle reasons why TREPI may be considered useful.

INTEGRAL TREPI

Integral TREPI are trade measures used to address environmental concerns where international trade itself is a proximate cause of, or a major contributing factor to, that environmental concern. This would be the case, for example, where restrictions are placed on the international movement and transmission of dangerous or unhealthy products. Integral TREPI strictly control or prohibit the presence or distribution of the product itself. The motivation behind such measures is fundamentally grounded in concern about health and environment. There are three main types of integral TREPI:

First, integral TREPI may be imposed where the product itself is of concern. Examples include sanitary and phytosanitary regulations, as well as restrictions on the international transport of radioactive and toxic substances. The TREPI in these instances will be quantitative import and export restrictions. Because the product itself is dangerous or unhealthy, there is normally no demand for it and so little impetus for the development of a black market or any other restriction-evading activities. For the same reason only quantitative TREPI would be effective.

Second, integral TREPI could be applied in cases where it is use of the product that causes environmental damage; automobiles which do not meet specified emission standards, for example. Also in this category are regulations concerning waste treatment and disposal; that is, where products are denied market access unless they conform to certain criteria regarding the treatment and disposal of any wastes which may arise as a result of their being consumed. In these instances, where use of the product rather than the product itself gives rise to the environmental or

health concern, some demand for substandard goods may be expected[17]. Financial TREPI would reduce the incentive for illegal trading, so they could also be effectively employed.

Third, integral TREPI can also be used for production-related concerns. These include measures to conserve natural resources, such as fisheries. Here it is not the product itself which is of concern. Rather, the harvest rate is unsustainable. Such over-exploitation is often the result of under-pricing or undervaluing of the product in question. The role of international trade in these cases can be demonstrated with an example involving trade in endangered species and derivative products.

A lower price in the domestic market relative to a foreign market, in the absence of barriers to trade between the two markets, creates an opportunity for arbitrage which profit maximising individuals will want to take advantage of. Because this opportunity exists only to the extent that no offsetting barriers exist between the two markets, international trade, as the nexus between the two markets, is seen to be an integral part of the problem. For such products, therefore, complete trade bans or severe trade restrictions are often proposed[18].

Ironically, to the extent that demand for the product remains, by reducing the available supply such measures can give the product an even greater value. Reducing the official domestic price to zero and adding a risk premium for poaching to the foreign price, increases the

---

17 The May 8, 1996 edition of the Financial Times reports a study by the Royal Institute of International Affairs that argues that multilateral efforts to curtail the use of chlorofluorocarbon (CFC) gases are being undermined by smuggling from, primarily, Russia to various developed countries. The report claims that the US has the largest black market in illegal CFCs, with an estimated 9,000 to 18,000 tonnes per year being traded.

arbitrage opportunity. As a result, black markets in these products will appear and undermine the effectiveness of the TREPI. It has been proposed, therefore, that where appropriate, property rights to the resource be ascribed, normally to the local population, and a controlled market established. This has the effect of improving the local management of the resource and of raising the domestic price relative to the foreign price. In turn, the higher domestic price reduces the arbitrage opportunity. When alternate sources of the product are available, such supply management schemes may require the support of quantitative import controls in order to stop the trans-shipment of unsustainably produced product. Otherwise, border measures would not be necessary.

SANCTIONS

A second primary objective of TREPI is as a sanction on the environmental policy of another jurisdiction. In such cases both quantitative and financial border measures have been employed. It is important to recall that the purpose of the sanctions may in fact be primarily domestic, such as satisfying a vocal interest group, or it may actually be to change the behaviour of another jurisdiction. To the extent that the sanction is largely for a domestic audience, it would seem reasonable that the least internationally disruptive measure possible should be chosen, and that that would not include TREPI. On the other hand, where the TREPI is imposed primarily to effect a change of policy in another jurisdiction, there is to date little evidence that it would be successful, so again they should be avoided in all but a very few circumstances.

---

18 This is not meant to obscure the possible existence of other relevant factors, such as the reduction

There have been a growing number of cases where TREPI, usually import restrictions, have been used to bring about changes in the environmental policies of other jurisdictions. Usually these are with respect to production-related pollution issues. Examples include the landmark cases of US restrictions on the import of Mexican tuna, and proposed EC restrictions on the import of certain furs. Such TREPI probably cause economic hardship for the producers in the target country. That they will be effective in inducing a change in policy is, by contrast, very much to be doubted.

In general, it should be noted that research indicates that the effectiveness of unilateral sanctions over the post-war period has been declining and unimpressive for the most part. That said, Hufbauer, Schott, and Elliot (1990) shows that to be at all effective, sanctions need to conform to a number of criteria. Important amongst these are that the offending policy can plausibly be changed, that the sender be very much more economically powerful than the target, that there is a high degree of trade interdependence between the sender and the target, that the products sanctioned impose the maximum cost on the target, that the target is not able to circumvent fully the sanctions, that the costs to the sender are not too onerous and, finally, that the sender is sufficiently patient,

Aside from the generally decreasing probability of success, there is no reason to believe that restricting the trade in a product that is associated with an offending environmental policy would have any useful effect in changing that policy. The product may not be of vital importance to the target, the sender's market may not be sufficiently important, the target country may not be able satisfactorily to change the policy, or the

---

of habitat by human encroachment.

inefficiency of sanctions as a diplomatic tool may mean that greater environmental damage occurs while waiting for them to work than might have resulted from other more effective means. Although there may be instances where the unilateral use of TREPI as sanctions on the environmental policies of others may be effective, as a general rule they would appear to be ineffective.

These conclusions were confirmed in a study by the US National Association of Manufacturers, as reported in the March5, 1997 edition of the Financial Times. This study showed that the US had enacted 61 laws and executive actions since 1993 sanctioning the behaviour of 35 countries. It concluded that unless the sanctions have international support they are largely ineffective.

The use of TREPI as sanctions also occurs in international agreements. Here they may be employed to ensure observance of the agreement by the signatories and/or to ensure that "free-riders" do not secure the benefits of the agreement without incurring corresponding obligations. TREPI as sanctions could also be used by international agreement in a particular instance. At least three main reasons suggest why the use of TREPI as sanctions in these ways may be rather more effective than otherwise. First, a large number of countries acting together could serve to fulfil a number of the requirements listed above for sanctions to be effective. Second, those inclined to join the international agreement would want an instrument to ensure that only those undertaking the obligations and paying the costs reap the benefits. Provision of such an instrument would therefore encourage membership of the agreement and so strengthen the sanctions threat provisions for the first reason just described. The third reason is that as the sanctions threat provisions are strengthened for the reasons just described, even those

who are less inclined to join may do so in order to pre-empt being subject to sanctions.

While sanctions, considered as punishments and threats, do not have an impressive record of success, as rewards for appropriate behaviour they may be more promising. Such rewards could include, for example, tariff reductions or other market opening initiatives, or financial aid and technology transfers. These could be provided either as rewards for policy changes, or in conjunction with or to help facilitate policy changes. Regrettably this positive approach to international policy modification does not yet appear to have received much official consideration.

IIIa

ECONOMIC MOTIVES: COMPETITIVENESS

A third, and fundamentally economic, objective of TREPI is to equalise competitive disadvantages which may be seen to arise because of international differences in environmental policies. TREPI may be domestic or border measures designed to address either the cost to domestic producers of domestic environmental policies, or the relative cost differential, between domestic and foreign competitors, of environmental policies.

TREPI may be used to protect domestic producers from competition against those subject to less stringent environmental regulation. This is seen to be a case of compensating for production or operating cost disadvantages which may result for domestic producers

subject to production-related environmental standards more onerous than those of their competitors. For example, US Representative Al Swift put forward a Bill in 1990[19] to "preserve the global environment" and "to make sure that our American-made products are treated fairly in international trade". Swift argued that "when foreign competitors pollute, they not only degrade the environment in which we all live, they also are able to undercut American producers by avoiding pollution control costs that our manufacturers rightfully have to meet."[20]

A relatively substantial amount of research has been conducted on this question over the past twenty or so years, albeit much with a US focus. This research suggests that overall, pollution abatement costs are a small portion of total industry costs and have an insignificant effect on output. However, the significance of competitive distortions will vary from industry to industry, with those associated with a significant amount of production pollution being the most susceptible.[21] Low (1992), for example, examines pollution abatement and control expenditures in 1988 by 123 industries in the US His research supports earlier work on this question, finding that "the maximum 'charge' resulting from pollution abatement and control activities amounted to just over 3 percent of output for the dirtiest industry (cement), and only 18 out of 123 industries, at the 3-digit level of the Standard Industrial Classification (SIC), incurred expenditures greater than 1 percent of output. The weighted average for all industries was 0.54 percent", (Low (1992) p. 106). Similarly, private sector expenditure on pollution control in the UK in 1988 has been estimated to be greater than 1 per cent of turnover in only the three most

---

19 H.Res. 371, introduced in the US House of Representatives March 29, 1990.

20 News Release by Congressman Al Swift, May 24, 1990, "Swift Resolution Urges Our Trading Partners To Do Their Part To Clean Up The Environment".

21 Dean (1991), pp.8-13, provides a review of the literature on this issue, most of which has examined the competitive effects of the environmental regulatory regimes of the 1970s and early 1980s.

"pollution-sensitive" industries[22], and never more than 1.5 per cent (ECOTEC, 1991, Table 5.1). The conclusions of the investigation in the third case study in Chapter 6 of this thesis are consistent with these findings; they too find that the cost to UK agriculture of environmental regulation has a negligible commercial effect on the industry. To the extent that environmental regulation is strengthened over the coming years, and so becomes a more significant component of the cost structures of the relevant industries, these research results may be superseded. Nonetheless, there does not yet appear to be any compelling evidence to support the fear that production-related environmental standards, at the level enforced in the US or the UK, are competitively disadvantageous.

Indeed stricter production-related environmental measures may make firms more competitive. Such measures may lead to production techniques which are more efficient in their use of resources (ACOST,1992, pp. 7-8), and/or consumers may prefer the "greener" products. Also important is the distinction between "cleaner technology" and "end-of-pipe technology". The former emphasise reducing the demand for raw materials and energy as well as the prevention as opposed to the treatment or disposal of pollutants or other wastes. The latter are technologies or processes which treat or abate the environmental effects of existing processes. ACOST (1992) argue that "the application of end-of-pipe or monitoring technologies, rather than cleaner technologies, is particularly likely to lead to increased process or production costs, at least in the short term", (p. 8). In general terms, then, the introduction of "cleaner technologies", whenever possible, is to be encouraged. However, more research is needed into whether greater costs will lead to decreased competitiveness or whether greater efficiency

---

22 Chemical industry, metals industry, and food processing industry.

will lead to increased competitiveness, and for which industries. Research is also needed to ensure we are able to maximise the possibility of the second of these two possibilities being the result for the greatest number of industries.

Regarding the matter of relative competitiveness then, two groups must be distinguished: those who may suffer, a relatively small group, and the majority of industries who can be expected to benefit from the implementation and enforcement of high environmental standards. The preliminary evidence[23] suggests that the industries most susceptible to competitiveness effects arising from environmental factors are those that are the most energy and/or resource intensive. These include cement, pulp and paper, ferrous and non-ferrous metals, chemicals, forestry, mining, and energy production and products. These industries are also all capital intensive, highly cyclical and, in the developed countries, they are largely mature. At the same time, they tend to be those which are developed early in the economic development process. Accordingly, while they may be in the minority of industries, we can expect them to be the source of most of the trade-environment disputes concerning relative competitiveness.

Clearly for those firms which can expect to benefit from higher environmental standards the application of border TREPI would be unhelpful. For those industries which are susceptible to competitiveness problems, however, modest forms of transitional assistance may be politically necessary. Accordingly, any TREPI which may be employed in support of domestic environmental standards should be restricted to domestic TREPI, such as subsidies to help with pollution abatement and/or structural adjustment costs.

---

23 See the various articles relevant to this matter in Low (1992), for example.

ECONOMIC MOTIVES: INVESTMENT LOCATION

A corollary to the relative competitiveness concern is that TREPI, especially quantitative import restrictions or bans, are necessary to reduce the possibility of investment relocating from areas where there are high environmental standards to areas where lower environmental standards obtain (see, for example, Shrybman 1990b). Much of the concern of environmentalists, trade unionists, and others opposed to the North American Free-Trade Area negotiations, for example, arose from their fear that such trade and investment consequences might result from the lower level of Mexican environmental standards and enforcement.[24]

Two issues are central to this problem. First, we need to consider the relative capacities of the ecosystems at issue. Natural differences between ecosystems mean that there must be corresponding differences in the relevant environmental policies. Second, we need to consider the relative rate at which the environmental resources would be utilised. As shown in Chapter 2, an LDC with a lower transformational efficiency, *f(trans),* will consume more of the environmental endowment per unit of output than would a more advanced economy. Accordingly, for a given level of output more of the world's resources are used; it can be seen as an economically less efficient allocation of global resources.

Some research covering a broad selection of industries suggests that there is little evidence overall that industrial relocation in response to environmental regulatory differentials has been significant. To the extent that they exist, such relocation effects appear to be a function of the

extent to which production-related environmental management costs constitute a significant component of the firm's overall cost structure. Other crucial variables are the industry-specific incidence of significant international environmental regulatory differentials and low impediments to the trade of the products (see Ugelow (1982), Dean (1991), pp. 14-16, and USTR (1991) pp. 132-43).

USTR (1991) identified four conditions which would have to be met to justify a firm relocating in response to environmental regulation:

1.) environmental compliance costs must constitute a significant portion of total operating costs;
2.) the relevant trade barriers must not be significant;
3.) compliance cost gains must exceed the costs of relocation; and
4.) international compliance cost differentials must be sufficiently significant to encourage investment relocation.

Accordingly, in principle, TREPI would be effective in addressing concerns about investment location of certain industries.

Just as with the research on competitive distortions arising from environmental regulatory differentials, however, this research indicates only that industrial relocation in response to environmental regulatory differentials has not yet been significant, not that it will not become so if environmental regulations are strengthened faster in some jurisdictions than in others and the resulting growing differentials constitute an increasing share of total industry costs. Indeed, there is a growing body of evidence that such displacements are already occurring.

---

24 See, for example, Inside US Trade, Feb. 22, 1991, pp.9-10; Mar. 8, 1991, pp.1, 21-22; Mar. 29,

Research by the Thailand Development Research Institute (see The Economist 16 Nov. 1991, "Asia's Emerging Economies: Survey", p. 21) suggests that increased environmental regulatory differentials amongst a number of the countries of south-east Asia may have been an important cause of investment location decisions by pollution-intensive industries between 1987 and 1989. Similarly, while UNCTAD (1991b) argues that environmental regulation has not led to any discernible effect on international trade patterns, they suggest that there is some evidence that some investment shifts are taking place, "particularly in the processing of metal commodities" and that "it is expected that this trend will continue" (p. 11). Lucas et al (1992) also find evidence to support the hypothesis "that stricter regulation of pollution-intensive production in the OECD countries has led to significant location displacements, with consequent acceleration of industrial pollution intensity in developing countries" (p. 80).

But such research remains inconclusive. As USTR (1991) concludes, "Although relocation of investment to avoid stricter environmental restrictions may be a plausible outcome of differences in environmental standards and enforcement, and such movement has taken place in some instances, the phenomenon does not appear to be widespread" (p.142). Where such effects are found, they will again tend to be associated with the same energy and/or resource intensive industries identified in the preceding subsection, (see GATT 1992, pp. 20-21).

As we have seen throughout this section, where economic motives are central, the extent to which differences in environmental standards

---

1991, p. S3; and Apr.26, 1991, pp. 3-5.

contribute to the problems being addressed is crucial. The low environmental standards of concern will be mainly in countries where many other factors may also be at play, including low labour, health and safety standards, and possibly also significantly lower tax and administrative costs. Labour costs, for example, typically account for about 70 per cent of the cost of producing manufactured goods. It may be the case, therefore, that the environmental standards component is insignificant. If so, it would not itself give rise to material external effects and so would not pass the first test of legitimacy articulated in the preceding chapter. Un-bundling the environmental element will be extremely difficult, if not impossible. Accordingly, while TREPI would be effective countermeasures they would also be very easily caught up with other issues and so provide a ready vehicle for damaging, protectionist trade actions. As a result, while they may be effective in certain circumstances, they would also impose costs on the rest of the economy which must be taken into account when considering their use. Special precautions with the use of TREPI in these cases are essential.

IV

SUSTAINABLE WELFARE MAXIMISATION

An important economic effect of an open trading system is that a pattern of economic activity obtains which is economically optimal; that is, it constitutes an efficient use of global resources. In turn, this distribution facilitates maximum economic growth. But, as Chapter 6 will show, for economic growth to be environmentally sustainable, offsetting, primarily domestic, environmental measures must be in place. If an appropriate regime is not in place the environmental effects of economic growth are

not always benign. Accordingly, neither is the associated pattern of economic activity.

A counterintuitive implication of this is that the economically most efficient use of global resources may not necessarily be environmentally optimal. To the three purposes of TREPI already reviewed, therefore, a fourth objective may now be added: a possible role for TREPI is elucidated in the pursuit of sustainable welfare maximisation. What is meant by "sustainable welfare maximisation"?

Leaving aside for the moment the environmental considerations, received orthodoxy holds social welfare to be a positive function of economic activity. Since economic activity is the sum of production and consumption, welfare is increased or decreased as production and consumption are increased or decreased. Because TREPI are normally product-specific we can then ask what effect TREPI have on the consumption or production of the good or service affected. In other words, what effect does the use of the TREPI have on welfare?

The idea of sustainable welfare maximisation holds that, with respect to substitutes, we should maximise the consumption and production of the least environmentally damaging goods and services. Alternatively this could be stated as minimising the production and consumption of the most environmentally damaging substitute goods and services. Either version could be followed, although ideally both would be. This could be accomplished, for example, by employing more efficient production processes, utilising better designs, producing longer lasting or more reusable products. In reducing the production and consumption of environmentally damaging goods and services the associated environmental problems will be ameliorated. Below *Emax* such

production and consumption switching would be constrained by consideration of the relative economic costs. Above *Emax*, however, we can propose a rebuttable presumption that the environmental costs of not switching outweigh the economic costs of switching.

Introducing these environmental rules, the simple welfare function reads as follows: sustainable welfare is positively related to increases in the least environmentally damaging production and consumption, and to decreases in the most environmentally damaging production and consumption. Maximising this sustainable welfare function subject to the *Emax* constraint will yield the greatest possible economic welfare at the same time as the least possible environmental damage. Recalling Figure 1, we know that within a given ecosystem improvements to the relevant environmental transformation function will effect such welfare gains. Similarly operating below or, if above closer to, *Emax*, whether within a given ecosystem or, in the case of production, by relocating to a more robust ecosystem, will also effect such environmentally benign welfare gains. At the limit, this proposal would lead to production and consumption at point A of figure 1.

To analyse the effect of the TREPI on sustainable welfare entails answering two interrelated questions: what is the effect on the production or consumption of the product, and what is the effect on the international distribution of that production and consumption? These effects can be adduced from results well established in the literature on international trade and welfare (Meade, 1955, provides a classic reference).

A principal effect of import restrictions will be to raise the price of the product in question. From the perspective of the domestic (DOM) producer this is analogous to a subsidy while for the producers in the rest

of the world (ROW) it is analogous to a tax. On the other hand, from the DOM consumers' point of view, it acts like a tax while for the ROW consumer it is like a subsidy. Accordingly, the import restriction will provide domestic producers with an incentive to increase their production. Domestic consumers, by contrast, will tend to reduce their consumption of the product. For the ROW the results will be the reverse. The tendency then is for consumption of the product to shift to the ROW while production shifts to the DOM market. Such shifts may or may not have the effect of leading to a more environmentally sustainable global configuration of production and consumption. It would depend on the particular product affected. Likewise we cannot determine, a priori, what the aggregate environmental effect will be.

Thus it is not clear whether import restrictions would be appropriate for production-related environmental issues and for consumption-related concerns. The extent to which import restrictions imposed for production-related environmental concerns would be appropriate depends on whether any increased production is generated by technology sufficiently benign to compensate for any increased pollution, and /or if any shifts of production are to a more robust ecosystem. Similarly, if the import restriction is imposed for consumption-related environmental issues, to the extent that the affected ROW ecosystem is less robust than that of the DOM the overall environmental consequences of any increased consumption will be unwanted. Moreover, if the consumption-related environmental concerns include multi-jurisdictional or non-jurisdictional issues then again the import restriction may not ameliorate the situation; indeed it may make matters worse. Of course if the ROW ecosystem is more robust than the DOM ecosystem then the environmental consequences of the shift of consumption from the DOM to the ROW would be desirable.

With export restrictions the price of the affected product will be lowered. Being analogous to a domestic subsidy, there will tend to be an increase in domestic consumption. For this reason parallel domestic restrictions are needed if overall use of the product is to be lowered. However, the effect on domestic producers will be in the same direction as would that of a tax and so lead to a decrease in domestic production. At the same time, export restrictions will operate like a tax on ROW consumers of the affected product and like a subsidy for the ROW producers of competing product. Clearly the same concerns regarding DOM/ROW shifts of the production and consumption of the affected product that where posed in the case of import restrictions would need to be considered here also. For example, export restrictions on a natural resource as part a natural resource management program would have a negative overall effect if the restricted supply was simply replaced with that of another supplier using less environmentally sustainable harvest techniques or harvesting in a less robust ecosystem.

A domestic production subsidy can be expected to increase domestic production. However, its effect on prices and consumption is less clear. To the extent that the market is competitive some of the subsidy will be passed through to the consumer leading to increased consumption. Depending on the price elasticity of demand for the product, however, an amount of excess production may result which would need to be exported. In the case of a domestic consumption subsidy, by contrast, the consumer price will decline causing an increase in consumption. Because this generates only indirect price signals to the producer, however, production may remain unaffected and an increase of imports would result.

A domestic production tax can be expected to be passed on to the consumers to the extent the relevant market permits. Such higher consumer prices will tend to depress demand for the domestic product and so lead to lower domestic production. In the absence of border restriction such as an offsetting import surcharge, however, ROW product at the lower world price will be imported and replace the higher priced domestic product. This would tend to shift the incidence of production pollution to the ROW, the advisability of which again depends on the relative robustness of the DOM ecosystem and the ROW ecosystem.

A consumption tax, on the other hand, will raise the consumer price and so reduce consumption of the target product. Again, however, there are only indirect producer price signals. Production may remain unchanged, or slightly reduced, above domestic demand and increased exports would be required.

From this brief discussion it is clear that for production-related environmental concerns the effect of both import restrictions and production subsidies is to increase production of the affected product in the domestic economy (DOM) and to decrease its production in the rest of the world economy (ROW), suggesting a shift in the distribution of production towards the DOM. By comparison the tendency of export restrictions and production taxes is to cause a decline in the production of the affected product in the DOM and an increase of production in the ROW, suggesting a shift in the distribution of production toward the ROW.

For consumption-related environmental concerns, import restrictions and consumption taxes both depress consumption in the DOM while expanding it in the ROW, implying a change in the pattern of

Table 1.

Summary of the Effect of TREPI on Sustainable Welfare

TREPI	DOM		ROW	
	Cons	Prod	Cons	Prod
Import Restriction	_	+	+	-
Export Restriction	+	_	_	+
Production Subsidy	0/+	+	?	0/-
Production Tax	0/-	-	?	0/+
Consumption Subsidy	+	0/+	0/-	?
Consumption Tax	-	0/-	0/+	?

consumption towards ROW. Export restrictions and consumption subsidies will have the opposite effect of increasing DOM consumption and decreasing it in the ROW, with corresponding shift of consumption into the DOM. Bearing in mind that, a priori, the environmental consequences of these results cannot be determined, they are summarised in Table 1.

Clearly the degree to which the ROW is affected by the TREPI will be proportional to the size of the market share of the jurisdiction imposing the TREPI, measured in terms of its percentage of the total world market for the product at issue. But what is more, the effect of the domestic TREPI are neutral or in the same direction for both consumption and production, while the effects of border TREPI on consumption and

production are in opposite directions. To the extent that such actions are otherwise seen to be legitimate and would lead to operating closer to *Emax*, border TREPI may be more useful for inducing international re-distributions of production and/or consumption. However, the domestic TREPI may be the most effective for increasing the consumption and/or production of the product in question within the DOM jurisdiction. Nonetheless, both to lessen the problem of distinguishing environment-related border measures from protectionist border measures and because it would probably be more effective and efficient anyway, internationally co-ordinated domestic TREPI should be preferred to border TREPI; whenever possible international co-operation and co-ordination is to be preferred. But this suggests that an explicit facility in the international trade rules would need to be provided for environment-related subsidies as well as taxes. Exceptions for subsidies would probably not need to be very wide, however, since, as MacNeill, Winsemius and Yakushiji (1991) suggest, much environmental policy can be effected by way of non-discriminatory environmental taxes and markets (pp.37-41).

It is important to recognise that the effects of TREPI which we have just described can be seen either in terms of the implementation of the particular TREPI or its removal. While the preceding analysis was done in terms of the introduction of TREPI, it could also have been done in terms of their removal, in which case the effects would largely have been opposite[25].

Just as imposing TREPI can be used effectively in the conduct of environmental policy, so too can they exacerbate environmental conditions and need to be removed or replaced. For example, excessive subsidisation of agriculture by many OECD governments has led to

overproduction of agricultural products and damage to the rural environment. Similarly under-pricing of resources throughout Eastern Europe over recent years, both for domestic and industrial use, has been a primary factor in the environmental degradation that has occurred there. For the LDCs, much of the environmental damage they suffer results from underdevelopment exacerbated by tariff escalation in the industrialised countries.

Whether environmental benefits will result from the introduction of a TREPI or from the liberalisation of the particular market will depend upon the product in question; a priori generalisations are not possible. It can nonetheless be tentatively concluded that, as UNCTAD (1991b) suggest, "trade policy should follow a two-way path. One path is the removal of distorting trade barriers that obstruct fair trade and efficient resource use. The other path should make way for the use of non-distorting environmental and trade instruments that put a premium on sustainable resource use subject to the trade principle of equal treatment of domestic and foreign suppliers" (para. 64).

Conclusions

In this chapter we have been concerned with whether or not, in those circumstances where an authority may act, TREPI would be effective instruments. To find out, we have looked at each of the four main reasons why they may be employed.

First, the use of TREPI may be integral to the problem. For consumption-related issues where it is the product itself that is of concern only quantitative TREPI would be most effective; where it is the use of the

---

25 Some interesting research on these issues has been published in Anderson and Blackhurst (1992),

product that gives rise to the problem then financial TREPI might also be effective. For production-related environmental problems, quantitative import restrictions were found to be of potential use only to avoid the trans-shipment of unsustainably produced product in those cases where alternate sources of the product were available. Otherwise trade measures were found to be inferior to domestic measures.

Second, the TREPI could be used as sanctions. Here either quantitative or financial TREPI could be used, but where the sanctions are unilaterally imposed they are unlikely to be effective. Multilaterally imposed sanctions, by contrast, are more likely to be effective. In either case the options considered should include rewards for policy or behaviour modification, not just punishments for a failure or refusal to change.

Third, TREPI could be used to offset commercial distortions which may result from differences between environmental regimes. Whether with regard to competitive disadvantages or investment relocation concerns, there is as yet little evidence that such commercial distortions are significant for most industries. At the same time, there is evidence that higher environmental standards may provide a competitive advantage across a wide range of industries. Nonetheless, it is clear that all TREPI would be effective to different degrees in offsetting any commercial distortions which do arise. Their use in this way, however, must be severely restrained at this time because it is not yet possible to un-bundle the environmental effects from other effects.

Fourth, TREPI could be used in the furtherance of environmentally sustainable development. Again, all TREPI would be to differing degrees

---

see especially Part 2.

effective. Domestic TREPI, however, are shown to be preferable to border TREPI. Moreover it is important to recall that environmentally sustainable development can be advanced either by the implementation or the removal of trade measures.

CHAPTER FIVE

THE THIRD TEST OF LEGITIMACY

The taxonomy in Chapter 3 emphasised the jurisdictional issues an authority should consider before employing TREPI for environmental purposes, and disclosed a first test of when the use of TREPI may be considered to be appropriate. In Chapter 4, this was followed by a discussion of a second test: whether the TREPI would be an effective instrument. But whether in any particular case TREPI should be used requires a third test of legitimacy: is the TREPI the least-cost effective alternative that is available?

In determining whether or not a policy option is the least-cost option, it is crucial whether that policy option would have a direct effect on to the issue of concern. If the policy option is only indirectly effective it can be expected to incur greater costs than would an option that had a direct effect. Here then, we are interested in whether the TREPI is being used to address a problem caused by international trade itself, or whether trade measures are being proposed to address a problem originating elsewhere. If the problem is with international trade itself, TREPI can be

considered optimal policy instruments; lower cost equally effective alternatives probably do not exist.

In the last chapter we saw that integral TREPI were employed in response to problems which would not exist in the absence of international trade, or where international trade was an important contributing aspect of the problem. There were three instances of this. First, where the product itself is of concern, international trade is the means by which the offending product arrives in the jurisdiction of the affected authority. Second, where it is the use of the product, again international trade is the means by which the offending product arrives in the jurisdiction of the affected authority. Finally, in the case of certain production-related environmental problems, although other factors may also be at play, international trade is demonstrably a significant contributing factor. In this latter case, however, where there is a single source of the product, trade measures are likely to be inferior to domestic measures, and where alternate sources of the product are available only import restrictions to curtail trans-shipments of unsustainably produced product would be useful. Accordingly, in the first two instances where trade is the proximate cause of the problem at hand, we may assume that TREPI are least-cost effective available alternatives and should be considered to be legitimate. In the third case, while trade is seen to be an important contributing factor, alternate, more effective domestic policy options to improve the management of the affected resource may be available. Indeed, trade measures could be counterproductive and so should be considered with the utmost caution.

Where the international trading system is not the proximate cause of the problem at hand the use of TREPI would also be legitimate if it was the only effective option available or if it was shown to be the least-cost of

the available options. The discussion in the last chapter suggested two instances were this may be the case: multilateral sanctions and sustainable welfare maximisation.

If all nation-states agreed to the use of trade measures as multilateral sanctions within a universally subscribed international environment agreement it can reasonably be assumed that they are the least-cost effective available option; that the collective benefits outweigh the individual costs. If the agreement enjoys less than universal subscription, costs imposed on non-signatories may out-weigh the benefits gained. The use of TREPI as multilateral sanctions may, however, be the only effective option available for the implementation of the international environmental agreement. In such a case, and provided they adhere to a number of principles, they should be considered legitimate. These principles will be discussed later in this Chapter. In Chapter 7 they will be considered again in more detail, as will the issue of multilateral environmental agreements.

Where import restrictions are legitimately imposed as sanctions, financial import restrictions should be preferred to quantitative import restrictions for at least two reasons. First, quantitative import restrictions provide economic rents for quota holders and, as such, generate financial transfers from domestic consumers to foreign producers. In the case of financial import restrictions, such as tariffs, the resulting financial transfers from domestic consumers remain in the domestic economy. A second concern with quantitative import restrictions is they tend to increase the market power of domestic producers by reducing the competition in the domestic market. In the extreme case where there is only one domestic producer and imports are prohibited a competitive market would be transformed into a monopolistic one with the possibility of reduced

production at higher prices. For these reasons, financial import restrictions are preferable to quantitative import restrictions.

We also saw in the last chapter that the application or withdrawal of TREPI in the furtherance of sustainable welfare maximisation would be effective, although a clear preference for domestic measures was shown. The use of border-TREPI for this purpose, as well as being less effective than domestic measures, is unlikely to be the least-cost option since they would normally have only indirect effects on the environmental concern. In cases where the domestic measures would otherwise be subverted by imports, however, border measures may be a necessary supplement.

Regarding domestic measures, taxes are usually to be preferred to subsidies. This is because taxes are more likely than subsidies to be passed on to the ultimate consumer, and so advance the Polluter Pays Principle (see Chapter 8). As a result taxes can be expected to be more effective environmental policy instruments than subsidies. Furthermore, it is not a small consideration that domestic taxes are normally less subject to international dispute than subsidies.[26] We can conclude, therefore, that sustainable welfare maximisation may legitimately be furthered by the use of domestic taxes and, to a lesser extent, by domestic subsidies. Otherwise, while individual exceptions may exist, the use of TREPI for the furtherance of sustainable welfare maximisation should not be approved of.

Significant concerns have already been raised in the last chapter about the potential costs of using TREPI to address the commercial effects of environmental regulations. It can be concluded, therefore, that

---

26 Except when the domestic tax is seen to be inadequate or otherwise less than like taxes imposed in other jurisdictions, and so is seen to be providing a subsidy.

only in the case of integral TREPI for consumption-related issues and possibly with the use of TREPI as multilateral sanctions are the conditions of the third test normally met and their use legitimate. The use of domestic measures, especially taxes, to further sustainable welfare may also meet the conditions of the third test, but normally not border-TREPI.

In all cases, and certainly where a priori generalisations are difficult, policy-makers should adhere to a number of governing principles. Three such principles are particularly important.

The first principle which should inform policy making is that of transparency.

It is vitally important that both the establishment and enforcement of environmental standards be fully transparent. This means the full public disclosure of all aspects of the environmental standards establishment process, together with an independent determination of the legitimacy, including both the costs and the benefits, of those standards. Development of the maximum degree of transparency is of considerable importance not least because when establishing either production-related or consumption-related environmental standards local producers or consumers will tend to have an advantage. This advantage arises from their better knowledge of and access to the regulatory authorities who, in turn, may for political or other reasons tend to establish standards in such a way as to minimise any adverse effects on the local producers or consumers. While this is probably unavoidable, foreign competitors or consumers may be, or consider themselves to be, adversely affected as a result. Therefore it is important that unnecessary and avoidable international trade friction be kept to a minimum by, amongst other things,

establishing the greatest possible degree of transparency in the standards establishment and enforcement processes.

Fully transparent environmental standards provide third parties with the opportunity to become acquainted with new standards at an early stage and, as a result, they have the opportunity to try to change those standards. This has the effect of developing a sense of trust and credibility regarding the new standards. In addition, it can be expected that the number of disputes about those standards will be fewer than otherwise.

While it is important that the environmental standards establishment process be as transparent as possible, it is also important that the standards established conform to two further principles: proportionality, and non-discrimination.

The second principle which should guide policy makers is that of proportionality. If an option would be effective, would it be proportional to the intended objective? Are alternative or less disruptive means of achieving the same ends available?

There are two ways of considering the principle of proportionality. The first focuses on the environmental standard itself. In this we wish to know whether or not the standard is unnecessarily high in light of the costs which will be incurred in attaining it. Clearly this could only be addressed fully on a case by case basis, in light of the particular circumstances. Nonetheless some guidance as to the what an "appropriate" level for an environmental standard might be was provided in Chapter 2.

The second application of the proportionality principle is to the implementation of the particular environmental standard. In this we are interested in whether the means chosen for attaining the standard is the least disruptive available. Although in practice the individual circumstances of the issue being addressed are critical to deciding whether a less disruptive measure is available the discussion on ranking of TREPI earlier in this Chapter provides assistance. As well, in Chapter 7, we consider some practical applications of the proportionality principle to a number of GATT provisions.

The third of the principles is the central GATT principle of non-discrimination.

If the environmental effects causing concern occur largely within the jurisdiction of the authority implementing the TREPI there may appear to be a strong argument in support of the legitimacy of the use of the TREPI. But such measures can readily be used to disguise protectionist actions. In the Canadian province of Ontario, for example, the legitimate environmental objective of achieving a given level of recycling of beer bottles was pursued by the implementation of a 10 cent surtax on imported US beer (which is sold almost exclusively in cans), thereby continuing the long-standing and much disputed government policy of protecting the provincial beer industry. It will be important that any allowance for these TREPI be counterbalanced by an obligation to employ in a non-discriminatory manner the least trade restricting measures necessary to achieve the desired environmental objective. To do otherwise would be to give rise to unnecessary and provocative economic costs falling on others, and so give them the right to respond appropriately.

The two main provisions in international trade agreements to ensure non-discriminatory behaviour are the "most favoured nation" (MFN) clause, and "national treatment". Both of these provisions are core principles of the GATT and will be discussed in detail in Chapter 7. Therefore, a very brief explanation will suffice here.

MFN: Essentially this requires that the goods and services of any foreign state must be treated at least as favourably as those of any other state. There are two types of MFN obligation: under conditional MFN a privilege is granted only in connection with the granting of a reciprocal privilege; unconditional MFN, by contrast, requires that a privilege granted to one party is granted to all other parties without receiving a reciprocal privilege.[27]

national treatment: The second principle of non-discrimination is that of national treatment. While the MFN obligation requires equality of treatment between other nations, the national treatment obligation requires that imported goods, once they have cleared customs and other border procedures, must be treated no worse than domestic goods are treated. Provision of national treatment serves to prevent the application of domestic taxes and regulatory policies as covert protectionist measures.

Conclusions

We have concluded that the use of integral TREPI would be legitimate for consumption-related environmental concerns, as would the use of TREPI as multilateral sanctions, and the application of domestic taxes and, to a lesser extent subsidies, to further sustainable

---

27 For a fuller discussion of the MFN obligation see Jackson (1989), pp.136-140.

development. We have also reviewed briefly three principles by which the probability that a measure will be the least cost and least disruptive alternative available is increased: that its development and provisions are fully transparent; that it is proportional to the problem being addressed, both as to its purpose and the means of attaining that purpose; and that it is not applied in a discriminatory way.

CHAPTER SIX

THE LEGITIMACY TESTS IN PRACTICE

Having described the three-stage legitimacy test it will be useful to illustrate how it could work in practice. Three case studies will be examined. The first case study will look briefly at where integral TREPI were proposed and the second where TREPI were proposed as sanctions. As these two cases are based on actual trade disputes they rely on the arguments and empirical evidence contained in the relevant GATT panel reports and press reports. As such, they are relatively brief.

The final case will provide a more extended empirical analysis of the proposed use of TREPI for commercial reasons: where environmental and animal welfare regulations have led to increased calls by UK farmers for countervailing trade restrictions. With agricultural products accounting for 12% of international trade in goods yet the focus of nearly half of all international trade disputes, and given agriculture's special relationship with the natural environment, it is notable that no empirical research has been done on the commercial effect of environmental regulation on agriculture. The results presented here thus seek to make a further

contribution to the debate over the relationship between trade and the environment.

In each of the three cases we will first describe the issue and then examine it in terms of the three legitimacy tests.

Case 1: Thai Cigarettes - Integral TREPI

Issue: Under the terms of its 1966 Tobacco Act, Thailand prohibited the import of cigarettes without a licence. Since 1966, import licences had been issued only three times: in 1968-70, 1976 and 1980. In addition to what became an effective import ban, the Government of Thailand also imposed discriminatory internal taxes on foreign cigarettes. In their defence, Thailand claimed the need to protect the health of its citizens; their actions were designed to reduce the quantity of cigarettes consumed and, because they believed the additives in foreign (primarily American) cigarettes made them more harmful, to improve their quality.

In 1989 the United States objected that Thailand's actions were contrary to GATT obligations and requested a dispute settlement panel to examine the matter in light of the provisions of the GATT. The panel found in favour of the United States and their report was adopted in November 1990.[28]

First Test: Is the authority materially affected by what it proposes to act toward?

Quite clearly the aim of Government of Thailand to curtail cigarette consumption passes this test. The state of public health is indisputably a

---

28 For a complete description of this case, see the Report of the Panel in GATT (1991b).

matter of considerable importance to the public authorities and it is now widely accepted that cigarette consumption is injurious to health. As to the matter of the quality of the cigarettes, Thailand's assertion that the particular additives contained in imported cigarettes make them more harmful than domestic cigarettes would require supporting scientific evidence. While no unequivocal evidence was made available to the GATT dispute panellists, it was noted that both the World Health Organisation and the American Health Foundation had expressed concerns about additives used in American cigarettes. It is reasonable to expect one authority to exercise more caution than another about possible adverse health effects; demands for unequivocal, universally accepted evidence of harmfulness should not be made a barrier to prudent action by a responsible government. Accordingly it would be legitimate for that authority to act to protect its citizens against such effects.

Second Test: Would the proposed action be effective?

Since the Government of Thailand unilaterally revoked the discriminatory internal taxes, we will test only the legitimacy of the import restrictions. The question then becomes whether the import restriction would be an effective way of reducing cigarette consumption and of increasing the quality of cigarettes.

A restriction on imported cigarettes cannot be expected to reduce cigarette use if domestic production is not also restrained. Rather consumers will simply switch to the domestically made cigarettes. Therefore, the import ban is not an effective way of reducing cigarette consumption and, therefore, not a legitimate action. However, an import restriction could be an effective way of improving the quality of cigarettes

consumed if the imported ones contain harmful additives which are not in the domestic ones, as was alleged in this case.

Third Test: Is the TREPI the least-cost effective option?

Because the trade restriction affects all foreign cigarettes rather than only those that contain the additives of concern, it is not a least-cost effective option. To pass this test, the trade restriction would need to affect only those cigarettes that contained the specified additives.

Conclusion: The import restrictions imposed by the Government of Thailand are not legitimate. In the absence of appropriate domestic production restraints, an import restriction to control the quantity of cigarettes consumed fails the second legitimacy test, and because it would affect all foreign cigarettes rather than just those containing the additives of concern, it fails the third legitimacy test.

Alternately, it can be suggested that an import restriction that was imposed together with domestic production restraints, and a ban on the import of cigarettes containing additives scientifically shown to be harmful would be legitimate means of addressing the public health concerns about smoking.[29]

Case 2: Leg-hold Furs - TREPI as Sanctions

Issue: The European Community proposed an import ban on furs from wild animals caught with leg-hold traps, claiming that such methods

---

29 Very similar issues to those in the Thailand Cigarettes case were at stake in the beef hormone dispute between the US and the European Union, and the same conclusions would be reached in applying the three-part legitimacy test. For an excellent description of this dispute see Vogel (1995). This WTO Dispute Settlement Panel Report is available at the WTO website: http://www.wto.org.

are cruel and inhumane. Canada and the United States have objected to the measure and consultations have been ongoing with a view to resolving the dispute. No formal dispute settlement has yet taken place.

First Test: Is the authority materially affected by what it proposes to act toward?

Any suffering that the European Community claims to wish to avert occurs outside of its jurisdiction and as such it is not materially affected by what it proposes to act toward. For this reason its proposed measure would fail the first legitimacy test. If the European Community could demonstrate unequivocally that it is motivated by "moral outrage" it may then be accepted that it is, in that sense, materially affected. No such demonstration has yet been made.

Second Test: Would the proposed action be effective?

As argued in Chapter 4, it is not usually the case that trade restrictions are effective means of inducing a change in the behaviour of others. As "acceptable" alternative trapping methods have not yet been developed, the loss of the important European market would most likely depress fur prices. This would cause considerable hardship for trappers, who are normally very poor people with no alternative source of income. While the European Community is a major market for furs, other significant markets exist, however, so a European import ban might not in itself stop the practice that it was supposed to stop. In the event both Canada and the US indicated their intention to phase out the use of leg-hold traps. The role played by the threatened European ban, however, remains uncertain. If it was found to have played a role in causing the

phasing out of leg-hold traps it has taken a long time to bring about that effect.

Third Test: Is the TREPI the least-cost effective option?

Assuming that the threatened ban was the main reason for the US and Canada phasing out the use of leg-hold traps, it would not be the least-cost effective option. If the European position was really based on solid ethical foundations reflecting domestic popular opinion, a fur labelling system would be sufficient, perhaps in conjunction with a public information campaign. The expression of moral preferences is more properly the right of individuals, not of governments. As well, international negotiation and assisting with the development of alternative "humane" trapping methods would be a better means of achieving the aim of reducing the suffering of trapped animals, while avoiding causing avoidable hardship to poor and economically vulnerable trappers.

Conclusion: While the threatened import ban may have played a role in bringing about the phase-out of leg-hold traps by Canada and the US, it failed the other two legitimacy tests. Recalling that before a TREPI can be considered legitimate it must pass all three tests, the proposed European import ban on furs caught with leg-hold traps must be seen as illegitimate.

Case 3: The Effect of Environmental and Animal Welfare Regulations on the Competitiveness of UK Agriculture - Commercial TREPI

Issue:

Farmers, like other businessmen, will often complain about regulations. Many of them, they will argue, are unnecessary; many impair their competitive position. The central complaint is almost always that the regulations impose unwarranted or anti-competitive costs on their industry. More recently regulations to achieve environmental and animal welfare objectives have come in for particular criticism from UK agriculture for imposing burdensome costs "that our competitors don't have to bear". As a result, calls are made for the imposition of import restrictions to counter the perceived competitive unfairness.

First Test: Is the authority materially affected by what it proposes to act toward?

This is a rapidly developing situation, with new regulations being proposed every year. For example, new regulations affecting the size of battery cages are expected in 1998. Accordingly, this analysis focuses only on the main existing regulations, as at the end of 1997, that are estimated to have the largest individual commercial impact.

To help identify all of the UK and implemented EU regulations currently affecting UK farmers, a preliminary list was compiled from the data base at the Cabinet Office's Regulation Unit. This list was cross-referenced and augmented by research in the MAFF and House of Commons Libraries

of all regulations since 1993. This latter research was particularly important because since 1993 all proposed regulations have had to be accompanied by a Compliance Cost Assessment (CCA) providing an analysis and estimates of the commercial impact of the proposed regulation on the affected industry. The estimates in these CCAs were, whenever possible, developed on the basis of information and advice provided by the industry concerned. A total of 224 regulations were identified dating back to 1925. Of these, 160, or over 70%, were since 1993 and required the completion of a CCA.

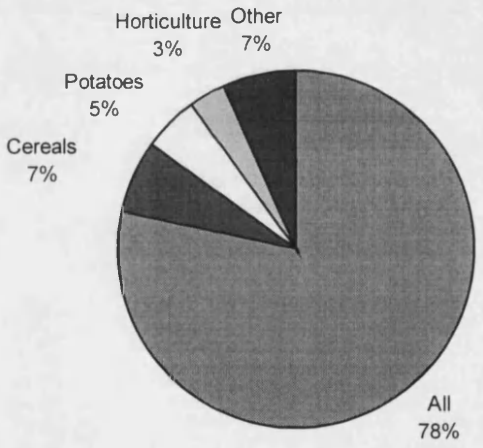
The regulations were first grouped into six categories according to the primary objective of the regulation: disease control, animal health, food safety, animal welfare, environment and other. *Disease control* includes all those that aim to contain and control the spread of disease in farm animals. *Animal health* includes those that are directed at ensuring the maintenance of the health of farm animals. *Food safety* regulations are those aimed at ensuring that harvested products or the meat of slaughtered animals are safe for human consumption. *Animal welfare* regulations aim to ensure that the treatment of farm animals meets certain standards of animal husbandry, including freedom from unnecessary suffering or abuse. *Environmental* regulations are those concerned with the protection or maintenance of the natural, physical surroundings within which the farmer operates. The *Other* category contains those regulations which did not fit any of the preceding categories. Almost entirely these relate to the maintenance of quality standards of seeds, the regulation of seed varieties or to plant-breeders' rights.

Next the regulations were grouped according to whether they would affect the arable/horticulture sector, the livestock sector or both. In turn, the

arable/horticulture sector was subdivided into five types: cereals, potatoes, horticulture, all arable and horticulture, and other. The livestock sector was subdivided into seven types: all cattle, dairy cows, pigs, poultry, sheep and goats, all livestock, and other.

Although with some of the regulations a degree of subjectivity was necessary to classify them, it appears that some 83% of regulations apply to the livestock sector while 27% apply to arable/horticulture[30]. Figure 1 shows the subsectors of arable/horticulture that are affected by regulation. Some 78% of these regulations are applicable to all arable and horticulture.

Figure 2: UK Agricultural Regulations by Sector - Arable/Horticulture

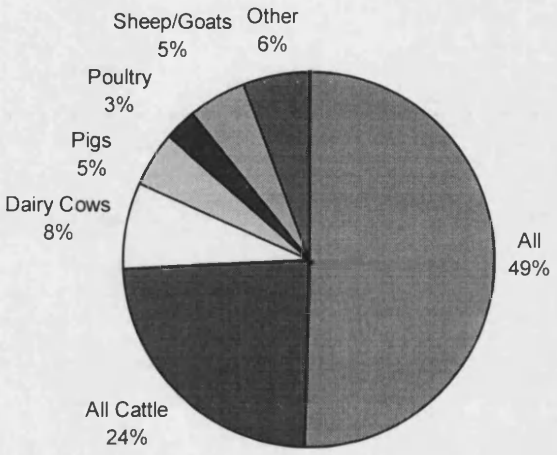


1

Similarly with livestock. Figure 2 shows that half of all livestock regulations affect the whole livestock sector, while those specifically affecting

30 Twenty-one regulations apply to both livestock and arable/horticulture.

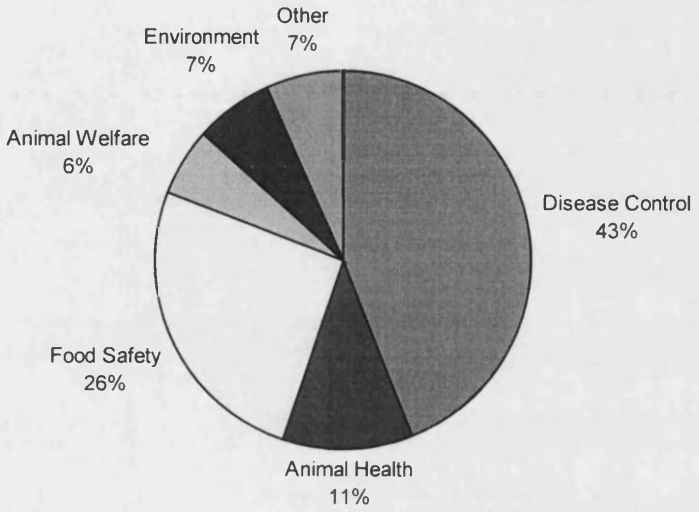
Figure 3: UK Agricultural Regulations by Sector - Livestock



All Cattle and Dairy Cows account for an additional 32%. This figure includes 24 regulations relating to BSE. If BSE-related regulations are excluded the number falls to 20%.

Figure 3 shows the distribution of UK agricultural regulation according to objective. As can be seen, over half of all regulations are there to help protect the industry from crop or livestock disease. A further quarter are aimed at protecting the human food supply. Together with the small number of "Other" regulations covering mainly issues regarding seed quality, it is apparent that over 85% of all regulation affecting UK agriculture are providing essential services to farmers that would or could not be provided by the private sector alone.

Figure 4: UK Agricultural Regulations by Objective



The final two main categories of regulatory objectives are Environmental and Animal Welfare. These account for 7% and 6% respectively. Of these 29 regulations, 21 were implemented since 1993 and had CCAs completed.

Environmental Regulations: There are 16 agricultural regulations that have environmental protection as their main objective, seven of which affect the whole of agriculture. A further six affect primarily livestock.

Of these 16 regulations, all but four either have little or no direct commercial impact, have effects that are primarily downstream of the farm, or entail cross-compliance requirements. The downstream industries affected include fertiliser manufacturers and developers of novel foods. The four

regulations containing cross-compliance requirements relate to the Beef Special Premium, Suckler Cow Premium, Sheep Annual Premium, and the HLCA. Certainly these cross-compliance requirements can entail costs for producers. However, it can be assumed that such costs will be less than the value of the subsidy, otherwise the producer would not claim it.

There are three environmental regulations that the CCA estimates indicate may have a direct, commercially significant effect on UK farmers.

It must be emphasised that the figures provided by the CCAs are averages only; some farm businesses will see a smaller impact, while others will suffer larger costs. Similarly, it is not possible to evaluate whether these regulations affect all the same farms or different ones. Most likely there will be some overlap. Regardless, a sense of proportion can be deduced from the available figures.

Table 2: The Crop (Residues) Burning Regulations	
	Arable
Total Sectoral Output,1996 - £ millions	3042
Estimated Sectoral Impact[31] - £ '000	14,000
Number of Affected Holdings, 1996	31,600
Percent of Total Holdings	40%
Value of Affected Output - £ millions	1217
Percent of Total Sectoral Output	40%
Estimated Affected Net Farm Income[32] - £ millions	267.62
Impact as Percent of Total Sectoral Output	0. 46%
Impact as Percent of Affected Output	1.15%
Impact as Percent of Est. Net Farm Income	5.2%
Average Impact per Holding - £	443

a.) **The Crop (Residues) Burning Regulations** aim to improve air quality by restricting the traditional agricultural practice of burning post-harvest crop residues. Effective since 1992, they affect mainly the arable sector. Assuming average conditions on heavy soil, for cereals they have an estimated industry-wide impact of £14 million.

---

31 The estimated sectoral impact assumes that non-recurring costs are depreciated over 10 years. Accordingly, the recurring costs are added to one-tenth of the non-recurring costs to get the figure used.

32 Estimated net farm income was derived by taking the ratio of the relevant total farm output values and net farm incomes published by MAFF in the annual Farm Business Survey. This was done for each of the years1994/5, 1995/6 and 1996/7, and the average was then taken. The resulting average ratio was then applied to the relevant affected sectoral output figures.

b.) **The Nitrates Directive** restricts emissions of nitrates in designated nitrate-vulnerable zones (NVZ). It affects most livestock

Table 3: Nitrates Directive				
	Poultry	Pigs	Beef	Dairy
Total Sectoral Output, 1996 £ millions	1934	1316	1962	3514
Estimated Sectoral Impact[33] - £ '000	360	1686	134	1910
Number of Affected Holdings, 1996	235	555	422	310
Percent of Total Holdings	0.78%	2.9%	0.6%	0.8%
Value of Affected Output - £ millions	135	132	24	95
Percent of Total Sectoral Output	7%	10%	1%	1%
Estimated Affected Net Farm Income[34] - £ millions	15	15	3	20
Impact as Percent of Total Sectoral Output	0.02%	0.13%	0.01%	0.05%
Impact as Percent of Affected Output	0.3%	1.3%	0.6%	2.0%
Impact as Percent of Est. Net Farm Income	2.4 %	11.3%	4.5%	9.6%
Average Impact per Holding - £	1532	3038	317	6161

producers whose farms are in an NVZ. In the dairy sector 310 of the 574 farms in NVZs are expected to incur an annual cost of £1,910,000 or an

33 See footnote 30.

34 See footnote 31.

average of £6161 each. In the beef sector 422 of the 713 farms in NVZs are expected to incur additional annual costs of £134,000 or an average of £317 each. In the pigs sector, estimated annual costs are approximately £1,686,000 or an average of £3038 per farm. Similarly in the poultry sector operations in NVZs are expected to incur total compliance costs of £360,000 or £1,532 each. Arable producers are also affected although the directive

Table 4: IPPC

	Poultry	Pigs
Total Sectoral Output, 1996 £ millions	1934	1316
Estimated Sectoral Impact[35] - £ millions	6	5
Number of Affected Holdings, 1996	539	435
Percent of Total Holdings	2%	2%
Value of Affected Output - £ millions	1162	514
Percent of Total Sectoral Output	60%	39%
Estimated Affected Net Farm Income[36] - , millions	130	58
Impact as Percent of Total Sectoral Output	0.3%	0.4%
Impact as Percent of Affected Output	0.5%	1.0%
Impact as Percent of Est. Net Farm Income	4.6%	8.6%
Average Impact per Holding - £	10853	12110

35 See footnote 30.

36 See footnote 31.

only restricts the use of inorganic fertilisers to the amount necessary to meet crop requirements. Therefore, applications in excess of this would be uneconomic. As a result, arable farmers with good agricultural practices will not be significantly affected.

c.) **The Integrated Pollution Control Directive** (IPPC) aims to reduce pollution arising from agriculture. It affects mainly large intensive pig and poultry operations[37].

In the pigs sector total compliance costs are £5,268,460. Breeding operations would incur costs of £5150 per farm, while finishing operations would incur costs of £12,950 per farm. Similarly in the poultry sector total compliance costs for layers are £4,130,441 or £12,650 per farm, while total costs for broilers are £1,720,660 or £14,400 per farm.

Animal Welfare Regulations: Of the 13 regulations, four were from before 1993 and so did not have CCAs done. However, all would have had only indirect or downstream effects on farmers. Of those brought in since 1993, four regulations were found to have either nil or negligible commercial effects, while a further four had only downstream effects. That left only one regulation, the Welfare of Livestock Regulations, that has a CCA showing a significant direct commercial impact on farmers.

The Welfare of Livestock Regulations affect mainly three types of livestock: calves, poultry, and pigs. As to calves, these regulations re-enact the 1987 Welfare of Calves Regulations that effectively banned the use of "veal crates", and set out minimum space allowances for group housed calves. These minimum space allowances are effective immediately for new installations and to all others from 2004. Accordingly,

they will not have any significant commercial effect on existing calf operations at this time.

Table 5: The Welfare of Livestock Regulations		
	Laying Hens	Pigs
Total Sectoral Output 1996 £ millions	437	1316
Estimated Sectoral Impact[38] - £ millions	16.7	7.9
Number of Affected Holdings, 1996	750	4000
Percent of Total Holdings	2.7%	41%
Value of Affected Output - £ millions	387	1250
Percent of Total Sectoral Output	91%	95%
Estimated Affected Net Farm Income[39] - £millions	43.5	140
Impact as Percent of Total Sectoral Output	3.8%	0.6%
Impact as Percent of Affected Output	4.2%	0.63%
Impact as Percent of Est. Net Farm Income	38.4%	5.6%
Average Impact per Holding - £	22,267	1975

Since 1987 newly installed or renovated battery cages have been subject to construction and size requirements laid out in the Welfare of Battery Hens Regulations. Effective 1 January 1995, under the Welfare of

---

37 The Directive applies only to operations above certain size thresholds. These are 750 breeding sows, 2,000 finishing pigs of over 30 kg live-weight and/or 40,000 poultry places.

38 See footnote 30.

39 See footnote 31.

Livestock Regulations these requirements will apply to all cages. There were approximately 27,782 laying flocks in the UK in 1995, of which only the 750 battery cage flocks that account for 91% of total UK production are affected. With a total annual cost to the industry of an estimated £16.7 million, which means an average cost of £22,267 per affected flock.

With regard to pigs, these regulations re-enact the Welfare of Pigs Regulations 1991 that phase out by 1 January 1999 the use of tethers and close confinement systems, and implement an EC Directive regarding minimum space allowances applicable to all holdings from 1 January 1998. The total industry cost of these requirements is about £7.9 million, or an average of £1,975 for each of the estimated 4,000 affected holdings.

Conclusions: As we saw earlier in this part, the bulk of regulation directly affecting UK agriculture provides positive benefits to the industry by ensuring the delivery of commercially valuable services that would not otherwise be available. Of those few regulations affecting the agricultural industry whose main objective is the protection and maintenance of the natural environment or animal welfare, the total impact on the industry as a percentage of the total sectoral output is, with only one exception, less than 0.6%. When we look at the effect of the regulations as a percentage of affected output, again with one exception, the figures do not rise to significant levels. The exception in both cases is that of the effect of the Welfare of Livestock regulations on laying hen operations. Unfortunately the statistics available on the egg sector are particularly unreliable due to the very high level of concentration in the industry.

Of greatest general significance are the effects of the regulations as a percentage of estimated net farm income. Some qualifying remarks need to be made however.

The effects of two of the three *environmental* regulations, as a percentage of estimated net farm income, are significant. While in both cases the impact of the regulations is very small at the industry level, with the IPPC the impact also represents a substantial proportion of total sectoral output. With the *animal welfare* regulations the impact as a percentage of estimated net farm income is most significant with laying hen operations. However, this is because net farm income is extremely low. The actual average impact per laying hen flock is about £22,267. In the case of pigs the impact is £1,975, or 5.6% of estimated net farm income.

It should to be re-emphasised that these results are based on averages; there is an undetermined range of individual experience around the average. For example, the examples given in Appendix 2 of the CCA for the Welfare of Livestock Regulations (1994) all estimate costs for individual operations that are significantly higher than that given in Table 5. Even with those regulations that have small estimated effects, for some operations the actual effects may be severe. Moreover, we have only considered the current regulations that are estimated to have the largest individual commercial impact. Certainly regulations in combination could also pose significant cumulative costs. Such combinations of regulations would vary with different circumstances and so have not been considered here. Importantly, it is also likely that the burden of environmental and animal welfare regulations will grow over the coming years. As that happens these results will be superseded. Finally, it should also be recalled

that the estimates used, while developed with input from the affected industry, are those of the government department responsible for implementing the regulations concerned. As such they may tend to understate the actual commercial impact.

While the range of actual experience and possible future increases in environmental regulation were not considered, neither were the competitive advantages that increasingly accrue to those meeting the highest standards. There are two main advantages. First, it is sometimes the case that higher environmental standards are met by adopting production methods that are more efficient in their total use of resources, thus delivering net savings for the producer. Second, as the development of product traceability and Farm Assurance programmes suggests, the application of high environmental and animal welfare standards can deliver initial competitive advantages in marketing of food products, both by differentiating products and by attracting price premia. Unfortunately, as such standards are codified by regulation, increasingly they become base-line requirements and the price premia are eroded. Provided the pace of new regulations is not too great, while the price premia decline they provide a degree of assistance with adjusting to the new standards. Clearly appropriate labelling requirements would help to maximise the extent and longevity of these premia.

Although in most cases the regulations considered in this analysis do not have a significant effect at the industry level, certainly intensive production systems, and egg producers in particular, appear to carry the largest costs. With further legislation affecting battery hen operations imminent, and pressures continuing for yet higher environmental and animal welfare standards, these costs can be expected to increase. To the

extent that these regulations, or their equivalents, are implemented equally throughout Europe, any competitive disadvantage that they might entail is reduced. Non-EU imports, however, especially to the growing catering trade where the lowest price is often the most important selling feature, may be able to increase their market share at the expense of domestic producers.

Second Test: Would the proposed action be effective?

Certainly international trade restrictions on products produced to lower standards would be an effective way of off-setting the commercial disadvantages that would otherwise arise.

Third Test: Is the TREPI the least-cost effective option?

Although certain producers will no doubt suffer commercial disadvantages from the regulations considered in this analysis, at the industry level the effects appear to be generally insignificant at this time. Accordingly, while import restrictions would help offset competitive disadvantages due to environmental or animal welfare regulations, if they were generally permitted producers would also find that their access to international markets was increasingly restricted. The costs would quickly exceed the benefits, and the net effect would be that everyone would be less well off.

Are there any other effective options? Obviously one option is to fight the implementation of the regulations in the first place. The growing

strength of the constituency behind these regulations, however, suggests that there is little reason to think that such a strategy on its own would be successful. Appropriate government action at the domestic level provides another alternative. For example, accelerated depreciation rates and other forms of tax assistance could help defray the additional costs that environmental and animal welfare regulations impose on producers. Similarly direct payments could be made for achieving particular environmental objectives. Certainly, international trade law recognises the legitimacy of government assistance to producers, within limits, for meeting the costs of conforming to environmental standards. It may be possible to have this facility improved upon, and widened to include animal welfare standards as well.

Finally, if they are to accept higher environmental and animal welfare regulations, producers must be able to label their products appropriately so that consumers can express their preferences more fully. If governments require producers to use particular production methods, whether to meet environmental or animal welfare standards, and to compete against imports produced to cheaper standards, producers must be allowed to capture all of the commercial advantages available. This includes especially the additional price premia that consumers will pay for properly labelled differentiated goods. With a proper labelling system, farmers will be better able to adopt profitably new production systems and differentiate their products for domestic consumers from the commodity products that dominate internationally traded goods.

Conclusion:

The use of import restrictions to offset the commercial effects on UK agriculture arising from environmental and animal welfare regulations would not be legitimate at this time. They would be disproportionate, and alternative, lower cost effective options are available. It is entirely conceivable, however, that more substantial differences could arise, and the resulting commercial effects would then be larger. A facility for the use of trade restrictions may then be needed. In this event, for reasons discussed in the last chapter, financial border measures are the preferred option of economists.

CHAPTER SEVEN

INTERNATIONAL TRADE LIBERALISATION AND THE ENVIRONMENT: AN EXAMINATION IN THREE PARTS

Before proceeding to examine the compatibility of the GATT and the legitimate use of TREPI, it may be useful first to consider the interactions between international trade liberalisation and the environment by considering the composition of trade, systemic and intervention effects, and the effects of economic growth. An examination of these interactions is of interest and relevance to this thesis because international trade liberalisation is the raison d'être of the GATT, and many of them can be quite significant.

PART 1

Composition of Trade

Perhaps the simplest way of looking at the effects of international trade liberalisation on the environment is to look at the content of trade.

On the one hand, the world-wide market for environmental protection technologies has been estimated by the OECD at $250 billion. This is expected to double over the course of the next 5 to 10 years. Clearly to the extent that the international trading system facilitates the development and transmission of such technologies environmental benefits can be expected to accrue. For example, trade policies regarding investment measures and the protection of intellectual property rights will affect the development and transfer of environmental technologies appropriate to the needs and conditions of much of the developing world. These types of trade policies would have mainly an indirect effect on environmental problems, and so, as was argued in the last chapter, they should not be implemented as environmental policy measures.

International trade is also conducted in hazardous and toxic materials, and in endangered species. In such cases trade is integral to environmental problems and so, as argued in the last chapter, trade measures could legitimately have a role as environmental policy instruments.

PART 2

Systemic and Intervention Effects

A second way of looking at the effects of international trade relations on the environment is to divide them into two primary types: systemic effects and intervention effects. Systemic effects arise from the existence and functioning of the international trading system. Essentially

they are the product of individual private interactions, and are seen to result from market failures. Intervention effects, by contrast, are a consequence of public policy measures.

Systemic Effects

The importance of markets to environmental efficiency is demonstrated by comparing the relative performance of market economies with those of the former Eastern bloc where resources were allocated according to central plans. In 1983 energy use per unit of GDP in Hungary and Romania was more than twice that of the United States and nearly five times that of France and Sweden (World Resources 1986, Table 8.2, pp. 292-3). Similarly, sulphur dioxide emissions per unit of GNP in 1982 were 40 times as high in Czechoslovakia, and 35 times as high in East Germany, as they were in Japan (Chandler 1987, Table 10-3, p. 187)[40]. During the mid-1980s, although the Soviet Union was the world's largest producer of steel, it was nearly last in terms of the energy efficiency of that production, using 31 gigajoules of energy per ton compared to the 19 gigajoules per ton used in Japan (ibid., p.183).

Although the operation of markets can be understood to be a primary influence, in part these differences in resource-use efficiency are also explained by the efficiency of the capital employed and by the level of development (ibid., pp. 182-3). We know, for example, that while the developing countries have the lowest carbon emissions per capita they have the highest per unit of GDP (Grubb, 1992, p.17). Similarly with agriculture, in 1985 the average grain yield in tons per hectare in the Soviet Union was 1.6, the same as Pakistan and India. This was a third

40 The Japanese figure is for 1980.

that of the United States (4.8), and only slightly more than one quarter of that of Japan (5.8) (Wolf, 1987, Table 8-2, p.142. See also World Resources 1986, Table 4.4, p.47).

Thus Chandler (1987) is right to argue that "[a] clear demarcation ... exists between market-oriented and centrally planned economies in energy as well as agriculture. Where governments directly control industrial production, energy efficiency is low. Centrally planned economies would probably create more goods and services with a given level of resources if they relied more on markets. But that does not mean that markets alone can keep nations within the bounds of sustainable development" (p.183).

The central and most important feature of markets are prices. But prices are, in principle, just a ratio, in a common unit of account, of the aggregate relative preference between any two goods or services. Therefore, the fundamental difficulty with a reliance on freely operating markets is that the functioning of the environment is independent of human preference while markets are nothing more than reflections of human preferences. Within the limits of environmental capacity, markets alone may well provide for optimal mediation between the many competing human preferences. At the limits of environmental capacity, however, the market on its own does not and cannot be relied upon to reflect all of the relevant variables.

Markets fail, giving rise to international systemic effects, because of their inability to value fully, and the failure of economic actors to internalise fully, all the environmental costs of their activities. It is held that if all the environmental costs of economic activities were valued and

internalised fully the optimal level of environmental consumption would obtain. This is because thereby the marginal external costs and the marginal net private benefits would be equalised.[41] An important purpose of market-based solutions to environmental problems is to correct for these market failures and so facilitate reaching or approximating this equilibrium. Doing so, it is believed, will ensure that economic activities are environmentally sustainable. The OECD's widely accepted "Polluter Pays Principle", for example, is grounded in such a belief.

The other primary advantage of market-based approaches is that they are often the most efficient means of reaching the objective. Whereas "command and control" methods of environmental management impose environmental standards, together with monitoring and enforcement sanctions, market-based approaches modify the incentive structure. Since Adam Smith it has been widely accepted that an objective brought about as a result of private motivation will be at a lower cost than if it were brought about by collective compulsion.

There are two main classes of market-based approaches: open and closed. With the open system the incentive structure is modified, perhaps by levying a consumption tax, but without explicit environmental targets. Bottle deposit schemes and energy taxes would be examples. The closed systems also regulate the incentive structure but do so within explicit environmental targets. Tradable emissions permits and resource extraction quotas are examples. But not all environmental problems can be addressed satisfactorily by incentive structure modification. Under a closed system the required scheme may prove to be complicated and unmanageable, while under an open system a low price elasticity of

---

41 Pearce and Turner (1990) provide a good introduction to this approach in Chapters 4-5.

demand for the product at issue would tend to minimise the resulting behaviour modification. Accordingly, market-based approaches to environmental problems, while necessary, will not be sufficient to ensure that economic activities are environmentally sustainable. To ensure that economic activities respect the capacity of the relevant ecosystem direct public sector interventions will be needed; "command and control" methods will need to supplement and reinforce market-based methods. This will be the case for addressing both the environmental consequences of domestic economic activities as well as those arising from the international economy.

"Command and control" mechanisms are also employed, sometimes inappropriately, as a result of public pressure on authorities to "do something". As well, they may provide a spur to private action. Finally, in some cases, they may prove to be more efficient than market-based mechanisms since collective action is sometimes preferred to private action, especially whenever property rights are not or cannot be ascribed. Accordingly public sector interventions to introduce and facilitate both market-based and "command and control" mechanisms are both necessary and desirable.

Intervention Effects

It should be recognised that the degree of environmental conservation which can be brought about by public interventions may be lessened as a direct result of the existence and functioning of the international trading system. Exporters generating production pollution may seek to minimise the degree to which public interventions constrain their ability to externalise environmental costs. They will argue that this is

necessary to retain or enhance their international competitiveness. Similarly those jurisdictions which establish high consumption pollution standards may face opposition from domestic importers and foreign exporters as a result of the concomitant market access restrictions.

In considering the environmental implications of international trade interventions, it must be recalled that almost all of those currently in place were implemented for economic reasons. Accordingly their environmental consequences are incidental and do not support a conclusion that interventions are necessarily deleterious to the environment. They do nonetheless elucidate some of the ways in which trade policy interventions can affect the environmental sustainability of economic activities. Two such ways are apparent: by affecting the efficiency of the economy, and by affecting the development path of the economy.

i) Efficiency Losses

The ways in which trade policy interventions impair the efficiency of the economy have been well established and described in most international economics textbooks. These are equally applicable whether the intervention is implemented for protectionist reasons, to foster economic development, or for any other purpose. Quantitative and financial border restrictions may be implemented to affect the distribution of production and/or consumption, and have been used extensively in the pursuit of economic development. They were, for example, a crucial element of the increasingly discredited import substitution policies followed by most LDCs over the post-war period, and by the industrialised countries before them, and remain a central feature of the trade policy measures employed by both developed and developing countries alike.

Similarly domestic interventions such as subsidies and taxes distort relative pricing and so diminish the allocative efficiency of the market.

By thus impairing the efficiency of the economy the environmental consumption per unit of output may be greater than otherwise. Export restrictions, for example, on a natural resource, implemented to foster a domestic processing industry and so retain for the domestic economy more value from that resource, may have deleterious environmental consequences. Domestic income may rise as a result of the intervention and so facilitate greater environmental protection measures. However, to the extent that the domestic processors are less efficient than their foreign competitors more natural resources will be extracted per unit of processed output than would have been the case before the export restriction was implemented. Whether or not the marginal increase in revenue available for environmental protection is sufficient to offset the resource use efficiency losses is not susceptible to a priori generalisations. Accordingly, whenever any intervention is to be implemented, an evaluation of both the benefits and the economic efficiency losses resulting from it needs to be undertaken. We shall return to this later.

ii) Development Distortions

It may be argued that a central purpose of international trade policy is to affect the course of the economic development of the participants. It constitutes the "rules of the game", the framework within which international trade takes place. As such it tends to favour the aspirations and interests of the industries with the greatest influence. These will be almost exclusively in the industrialised countries. One main group of these are the industries associated with the early stages of economic

development, including agriculture, and clothing and textiles. These are long established and well organised to protect their interests. Consequently competition from LDCs in these areas is met with a plethora of obstacles to trade. By so frustrating their development interests, the incomes of the LDCs are less than they otherwise would be. Consequently the inefficiencies of environmental consumption associated with the earlier stages of development remain. At the same time resources in the industrialised countries are misallocated to these industries.

Trade policy with respect to the most advanced sectors of the economy also affects the path of economic development and has environmental consequences. Developments regarding the protection of intellectual property rights (IPRs) are a case in point. On the one hand, it can be argued that increasing restraints on the international transmission of intellectual property will affect the ability of LDC industrialists to employ the most efficient technologies available, thus again frustrating their development efforts to the detriment of the environment. Moreover IPR protection may impair both the development and the international transmission of other technologies appropriate to the economic development needs of the LDCs. On the other hand, increased protection for intellectual property may enhance innovation and so foster the development of environmentally benign technologies. Similarly it may be argued that encouraging foreign direct investment will facilitate the international transmission of "best available" technologies.

Tariff escalation by the developed countries presents a further, specific problem. From the perspective of the industrialised countries, tariff escalation serves the dual purpose of facilitating access to supplies

of unprocessed natural resources while skewing the distribution of higher value-added manufacturing and processing towards themselves. Together with the deteriorating terms of trade for unprocessed goods, tariff escalation forces LDCs to ever greater levels of exploitation of their natural resource bases just to maintain a given income, while impairing their ability to develop export-oriented value-added industries. Other import management measures, such as quotas, "voluntary export restraints" (VERs), "orderly marketing arrangements" (OMAs), etc. which are implemented by the industrialised countries, in addition to impairing their own economic efficiency by protecting uncompetitive industries, also frustrate the industrialisation efforts of the LDCs.

As a result, LDCs are "trapped" into exporting mainly raw materials and low value-added goods in ever greater volumes in order to import manufactures from the industrialised countries. This ever deepening development crisis is seen as one of the key causes of environmental degradation in the poorer countries. Thus trade policy interventions, such as tariff escalation and other forms of import management not only impair economic efficiency they also constrain and distort the path of economic development of much of the world.

PART 3

An Examination of Some Effects of Economic Growth

In the view of some analysts liberalised trade relations are an essential prerequisite to environmentally sustainable economic activity.

For others an open multilateral trading system is seen as a threat to proper environmental management. To cast light on this debate this part of the chapter will examine some of the effects of economic growth associated with international trade relations.

Since international trade both facilitates and gives rise to greater economic growth, and since it is widely held that international trade liberalisation is an important source of economic growth, the environmental consequences of liberalised international trade relations can be elucidated by examining the environmental effects of economic growth. Of course many other economic variables also provide sources of economic growth. Similarly, international trade relations have environmental effects other than those associated with economic growth. But the importance of the close interrelationship between international trade relations and economic growth means that many of the important environmental effects of international trade relations are disclosed by analysing the environmental effects of economic growth.

In 1972 concern about the environmental consequences of current economic activities was first highlighted with the publication by the Club of Rome of The Limits To Growth. A central conclusion of this report was that,

> "[i]f the present growth trends in world population, industrialisation, pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years. The most probable result will be a rather sudden and uncontrollable decline in both the population and industrial capacity." (Meadows et al, 1972, p. 23)

Similar views were expressed again in the 1980 US Global Report to the President which concluded that,

> "[i]f present trends continue, the world in 2000 will be more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we live in now. Serious stresses involving population, resources, and environment are clearly visible ahead. Despite greater material output, the world's people will be poorer in many ways than they are today." (see Simon and Kahn, 1984, p.1)

In both of these cases, as indeed in others, the predictions were based on present trends and were accompanied by urgent calls for substantial political-economic policy and behavioural modifications, often emphasising the necessity of general limits to economic growth. Such modifications, it was argued, were needed to ameliorate the future problems.

Subsequently such prescriptions, and to an extent the underlying diagnoses as well, became largely discredited. By 1987, with the publication of the Brundtland Report, the emphasis shifted from arguing the need for general limits to economic growth to an argument that included a key role for economic growth. Thus,

> "Our report ... is not a prediction of ever increasing environmental decay, poverty, and hardship in an ever more polluted world among ever decreasing resources. We see instead the possibility for a new era of economic growth, one that must be based on policies that sustain and expand the environmental resource base. And we

> believe such growth to be absolutely essential to relieve the great poverty that is deepening in much of the developing world. ... technology and social organisation can be both managed and improved to make way for a new era of economic growth." (Brundtland, 1987, p. ES-1)

In Brundtland (1987) the desirability of this " new era of economic growth" is qualified by the need for it to be sustainable; "that it meets the needs of the present without compromising the ability of future generations to meet their own needs". They emphasise, however, that "sustainability",

> "does not imply limits -- not absolute limits but limitations imposed by the present state of technology and social organisation on environmental resources and by the ability of the biosphere to absorb the effects of human activities." (p.ES-7)

In practical terms the essentially hopeful message of the Brundtland Report, and its central guiding principle of "sustainability" is extremely complicated[42]. As with earlier reports, implementation of the Brundtland recommendations "will require a fundamental change in existing policies and practices." (World Resources Institute, 1992, p. 12)

While the nature of such a fundamental change remains ill-understood, subsequent analyses have adopted the positive correlation between economic prosperity and environmental well-being. Correspondingly, trade liberalisation is viewed as environmentally

beneficial because of its economic growth promoting effects. Paragraph 2.19 of Agenda 21 is typical in this regard:

> "An open, multilateral trading system makes possible a more efficient allocation and use of resources and thereby contributes to an increase in production and incomes and to lessening demands on the environment. It thus provides additional resources needed for economic growth and development and improved environmental protection."

Similar arguments are proffered by the WTO and the OECD (see GATT, 1992, and OECD, 1992).

Empirical support for such views was provided by Grossman and Krueger (1991). In a study of atmospheric sulphur dioxide levels at various points throughout the developed and developing world since 1976 they found that income growth had been associated with lower levels of pollution over significant ranges of per capita income. World Bank (1992) provides complementary evidence that the problems of urban airborne particulates, and number of individuals without safe drinking water or adequate sanitation are ameliorated at higher income levels (figure 4, p. 11).

Radetzki (1992) summarised as follows the principal arguments in support of the view that increasing economic activity, as a result of liberalising trade, is associated with improved environmental conditions:

---

42 For a useful discussion of some of the complexities inherent in the idea of sustainable development

"(a) All human activities by necessity alter the virgin environment. But a majority of these alterations involve conscious efforts to improve by making the environmental conditions better suited to human needs.

(b) Negative external effects, a common cause of environmental damage, become increasingly circumscribed through widening property rights and regulation of the use of commons, as the density of economic activity increases.

(c) The economic structure tends to change in ways that reduce environmental resource inputs per unit of output, as national economies mature. There is a shift from heavy industries and investments in physical infrastructure, to high-tech industries and services, and the latter activities cause little wear on the environment.

(d) The income elasticity of demand for environmental services is high. Rich consumers are more willing than poor ones to spend substantial parts of their income for safeguarding high environmental standards." (p.134)

On closer scrutiny two primary trends emerge: one where a number of environmental problems, those associated with the earlier stages of economic development, are ameliorated with income growth; the other where income growth exacerbates a number of environmental problems, those associated with the more mature stages of economic development. Some desirable effects, such as the availability of adequate food, safe drinking water, and sanitation, tend to rise with rising per capita income (see World Resources Institute, 1992, Table 16.3 and infra, Table 6). Similarly, rising incomes are associated with declining population growth, decreasing air and water pollution, and intensity of energy use (infra, Tables 6, 8 and 9). But rising incomes are

---

see World Resources Institute (1992), Chapter 1.

also positively correlated with, amongst other things, total natural resource and energy use, fertiliser and pesticide use, carbon dioxide and CFC emissions, demand for protected wildlife and wildlife products, and waste production (see infra Tables 7, 8 and 9; World Resource Institute, 1992, Tables 21.5 and 20.2; and World Bank, 1992, pp.53-4).

There are also indications of a small third category, which may include urban concentrations of airborne particulates and sulphur dioxide (World Bank, 1992, pp.10-11), water borne faecal coliform, and energy use by the transport sector (Tables 3 and 4 below). In this category the relevant statistics at first rise with per capita income and then decline, describing an inverse U-shaped relation[43]. The issues in this instance would be those associated with what might be called the "satanic mills" stage of economic development. Lucas et al (1992) provide evidence that total industrial emissions at first increase with GDP growth and then decline. However, they attribute the eventual decrease to a declining share of manufacturing in GDP rather than to cleaner manufacturing activity. Regardless, it appears clear that increasing income, ceteris paribus, tends to alter the composition of environmental consumption[44], rather than simply to reduce it; some environmental issues are ameliorated with rising income, while others are exacerbated.

---

43 The small sample of statistics on air pollution collated in Table 7 do not support this inverted U hypothesis. Rather they indicate a steady decline with rising income.

44 Environmental consumption means the use of any of the three primary economic functions of the environment. These are: 1. A source of renewable and non-renewable natural resources; 2. A means of waste disposal; and 3. A provider of other services including maintenance of a life support system, (maintenance of genetic diversity, stabilisation of ecosystems, maintenance of the composition of the atmosphere, and regulation of climate), and provider of amenities, (recreation, aesthetic enjoyment, and a source of knowledge and scientific study).

This then raises the problem of transition. To illustrate, consider the issue of carbon dioxide emissions. In 1989 the low and middle income countries were responsible for 2013 million tons, or 0.50 tons per capita, of the global output of 5822 million tons. The high income countries, by comparison, were responsible for 3.26 tons per capita. Assuming that the lesser developed countries improved their efficiency from the 614 tons per million dollars of GDP in 1989 to that of the high income countries, 186 tons per million dollars of GDP, if their income were to rise to the OECD average their total output of carbon dioxide would increase by more than six-fold and global output would treble (World Bank, 1992, Table A.9). Clearly this would be an unsustainable burden on the global atmosphere. Therefore, if economic growth, and so liberalised international trade relations, are to be environmentally sustainable, if we are not simply to go "from the frying pan into the fire", we will need to have as clear as possible an understanding of the problems of transition; of the environmental effects of economic growth.

Many analysts, when recommending the environmental benefits of economic growth through international trade liberalisation, also advocate the corresponding need for appropriate non-discriminatory domestic environmental programs. There is an ongoing debate over the extent to which it may be necessary for such measures to involve trade restrictions or otherwise affect the international trading system. However, to manage properly the transition issue, at a minimum the following concerns must be fully addressed.

First, resource-use efficiency gains may be outweighed by increases in output. As an economy matures improvements in the marginal efficiency of capital and labour, through improvements in

technology and organisation, may facilitate decreases in environmental consumption without any corresponding decrease of output. For example, the primary energy requirements per unit of GDP in the OECD declined by 24.6% between 1970 and 1988 (OECD, 1991, p.55). But such marginal efficiency gains must be compared with the rate at which output is growing. If the rate of growth of output exceeds that of the efficiency of production then, while environmental consumption per unit of output may be declining, total environmental consumption will be increasing. This was the case between 1950 and 1985 when world carbon emissions declined from 538 kilograms per $1000 of GNP to 408 kilograms per $1000 of GNP. Because the Gross World Product grew from 2.94 trillion dollars to 12.68 trillion dollars (in constant 1980 dollars), however, the total carbon emissions more than trebled from 1583 million metric tons to 5180 million metric tons (Brown and Wolf, 1987, Table 11-2, p.55). Accordingly technological advance per se is not sufficient to ensure that environmental consumption levels will be sustainable.

Second, while it may be true that property rights will circumscribe many of the negative environmental effects of economic activities as economic activity becomes more dense, they are not always a practical option across the full range of environmental issues. In some instances they may not be politically feasible. More fundamentally, property rights necessarily incorporate a right to exclude others from use of the resource. For some issues such exclusion is not practically possible.

Where they are an option property rights may, by skewing the relative values of environmental assets, lead to over-specialisation and so to environmentally unsustainable arrangements and activities. The ascription of property rights adds economic value to a resource. In the

case of renewable resources this will tend to increase the available stocks. The relative viability of competing organisms would, thereby, be distorted[45]. From the point of view of the ecosystem, the ascription of property rights has a similar effect to that of subsidies in the economic system.

The argument that high environmental quality has a high income elasticity of demand also requires qualification. As income rises a proportion is set aside for the acquisition of environmental services. Indeed it is possible that this marginal propensity for environmental services increases with income. Three questions, however, are immediately apparent.

First, rising income may lead mainly to changes in the spatial distribution of environmental consumption. There is a need to ascertain the extent to which the rising demand for high quality environmental services, associated with rising incomes, brings about only a local redistribution of environmental costs; those who can afford to will enjoy a relatively high quality environment and consumption level while shifting the environmental costs of their lifestyle onto those who are less well-off. Similarly, economic maturation and shifts from heavy to high-tech and service industries may only cause a change in the international distribution of environmental consumption, not of the total level. Indeed in the absence of appropriate technological transfers such shifts may result in increased total environmental consumption.

---

45 We see this, for example, when predators (such as wolves) or other "undesirable" species are culled to make way for increased stocks of commercially valuable species (such as deer and elk). Similarly, economically unproductive wet-lands are drained, destroying the indigenous local ecosystem, to provide additional commercially valuable land.

Lucas et al (1992) provide evidence in support of the hypothesis that such an international shift of pollution-intensive economic activities may occur with rising income. They provide data which confirm an inverse U-shaped relation between industrial pollution intensity and income. But they also conclude that,

> "The decline which is observed in total industrial emissions relative to GDP at higher income levels is a result of the declining share of manufacturing in GDP rather than a result of any shift toward a cleaner mix of manufacturing activities." (p.80)

Taken together with the rapidly growing pollution intensity in the LDCs and the steady tightening of environmental policies throughout the OECD over the past two decades, these results are suggestive, though not conclusive, evidence of the displacement of pollution intensive industry toward the LDCs, rather than a "greening" of economic activity in the OECD (ibid., p.80).

Before proceeding two points need to be stressed. First, there is little empirical evidence for the hypothesis that tighter environmental regulation in OECD countries is leading to a displacement of pollution-intensive production capacity to LDCs and NICs. Second, from an environmental perspective, any such migration of capital is to be welcomed if the environmental capacity in the new location is better able to accommodate the production-related environmental demands of the facility.

The second question is whether the aggregate marginal environmental conservation resources available from increased economic

output will be sufficient to compensate for the increased environmental consumption required for that economic output; is the marginal propensity to provide for environmental conservation high enough? The post-war history of the OECD countries suggests that, notwithstanding technological improvements, excessive environmental consumption has been a consequence of the economic activity underlying the rising incomes of those who currently voice environmental concerns. As already suggested, rising incomes provide the resources needed to alleviate most of the environmental consumption problems associated with the early stages of development -- those currently faced by most of the developing countries. However, it is less than clear that the marginal resources available from such rising incomes are sufficient to compensate for the resultant aggregate increased environmental consumption, notwithstanding the significantly increasing marginal efficiency of environmental consumption. Indeed the current environmental crisis suggests strongly that they are not.

Transportation is a case in point[46]. Increasing economic activity gives rise to increasing cargo transport (which rose by an average of 9.3% annually in the last decade) and business travel. Rising personal incomes lead to rising car use (which rose world-wide by 993% between 1970 and 1988, and by 96% in the OECD over the same period (OECD, 1991, p.61)) and tourist travel. Air traffic volumes increased by an average of 7.7% annually between 1978 and 1988, and arrivals at ports of entry grew from 25 million in 1970 to 360 million in 1987. Yet, notwithstanding significantly increased efficiencies in both fuel use and emissions, transportation currently accounts for 30% of all energy consumed, 70% of all carbon monoxide emissions (which are about half of all green house

gas emissions), 50% of all nitrogen dioxide, hydrocarbon and lead emissions, and 25% of all carbon dioxide emissions (the most important green house gas). In the case of cars, fuel use per vehicle declined between 1973 and 1982 by 21.4% in the IEA countries. However, the 34.7% increase in the number of cars over the same period meant that there was a net increase of 5.9% in fuel consumption (World Resources Institute, 1986, p. 106). Thus while GDP per capita in the OECD grew between 1973 and 1985 by 21 %, and so provided additional resources for environmental conservation, and while great progress was made in the efficiency of environmental consumption by the transport sector, it remains the case that, as with its consumption of energy, "the contribution from the transport sector to total emissions of air pollutants is ... higher than in the past" (OECD, 1991, p. 60). Transport sector emissions of pollutants also remain "high compared to the contributions from other sectors" ibid., p. 60). In short, it appears that the environmental effects of the growth in output were greater than both the efficiency gains and the effects of the aggregate marginal environmental conservation resources made available by the rising incomes.

A further issue is that of the application of the marginal resources available for environmental conservation; whether the application of these resources corresponds to the distribution of the increased environmental consumption which gave rise to them. There are two dimensions to this issue: international and domestic.

International trade can in part be understood in terms of exchanges of environmental capacity. Accordingly the environmental effects of an economy are not all coincident with it, and so the resources available for

---

46 See Gabel (1992) for an interesting examination of the environmental effects of the transport

environmental conservation are not necessarily coincident with the environmental consumption that gave rise to them; international trade facilitates an asymmetry of environmental costs and benefits.

The failure of the financial negotiations at the UNCED suggests that a significantly lesser proportion of income is available for environmental problems where the costs of the problem or the benefits of the expenditure are not felt directly or proportionately by those providing the resources. Conversely, where the environmental problem is of direct consequence the available resources will be more commensurate to the task. Those who are able can be expected to ensure that their immediate surroundings are as pleasant as possible. To the extent that environmental conservation is seen as a consumption good or service, they may also devote some resources to other non-local environmental issues.[47] However, fewer conservation resources may then be made available for the less "attractive", though no less important, non-local environmental issues. But not all environmental problems are, or can be made to be, of such direct relevance to those able to provide the resources to deal with the problems. So we cannot be confident that those who are best able to, those who benefit most from the environmental consumption, will distribute the resources which they make available for environmental issues so as to correspond to their environmental consumption, or in any other manner which could be considered to be optimal or otherwise appropriate.

The domestic dimension has two primary aspects. First is the issue of whether or not the necessary political will exists, especially in

---

sector.

some LDCs and NICs, to ensure that the marginal resources provided by economic growth are directed toward ameliorating the environmental consequences of that growth. It is interesting to note, for example, Charnovitz's observation that "recent economic growth in LDCs has not often led to commensurate improvements in child labour practices" (Charnovitz, 1992, p. 347)[48] The second aspect draws into question the appropriateness of public opinion as a guide to environmental policy.

In the absence of adequate information dissemination and/or democratic infrastructure there cannot be any assurance that the distribution of resources between environmental issues and other issues reflects popular preference. In most LDCs and NICs the local elites who will be making such decisions will not often themselves be exposed to the same level of environmental degradation as the majority of the population, and so may have different priorities and assign resources accordingly. Given this, a paper originally presented by UNCTAD to a Seminar on Trade in Relation to Environment and Development, in Oslo, in 1991, is of interest. It provides little support to the belief that a commensurate proportion of the marginal resources provided by economic growth will be targeted at environmental issues when it argues that,

> "[t]hough there are many cases of severe environmental degradation in developing countries, it can be maintained that generally adequate environmental protection can be achieved with less stringent control measures than required in the industrialised countries, at least for the next 10 to 20 years.

---

47 The desire to "enjoy" whales, dolphins, elephants, and/or baby seals, for example, means that private resources are provided for their conservation.

48 Charnovitz cites M. Weiner (1991), The Child and the State in India (Princeton: Princeton University Press) in support of this statement.

> Comparative trade advantages might even be strengthened if environmental quality standards are going to lag behind those in developed countries because of the difference in socio-political values with regard to the trade-offs to be made between environmental quality objectives and economic growth." (UNCTAD, 1991a, paras. 49-50)

In many LDCs and NICs the benefits of economic growth accrue disproportionately to a small elite who, in turn, do not share proportionately the burden of the environmental degradation resulting from that economic growth. Therefore, in addition to the lack of democratic representation of the preferences of the poor majority, the governing elite have a powerful pecuniary motive for promoting a trade-off between environmental degradation and economic growth which is unlikely to accord with that which would be chosen in the absence of these two distorting factors; when low environmental quality standards are proposed for the LDCs, the question arises of whose socio-political values are being represented. With some LDCs and NICs, then, can be less confidence than that placed in the industrialised democracies that the environmental conservation resources available as a result of economic growth will be distributed according to local preference.

While the distribution of resources in democratic regimes will to varying extents reflect popular preferences, this should not be confused with what is ecologically desirable. Urbanisation too is positively related with aggregate income growth (see Table 1 below). But urbanisation is also a key factor in the growing alienation of modern societies from nature and natural cycles. Increasingly sentimentalism and romanticism are the dominant factors informing popular opinion concerning environmental

issues. The popular views largely responsible for the policies and actions of democratic societies, including for the conduct of international environmental relations, are formed and conditioned within the almost entirely artificial construct of urban life; ignorant of and largely unaffected by its ecological consequences, urban opinion, though it will remain quite properly influential, cannot on its own be a reliable basis upon which to found environmental policy.

This part of the chapter has shown that there is compelling evidence of environmental improvements being associated with the rising incomes which result from liberalised international trade relations; the problems associated with the earlier stages of economic development are ameliorated. However, in light of the environmental problems which can arise at later stages of development it has also shown that there is a need to ensure that economic development does not mean that one set of problems are simply exchanged for another.

In particular this part has disclosed five issues which need to be considered if economic growth is to be environmentally sustainable.

First, output increases must not exceed efficiency improvements.

Second, ascription of property rights, while in many instances helpful, is not always possible and can even exacerbate problems.

Third, rising incomes may result only in shifts in the location of, rather than reducing, environmental consumption.

Fourth, there is no a priori reason to believe that the marginal resources made available by increased economic activity will be sufficient to compensate for the environmental consumption required for that activity.

Finally, even if the resources are sufficient, it cannot safely be assumed that they will be distributed appropriately, either internationally or domestically.

Two principal conclusions can be drawn: First, we have seen that it is misleading to argue simply that economic growth as a result of liberalised trade relations will ameliorate the environmental problems associated with the earlier stages of development. Without appropriate countervailing environmental measures the environmental problems associated with the earlier stages of development will only be exchanged for those associated with later stages. Second, we have seen once again[49] that domestic measures are normally more appropriate than trade restrictions for use as environmental policy instruments.

---

49 See the discussion on sustainable welfare maximisation in chapter 4.

CHAPTER EIGHT

TREPI AND THE GATT

Having earlier examined a three-part test for determining when TREPI might be legitimately used, in this chapter we examine the major TREPI in relation to the international trade rules regime. In particular, we will be interested in whether or not, and in what ways, the GATT hinders or facilitates the legitimate use of TREPI. How could the GATT rules be improved or augmented?

Recall that the principles in the third test of legitimacy were designed to lead to the least economic cost effective alternative, while fundamentally the GATT is designed to bring about the greatest economic benefit. These two approaches are complementary; economic benefit maximisation presupposes cost minimisation, while cost minimisation facilitates benefit maximisation. Therefore we can begin by reviewing the basic principles of the GATT. Bhagwati (1992) identifies four such basic principles:

First, the GATT is a rules-based system; second, the GATT provides for non-discriminatory multilateralism; third, the GATT is

maintained on the basis of mutuality and a balance of concessions; and fourth, any disputes that arise are subject to impartial adjudication.

A degree of common ground between these principles and those of the third legitimacy test is clear. First, a rules-based system and the principle of transparency both imply objective criteria, known beforehand, by which situations can be evaluated. Second, both Bhagwati and the third test cite the importance of multilateral non-discrimination. Third, the bases of mutuality and a balance of concessions are concordant with the principle of proportionality. Fourth, impartial adjudication of disputes again reflects the principles of transparency, non-discrimination and proportionality.

The commonality between Bhagwati's four principles and the principles of the third legitimacy test suggests that a proposed measure found to be legitimate according to the three tests of legitimacy of chapters 3 to 5 should also be seen to be consistent with the spirit and primary purpose of the GATT. Accordingly, whenever any potential conflict is found to exist between such a measure and any provisions of the GATT, those provisions of the GATT should be amended.

In the following examination of the major GATT provisions which may have a direct effect on environmental policy measures, the scope for possible amendments or modifications will be considered by comparing them, wherever possible, with any parallel provisions in the North American Free Trade Agreement (NAFTA).

Article I

The fundamental principle of the GATT is the Most Favoured Nation (MFN) Principle of Article I:

> "With respect to customs duties and charges of any kind imposed on or in connection with importation or exportation or imposed on the international transfer of payments for imports or exports and with respect to the method of levying such duties and charges, and with respect to all rules and formalities in connection with the importation and exportation and with respect to all matters referred to in paragraphs 2 and 4 of Article III, any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties."

Immediately of interest is the matter of defining "like product". This term or variants of it appear some sixteen times in the GATT Articles as well as in the GATT Codes elaborating the provisions of the GATT. It does not have any agreed definition, and can be interpreted somewhat differently in each instance. For our purposes here the definitional nuances are not crucial, however. John Jackson's interpretation, within the context of Article I, will serve as a satisfactory starting point:

> "...while treatment can differ if the characteristics of goods themselves are different, differences in treatment of imports cannot be based on differences in characteristics of the exporting country

which do not result in differences in the goods themselves" (Jackson (1989), p. 138).

This raises the difficult issue of distinguishing goods on the basis of their underlying process and production methods (PPMs). While the GATT permits discrimination between goods whenever their inherent characteristics differ, no such accommodation is available with respect to distinguishing goods on the basis of their PPMs. This basic distinction in the GATT can be traced to a 1953 GATT dispute over a 7.5% Belgian excise tax on imported goods from countries that did not have a social program of social allowances equivalent to that in Belgium. The panel distinguished between taxes applied to products, which they held to be consistent with the GATT, and taxes applied to the conditions surrounding the manufacture of products, which they held to be inconsistent with the GATT (see Esty, 1994, pp. 265-266).

This then suggests a fundamental asymmetry in the GATT between the role which trade policy may play with respect to consumption-related environmental concerns and with respect to production-related environmental concerns.[50] Moreover, since production-related environmental concerns are those which give rise to the concerns about relative competitiveness and investment location, a failure to correct this asymmetry will lead to further undermining of the GATT and to additional growth of aggressive unilateralism by the stronger trading partners. Neither of these possibilities are in the interests of the smaller countries, especially the LDCs, or indeed ultimately of the larger countries

---

50 It might be suggested that some important consumption-related environmental concerns are not adequately accommodated either, especially those relating to the effects of use and of disposal, but as we shall shortly discuss the GATT Agreement on Technical Barriers to Trade provides further latitude for these issues.

either. The problem of correcting this asymmetry, of developing principles for the accommodation of PPMs, should not be underestimated. But the dangers to the multilateral system of not doing so should not be underestimated either. We will return to this matter in more detail when we examine the GATT Code on Technical Barriers to Trade, below.

Article III: National treatment

Trade restrictions may be used in cases where the border measure in question is necessary for the enforcement of an internal measure consistent with Article III. In such instances, the border measure may be regarded as an internal matter subject to the national treatment obligations of Article. III. In a bilateral dispute concerning lobsters from Canada, for example, the US successfully argued[51] that the US prohibition on the importation of undersized lobsters from Canada fell under Article III, not Article XI.1, in being "a measure affecting the internal sale, offering for sale, purchase, transportation, distribution, or use of products...applied to an imported product at the time of importation" (Canada-US Trade Commission, 1990, p.25). The minority view held that Article. III is relevant only if the measure in question "is not a prohibition and applies to foreign products which have entered the domestic market of the importing country and are in competition with domestic products. It will fall within Article XI if it prevents or restricts importation in the first place", (Canada-US Trade Commission, 1991, pp. 78-9). Thus the US were able to implement quantitative border restrictions that they considered to be necessary to support their lobster management efforts.

---

51 Three of the five panellists concurred with the US view.

The possibility of implementing quantitative border restrictions under Article. III should not be overstated. In the first instance the panellists were not unanimous in their views of the applicability of Article. III, as opposed to Article. XI, to the facts of the matter. Second, although the panel considered GATT Articles, it did so because they had been adopted into the Canada-US Free Trade Agreement. Accordingly, while the dispute panel convened under the Canada-US Trade Commission took as relevant to its deliberations GATT jurisprudence, its interpretations do not contribute to that jurisprudence and so are of only limited relevance outside that bilateral context. Nonetheless, these interpretations would be reviewed by any GATT panel considering a similar case and would influence, if only unofficially, the interpretations given to these Articles by those panellists.

While the jurisprudence may be inconclusive as regards quantitative border measures and Article. III, it is somewhat clearer regarding border charges. In the Superfund case the US successfully argued that a tax they imposed on certain imported substances was a border tax adjustment corresponding to internal taxes on the like substances. In this case the taxes were imposed primarily to fund the cleanup of a number of hazardous waste sites. The French objected to the US tax claiming that, given the acceptance of the Polluter Pays Principle which requires the full inclusion by the producer of the environmental costs in the product, it amounted to double taxation. The Panel rejected the French arguments and, importantly, concluded that whether a "tax is levied on a product for general revenue purposes or to encourage the rational use of environmental resources, is ... not relevant for the determination of the eligibility of a tax for border tax adjustment" (GATT, 1988b, para. 5.2.4). Accordingly, where a jurisdiction implements

an internal environmental measure in the form of a tax on certain products, the GATT facilitates the imposition of a corresponding border tax on the like products in order that the domestic producers not be competitively disadvantaged.

Article. XI

Article XI.1 provides a general prohibition on the use of both quantitative import and quantitative export restrictions.

Quantitative Import Restrictions

Quantitative import restrictions(QRs) are measures to control the quantity of a good imported, and are the most often used trade instrument in the conduct of environment policy.[52] They include quotas, discretionary or non-automatic licensing procedures, mixing requirements, and prohibitions or embargoes.[53] QRs may be used to implement either consumption-related or production-related environmental standards.

As we saw in examining the purposes of TREPI, in principle both quantitative and financial border restrictions can be implemented in response to either the environmental or the economic effects of allegedly inadequate or inappropriate environmental standards or enforcement abroad. Accordingly, two main types of such border restrictions can be distinguished. The first are environmentally motivated in that the border

---

52 Of the 17 GATT, EC, and CUSTA cases reviewed in Appendix C of Esty (1994), 12 involved quantitative import restrictions.

53 GATT sources of information on the use of this instrument include the TBT notifications, the QR notifications, and various TPRM reports.

restriction is used directly in response to the environmental consequences of the trade transaction. This would be where the good itself is dangerous to health or the environment, or where the border restriction is used to effect an economic penalty or disincentive for foreign interests in order to induce them to change their environmental policies. The second type of border restrictions are economically motivated. These are meant to cause a countervailing penalty in response to economic disadvantage being felt as a result of environmental policy differences. It will be noted that an important difference between these two types is that in the first case the magnitude of the restriction would be whatever is necessary to effect the desired change, which may be more or less than that needed to compensate for the commercial distortion at issue in the second case.

Quantitative Export Restrictions (QERs)

Like quantitative import restrictions, quantitative export restrictions are also prohibited by Article XI.1 of the GATT. Export restrictions, however, have been much less resorted to,[54] and have different objectives. Here again the distinction between production and consumption concerns is important.

Production-related QERs are often used for economic development purposes, including for natural resource and environmental-preservation purposes. The Canada-US salmon and herring disputes are examples of QERs being implemented ostensibly in support of production-related standards, specifically those for resource conservation. Such objectives raise quite different issues than are contained in consumption-related

standard QERs, such as the draft protocol on domestically prohibited goods and other hazardous substances.

Consumption-related QERs, by contrast, are often related to waste disposal issues. Whenever the waste has a commercial value, domestic industries which consume that waste may be accused of benefiting from a subsidy. If, on the other hand, the waste has no commercial value or is, in fact, dangerous, then the issue of "prior informed consent" becomes relevant.

Article XI Exceptions

Article XI.2(c)i may provide an exemption for certain types of environmental measures from the general GATT prohibition against quantitative import restrictions contained in Article XI.1. It permits the imposition of

> "[i]mport restrictions on any agricultural or fisheries product, imported in any form, necessary to the enforcement of governmental measures which operate; (i) to restrict the quantities of the like domestic product permitted to be marketed or produced, or, if there is no substantial domestic production of the like product, of a domestic product for which the imported product can be directly substituted".

Subject to the maintenance of the MFN and national treatment obligations, this Article would appear to facilitate the enforcement of either

---

54 The proliferation of Voluntary Export Restraints (VERs) is an obvious counter-argument to this point but, in reality, VERs are not "voluntary". They are imposed under pressure of the importing country,

production or consumption standards applied to agricultural or fisheries products in any form. A government may wish, for example, to restrict or prohibit certain methods of agricultural production such as intensive monocultural cropping, veal crates, poultry batteries, or BST, possibly by way of, or in conjunction with, a program of incentives[55] for alternate means of production. If it were found necessary to restrict[56] the import of like or substitute products produced by such means in order that the measures are effective, Article XI.2(c)i may provide legitimacy. Import restrictions on agricultural or fisheries products may be found to be necessary because the domestic producers' costs are raised relative to their foreign competitors by the imposition of the government regulation . This may arise as a result of reduced efficiencies of production or increased adoption by the producer of pollution or other environmental costs. To the extent that the latter reflects the application of the Polluter Pays Principle such restrictions may be justifiable.

It is important to recall, however, that there are only limited grounds in GATT for differentiating "like products" on the basis of the method of production. Accordingly adherence to the MFN obligations could require that the import of all like products, however and wherever produced, would have to be restricted. As this would lead to a disproportionately large amount of trade being restricted, to ameliorate this problem while facilitating the imposition of such environmental measures a transparent and non-discriminatory labelling system should be considered.

---

and so are really another form of quantitative import restriction.

55 It is interesting to note that the original drafters of the GATT "agreed that it was not the case that subsidies were necessarily inconsistent with restrictions of production and in some cases they may be necessary features of a government program for restricting production" (Havana Reports, p.90, para.22).

Otherwise, it may be necessary to consider how the MFN obligation could be modified. As we shall see, the GATT Code on Technical Barriers to Trade and GATT Article XX distinguish otherwise like products on the basis of their method of production, and GATT Article XX provides for only a conditional MFN obligation. Thus there are precedents. MFN treatment is a core principle of the GATT, however. As a result, any derogation from it, to accommodate instances where it may be useful to distinguish between otherwise like products on the basis of the method of production, would need to meet strict conditions for its use.

Technical Barriers to Trade

1. Product Standards:

The WTO Code on Technical Barriers to Trade (TBT) requires that standards be prepared and implemented in a non-discriminatory manner, and that they "shall not be more trade-restrictive than necessary to fulfil a legitimate objective, taking account of the risks non-fulfilment would create. Such legitimate objectives are, inter alia, ...; protection of human health or safety, animal or plant life or health, or the environment" (TBT Article. 2.2).

The NAFTA contracting parties are permitted to establish and enforce whatever environmental and health product-standards they determine to be appropriate, including standards higher than those established or recommended by international agreements (NAFTA Article. 904/5 and 713). The importation of goods or services not meeting such

---

56 Only import restrictions would appear to be permissible in light of the 1982 GATT panel report on the Canada-US tuna dispute which found that "the provisions of Article XI:2(c) could not justify the

requirements could be prohibited. This right is contingent on the requirement that the standards are non-discriminatory (including both national treatment and most favoured nation treatment), and that they do not constitute unnecessary obstacles to trade. A measure is deemed not to constitute an unnecessary obstacle to trade if "the demonstrable purpose of the measure is to achieve a legitimate objective", and is non-discriminatory in that regard (NAFTA Article. 904.4). The definition of "legitimate objective", in NAFTA Article. 915, specifically does include "protection of human, animal or plant life or health, the environment ... and sustainable development," and specifically "does not include the protection of domestic industry." So the principal conditions surrounding the preparation and implementation of standards are similar between the NAFTA and the TBT, although the NAFTA definition of "legitimate objective" is arguably slightly broader, by including the term "sustainable development", than that contained in the TBT.

The provisions governing the level of the standards which the parties may establish are in an important respect quite dissimilar. The TBT requires Parties to use any relevant existing international standards unless the use of such standards would be demonstrably "ineffective or inappropriate" (TBT Article. 2.4). Standards established for a legitimate objective, as listed in TBT Article 2, and conforming to any applicable international standards "shall be rebuttably presumed not to create an unnecessary obstacle to international trade" (TBT Article. 2.5). This has led some environmentalists to suggest that there will be downward pressure on product standards to those of international norms, which may well be less than some authorities may wish to establish and enforce.

---

application of an import prohibition" (GATT, BISD 29S/91, p.107).

The NAFTA similarly provides that a standards-related measure that conforms to an international standard shall be presumed to be non-discriminatory and not creating an obstacle to international trade, (NAFTA Article. 905.2). But, unlike the TBT, the NAFTA gives explicit latitude to the Parties to establish standards higher than international standards whenever they determine such higher standards to be appropriate (NAFTA Article. 712,13; and Article. 904.1,2 and 905.3).

There is no apparent reason why the TBT should not explicitly provide the same flexibility in the establishment and enforcement of standards as does the NAFTA. In both cases where the standards are in conformity with international norms they are presumed to be legitimate, where they deviate from those norms conditions attach. Thomas and Tereposky (1993) suggest that the GATT provisions may already take account of the concern about downward pressure on standards, but concede that, at a minimum, the use in the GATT of the express language of the NAFTA would "clarify the existing language", (p.32).

2. Production and Process Method (PPM) Standards:

It could be argued that both the NAFTA and the TBT provisions on standards, being similar in this respect, apply equally to product and PPM standards. Consider NAFTA Article.904.1:

> Each Party may... adopt, maintain or apply any standards-related measure, including any such measures relating to safety, the protection of human, animal or plant life or health, the environment or consumers, and any measure to ensure its enforcement or implementation. Such measures include those to

prohibit the importation of a good of another Party or the provision of a service by a service provider of another Party that fails to comply with the applicable requirements of those measures or to complete the Party's approval procedure."

The question arises about the scope of this provision, and in particular the scope of the term "standards-related measure". This is elucidated by NAFTA Article. 915 where it defines "standard" to mean, inter alia,

" rules, guidelines or characteristics for goods or related processes and production methods, or for services or related operating methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a good, process or production or operating method;"[57]

Accordingly it would appear that the NAFTA permits the adoption, maintenance or application of trade restricting "environmental measures" relating to standards, including PPM standards. The TBT contains essentially the same provisions in this regard. Arguably, however, the TBT closes the loophole by its requirement in Article 2.3 that no standards-related measures shall be maintained if the "objectives can be addressed in a less trade-restrictive manner." Thus even if the objective of the measure is solely environmental, indeed especially so, the TBT disallows PPM standards because a less trade restricting means of

---

57 A "standards-related measure" is defined there to include also a "technical regulation or conformity assessment procedure". The former is essentially the same as a standard except, importantly, compliance is mandatory. A "conformity assessment procedure" means "any procedure used, directly or indirectly, to determine that a technical regulation or standard is fulfilled ... but does not mean an approval procedure".

addressing the concern, such as international negotiation, can be suggested. This is appropriate because, as shown in Chapter 4 in regard to extraterritorialism, trade restrictions are very inefficient ways of affecting foreign environmental policies. In the NAFTA, providing that such PPM standards are non-discriminatory, their only hurdle is that "the demonstrable purpose of the measure is to achieve a legitimate objective". Bearing in mind that the term "legitimate objective" is rather more broad in the NAFTA than in the TBT, however high this NAFTA hurdle may turn out to be it would appear to be rather lower than that in the TBT.

Some comfort is obtained by the inclusion of the TBT into the NAFTA (NAFTA Article 903), to the extent that it is not inconsistent with the provisions of the NAFTA (NAFTA Article 103). While the NAFTA safeguard appears to be somewhat weaker than that in the TBT it is not clear if this would be seen as an inconsistency or not. It is also not clear why in both the TBT and the NAFTA the definitions of standards would include PPM standards if the intent of the text is to foreclose their use.

To clarify this issue the definitions of standards in both the TBT and the NAFTA should be redrafted to provide for a basic prohibition on the use of trade measures to enforce PPM standards directed at non-domestic production-related environmental concerns. Accordingly, non-discriminatory quantitative export restrictions in support of the conservation of both renewable and non-renewable domestic natural resources, as provided for in GATT Article. XX(g), would continue to be allowed. However, PPM standards that aim to regulate production-related environmental concerns occurring outside of the jurisdiction of the

authority setting the standard would be an extraterritorial application of policy and as such should be prohibited in the GATT.

By contrast, non-discriminatory PPM standards related directly to consumption-related environmental concerns would be permitted because they are aimed at environmental issues occurring within or arising from the area under the jurisdiction of the authority enforcing such standards. Such consumption-related PPM standards may refer to the physical product and so could come under the part of the definition referring to "characteristics for a good or service". Examples of this sort would include sanitary and phytosanitary regulations relating to the production of food and of pharmaceuticals; where the production process affects the nature and characteristics, such as wholesomeness or effectiveness, of the product. Similarly, non-discriminatory consumption-related PPM standards may be applied to non-domestic production processes to the extent that those production or process methods have domestic environmental consequences arising from the use or disposal of the product. Such standards may, for example, be used in support of efforts to minimise packaging and/or to encourage the consumption of reusable or recyclable goods; while they affect PPMs employed outside of the domestic jurisdiction they may legitimately do so because the object of the PPM standards, the environmental costs of consuming the goods made by those PPMs, occur within the domestic jurisdiction.[58]

It might be argued that, attached to the basic prohibition against the use of trade measures to enforce non-domestic production-related PPM standards, there should be an exception to provide for trade-related environmental measures in those instances where the PPM standard at

---

58 This is consistent with the conclusions in chapter 5 regarding integral TREPI.

issue is seen to cause environmental problems in ecosystems in international regions. Ecologically unsustainable fishing in the oceans would be an example of this sort of issue. There is, however, no apparent reason to assume a priori that trade measures would be at all useful, let alone optimal, in addressing such environmental problems. Precisely the same arguments would apply that were noted in Chapter 4 in regard to sanctions.

Some exceptions do, however, need to be considered. First, temporary non-discriminatory quantitative import restrictions may exceptionally be permitted in the case of substantial economic injury sustained as a result of significant increases in domestic production-related PPM standards. Normally PPM differences would properly be addressed by non-discriminatory labelling requirements alone. However, to increase the likelihood of authorities implementing significantly higher domestic PPM standards, allowance for temporary safeguards against competing imports would at least be politically, if not economically,[59] desirable. This could perhaps be facilitated by amending GATT Article XIX accordingly. In light of the conceptual similarities, GATT Article XI.2(c)i may provide a precedent. Second, where domestic environmental taxes are levied, unless equivalent foreign taxes are in place, compensatory import levies and/or export refunds may be permitted. Without border restrictions internal enforcement of appropriate

---

59 Economic orthodoxy holds that the benefits of import restrictions to the protected industries will be outweighed by the costs that those restrictions impose on consumers and that, as a result, there will be a net loss of economic welfare. However, if as a result of the higher PPM standards the domestic environment is improved then the benefits of such environmental improvements to the citizens (consumers) must also be factored into the welfare calculations. Any welfare losses will, as a result, be less. Indeed there may even be cases where there are net welfare gains.

environmental policies would be undermined by imports. This would be consistent with the GATT, as the "Superfund" case made clear.[60]

Aside from these two exceptions, the basic prohibition against the use of trade measures to enforce non-domestic production-related PPM standards may be moderated in one further way. In the rules of origin of the NAFTA, expenditures incurred to meet environmental abatement requirements are eligible costs for the purpose of calculating North American content, and so for determining whether a product benefits from the tariff preferences of the NAFTA. Effectively this means that goods meeting certain PPM standards may benefit from the lower internal tariffs of the NAFTA while those which do not would not so benefit. Multilaterally, higher PPM standards could be encouraged by the provision of a preferential tariff rate for goods meeting specified, legitimate PPM standards. This would be on the basis of publicly available, scientifically justifiable, and transparent criteria, and would be designed to provide an offset for additional costs incurred in meeting the higher standards. Because these criteria would be with reference to the ecosystemic characteristics of the producer a derogation from the MFN principle may be needed. In principle, such an exception would be similar to that permitting discrimination under GATT Article XXIV. As well, since this would only be a result of trade liberalising actions such an exception would be otherwise consistent with the objectives of the GATT.

---

60 A fuller discussion of border charges and taxes is provided in Chapter 8.

Sanitary and Phytosanitary Agreement

While the TBT applies to manufactured goods, the Sanitary and Phytosanitary Agreement (SPS) applies to plant and animal materials. It is, therefore, of particular relevance to the trade in agricultural products.

The basic objective of the SPS is to provide a discipline on the application of sanitary and phytosanitary (S&P) measures; to ensure that they do not "constitute a means of arbitrary or unjustifiable discrimination between Members where the same conditions prevail or a disguised restriction on international trade" (SPS, Preamble). Unlike the TBT were PPMs are not permitted, the SPS defines S&P measures as including, *inter alia,* processes and production methods (SPS, Annex A, Art 1).

The two basic obligations are that S&P measures are *non-discriminatory* and are *necessary.* Non-discrimination is meant in the usual GATT sense, while necessity means that measures can only be applied to achieve S&P objectives based on scientific principles and not maintained against scientific evidence, (SPS, Art. 2).

In addition to the two basic obligations the SPS requires S&P measures to be harmonised with international standards as far as possible, including, in particular, the standards established by the Codex Alimentarius Commission, the International Office of Epizootics and the organisations in the International Plant Protection Convention. Moreover, "Members shall accept the sanitary and phytosanitary measures of other Members as equivalent, even if these measures differ from their own or from those used by other Members trading in the same product, if the Member objectively demonstrates to the importing Member that its

measures achieve the importing Member's appropriate level of sanitary or phytosanitary protection", (SPS, Article 4.1)

Although S&P measures are to be harmonised with international standards whenever possible, the SPS also permits the application of measures which would result in higher levels of protection provided they do so on the basis of an objectively conducted risk assessment . In other words S&P measures may establish higher standards than those provided by the relevant international standards if there is scientific justification for doing so. The SPS agrees that "there is scientific justification if, on the basis of an examination and evaluation of available scientific information in conformity with the relevant provisions this Agreement, a Member determined that the relevant international standards, guidelines or recommendations are not sufficient to achieve its appropriate level of sanitary or phytosanitary protection", (SPS Article 3.3 footnote 2).

Scientific evidence and objective risk assessments are obviously crucial to ensuring that S&P standards higher than internationally agreed standards are not applied on spurious grounds. At the same time, however, this approach raises a number of issues. For example, the same difficulty arises here as with the application of any other environmental standard. Just as there is a concern that the TREPI may be used as a disguise for protectionism, debate about the validity of the scientific evidence could also be used to object to standards higher than the internationally agreed ones. The disputes over the banning of certain hormones in beef by the European Community is a case in point[61]. A further problem arises from the fact that Codex Alimentarius standards can be adopted by majority vote if unanimity cannot be found, potentially

undermining the assurance of safety intended by the standard. Similarly, by increasing the international legal status of these standards the system of voting for them could become politicised, undermining the objectivity of the standards.

Article XX:

Article XX provides an exemption to the GATT rules affecting trade in goods. In the new General Agreement on Trade in Services (GATS) Article IV is the parallel provision covering trade in services. The following discussion focuses mainly on Article XX, but is equally applicable to Article IV.

Article XX was drafted long before concern for the environment became a salient issue. It should not, therefore, be expected that its provisions adequately cover current environment-related issues and concerns. To ascertain where it may require amendment or clarification, it is necessary to examine its provisions in the light of its drafting history and the interpretations of various GATT panels. Article XX is comprised of a preamble and ten categories of exceptions. We will focus on the two most relevant of these: Article XX(b) and Article XX(g).

First, it is important to note that there does not appear to be agreement on the relationship between Article XX and the MFN and national treatment obligations of the GATT. Carol Nelder-Corvari from the Canadian Department of Finance argues regarding Article XX that "in many cases the internal regulations and those on trade could not be

---

61 For the background to the "Beef-Hormone" dispute see Vogel (1995). The report of the WTO

made identical and therefore the exemption from the non-discrimination or the national treatment principle was required" (Nelder-Corvari, 1989, p.4). Jeanne Grimmett from the US Congressional Research Service quotes John Jackson as arguing that Article XX contemplates a modification of the general MFN and national treatment obligations, "allowing departure from the strict language of Article I...and Article III... to the extent necessary to pursue the goals listed in Article XX, but not to the extent of non-MFN discrimination or protection of domestic production, if either is not necessary to pursue those listed goals" (Grimmett, 1991, p.9). The OECD, meanwhile, argues that the preamble to Article XX effectively reiterates the MFN principle, and that "other GATT principles would presumably remain applicable, in particular national treatment as laid down in Article III" (OECD Trade Committee, 1990a, p.20).

The preamble to Article. XX contains the two generally applicable conditions:

1. The measure must not arbitrarily or unjustifiably discriminate "between countries where the same conditions prevail". This would seem to permit the imposition of measures which discriminate between countries where the same conditions do not prevail. In turn this suggests that only limited or qualified MFN treatment is required with respect to Article. XX.

2. The measure cannot be a "disguised restriction on international trade". In the US-Canada Tuna case, in which the US argued that "the motivation for the United States action was in no way trade related" (GATT (1983), para.3.9), the panel concluded

---

dispute panel can be found at the WTO web site: http://www.wto.org

> that "the United States action should not be considered to be a disguised restriction on international trade" because the import prohibition "had been taken as a trade measure and publicly announced as such" (GATT (1983), para. 4.8).

Subsequent interpretations provide further illumination. These interpretations are best examined within the context of the particular paragraphs with respect to which the respective cases dealt.

Paragraph (b) provides for measures "necessary to protect human, animal, or plant life or health".

Clearly the first issue is whether or not this paragraph encompasses measures implemented with respect to the "environment". This issue has not been addressed directly by any dispute panels. Since environmental concerns were not an issue at the time the GATT was drafted there is no reason to assume that the parties who concluded the GATT meant it to cover environmental measures (see also Shrybman (1990), p.27). At the same time, there is nothing to stop the present Contracting Parties from ascribing to this provision their understanding that it does now cover environmental concerns. In a draft discussion paper by the GATT Secretariat on the parallel GATS provision, Article XIV, this appears to have been the case when it states that,

> "the common understanding of Parties, based on the opinion of the GATT legal service division, is confirmed that measures necessary to protect human, animal and plant life and health are understood to include measures necessary to protect the environment" (C2-

ART, Revised Secretariat draft based on discussions, 29/11/91, p.3).

Nonetheless, at its first meeting, the Council for Trade in Services decided to request the newly formed Committee on Trade and Environment to determine if any clarification or modification of GATS Article. XIV is required. Unfortunately, there is no corresponding ministerial direction regarding clarification of GATT Article. XX.

Confusion over the intent of the Contracting Parties may also arise from the fact that in both the GATT and the GATS, as provided in the final texts, no specific mention is made of the environment, while in the both the Tokyo and Uruguay Round TBT agreements, paragraph 2.2 provides an exemption for technical regulations necessary for the "protection of human health or safety, animal or plant life or health, or the environment". It could be argued that the present Contracting Parties, having considered the issue, intended to differentiate between the various agreements as regards environmental concerns by specifically mentioning the environment in some while not mentioning it in others.

Such ambiguities were addressed in the NAFTA by stating clearly in Article. 2101.1 that

> "The Parties understand that the measures referred to in GATT Article XX(b) include environmental measures necessary to protect human, animal or plant life or health, and that GATT Article XX(g) applies to measures relating to the conservation of living and non-living exhaustible natural resources."

The EC have expressed the concern that the term "environment" is too broad and may facilitate extraterritorial application of environmental measures, ("EC Proposal on Trade and Environment", in Inside US Trade - Special Report, 27 November, 1992). Such a concern could easily be dealt with by stating explicitly that any exceptions are applicable only to the extent that the measures at issue are applied only within the jurisdiction of the implementing authority.

The next issue concerns whether or not the measure in question is in fact "necessary". This is effectively the same issue as that contained in the second proviso of the preamble. An interpretation of the term "necessary" was reaffirmed in the US-Thailand Cigarettes case, (para 74).[62] Although the original interpretation was in the context of Article XX(d) this panel saw no reason why it should not be equally applicable to Article XX(b). Accordingly,

> "a contracting party cannot justify a measure inconsistent with other GATT provisions as "necessary" in terms of Article XX(d) if an alternative measure which it could reasonably be expected to employ and which is not inconsistent with other GATT provisions is available to it. By the same token, in cases where a measure consistent with other GATT provisions is not reasonably available, a contracting party is bound to use, among the measures reasonably available to it, that which entails the least degree of inconsistency with other GATT provisions"

In light of the trade liberalising purpose of the GATT, this "least inconsistent" rule can be generalised as a "least trade disrupting" rule.

In their complaint about the US tuna ban, Mexico referred to this rule when they objected that the US measure was not "necessary" because alternate, GATT-consistent measures were available, specifically international co-operation. In the US view it was the very fact that the measure was in respect of life outside of their jurisdiction which left them with no other reasonable alternatives. The panel commented on these interpretations within the context of their discussion on the crucial issue of whether Article XX(b) covers measures necessary to protect human, animal or plant life or health outside of the jurisdiction of the party imposing the measure.

The panellists were convinced that the drafting history indicated that the authors of Article XX(b) had "focused on the use of sanitary measures to safeguard life or health of humans, animals or plants within the jurisdiction of the importing country". Moreover, in the panellists view, the conditions attached to Article XX(b) refer to the trade measure at issue not to the life or health standard affected by that trade measure. Accordingly the panellists

> "...considered that if the broad interpretation of Article XX(b) suggested by the United States were accepted, each contracting party could unilaterally determine the life or health protection policies from which other contracting parties could not deviate without jeopardising their rights under the General Agreement. The General Agreement would then no longer constitute a multilateral framework for trade among all contracting parties but would provide legal security only in respect of trade between a limited number of contracting parties with identical internal regulations" (para 5.27).

---

62 The original interpretation is found in the report of the panel on "United States - Section 337 of the

Notwithstanding the outcry in the US following this ruling, the panellists are probably correct when they conclude that this interpretation, and the like one in respect of Article XX(g), do not constrain in any way the ability of contracting parties to pursue internal environmental policies or to co-operate in addressing international environmental problems. Rather it safeguards the integrity of the GATT.

Paragraph (g) provides for measures "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption". As argued by the panellists in the first Canada-US. Salmon and Herring dispute, the question of whether or not a measure is "relating to the conservation of exhaustible natural resources" is one of whether or not it has a true conservation purpose. In turn, as the panellists in the second Canada-US Salmon and Herring dispute noted, this is simply the obverse of the second proviso of the preamble to Article XX, that the measure is not a "disguised restriction on international trade". Some indication of how one might go about determining the proportionality of measures is provided by these and other dispute panellists.

According to the panel report from the first Canada-US Salmon and Herring dispute "the purpose of including Article XX(g) in the General Agreement was not to widen the scope for measures serving trade policy purposes but merely to ensure that the commitments under the General Agreement do not hinder the pursuit of policies aimed at the conservation of exhaustive (sic) resources". As a result, the panellists concluded that to be considered to be "relating to" conservation within the meaning of Article XX(g) a measure must be "primarily aimed at" such conservation.

Tariff Act of 1930" (L/6439), paragraph 5.26, adopted on 7 Nov. 1989, in BISD 36S, 1990.

Accordingly this is a somewhat weaker requirement than the "necessary to" requirement in Article XX(b). At the same time, the panel considered that the phrase "in conjunction with" had to be understood in the light of the purpose for which it had been included in the General Agreement. Therefore, a measure could only "be considered to be made effective 'in conjunction with' production restrictions if it was primarily aimed at rendering effective these restrictions" (para 4.6).

The "primarily aimed at" test was developed further in the panel report on the second Canada-US Salmon and Herring dispute. Recognising that particular measures could have several effects including both conservationist and trade restricting, in the view of this panel ultimately the basis of the test is "if the measure would have been adopted for conservation reasons alone". In turn, the central issue in this test is whether the conservation benefits of the measure are sufficiently large to counterbalance the commercial inconvenience caused if that commercial inconvenience was being borne in the jurisdiction imposing the measure (paras 7.07-7.11). Moreover, as the panellists in the US-Mexico Tuna case observed, a country can effectively control the production or consumption of natural resources only to the extent that they are under its jurisdiction. Accordingly, the purpose of Article. XX(g) is to facilitate contracting parties implementing trade measures which are primarily aimed at rendering effective restrictions on exhaustible natural resource production or consumption "within their jurisdiction" (para 5.31, emphasis added).

WTO Article IX

Article IX.3 of the Agreement Establishing the WTO provides for a Ministerial Meeting to waive any WTO obligations in any circumstance they may wish. Clearly this is a provision with potential application for facilitating environmental measures which would otherwise be inconsistent with the WTO.

Part IV

In Article. XXXVII the developed country contracting parties committed themselves to refrain from introducing or increasing tariff or non-tariff barriers, including fiscal measures, on the products currently or potentially of particular export interest to the less-developed countries. Currently it is unclear what this obligation may mean for efforts to reduce the trade in unsustainably produced products including, for example, those associated with tropical forests. UNCTAD (1991b) suggests that more stringent environmental standards in the developed countries will not have only negative effects on the exports of the developing countries; often there will be positive consequences as well. Indeed, as regards this issue, these authors appear to be quite optimistic. They suggest at one point, for example, that "it is quite conceivable that for certain products a kind of dual world market will emerge: one of relatively expensive, high-tech, high-quality, more environmentally advanced products in the developed world and another market of relatively cheap products, less sophisticated or with a greater impact on the environment but adapted to the specific economic and environmental conditions in the developing world" (p. 10). The question remains as to whether, in those cases where the negative effects are preponderant, Article XXXVII provides an

obligation on the part of the developed countries to exempt or minimise the impact on developing country exporters from any environmentally motivated import restrictions they may wish to implement.

Relation of the GATT to International Environmental Agreements

The NAFTA is the first trade agreement to provide for the trade provisions of specified international environmental agreements taking precedence over it (NAFTA Article. 104). These international environmental agreements fall into two categories. One is the multilateral agreements to which all three NAFTA parties are signatories: CITES, the Montreal Protocol, and the Basel Convention upon its entry into force in all three parties. The other is the bilateral and regional agreements: the Canada-US agreement on the transboundary movement of hazardous waste, and the Mexico-US border area environment agreement. Article 104 also provides for the subsequent inclusion of any other international environmental agreement that the three parts agree to include. Unfortunately a multilateral version of this provision is not so simply constructed.

To the extent they have no third-party effects, there is no a priori reason why any rights and obligations arising from the trade-related provisions of any bilateral and regional environmental agreements, with the agreement of the parties concerned, should not also be automatically preserved over the GATT. The issue of multilateral environmental agreements is rather more problematic. There may not be a correspondence of signatories of the various international environmental agreements and the GATT, and no country would permit its trade advantages negotiated in the GATT to be eroded by the provisions of an

environmental agreement to which it is not a party. For much the same reasons, regional environmental agreements that have third party trade effects also pose difficulties. Nonetheless, the GATT must accommodate such international environmental agreements wherever their provisions intersect or overlap.

The European Community has proposed that "a collective interpretation of Article XX provides the best means of clarifying the relationship between the GATT and trade measures taken pursuant to [a multilateral environmental agreement]" (see "EC Proposal on Trade and Environment", in Inside US Trade - Special Report, 27 November 1992). This would entail establishing clear criteria in GATT Article XX on the use of trade measures in multilateral environment agreements. They suggest, in particular, the need to clarify and reinforce three crucial principles of Article XX: non-discrimination, "that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail"; legitimacy, that measures should not constitute "a disguised restriction on international trade"; and necessity, including primarily that the measure in question involves the least trade-restrictive means of achieving the environmental objective. Clearly these are parallel to the principles articulated in the third legitimacy test. Agreement on definitions for these principles is obviously important, therefore. However, in the meantime, important as these principles are and as helpful as their further definition would be, this approach seems unnecessarily complex. Entia non sunt multiplicanda praetor necessitatum!

The formulation and articulation of clear principles for the application of GATT Article XX will be difficult to negotiate, and there is no

particular reason why bringing bona fide multilateral environmental agreements into accordance with the GATT needs to be delayed by such negotiations. Indeed such unnecessary delays may serve only to underscore the concern of environmentalists that the GATT is an obstacle to proper environmental management. More to the point, further definition of these principles, the crucial Third Test for the unilateral use of TREPI, is less important within the context of multilateral environmental agreements. The purpose of sharpening the definition of these principles is to constrain the behaviour of individual authorities. Further definition or elaboration of key GATT principles helps to protect against deleterious actions by individual members, not against collective activities.

WTO Article 9 provides a better, if still not fully satisfactory, facility whereby international environmental agreements can be identified and agreement sought on a waiver of GATT obligations to their trade-related provisions, in the event of any inconsistency between them and the GATT. This procedure could be used for both multilateral environmental agreements and regional environmental agreements that have third party trade effects. While in practical terms this would permit the imposition of certain environment-related trade provisions and/or the nullification and impairment of negotiated benefits on a number of small developing countries, it could only occur with the support of two-thirds of the GATT membership. For any affected non-participants provision would need to be made for compensation, as is done for GATT Article XIX safeguard actions and GATT Article XXVIII negotiations. This, together with a provision for the periodic review and reauthorization of any such waivers from GATT disciplines would provide some assurance against charges of aggressive Northern or "environmental" hegemony.

To expedite the implementation of multilateral environmental agreements while waiting for a WTO waiver, Article 9 could be amended to provide for automatic approval of general categories of environmental agreements together with a requirement for their subsequent review and approval, in the manner of GATT Article XXIV.5/6 for trade agreements. Such general categories could be defined in accordance with criteria such as those proposed by the European Community. These are that the environmental agreement be negotiated under the auspices of the United Nations; that participation in its negotiation is open; that participation in its implementation and enforcement is equally available to all WTO members; and that regional environmental agreements should not have any extra-regional trade effects.

CONCLUSIONS

In this chapter we have noted the close symmetry between the core GATT principles and the three tests of legitimacy proposed earlier in this thesis. Therefore, it was argued, the use of any TREPI which meet the legitimacy tests should also be seen to be consistent with the GATT, and any conflict should be resolved by modification of the relevant GATT provisions. The current scope for the development of the GATT to be more accommodating to environmental concerns has been suggested by comparison with NAFTA provisions wherever possible.

In the review of the main GATT provisions and jurisprudence which could be expected to affect environmental measures, a number of issues were prominent. For example, although it was argued that there needs to

be a basic prohibition against the use of trade restrictions to enforce PPM standards, a number of specific exceptions were found to be justifiable. In the SPS trade restrictions to enforce environmental or health standards are permitted under certain circumstances. In providing this facility, a number of problems arise, however. Disputes over the validity of scientific evidence could frustrate the application of legitimate environmental or health standards. At the same time, it was seen that the adoption of the Codex Alimentarius into the SPS could seriously undermine the objectivity of the international standards that the Codex is meant to provide. It was also argued that Article XX (and its parallel provision in the GATS, Article XIV) requires clarification to provide explicitly for environmental measures. The chapter concluded by proposing a means by which the GATT could quite easily accommodate and coexist with international environmental agreements.

CHAPTER NINE

ENVIRONMENTAL SUBSIDIES AND COUNTERVAILING BORDER MEASURES

As discussed earlier, differences between environmental regimes can have commercial effects. Sometimes such effects can be justified by natural differences in environmental endowments or preferences. At other times, other factors may be involved, including the receipt by firms or industries of environmental subsidies. Foreign competitors may then complain that such subsidies are unfair and seek the application of countervailing duties on the imports of the product receiving such benefits. This issue is the subject of this chapter. We begin by looking at the matter of subsidies as they relate to environmental regulation. Then we consider the use of countervailing border measures.

Environmental Subsidies

The argument for providing domestic subsidies to firms and others to encourage or enable them to act in a more environmentally appropriate manner is quite straightforward. The domestic producer sees the increased regulatory burden as an impairment of his competitive position

and, accordingly, seeks public assistance to assuage or reduce the perceived disadvantage. Such assistance could be provided by many means including grants, loans at concessional interest rates, accelerated depreciation rates, and tax-deductible allowances. However it is provided, the advantage to the private sector is the externalisation of a portion of the cost of complying with public regulations which restrict their ability to externalise the environmental costs of their activities.

When considering an environment policy response to such subsidies, research indicates that pollution charges may be more effective than subsidies (see, for example, De Kock, 1980). Such pollution charges would also be in accord with the Polluter Pays Principle (PPP).

The PPP is a widely accepted principle regarding the provision of public assistance to facilitate the adoption of environmentally appropriate behaviour. It was adopted by the OECD in 1972 as part of a number of guiding principles concerning the international economic aspects of environmental policies. Its purpose is to encourage the internalisation of environmental costs in prices and markets, as well as to avoid any trade distortions which might occur as a result of different methods of financing pollution abatement. Accordingly the PPP requires that polluters should bear fully all expenses associated with the control and prevention of the pollution for which they are responsible. With limited exceptions, therefore, subsidies are contrary to the PPP.

OECD (1972) provides that "the principle to be used for allocating costs of pollution abatement and control measures to encourage rational use of scarce environmental resources and to avoid distortions in international trade and investment is the so-called 'Polluter-Pays

Principle'. This Principle means that the polluter should bear the expenses of carrying out the above mentioned measures decided by public authorities to ensure that the environment is in an acceptable state. In other words, the cost of these measures should be reflected in the costs of goods and services which cause pollution in production and/or consumption. Such measures should not be accompanied by subsidies that would create significant distortions in international trade and investment" (para. 4).

In 1974 the OECD provided further definition on the implementation of the PPP. Important in this extended PPP is the provision for a number of exceptions. Public assistance could be provided in any of three circumstances: first, to ease transition periods when especially tough new environmental policies are being implemented; second, to stimulate the development of new environmentally appropriate technologies; and third, where necessary to facilitate other socio-economic programs such as regional development. Any such subsidies must be provided for only a fixed period of time, be in a clearly identifiable program, and should not distort international trade or investment.

Along with the adoption of the extended PPP by the OECD in 1974, agreement was also reached on the establishment of a notification and consultation system. To date, four surveys have been carried out under the notification procedures: in 1975, 1978-9, 1981-2, and 1987-8. Although the data compiled in these surveys is not as comprehensive as could be desired, they suggest that, overall, the level of environment-related subsidies have not been significant. It should be noted, however, that this conclusion is based on central government programs only, conceals sector-specific differences, and does not preclude substantially

higher levels of environmental subsidies being provided in the future as environmental policies become more broad-ranging and demanding. No request to use the consultations facility has yet been submitted.

Wherever the PPP is not fully implemented the presence of environmental subsidies may be suspected. Domestic environment-related subsidies, as indeed other types of subsidies, can be understood either in terms of the "cost to the Treasury" or "benefit to the recipient". The first of these involves the calculation of the amount of a subsidy by reference to the effect on the government accounts. This would include both expenditures by government as well as revenue foregone such as tax exemptions or deferrals. The second approach to subsidy calculation looks at the value to the recipient of the benefits in question. For example, while a government guarantee of a loan may not involve any immediate budgetary cost to the government, it provides a very definite benefit to the recipient. Indeed, since the "benefit to the recipient" would not normally be less than the "cost to the Treasury" it could be argued that the full market distortion effect of subsidies is best evaluated by use of the "benefit to the recipient" approach. The new WTO Subsidies and Countervailing Measures (SCM) Code has adopted this distinction by providing that while the existence of a subsidy is determined by reference to a financial contribution by government, the calculation of the amount of the subsidy for the purpose of the countervailing measure is made in terms of the benefit to the recipient (see SCM Article 14).

Although the identification of fiscal costs under the "cost to the Treasury" approach is relatively straightforward since they are usually a matter of public record, other benefits which can be made available to a recipient are less transparent. Notably such benefits could include weak

regulations, exemptions from regulations or discriminatory regulations. While the OECD notification system and the WTO Agreement on Subsidies and Countervailing Measures (SCM) have focused on "cost to the Treasury" benefits to determine the existence of a subsidy, the PPP can be interpreted to include also the relatively opaque benefits derived from regulatory differentials. Such differentials may have a zero or de minimis cost to the Treasury even though they give rise to significant market distortions and to substantial derogations from the PPP. This then raises the problem of enforcing the PPP.

The PPP may be enforceable by way of domestic countervailing duty laws or through the GATT SCM procedures for subsidies of the "cost to the Treasury" type. Given that the GATT SCM's definition of a subsidy is in such terms,[63] and because of the fungability of money, "cost to the Treasury" benefits could be addressed by way of standard countervailing duty laws. This is possible because, with very limited exceptions, the specific purpose of the assistance is not directly relevant to the prosecution of a countervailing duty case. But where the subsidies in question are indirect or nonfinancial no avenues of enforcement for the PPP are available. Moreover other OECD principles would conflict with any compensatory import measures and export rebates implemented in response to such subsidies.[64]

---

63 Article 1.1(a) refers to "a financial contribution by a government", or to where "there is any form of income or price support in the sense of Article XVI of the General Agreement". Regarding the scope of this latter aspect a GATT Panel report adopted on 24 May 1960 on the Review pursuant to Article XVI.5 agreed that if "a government fixes by law a minimum price to producers which is maintained by quantitative restrictions or a flexible tariff or similar charges... there would be no loss to the government, and the measure would not be governed by Article XVI" (emphasis added).

64 Including especially the CILER Principle, as discussed below under "Border Charges and Taxes", at p. 12.

In looking at subsidisation a number of distinctions need to be made. Subsidies can entail the externalisation of environmental costs and may be either general or specific. Likewise, they could involve the externalisation of environmental protection costs and, again, may be either general or specific. The first is a case of a lack of environmental regulation or regulatory enforcement, also known as "ecodumping", while the latter is a case of providing government assistance to facilitate compliance with the applicable environmental regulations. Each of these cases will be considered in turn.

1. Ecodumping

Generally poor environmental management, defined as economic activity by most firms and industries above the environmental threshold, *Emax*, is sometimes called "ecodumping". In this case two issues must be distinguished. These parallel the First Test described in Chapter 3: first, whether or not this results in extra-jurisdictional environmental or economic effects; and second, whether or not the responsible jurisdiction has the ability to manage its environment in a more responsible and sustainable manner.

Clearly if the responsible jurisdiction lacks either the expertise or the resources to effect higher environmental standards then the best course of action would be to provide any necessary support and assistance. Similarly, if the concern arising from the generally poor environmental standards was extra-jurisdictional environmental damage, the onus would be on any jurisdiction, or group of jurisdictions, implementing border measures to prove that such measures were the most effective means available of inducing the necessary improvements

to the offending environmental policy. This reflects the Second Test described in Chapter 4 which emphasised the importance of ensuring that the use of a TREPI would be effective.

Where avoidable generally inadequate environmental management prevails which has extra-jurisdictional economic consequences, it could be represented as constituting commercially predatory behaviour, and giving those affected by such behaviour a right to take countermeasures. This was an important motivation behind the negotiation of the North American Agreement on Environmental Co-operation (final draft, 13 September 1993). When the extra-jurisdictional effects at issue are environmental, it is legitimate to question whether or not financial countermeasures would be an optimal response; there should be a presumption against their use. Whenever the extra-jurisdictional effects at issue are economic, however, a stronger prima facie case for using financial countermeasures exists. Indeed, whenever they would be effective, the desirability of using financial measures may in principle be presumed, since they are as a rule to be preferred to quantitative measures. The primary issue becomes the proportionality of the countermeasure. However, since most available evidence suggests that, for most industries, international regulatory differences are not yet, of themselves, sufficiently large to have significant competitive or investment relocation effects, it would follow that they would not cause material commercial injury, and so would not be actionable. One may conclude, therefore, that even in the case of avoidable generally inadequate environmental regulation, financial countermeasures would not likely provide the optimal solution. More importantly, as we saw in Chapter 4, it is unlikely that unilateral countermeasures would be effective.

Accordingly, a multilateral dispute settlement mechanism with multilateral enforcement needs to be provided for.

2. "Green" Subsidies

In the GATT SCM the contracting parties agreed that a subsidy exists when "there is a financial contribution by a government or any public body within the territory of a Member", including direct transfers of funds, government revenue foregone, government provision of goods and services (other than general infrastructure) or the purchase of goods, and a benefit is thereby conferred (SCM Article 1.1). However, before countervailing measures can be taken, it must first be established that, amongst other things, such government assistance is not "generally available", or under one of the exceptions provided for.

If a subsidy exists, the SCM provides that to be actionable it must also be "specific". Three principles are given in the SCM for determining specificity within the territory of the subsidising country: first, specificity exists "where the granting authority, or the legislation pursuant to which the granting authority operates, explicitly limits access to a subsidy to certain enterprises"[65]; second, specificity does not exist if the subsidy is provided subject to objective, transparent, and automatic criteria; and third, in addition to being de jure non-specific in terms of the two principles above, a subsidy must also be de facto non-specific. Taking account of the extent of diversification of economic activities in the subsidising country and the length of time that the subsidy program has been in operation, the considerations here are whether the subsidy is used only by a limited number of enterprises, predominantly used by certain

enterprises, granted disproportionately to certain enterprises, and the amount of discretion exercised by the granting authority.

In addition to these three principles, specificity will be deemed to exist whenever the subsidy is granted contingent, whether solely or as one of several other conditions, in law or in fact on export performance, or on import substitution.

Subsidies that are not specific, that are "generally available" within the jurisdiction of the granting authority, are not actionable under the current WTO rules. Subsidies that would be exceptions under the new SCM would also be permitted or non-actionable.

The exceptions contained in the SCM find their origins in the 1974 extended OECD PPP. They are for subsidies provided under certain defined circumstances, under certain conditions, and within the context of research and development programs, and regional development programs. Any subsidies for which an exception is to be invoked must be notified in advance of implementation, in such detail as to permit Members to evaluate their consistency with the criteria for exception, and annual updates on the subsidy provided. Upon a request by a Member, all such information shall be reviewed by the Secretariat of the WTO for its consistency with the SCM provisions, and the matter may subsequently be sent for binding arbitration.

Of particular relevance, the SCM permits government assistance to ease the burden on companies of adapting facilities to new environmental laws or regulations. Such assistance must be non-recurring, limited to 20

---

65 The term "certain enterprises" means "an enterprise or industry or group of enterprises or

per cent of the cost of such adaptation, and apply only to facilities more than two years old. Moreover, the assistance must "not cover the cost of replacing and operating the assisted investment, which must be fully borne by firms; and is directly linked to and proportionate to a firm's planned reduction of nuisances and pollution, and does not cover any manufacturing cost savings which may be achieved; and is available to all firms which can adopt the new equipment and/or production process" (SCM Article. 8.2(c)).

These new exemptions, including the environmental exemption, are not absolute. Even if a programme is found to be consistent with the relevant criteria, as laid down in SCM Article 8, if it causes "serious adverse affects to the industry of [another] Member", SCM Article 9 provides for consultations and multilateral review. Such a review could lead to the authorisation of "appropriate countermeasures commensurate with the nature and degree of the effects determined to exist."

Notwithstanding this new provision in the GATT SCM, and because green subsidies are a relatively new sort of subsidy, it is unfortunate that the SCM permits unilateral action, especially on a benefit to the recipient basis. Rather, in this new and contentious area of trade and the environment a mandatory multilateral dispute settlement mechanism should be provided for.

Countervailing Border Measures

In principle financial border restrictions can be divided into those which are motivated by environmental considerations and those which are

---

industries".

motivated by commercial or economic considerations. Normally, however, commercial or economic considerations are the main motivation; border charges and taxes, whether as import levies or as export rebates, are often sought as a means of equalising competitive disadvantages which might otherwise occur as a result of international environmental regulatory differentials, or the provision by government of assistance with costs arising from environmental regulation.

Since 1972 such charges and taxes have been prohibited under the Compensating Import Levies and Export Rebates (CILER) Principle, adopted by the OECD as part of their "Guiding Principles Concerning the International Economic Aspects of Environmental Policies". The authors of the CILER Principle, fearing the rise of pressures to adopt protectionist measures in response to competition from countries with lower environmental standards, agreed to prohibit the use of compensatory measures in response to environmental regulatory differentials. However, as was recognised by the OECD at the time they drafted their "Guiding Principles", this Principle is valid only to the extent that the Polluter Pays Principle (PPP) is honoured. Because, and to the extent that, the PPP is not implemented, an exception to the CILER Principle to facilitate the enforcement of the PPP is necessary.

The CILER Principle is also not fully in accordance with GATT provisions, as the US Superfund case demonstrates. In this case the US imposed a tax on certain chemicals and a corresponding border tax on the like products in order that the US producers of the affected chemicals were not disadvantaged. As the EC and others pointed out, this is contrary to the CILER Principle. The US successfully argued, however, that the CILER Principle was only a recommendation of the OECD with no

effect on the GATT. Moreover, on the basis of the conclusions adopted in 1970 of a GATT Working Party on Border Tax Adjustments, the dispute panel found that "the tax adjustment rules of the General Agreement distinguish between taxes on products and taxes not directly levied on products; they do not distinguish between taxes with different policy purposes. Whether a sales tax is levied on a product for general revenue purposes or to encourage the rational use of environmental resources, is therefore not relevant for the determination of the eligibility of a tax for border-tax adjustment" (para. 5.2.4).

Thus the GATT jurisprudence contains an exception to the CILER Principle. Where environmental regulatory differentials are effected by way of taxing products, import levies or export rebates may be implemented to compensate for any competitive disadvantage which may result. Note that this would not apply to taxes on production processes, and again the distinction between "cost to the Treasury" and "benefit to the recipient" appears to be important. Where environmental policy differentials are of the relatively transparent "cost to the Treasury" type there appears to be greater scope for permitting compensating import levies and export rebates.

In light of these difficulties, the CILER principle needs to be fundamentally reconsidered. But facilitating compensatory border measures is also fraught with difficulties.

In the case of quantitative border restrictions, as well as being very crude instruments, they entail economic costs in addition to those caused by financial restrictions. This is because quantitative border restrictions provide economic rents to the quota holders as well as increasing the

market power of import-competing domestic producers. But financial restrictions, or environmental tariffs, pose complex practical and technical problems.

Four arguments are widely proffered in favour of the use of financial measures, or environmental tariffs. First, they are seen to be a means of reducing domestic pressures to lower environmental standards in the face of competition from imports subject to less onerous standards abroad. In this regard they are seen as tools for the restoration of "fair" competition. The second argument, related to the first, is that environmental tariffs reduce the cost advantage of investing in locations with lower environmental production standards and then exporting products back to the country with the higher production standards. The extent to which either of these concerns has empirical justification has yet to be proven. A third reason given for applying environmental tariffs is that they may encourage competitors to internalise fully the environmental costs of their activities. This may be seen to be desirable either for commercial reasons or solely as an environmental measure. Fourth, it is indisputably the case that environmental subsidisation does occur. Accordingly corrective measures, in the form of offsetting environmental border duties or tariffs, are seen to be both desirable and justifiable.

Against these points, however, there are a number of reasons for caution. First, there are legitimate international differences in the levels of optimal environmental standards. These differences are an important source of the comparative advantage that international trade is ostensibly founded upon. Second, the unilateral and extra-jurisdictional application of environmental judgements and preferences that the use of environmental tariffs entails, would constitute a grievous and

unacceptable impairment of national sovereignty. Third, the use of environmental tariffs would facilitate abuse by domestic interests seeking protection against competition for non-environmental reasons. At the same time it would provide a means for domestic producers to avoid the perceived competitive disadvantages of higher domestic environmental standards. This is somewhat ironic in so far as much evidence to date indicates that "green" business practices often improve competitiveness, so such avoidance would in fact tend to impair international competitiveness. Fourth, from an environmental point of view, countervailing environmental duties may be ineffective: the exporting firms may simply absorb the additional costs and, as we have already discussed, sanctions usually do not work. Fifth, it should be noted that if there is no domestic production there cannot be injury. Both countervailing and antidumping duty laws require that, in addition to a demonstration of the existence of a subsidy or dumping, a domestic industry must be injured and that a causal connection between the subsidy or dumping and the injury must be demonstrated. Accordingly, the use of such instruments for environmental purposes could be of only limited application. Finally, even if all the economic arguments were overridden by environmental concerns, and all the political problems set aside in a demonstration of "leadership", and it was demonstrated that, on balance, there would be positive environmental benefits, still the practical complexities of estimating the size of the environmental subsidy and implementing the offsetting tariffs remain immense. Any resulting instrument would be extremely crude, could be employed only by a few big players, and would, therefore, be only a "bully" option. International bullying cannot be expected to be the optimal or even a useful means of developing the international co-operation that will be required to develop and conduct globally responsible environment policies.

Fortunately, as we have already seen, to date there is limited evidence of purposive environment-related subsidisation. Nonetheless, a number of commentators, mainly from the US, have suggested the use of domestic countervailing or antidumping duty laws in response to perceived environmental regulatory differentials. Komoroski (1988), for example, argues that a government's failure to provide adequate environmental regulation could be a countervailable subsidy. More recently, Commissioner David Rohr of the US International Trade Commission has put the case for using both types of "fair-trade" laws. In Rohr's view, countervailing duty laws would be appropriately applied in cases where a firm received a derogation from the generally applicable environmental standards in its country of operation, while antidumping duty laws would be applied wherever environmental standards were found to be generally lax or non-existent. In this latter regard, Rohr recommends the use of the facility in US antidumping law to make certain assumptions regarding cost of production and to devise "constructed value scenarios".[66]

Clearly the concern of many trade policy analysts that there could be a destructive proliferation of protectionist border measures in response to environmental regulatory differentials, if they were not otherwise prohibited, is not without foundation. Nonetheless, it is also true that for some industries environmental regulatory differentials may impair relative competitiveness and, as a result, there will be continuing political pressure to respond. Such response could be either to harmonise standards at the lowest common denominator or to offset whatever competitive advantage is derived from inadequate environmental standards or purposive

environmental subsidisation. Ruling out the first option as an inappropriate response because of its insensitivity to ecosystemic differences, there is a need to develop a system which controls rather than prohibits compensatory measures. Such a system should be multilateral; in order to forestall the otherwise inevitable resort to unilateralism it will be important to provide a credible multilateral mechanism for the settlement of environment-related trade disputes. The difficulties in developing such a system, as discussed above, should not be underestimated. The threat of resort to destructive unilateralism in the absence of a credible multilateral dispute resolution system, however, is potentially an even greater threat.

Important US Congressional support for such a multilateral system was provided by Senator Max Baucus in a speech he gave before the Institute for International Economics on 31 October 1991. The Senator argued erroneously that "if imported products or the process used to produce those products doesn't meet the importing nation's environmental standards, duties can be applied to the imported product". Clearly ecosystemic differences indicate that the relevant environmental standards should be those of the exporting country or any relevant international environmental agreements. Nonetheless, the conditions stipulated by the Senator for the application of duties are helpful: "First, the environmental protection standards applied must have a sound scientific basis. Second, the same standards must be applied to all competitive domestic production." Significantly, he also suggests that "a GATT dispute settlement body similar to that established under the Subsidies Code should settle disputes regarding [such matters]".

---

66 These include such crude, untenable assumptions as that general, selling, and administrative expenses are not less than 8 per cent, and a profit of at least 8 per cent is made. Commissioner Rohr's

It will also be important to acknowledge that wherever any alleged subsidisation is in the form of generally inadequate environmental standards and the responsible jurisdiction lacks either the expertise or the resources to effect higher environmental standards, the correct course of action would be to provide any necessary assistance, not to implement economic penalties. Similarly, if the concern arising from generally poor environmental standards was extra-jurisdictional environmental damage, the onus would be on any jurisdiction, or group of jurisdictions, implementing any TREPI to prove that such measures were the most effective means available of inducing the necessary improvements to the offending environmental policy. Such a demonstration would need to be transparent and at least subject to the concurrence, if not the oversight, of a multilateral body.

CONCLUSIONS

There are two main types of environmental subsidy: externalising of the environmental costs of producing or trading of a good or service; and, compensation for internalising such costs. The first type may occur because the relevant authority is either unable or unwilling to do otherwise. If it is the case that the authority is unable, then border measures are unlikely to be appropriate instruments. Rather, positive assistance should be made available to help bring about an improvement in the environmental management. If the authority is unwilling to change then unilateral border measures are unlikely to be effective for the reasons that were discussed in chapter 4 concerning sanctions, and a multilateral dispute settlement route needs to be developed.

---

argument is contained in ITC (1991), pp. 6.8-6.9.

The second type of subsidy, the so-called "green" subsidy, where a firm or trader is compensated for internalising environmental costs which it had previously externalised, is permissible under three circumstances: first, if it does not entail a cost to the Treasury within the meaning of GATT SCM Article 1.1; second, if it is generally available throughout the jurisdiction of the granting authority; and third, when a subsidy meets the conditions of the GATT SCM environmental exemption. Green subsidies that do not come under any of these three “non-actionability” exemptions would be actionable in terms of the benefit to the recipient. Although GATT SCM Article 14 provides guidelines for the calculation of the benefit to the recipient of subsidies, they are new and untested. With green subsidies also being a new type of subsidy, unilateral determinations should be foreclosed and a mandatory multilateral dispute settlement mechanism provided for.

CHAPTER TEN

Summary and Conclusions

The central question of this thesis has been when would the use of international trade restrictions in support of environmental measures TREPI) would be justified. Three principal communities of interests were identified that must be reconciled in any possible solution to this question: the international trade community, the environmental community, and the development community. The main problem in finding such a reconciliation is that each approaches the problem with its own world view, priorities and suspicions. A key contribution of this thesis is in its proposal of a possible solution: a three-part legitimacy test.

We began our enquiry by examining the basis of environmental standards, and showed that they must be established and differentiated according to the relevant ecosystem, and the limits of ecosystems must be respected. Little reason was found for distinguishing the application of environmental standards according to wealth, as some LDCs have proposed. This does not mean that there could not be any differentiation in the treatment of LDCs and richer countries, or that TREPI should not be used.

Whether the use of TREPI might be considered legitimate was the next issue considered. It was suggested that an examination of the interaction of the economic, ecological, and political dimensions of the international system is a good place to begin to understand the links between international trade and the environment. This examination also suggested a first test of the legitimate use of TREPI: whether a jurisdiction is materially affected or not. Before the use of TREPI can be considered legitimate, however, it was argued that two additional tests must also be met.

The second test asked whether or not the proposed action would be effective. In exploring this aspect of the issue it was found that TREPI could be effective in a number of circumstances. They are effective, for example, when the international trade system is integral to an environmental problem. Similarly, they may be effective as multilateral sanctions, though not as unilateral sanctions. They may also be effective in response to certain commercial effects of environmental measures or regimes. However, in the case of commercial effects, it was found that it was not possible to distinguish objectively the role of environmental factors from other possible causes. Accordingly, it was argued that the use of TREPI in such circumstances should be avoided. Finally, it was found that the use of TREPI for sustainable development would also be effective. Importantly, it was emphasised that such use might entail either the application or the removal of TREPI.

The third test of the legitimacy of the use of TREPI is to determine whether it would be the least-cost effective option. It was shown that the use of integral TREPI for consumption-related environmental concerns, but not for production-related problems, would be legitimate. Likewise,

the use of TREPI as multilateral sanctions could also be legitimate. Finally, it was concluded that the application of domestic taxes and, to a lesser extent subsidies would be legitimate means of furthering sustainable development. It was further argued that reference to three principles would increase the probability that a measure will be the least cost and least disruptive alternative available: that the use of the proposed TREPI be developed and applied in a transparent manner; that it is proportional to its intended purpose; and that it is non-discriminatory in both its application and effect.

To show how this three-part legitimacy test might work in practice, three cases were considered. The first case looked at the GATT dispute regarding a Thai import prohibition on foreign cigarettes in support of efforts to improve public health. An example of integral TREPI, this case failed on several counts. The second case was the ongoing dispute between Europe and Canada, the US and Russia regarding furs caught with leg-hold traps. This was an example of the application of an import restriction, by Europe, as a sanction on the behaviour of another country. While some change in behaviour did occur, as predicted the use of TREPI as sanctions was very slow and inefficient. Finally we considered the possibility of using import restrictions to offset competitive disadvantages which are felt to arise when environmental regulations are different in one country than another. In this case, the effect at the industry level of environmental and animal welfare regulations on UK agriculture was found to be insignificant: no anti-competitive effect was found in the research results considered. Even though it was recognised that certain businesses would suffer competitive disadvantages, the use of trade restrictions was seen to be disproportionate, and a number of alternate courses of action suggested. It was acknowledged, however, that these

results could be superseded as the burden of regulations increases, and a facility for the use of financial border measures may need to be developed.

In all cases the legitimacy test proved to be a robust, effective and efficient means of evaluating whether the use of TREPI should be permitted or not.

It is generally agreed that the fundamental purpose of the GATT system is the furtherance of international trade liberalisation. Therefore, before considering the compatibility of the GATT system with the legitimate use of TREPI, this thesis next reviewed the interactions between trade liberalisation and the environment. Three aspects of this complex issue were emphasised: the content of trade; the distinction between systemic and intervention effects; and the effects of economic growth on the environment. It was found that free and open international trade relations were normally supportive of environmentally sustainable activities, but that the use of trade restrictions for environmental policy objectives may be advisable in certain circumstances.

In light of these findings, the thesis then considered the main aspects of the GATT system that might affect the use of TREPI. It was first noted that there is a symmetry between the core principles of the GATT and the third test of the legitimate use of TREPI. It was argued, therefore, that if the use of TREPI is found to be legitimate according to the three tests described earlier but its use is inconsistent with the GATT, then the GATT should be amended as necessary. Wherever appropriate, the scope for modification or clarification of the GATT was suggested by reference to the provisions of the NAFTA, and a number of proposals for

further improvement were made. In particular, a number of significant problems with the SPS agreement were disclosed.

The thesis concluded with an examination of the contentious matter of "environmental subsidisation", and the use of countervailing border measures. It was found that there are two main types of environmental subsidy: externalising of the environmental costs of an activity, or environmental dumping; and compensation for internalising such costs, or the receipt of "green" subsidies. Regarding environmental dumping, no case was found for the unilateral use of TREPI. The receipt of "green" subsidies, by comparison, was found to be permissible under the new WTO Agreement on Subsidies and Countervailing Measures in certain circumstances, as equally is the unilateral use of countervailing duty (CVD) actions. The need for closer restriction, or even prohibition, of unilateral CVDs was suggested. The mandatory use of an appropriate multilateral dispute settlement system was proposed.

In summary, there have been two main purposes of this thesis. First, we sought to determine whether there could be a legitimate role for trade-related environmental policy instruments (TREPI). While we found that there were often too many relevant variables to articulate generally applicable conclusions, the use of the three-part legitimacy test elucidated a legitimate role for TREPI in certain cases and under certain circumstances.

The second purpose of this thesis was to determine whether, to the extent that TREPI have a legitimate role, the current international trade regime requires amendment to accommodate such use, and if so in what

ways. Here we identified a number of areas which would benefit from modification or clarification.

TABLES

The notes for the tables are given as endnotes, following the tables.

TABLE 6[1]

COUNTRY	% POP. GROWTH 1980-90	% POP. URBAN 1990	% POP. WITH SANITATION, 1988[2]		% POP. WITH SAFE WATER, 1988[3]	
			URBAN	RURAL	URBAN	RURAL
LOW INCOME	2.0 (2.6)[4]	N/A	N/A	N/A	N/A	N/A
CHINA	1.4	33.4	100	95	87	66
INDIA	2.1	27.0	38	4	79	73
PAKISTAN	3.1	32.0	40	8	99	35
SRI LANKA	1.4	21.4	74	44	87	40
KENYA	3.8	23.6	89	19	85	15
SUDAN	2.7	22.0	40	5	90	20
ZAMBIA	3.7	49.9	77	34	76	43
MID INCOME	2.0	N/A	N/A	N/A	N/A	N/A
PHILIPPINES	2.4	42.6	98	85	100	75
CHILE	1.7	85.9	100	6	100	21
BRAZIL	2.2	74.9	89	41	100	86
S. KOREA	1.1	72.0	99	100	91	49
MEXICO	2.0	72.6	100	12	79	49
MALAYSIA	2.6	43.0	100	75	92	68
THAILAND	1.8	22.6	84	41	67	76
OECD	0.6	N/A	N/A	N/A	N/A	N/A
US	0.9	75.0	N/A	N/A	N/A	N/A
JAPAN	0.6	77.0	N/A	N/A	N/A	N/A
GERMANY	0.1	87.4	100	100	100	100
AUSTRALIA	1.5	85.5	N/A	N/A	N/A	N/A
UK	0.2	89.1	100	100	100	100
FRANCE	0.5	74.3	100	100	100	100
CANADA	1.0	77.1	N/A	N/A	N/A	N/A
WORLD	1.7	45.2	N/A	N/A	N/A	N/A

TABLE 7[5]

COUNTRY	FERTILIZER KILOS/HECT 1987-89	PESTICIDE KILOS/HECT 1982-84
CHINA	255	1.66
INDIA	62	0.31
PAKISTAN	85	0.09
SRI LANKA	107	0.37
KENYA	47	0.54
SUDAN	4	N/A
ZAMBIA	17	N/A
PHILIPPINES	64	0.55
CHILE	73	0.40
BRAZIL	46	0.59
S. KOREA	411	5.77
MEXICO	73	1.12
MALAYSIA	150	1.99[6]
THAILAND	33	1.01
US	95	1.97
JAPAN	425	6.90
GERMANY	405	1.89
AUSTRALIA	26	1.33
UK	359	5.07
FRANCE	312	5.16
CANADA	47	1.19
WORLD	97	N/A

TABLE 8[7]

COUNTRY	CO2 PER CAPITA 1989 TONNES[8]	CFC 1989 '000 TONNES	AIR POLLUTION 1983-86[9]		WATER POLL. 1983-86[10]	
			SO2	PARTICULANT	OXYGEN 11	FECAL[12]
CHINA	2.16	12	103.3	368.7	8.6	788
INDIA	0.77	4	46.4	320.8	7.16	1580
PAKISTAN	0.51	6	N/A	496	6.6	431
BANGLADESH	0.11	0	N/A	N/A	6.6	700
EGYPT	1.54	3	129	N/A	N/A	N/A
GHANA	0.26	1	N/A	108	N/A	N/A
SUDAN	0.33	N/A	N/A	N/A	8.2	N/A
PHILIPPINES	0.66	1	34.0	205	7.9	N/A
CHILE	2.45	0	65.5	N/A	12.65	354
BRAZIL	1.39	6	46.0	98	7.17	6784
S. KOREA	5.20	5	N/A	N/A	10.5	8
MEXICO	3.70	5	N/A	N/A	4.77	55849
MALAYSIA	2.82	2	24.0	139.5	5.4	N/A
THAILAND	1.43	3	15.0	205	7.0	2235
US	19.68	130	33.0	62.7	10.33	821
JAPAN	8.46	95	26.75	50	10.13	12101
GERMANY	10.48	27	56	39	N/A	N/A
AUSTRALIA	15.46	8	16.33	76.67	8.8	103
UK	9.89	25	42.75	75	10.3	N/A
FRANCE	6.38	24	N/A	N/A	N/A	N/A
CANADA	17.33	11	22.5	76.86	N/A	N/A
OECD	12.46	N/A	N/A	N/A	N/A	N/A
WORLD	4.21	580	N/A	N/A	N/A	N/A

TABLE 9[13]

COUNTRY	ENERGY USE 1989			ENERGY USE BY SECTOR 1989 PER CENT[14]			
	GIGA-JOULES PER CAPITA[15]	MEGAJOULES PER US$ GDP[16]		AGRI	IND'TRY	TRANSP	OTHER
		AGRI	IND				
CHINA	23	8	66	5	64	5	25
INDIA	9	2	33	3	53	25	18
PAKISTAN	8	2	34	3	46	26	24
SRI LANKA	3	0	8	0	13	61	27
KENYA	3	1	15	1	24	50	25
SUDAN	2	N/A	N/A	11	36	46	8
ZAMBIA	6	2	16	2	65	19	13
PHILIPPINES	9	3	9	8	32	23	37
CHILE	35	N/A	N/A	0	42	39	18
BRAZIL	23	6	10	5	39	37	19
S. KOREA	65	3	12	3	43	20	34
MEXICO	51	5	23	3	42	34	21
MALAYSIA	41	N/A	N/A	0	44	40	17
THAILAND	18	7	7	9	24	54	14
US	295	6	12	1	30	35	34
JAPAN	118	3	5	2	46	24	28
GERMANY	156	4	6	1	35	26	37
AUSTRALIA	211	5	10	2	37	39	22
UK	147	4	7	1	29	31	40
FRANCE	115	5	7	2	31	29	38
CANADA	321	9	15	2	37	26	35

NOTES FOR THE TABLES

1 Sources: World Bank (1992), Table 26; World Resources Institute (1992), Tables 16.4, 17.2.

2 Sudan and Germany, 1986 data; UK and France, 1985 data.

3 Sudan and Germany, 1986 data; UK and France, 1985 data.

4 Low income other than China and India.

5 Source: World Resources Institute (1992), Tables 18.1, 18.2, and 18.3.

6 One year data only.

7 Sources: World Resources Institute (1992), Tables 24.1 and 24.2; World Bank (1992), Tables A.4 and A.5; and OECD (1991), p. 27.

8 Estimates are of the carbon dioxide emitted, 3.664 times the elemental carbon it contains.

9 Statistics are of aggregate concentrations divided by the number of observations. Annual mean concentration in micrograms per cubic meter.

10 Statistics are of aggregate concentrations divided by the number of observations.

11 Annual mean concentration in milligrams per litre. Germany, France, and Canada are 1991 averages of the last three years.

12 Annual mean concentration, number per 100-millilitre sample.

13 Source: World Resources Institute (1992), Tables 21.2 and 21.3.

14 Totals may not add to 100 per cent due to independent rounding. Data for Pakistan and Zambia are 1986; data for China, India, Sri Lanka, Chile, and Malaysia are 1988.

15 1 gigajoule = 1,000,000,000 joules = 947,800 BTUs.

16 1 megajoule = 1,000,000 joules = 947.8 BTUs.

BIBLIOGRAPHY

ACOST (1992) "Cleaner Technology", Report of the Advisory Council on Science and Technology, HMSO, London

Alanen, Leena (1996), "The Impact of Environmental Cost Internalisation on Sectoral Competitiveness: A New Conceptual Framework", UNCTAD Discussion Paper No. 119, Sept. 1996.

Anderson, Kym and Richard Blackhurst, (eds.), (1992), The Greening of World Trade Issues. Harvester-Wheatsheaf, London, 1992.

Arden-Clarke, Charles (1991) The General Agreement on Tariffs and Trade, Environmental Protection and Sustainable Development: A WWF Discussion Paper. World Wildlife Fund, Geneva, June 1991.

Boulding, Kenneth (1966) "The Economics of the Coming Spaceship Earth", in H. Jarrett, ed., Environmental Quality in a Growing Economy Johns Hopkins University Press, Baltimore, 1966.

Brett E. A. (1985) The World Economy Since the War: The Politics of Uneven Development. MacMillan, London.

Brittan, Sir Leon (1999), "Brittan: green issues must be at the heart of the WTO", Agri- Info, 15 March 1999.

Brown, Lester R. and Edward C. Wolf (1987), "Charting a Sustainable Course" in Lester R. Brown et al, State of the World, 1987, Worldwatch Institute, Washington, DC.

Brundtland, Gro Harlem (1997) Our Common Future: The Report of the World Commission on Environment and Development, Final Edited Manuscript, mimeo.

Burke, Tom (1998) "Environmental Regulation, Finance and TNCs" in Trade, Investment and Environment, a Conference held at The Royal Institute of International Affairs, 29-30 October, 1998.

Canada-U.S. Trade Commission (1989) In the Matter of Canada's Landing Requirement for Pacific Coast Salmon and Herring: Final Report of the Panel Established Under Chapter 18 of the Canada- U.S. Free-Trade Agreement, Ottawa 1989.

Canada-U.S. Trade Commission (1990) Lobsters from Canada: Final Report of the Panel Established Under Chapter 18 of the Canada-U.S. Free-Trade Agreement, Ottawa 1990.

Chandler, William U. (1987), "Designing Sustainable Economies" in Lester R. Brown et al, State of the World, 1987, Worldwatch Institute, Washington, DC.

Charnovitz, S. (1991), "Exploring the Environmental Exceptions in GATT Article XX" in Journal of World Trade, October 1991, 37-55.

Charnovitz, S. (1992), "Environmental and Labour Standards" in The World Economy , May 1992, 335-356.

Christensen, Eric (1990) "Pesticide Regulation and International Trade" in Environment, November 1990, 2-3, 44-45.

De Castro, Juan, (1994) "Internalisation of External Environmental Costs and Sustainable Development, UNCTAD Discussion Paper No. 81, March 1994.

De Kock (1980) "Government Financial Incentives for the Protection of the Environment", in M. Boothe, (ed.), Trends in Environmental Policy and Law, 1980.

Dean, Judith M. (1991) "Trade and the Environment: A Survey of the Literature" Background Paper, World Development Report, 1992 SAIS Johns Hopkins University, Washington DC, April 1991.

Demaret, et al , eds. (1997), Trade and Environment: The Search for Balance, Cameron May, London.

Dicken, Peter (1992) Global Shift: The Internationalisation of Economic Activity, 2nd edition, Paul Chapman Publishing, London.

Dohlman, Ebba (1990) "The Trade Effects of Environmental Regulation", in The OECD Observer 162 Feb-Mar 1990, 28-32.

Dommen, Edward (1993), ed. Fair Principles for Sustainable Development Published for the United Nations by Edward Elgar Ltd., Aldershot, UK.

Dryzek, John S. and Susan Hunter (1987), "Environmental Mediation for International Problems", in International Studies Quarterly (1987) 31, 87-102.

European Commission (1999), EC Strategy Paper on Trade and Environment in the New WTO Round, 23 February 1999, Brussels.

Esty, Daniel C. (1994) Greening the GATT: Trade, Environment, and the Future, Institute for International Economics, Washington, DC.

Financial Times, various editions.

Finlayson, Jock (1990) The End of the South? Developing Countries and International Trade Regimes in the 1990s, paper presented to a seminar of the Centre for Trade Policy and Law, Ottawa, April 4, 1990, mimeo.

Flanders, Karen (1990) Integrating Environment and Trade Policy: Third World Considerations, A Discussion Paper, Environment and Development Resource Centre, Brussels.

Fowler, Cary and Pat Mooney (1990) The Threatened Gene: Food, Politics, and the Loss of Genetic Diversity. Lutterworth Press, Cambridge.

Gabel, H. Landis (1992) The Environmental Effects of Trade in the Transport Sector, A Report for the OECD Joint Session of Trade and Environment Experts, mimeo.

GATT (1971) "Industrial Pollution Control and International Trade" GATT Studies in International Trade, No. 1. General Agreement on Tariffs and Trade, Geneva, April 1971.

GATT (1983) "United States-Prohibition of Imports of Tuna and Tuna Products from Canada", Report of the Panel adopted on 22 February 1982 (L/5198) in Basic Instruments and Selected Documents, 29th Suppl. 1981-82. Geneva 1983.

GATT (1988a) GATT Activities, 1988, 63-65 and 73-74.

GATT (1988b) "United States-Taxes on Petroleum and Certain Imported Substances", Report of the Panel adopted on 17 June 1987 (L/6175) in

Basic Instrument and Selected Documents 34th Suppl. 1986-87. Geneva 1988.

GATT (1989) "Canada-Measures Affecting Exports of Unprocessed Herring and Salmon", Report of the Panel adopted on 22 March 1988 (L/6268) in Basic Instruments and Selected Documents 35th Suppl. 1987-88. Geneva 1989.

GATT (1990) Trade Policy Review: United States. General Agreement on Tariffs and Trade, Geneva, March 1990.

GATT (1991a) "Environment initiative sparks debate on GATT role", and "GATT and the environment: a chronology", in GATT Focus 78 Jan-Feb 1991, pp. 3,5.

GATT (1991b) "Thailand-Restrictions on Importation of and Internal Taxes on Cigarettes", Report of the Panel adopted 7 Nov. 1990 (DS10/R) in Basic Instruments and Selected Documents 37th Suppl. 1990-91. Geneva 1991.

GATT (1991c) Trade Policy Review: The European Communities. General Agreement on Tariffs and Trade, Geneva, March 1991.

GATT (1991d) "Trade-Environment Debate Narrows Down Differences", in GATT Focus 82 July 1991, pp. 1-3

GATT (1991e) Trade and Environment: Factual Note by the Secretariat, L/6896, 18 September 1991.

GATT Focus, (86), Nov/Dec 1991.

GATT (1992), Trade and the Environment, advance copy with Press Release GATT/1529, 3 February 1992.

Georgescu-Roegen, Nicholas (1971) The Entropy Law and the Economic Process, Harvard University Press, Cambridge, Mass., 1971.

Government of Canada (1992) North American Free Trade Agreement: Canadian Environmental Review, October 1992, mimeo.

Grimmett, Jeanne J. (1991) "Environmental Regulation and the GATT", CRS Report for Congress. Congressional Research Service, The Library of Congress, Washington D.C., March 27,1991.

Grubb, Michael (1992) The Greenhouse Effect: Negotiating Targets, 2nd edition, Royal Institute of International Affairs, London.

Haas, Peter M. (1990) "Obtaining International Environmental Protection through Epistemic Consensus", in Millennium: Journal of International Studies, Vol.19 , No. 3, 347-363.

Hudson, Stewart (1992) "Trade, Environment and the Pursuit of Sustainable Development", in Patrick Low, ed., International Trade and the Environment , World Bank Discussion Paper 159, Washington, DC.

Hufbauer, Gary Clyde, Jeffrey J. Schott and Kimberly Ann Elliot (1990) Economic Sanctions Reconsidered: History and Current Policy, Second edition,Institute for International Economics, Washington, D.C., 1990.

ICI plc (1996), Submission to the Parliamentary Inquiry into World Trade and the Environment, 20 February, 1996, mimeo.

IFAP (1996), Trade and Environment - a farmers' perspective, IFAP, Paris, November, 1996.

IISD (1999), Report on the WTO's High-Level Symposium on Trade and Environment, 15-16 March, 1999, mimeo.

I.O.C.U. (1991) Buying the Earth: A Consumer Commentary on the Overlap Between World Trade and Environmental Problems, A discussion paper from the International Organisation of Consumers Unions, Geneva, April 1991.

Inside US Trade, various editions.

Jackson, John (1989) The World Trading System: Law and Policy of International Economic Relations. MIT, London.

Jacobs, Michael (1991) The Green Economy: Environment, Sustainable Development and the Politics of the Future. Pluto Press, London.

Koo, A.Y.C. (1974) "Environmental Repercussions and Trade Theory", in Review of Economics and Statistics 56, 235-44.

Kramer, Ludwig (1989) "The Open Society, Its Lawyers and Its Environment", in Journal of Environmental Law, 1(1) 1-9.

Low, Patrick (1992) "International Trade and the Environment: An Overview", in Patrick Low, ed., International Trade and the Environment , World Bank Discussion Paper 159, Washington, DC.

Low, Patrick and Raed Safadi (1992) "Trade Policy and Pollution", in Patrick Low, ed., International Trade and the Environment , World Bank Discussion Paper 159, Washington, DC.

Low, Patrick and Alexander Yeats (1992) "Do 'Dirty' Industries Migrate?", in Patrick Low, ed., International Trade and the Environment , World Bank Discussion Paper 159, Washington, DC.

Lucas, Robert E.B., et al (1992) "Economic Development, Environmental Regulation and the International Migration of Toxic Industrial Pollution: 1960-1988, in Patrick Low, ed., International Trade and the Environment , World Bank Discussion Paper 159, Washington, DC.

Lutz Ernst (1990) "Agricultural Trade Liberalisation, Price Changes and Environmental Effects" Divisional Working Paper No. 1990-16 Policy and Research Division, Environment Department, World Bank, Washington D.C., December 1990.

Mabey (1998) "Environmental Regulation and International Investment Agreements" in Trade, Investment and Environment, a Conference held at The Royal Institute of International Affairs, 29-30 October, 1998.

MAFF (1996) Agriculture in the United Kingdom, H.M Stationery Office, London.

MAFF (1997) Farm Accounts in England, 1994/95 and 1995/96, MAFF, London.

MAFF (1998) Farm Accounts in England, 1995/96 and 1996/97, MAFF, London.

MacNeill, Jim (1990a) "The Greening of International Relations", in International Journal Vol. XLV, No. 1, 1989-90, 1-35.

MacNeill, Jim (1990b) Sustainable Development and the Need for Global Bargains: A Report to the Quadrangular Forum. Institute for Research on Public Policy, Ottawa, June 1990.

MacNeill, Jim, Pieter Winsemius and Taizo Yakushiji, (1991), Beyond Interdependence: The Meshing of the World's Economy and the Earth's Ecology, A Trilateral Commission Book , Oxford University Press, New York, 1991.

Magee, S. and W. F. Ford, (1972), "Environmental Pollution, the Terms of Trade, and the Balance of Payments." Kyklos, vol. 25, pp. 101-18.

Meade, J. E. (1955), The Theory of International Economic Policy, Volume II: Trade and Welfare, Issued under the auspices of the Royal Institute of International Affairs, Oxford University Press, London, 1955.

Meadows, Donella H., et al, The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind, Universe Books, New York.

Nelder-Corvari, Carol (1989) "The Greening of the GATT: Trade and the Environment" Working Paper Canadian Department of Finance, Ottawa, December, 1989.

OECD (1978), Macroeconomic Evaluation of Environmental Programmes, OECD, Paris.

OECD (1989) Strengthening Environmental Co-operation with Developing Countries. OECD, Paris.

OECD (1991) Environmental Indicators: A Preliminary Set, OECD, Paris.

OECD Environment Committee (1991a) "Environment and trade: Major Environmental Issues", ENV/EC(91)4, 19 March 1991.

OECD Environment Committee (1991b) "Trade Issues in the Transfer of Clean Technologies", ENV/EC/TE(91)3, 20 Sept. 1991.

OECD Joint Session of Trade and Environment Experts (1991a) "Joint Report On Trade And Environment", COM/ENV/EC/TD(91)14/REV2, 14 May 1991.

OECD Joint Session of Trade and Environment Experts (1991b) "Summary Record of the Meeting Held on the 22nd May 1991", COM/ENV/EC/TD/M(91)3, 19 June 1991.

OECD Joint Session of Trade and Environment Experts (1991c) "Trade and Environment and the Developing Countries", COM/ENV/EC/TD(91)60, 20 Sept. 1991.

OECD Joint Session of Trade and Environment Experts (1991d) "OECD Guiding Principles Concerning the International Economic Aspects of Environmental Policies: Background and Discussion", COM/ENV/EC/TD(91)68, 31 Oct. 1991.

OECD Joint Session of Trade and Environment Experts (1991e) "The Applicability of the GATT to Trade and Environment Concerns", COM/ENV/EC/TD(91) 66, 04 Nov. 1991.

OECD Joint Session of Trade and Development Experts (1991f) "Trade and Environment: Major Issues for Discussion", COM/ENV/EC/TD(91)78, 15 Nov. 1991.

OECD Trade Committee (1989a) "Controlling the Trade Effects of Environmental Measures", TC(89)3, 7 Feb 1989.

OECD Trade Committee (1989b) "Trade and the Environment", TC(89)9, 28 June 1989.

OECD Trade Committee (1990a) "Trade and the Environment: Issues Arising With Respect to the Trading System", TD/TC(90)14, 3 July 1990.

OECD Trade Committee (1990b) "Trade and Environment", TD/TC(90)20, 11 Oct. 1990.

OECD Trade Committee (1991a) "Trade and the Environment: A Discussion of Some Current Views", TD/TC/WP(91)5, 4 Feb. 1991.

OECD Trade Committee (1991b) "Checklist of Environmental Instruments for Assessing Their Potential Trade Impact", TD/TC/WP(91)6/REV1, 26 March 1991.

Park, Chris C. ed. (1986) Environmental Policies: An International Review. Croom Helm, London.

Pasurka, C. (1985) "Environmental Control Costs and US Effective Rates of Protection" in Public Finance Quarterly, vol. 13, pp. 161-82.

Pearce, David W. (1991) Trade and the Environment, 24 Sept. 1991, mimeo.

Pearce, David W. and R. Kerry Turner (1990) Economics of Natural Resources and the Environment. Harvester Wheatsheaf, London.

Pestel, Eduard (1989) Beyond the Limits to Growth: A Report to the Club of Rome. Universe Books, New York.

Pethig, R. (1976) "Pollution, Welfare, and Environmental Policy in the Theory of Competitive Advantage", in Journal of Environmental Economics and Management 2; 160-9.

Radetzki, Marian (1992) "Economic Growth and Environment", in Patrick Low, ed., International Trade and the Environment , World Bank Discussion Paper 159, Washington, DC.

Raghavan, Chakravarthi (1990) Recolonization: GATT, the Uruguay Round and the Third World. Zed Books, London.

Redclift, Michael (1984) Development and the Environmental Crisis: Red or Green Alternatives? Methuen, London.

Richardson, JD, and JH Mutti, (1976), "Industrial Development through Environmental Controls: The International Competitive Aspect." In I. Walter (ed.) Studies in Internatioal Environmental Economics. Wiley, New York.

Robinson, HD. (1988), "Industrial Pollution Abatement: the Impact on the Balance of Trade", Canadian Journal of Economics, vol. 21 (February), pp. 187-99.

Royal Institute of International Affairs (1997), Trade and Environment: Conflict or Compatibility?, Proceedings of the conference held on 11 April 1997, London.

Ritchie, Mark (1990) The Environmental Implications of the GATT Negotiations. Institute for Agriculture and Trade Policy, Minneapolis.

RSPCA, et al (1997) Animal Protection and the Multilateral Trade Regime of the World Trade Organisation. Mimeo.

Rubin, Seymour J. and Thomas R. Graham eds. (1982) Environment and Trade: The Relation of International Trade and Environment Policy. Frances Pinter, London.

Ruggiero, R. (1998), "GATT at 50 – New Challenges" in Trade, Investment and Environment, a Conference held at The Royal Institute of International Affairs, 29-30 October, 1998.

Sand, Peter H. (1990) "Innovations in International Environmental Governance" in Environment, 32(9), Nov. 1990.

Sandbach, Francis (1982) Principles of Pollution Control. Longman, New York.

Shahin, Magda (1998) "The Future of the Trade/Investment/Environment Debate" in Trade, Investment and Environment, a Conference held at The Royal Institute of International Affairs, 29-30 October, 1998.

Shrybman Steven (1988) Selling Canada's Environment Short: The Environmental Case Against The Trade Deal, Canadian Environmental Law Association, Toronto.

Shrybman, Steven (1990a) "International Trade and the Environment: An Environmental Assessment of the General Agreement on Tariffs and Trade" in The Ecologist 20, Jan-Feb 1990.

Shrybman, Steven (1990b) "International Trade and the Environment: An Environmental Assessment of the Present GATT Negotiations" in Alternatives Vol. 17 No. 2, 1990, 20-29.

Shrybman, Steven (1999) "The World Trade Organisation: The New World Constitution Laid Bare", The Ecologist, vol. 29, no. 4, July 1999, pp. 270-75.

Shutt, Harry (1985) The Myth of Free Trade: Patterns of Protectionism Since 1945. The Economist Publications, London.

Siebert, H., et al (1980) Trade and the Environment; a Theoretical Enquiry. Elsevier, Amsterdam.

Siebert, H. (1985), "Spatial Aspects of Environmental Economics" in A. Kneese and J. Sweeney (eds.) Handbook of Natural Resource and Energy Economics, North Holland, New York.

Simon, Julian L. and Herman Kahn (1984), The Resourceful Earth: A Response To 'Global 2000'" , Basil Blackwell, Oxford.

Sorsa, Piritta (1992) "GATT and Environment: Basic Issues and Some Developing Country Concerns", in Patrick Low, ed., International Trade and the Environment , World Bank Discussion Paper 159, Washington, DC.

Stone, Frank and Blair Seaborn (1989) Protection of the Environment and the Trade Rules. Institute for Research on Public Policy, Ottawa, draft mimeo, June 1989

St-Pierre, Antoine (1990) "Business and the Environment: The International Dimension" in Global Business Issues, September 1990, The Conference Board of Canada, Ottawa.

Tobey, J. (1990), "The Effects of Domestic Environmental Policies on Patterns of World Trade: and Empirical Test", Kyklos, vol. 43, no.2, pp. 191-209.

The Economist, various editions

Thomas, Caroline (1992) The Environment in International Relations, The Royal Institute of International Affairs, London.

Ugelow, Judith L. (1982) "A Survey of Recent Studies on Costs of Pollution Control and the Effects on Trade" in Environment and Trade: The Relation of International Trade and Environmental Policy, Seymour J. Rubin and Thomas R. Graham eds., Frances Pinter, London.

Uimonen, Peter, and John Whalley (1997) Environmental Issues in the New World Trading System, Macmillan Press Ltd., Basingstoke, Hampshire.

UNICE (1999), UNICE Position Paper on WTO High-Level Symposium on Trade and Environment to be Held on 15-16 March 1999, mimeo.

United Nations (1990) Global Outlook 2000: An Economic, Social, and Environmental Perspective. United Nations Publications, New York.

UNCTAD (1990) Sustainable Development and UNCTAD Activities, TD/B/1267, Geneva, 7 August 1990.

UNCTAD (1991a) Environment and North-South Relations: Background Paper, prepared for the UNCTAD Seminar in Oslo, 14 February 1991, mimeo.

UNCTAD (1991b) Environment and International Trade: A Report of the Secretary-General of UNCTAD submitted to the Secretary-General of

the Conference pursuant to General Assembly resolution 45/210, A/CONF.151/PC/48, 10 July 1991.

UNCTAD (1992a) "The Commodity Sector and the Environment", UNCTAD Bulletin, No. 16, Sept/Oct 1992, pp. 10-12.

UNCTAD (1992b), The Links Between Market Conditions, Intensity of Resource Use and Environmental Impact: The Case of Mining, NCTAD/COM/11, 1992.

UNCTAD (1993), UNCTAD's Contribution, within its mandate, to Sustainable Development: Trade and Environment - Trends in the Field of Trade and Environment in the Framework of International Co-operation, (TD/B/40(1)/6, 1993.

UNCTAD (1994a), "Trade and Environment Issues and Small Island States", UNCTAD Bulletin, No.24, Jan/Feb 1994, p. 10.

UNCTAD (1994b), "UNCTAD's Activities on Environment and Sustainable Development", UNCTAD Bulletin, No.27/28, July/Aug/Sept/Oct 1994, pp. 9-14.

UNCTAD (1995a), Trade and Environment: The International Debate, UNCTAD/SELA, 1995.

UNCTAD (1995b), Trade and Environment: A South Asian View, UNCTAD/UNDP and MacMillan, 1995.

U.S. International Trade Commission (1991) International Agreements to Protect the Environment and Wildlife: Report to the Committee on Finance, United States Senate, on Investigation No. 332-287 Under