ICTSD Environmental Goods and Services Series



Trade in Environmental Goods and Services and Sustainable Development

Domestic Considerations and Strategies for WTO Negotiations

ICTSD
International Centre for Trade and Sustainable Development

Policy Discussion Paper

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For more information about ICTSD's work on Environmental Goods and Services, visit our website: www.trade-environment.org.

ICTSD welcomes feedback and comments on this document. These can be forwarded to Mahesh Sugathan, smahesh@ictsd.ch

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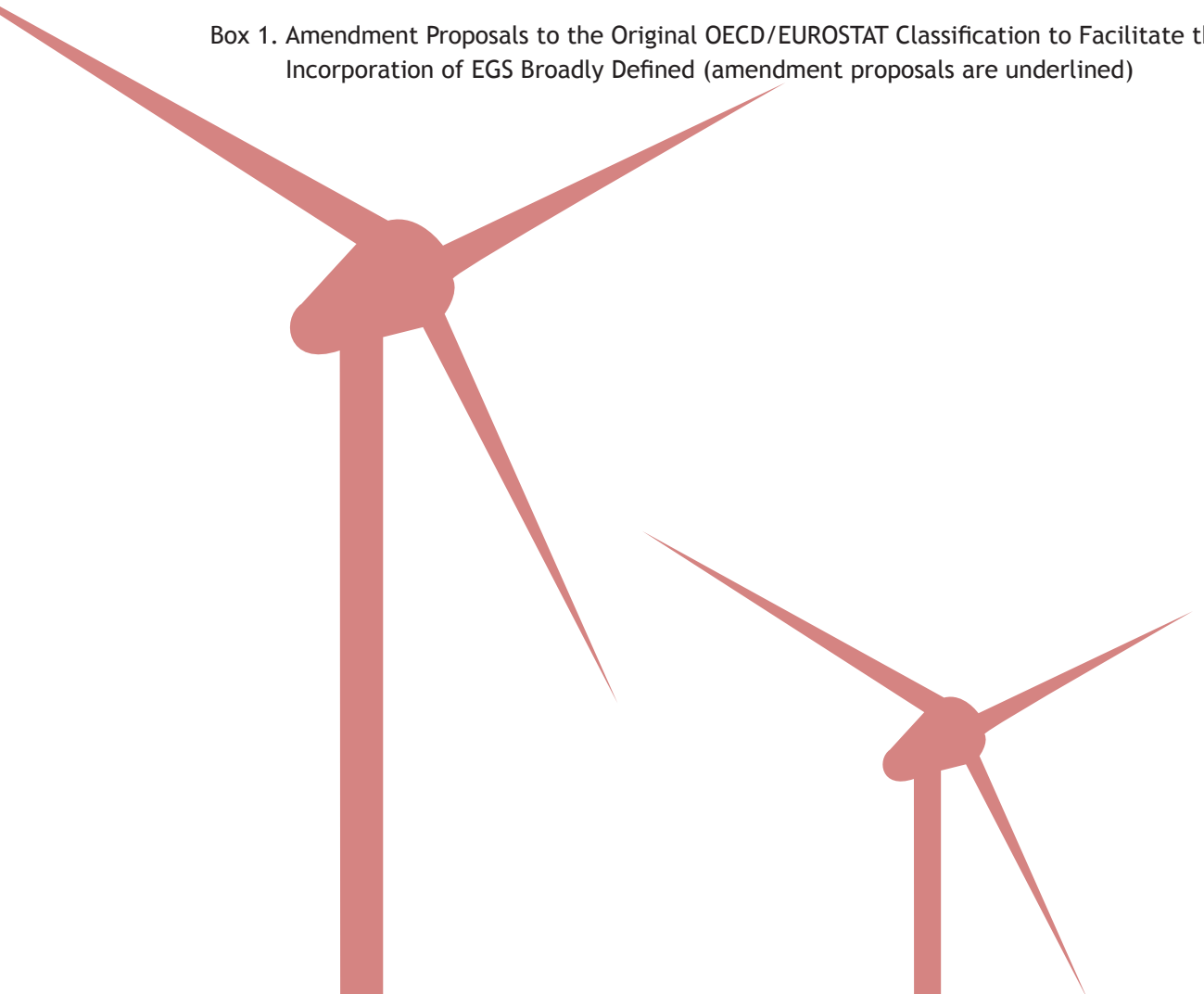
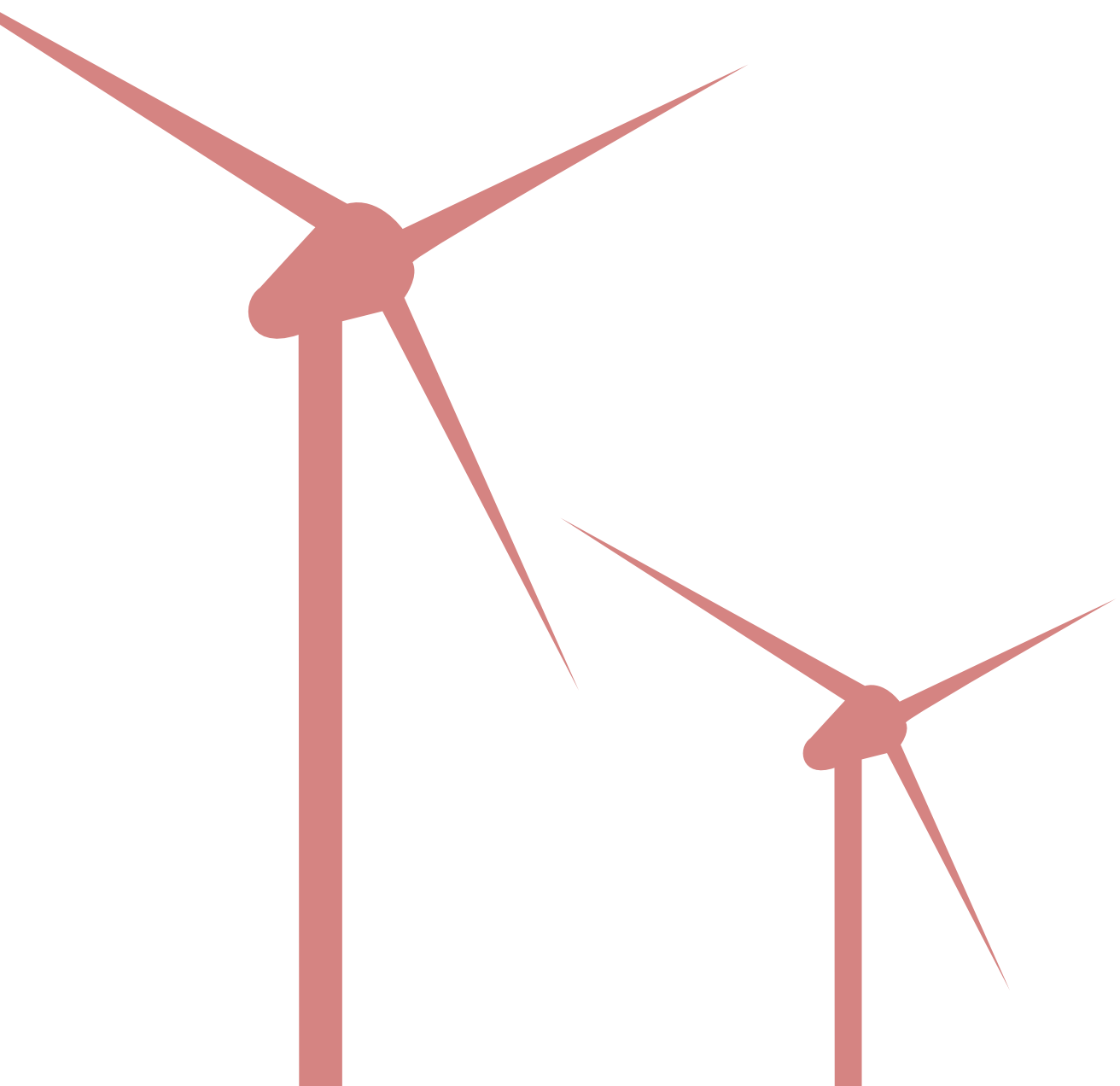


ACRONYMS

AID	Agency for International Development of the United States
APEC	Asia-Pacific Economic Cooperation
CAFTA	Central American Free Trade Agreement
CE	Conformité Européenne
CEN	Comite Européen de Normalisation
CPC	Central Product Classification
CSC	Committee on Specific Commitments
CTE	Committee on Trade and Environment
CO2	Carbon Dioxide
CSA	Canadian Standards Association
DANIDA	Danish Development Agency
DSU	Dispute Settlement Undertaking
EG	Environmental Good
EET	Established Environmental Technologies
EGS	Environmental Goods and Services
EPA	Environmental Protection Agency of the United States
EPP	Environmentally Preferable Product
EUROSTAT	Statistical Office of the European Communities
EVSL	Early Voluntary Sector Liberalisation
EWTS	European Wind Turbine Standards
FTA	Free Trade Area
FSC	Forest Stewardship Council
GATT	General Agreement on Tariffs and Trade
GSP	General System of Preferences
IEC	International Electro Technical Commission
IPPC	International Plant Protection Convention
ITA	Information Technology Agreement
JAS	Japan Agricultural Standard
JBIC	Japan Bank for International Cooperation
JEXIM	Japan Export Import Bank
JICA	Japan International Cooperation Agency
LEI	Lembaga Ekolabel Indonesia
MDG	Millennium Development Goal
MEA	Multilateral Environmental Agreements
MFN	Most-favoured Nation
MTCC	Malaysian Timber Certification Council
MW	Megawatt
NAFTA	North American Free Trade Agreement
NAMA	Negotiating Group on Market Access
PPM	Process and Production Methods
NTB	Non-tariff Barrier
OECD	Organisation for Economic Cooperation and Development

OECF	Overseas Economic Cooperation Fund
PEFC	Pan European Certification System
PPM	Process and Production Method
R&D	Research and Development
SDT	Special and Differential Treatment
SFI	Sustainable Forestry Initiative
SOE	State Owned Enterprise
S&DT	Special and Differential Treatment
SPS	Sanitary and Phytosanitary
TBT	Technical Barriers to Trade
TRIPS	Trade-Related Intellectual Property Rights
UNCTAD	United Nations Conference on Trade and Development
US-AEP	United States – Asia Environmental Partnership
US TDA	United States Trade Development Agency
WCO	World Customs Organisation
WSSD	World Summit on Sustainable Development
WTO	World Trade Organization



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FOREWORD

Environmental goods and services (EGS) as a subset of goods and services was singled out for attention in the negotiating mandate adopted at the Fourth Ministerial Conference of the World Trade Organization (WTO) in November 2001. Increasing access to and use of EGS can yield a number of benefits including reducing air and water-pollution, improving energy and resource-efficiency and facilitating solid-waste disposal to name a few of the benefits. Gradual trade liberalisation and carefully managed market opening in these sectors can also be a powerful tool for economic development by generating economic growth and employment and enabling the transfer of valuable skills, technology and know-how embedded in such goods and services. In short, well-managed trade liberalisation in EGS can facilitate the achievement of sustainable development goals laid out in global mandates such as the Johannesburg Plan of Implementation, the UN Millennium Development Goals and various multilateral environmental agreements (MEAs).

While Paragraph 31(iii) of the Doha mandate calls for a reduction, or as appropriate, elimination of tariffs and non-tariff barriers (NTBs) on EGS, the lack of a universally accepted definition on EGS has meant that trade delegates have struggled over the scope of goods and services that would be taken up for liberalisation. Further, while the aim of the EGS mandate is to liberalise, it provides no indication of the pace, depth or sequencing of liberalisation vis-à-vis 'other' goods and services. A major fault line in the negotiations on environmental goods is the dispute over whether only goods intended solely for environmental protection purposes should be included as opposed to goods that may have both environmental and non-environmental uses. A number of developing countries are concerned about the inclusion of goods which they perceive as only vaguely linked to environmental protection. They are also worried about the import-led impacts of including a broad range of industrial goods on their domestic industries, employment and tariff revenues. In a broader context, a lack of movement on issues of interest to developing countries, particularly agriculture, also inhibits proactive developing country engagement on EGS negotiations.

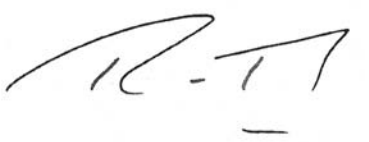
Developing countries are clearly interested in including, as part of ongoing WTO negotiations, products of export interest that could provide environmental benefits, export earnings and livelihoods to local populations. At the same time, many developing countries lack a comparative advantage in the so-called 'traditional' environmental goods and services that are reflected in lists developed by the Organisation for Economic Cooperation and Development (OECD) and the Asia-Pacific Economic Cooperation (APEC) and are often capital and technology-intensive. This has also led experts to point to environmentally preferable products (EPPs) as an export category worth consideration by developing countries. The global market size and export share of developing countries in these products is, however, still relatively small. There are also systemic concerns developing countries have with regard to environmentally preferable products, particularly in those cases where environmental benefits arise as a result of the process and production methods (PPMs).

Negotiations on environmental services have also not made much headway. The issue of classification of environmental services is important as it will set clear parameters on the types of services that are actually liberalised. The development of sound domestic regulatory frameworks in the environmental services sector is also an important pre-requisite to liberalisation. It is feared that lack of strong regulatory mechanisms in the environmental services sector, combined with the 'public service' dimension of a number of these services, would hinder developing countries' ability to ensure that trade liberalisation in these services was compatible with sustainable development objectives such as universal and equitable access.

It is obvious that the economic and social dimensions of sustainable development will play as important a role as environmental ones in guiding WTO Members' negotiating strategy on EGS. But these elements also need to be more clearly defined by each country taking into account domestic sustainable development priorities and concerns. WTO Members should respond to these priorities and concerns by negotiating appropriately-crafted language and numbers.

The reality, however, is that clear knowledge gaps exist on the various dimensions of trade in EGS as well as the methods and options by which countries can formulate a domestic and negotiating strategy on EGS. This EGS Policy Discussion Paper is an attempt to bridge some of the knowledge gaps in this area and facilitate strengthened engagement of developing countries in the EGS negotiations so that they can work towards an outcome meaningful for their sustainable development goals and priorities.

The EGS Policy Discussion Paper is part of a series of issue papers commissioned in the context of ICTSD's Environmental Goods and Services Project, which address a range of cross-cutting, country specific and regional issues of relevance to the current EGS negotiations. The project aims to enhance developing countries' capacity to understand trade and sustainable development issue linkages with respect to EGS and reflect regional perspectives and priorities in regional and multilateral trade negotiations. We hope you will find this paper to be stimulating and informative reading and useful for your work.



Ricardo Meléndez-Ortiz
Chief Executive, ICTSD

INTRODUCTION

Paragraph 31 (iii) of the Doha Ministerial Declaration calls for the "the reduction or, as appropriate, elimination of tariff and non-tariff barriers (NTBs) to environmental goods and services" (EGS). The evolution of the debate and statements made by the World Trade Organization (WTO) Members indicate that the issue has taken on dimensions that might not have been anticipated when EGS was, for the first time, singled out for liberalisation as part of a formal WTO mandate.

While the special sessions of the Committee on Trade and Environment (CTE) have seen some constructive discussion and submissions on environmental goods, WTO Members are still searching for a meaningful way to proceed. Submissions on both procedural modalities and substantive aspects have taken place in parallel mode. Environmental services negotiated within the special sessions of the Council for Trade in Services have witnessed a number of requests, primarily from developed countries, but few offers from developing countries so far. The political emphasis contained in Para 31 (iii) seems to have done little to speed up the process, at the time of writing.

A positive note for the WTO negotiations was struck by the 'July Framework' Agreement as embodied in the 1st August General Council Decision (WT/L/579), but negotiations became bogged down by differences in approach and, perhaps, a lack of progress in other areas, notably agriculture. In the period following the Hong Kong Ministerial Conference, a new sense of urgency was added with a mandate to complete the Doha Round by the end of 2006 which was not met. The underlying challenges have their roots in a number of sustainable development considerations that this EGS Policy Discussion Paper will lay out in some degree of detail. It is also important to note that EGS is a relatively new issue for WTO trade negotiators. There are still important knowledge-gaps that persist, particularly in developing countries. This EGS Policy Discussion Paper is a step in the direction of bridging those gaps and thereby facilitating a more meaningful engagement of domestic policy makers as well as trade negotiators in harnessing these negotiations for sustainable development.

Part A of the EGS Policy Discussion Paper examines the historical context for the negotiations on environmental goods and provides an overview of the key issues and challenges and state of play in EGS negotiations. It outlines the two broad ways in which EGS can be conceptualised, namely: that of the 'traditional' EGS primarily aimed at remedying or preventing an environmental problem; and environmentally preferable products (EPP) and services which include any good that is environmentally superior to a similar product in terms of production, consumption or disposal, or any service that is environmentally superior to a similar service in terms of its delivery.

It then highlights the significance of EGS negotiations, particularly from the trade and sustainable development perspective, traces the evolution of the negotiations, and describes the key environmental, developmental and crosscutting challenges facing negotiators including relevant issues and 'fault-lines' characterising the talks. The key challenges relate to emphasising the 'environment' in environmental goods negotiations, 'market access' or broadening the export basket for developing countries, the effects of EGS imports on domestic industries and tariff-revenue, uncertainty with regard to NTBs, creating and enhancing domestic capacities and enabling technology transfer and tying concessions in environmental goods negotiations to a 'broader sustainable development package' in other areas of negotiations.

The issues that are related to these environmental, developmental and crosscutting challenges are complex and primarily have to do with reaching a common ground on what is, or is not, an environmental good as well as product coverage, classification and technological evolution. While the negotiations are focussed on tariffs, dealing with non-tariff measures will be important as

these particularly affect developing country exporters. Concerns with regard to the impacts of liberalisation on established industries have also fuelled calls for effective special and differential treatment (S&DT) to be part of the discussions and the need to ensure that negotiations can deliver, or are at least supportive of, technology transfer within EGS. It will also be necessary to define product coverage of environmental goods in such a way that products of export interest to developing countries are also included. Some developing countries like Brazil have called for biofuels such as ethanol to be regarded as an environmental good. If this happens, the negotiations could be a powerful vehicle for liberalising tariffs and, possibly, trade-distorting subsidies in the biofuels sector.

In addition to 'what goods to liberalise', the issue of 'how to liberalise' or the *approach to negotiations* will be critical to determining the outcome of negotiations. Presently, most proponents of EGS liberalisation, mainly developed countries, favour a 'list approach' consisting of permanent bound liberalisation of select environmental goods on a most-favoured nation (MFN) basis, normally followed for all products in the WTO. However, an alternative *project approach*, proposed by India as well as Argentina's Integrated Approach are based on temporarily liberalising on an MFN basis only those goods and services destined for designated environmental projects ,with the broad criteria for projects being determined by the CTE. List approach proponents see this as not providing the predictability of bound liberalisation and also possibly inconsistent with WTO rules. Most developing countries have so far stood by the project approach. The issue of approach will be essential to resolve before progress on product coverage and treatment can be made. Part A also evaluates the List and Project Approaches in terms of its response to key challenges in the negotiations.

Trade in environmental services though closely related, and in many cases, integrated with trade in environmental goods, follows a separate track within the WTO negotiations-being discussed within special sessions of the Council for Trade in Services. There are some issues specific to environmental services such as making classification relevant to market realities and the fact that many services such as provision of sewage services or 'water for human use' (whose inclusion as an 'environmental service' has proven controversial) touch upon essential services where equity and universal access considerations are important. The uncertainty of the impacts of liberalisation on these considerations as well as absence of domestic regulation to correct market failures is also an important reason why developing country WTO Members may not be rushing to liberalise environmental services despite perceived environmental gains. The perceived lack of significant export opportunities in environmental services, as in environmental goods, may also be a contributing factor to luke-warm developing country engagement.

Classification of environmental services is a major issue for the WTO negotiations. The WTO W/120; the OECD/Eurostat and the United Nations Conference on Trade and Development (UNCTAD) are the three major existing classifications. The WTO's Committee on Specific Commitments has been revising the existing General Agreement on Trade in Services (GATS) classification of environmental services. A new EU proposal that is based on the Eurostat/OECD one, attempts a sub-division into 7 sub-sectors: (i) water for human use and waste-water treatment (water for human use was subsequently dropped); (ii) solid and hazardous waste management; (iii) protection of ambient air and climate; (iv) remediation and cleaning of soil and water; (v) noise and vibration abatement; (vi) protection of biodiversity and landscape; (vii) other environmental and ancillary services. This classification, reportedly, has had strong support from several WTO members, with the significant exception of the first item - water for human use – which many countries do not see as an environmental service *per se*.

A number of developing countries have received plurilateral requests by the EU, Australia, Canada, Japan, Korea, Norway, Singapore, Switzerland, Chinese Taipei, and the United States to open up key areas of environmental services. However, lack of meaningful progress in Agriculture and Non-agricultural Market Access Negotiations (NAMA) may not encourage developing countries to be forthcoming with their commitments. Progress in developing adequate disciplines on domestic regulation, subsidies and emergency safeguards as well as procurement will also influence the sustainable development impact of environmental services negotiations.

Part A concludes with some comments on the outlook ahead.

Domestic economic, social and environmental realities of countries should guide EGS trade liberalisation efforts at the WTO. If appropriately designed, trade liberalisation of environmental goods (EGS) will allow some developing countries to significantly expand their production and export of EGS and thus promote increased industrial diversification of their economies. For many others, trade liberalisation of EGS may provide gains needed to support rural economies, facilitate the integration of their small and medium sized enterprises into related global supply chains, and thereby increase employment and contribute to poverty reduction. However, if not well designed, liberalising policies for EGS might also be the source of harsher times for local producers, especially for small and medium-sized enterprises (SMEs).

Part B, Chapter 1, in the series, by Edmundo Claro and Nicolas Lucas, highlights the realities of trade flows in EG globally as well as regional specificities emerging from studies on EGS commissioned by ICTSD in Latin America and Asia. The chapter also proposes a methodology for crafting a domestic policy framework on environmental goods based on considerations in the economic, social and environmental pillars of sustainable development.

In this chapter, Claro and Lucas also examine some of the main characteristics of trade flows in EG worldwide as well as some regional singularities from Asia and South America. Based on this examination, and considering economic, environmental and social aspects of EG trade liberalisation, many of which are related to the challenges outlined in Part A, the chapter also proposes a framework for domestic discussions aimed at helping developing countries design their corresponding strategies. The analysis is based on two categories: established environmental technologies (EET) that correspond to the concept of 'traditional environmental goods' introduced in Part A, and environmentally preferable products (EPP).

In 2003, global trade of EG reached approximately USD369 billion. While 20.1 percent of EG exports originated in developing countries, this group of countries imported 31.7 percent of total EG trade, making them net importers of EG. During the same year, while developing countries had a large USD 47 billion trade deficit in EET, concerning EPP they experienced a modest USD 4 billion trade surplus. Whereas all developing country regions were net importers of EET, only Asia and Oceania showed a trade surplus of EPP during 2003 which amounted to approximately USD 4.9 billion (Hamwey, 2006). Although developing country regions account for a small part of the global EG market, their environmental industries have been growing, and are expected to grow, at a much higher pace than those of developed countries (Yu, 2007).

Despite the fact that exports of EET from developing countries have been increasing during recent years, there are some problems that still constrain their exporting capacity. For example, while some argue that small firms have difficulty in increasing their environmental goods exports due to their lack of marketing and infrastructure of after-sales service, others note that exporters of environmental goods experience difficulties associated with lack of capital and the inaccessibility of export credits. This situation has prompted some governments to support their domestic environmental firms.

Although there has been an increasing consumer demand for EPP during recent years, especially for products such as organic food and non-wood forest products, there are problems in developing countries for exporting EPP, especially for SMEs. Irrespective of the problems faced by these producers, developing countries' governments, in general, have not made important efforts in supporting or elaborating a strategy towards EPP. Once developing countries' governments are aware of the benefits of producing and exporting EPP, they will be able to formulate coherent strategies to promote these products.

The global EG market seems to offer important opportunities for developing countries, participating effectively in international trade negotiations is costly and requires a high level of capacity in national delegations. With so many other fronts to cover at the WTO, Claro and Lucas point out that developing countries need to assess the convenience of taking an active part or not in environmental goods negotiations, both in terms of the risks and opportunities involved.

According to Claro and Lucas, the adoption of a national strategic approach (on the nature of participation in EG negotiations) hinges on the national understanding of 'mutual supportiveness'. Following Howse et al. (2006), 'mutual supportiveness suggests that a country needs to answer two questions to decide whether or not to liberalise which products and under what modalities:

- How will reducing barriers on EG enhance environmental protection?
- How will reducing barriers on EG enhance trade?

According to Claro and Lucas, developing countries should only liberalise environmental goods in the context of a strategic sustainable development policy. This entails a strategic assessment of why it wants to approach EG liberalisation through WTO negotiations. 'Environmental protection,' arguably, can be undertaken by countries liberalising autonomously. Liberalising through the WTO negotiations, while including only products with sound environmental credentials, should also demonstrate how it will enhance trade for developing countries and help in the pursuit of other sustainable development objectives. Therefore, a country should define its priorities and be clear about the goals it is pursuing by negotiating environmental goods. The authors add that one of the advantages of singling out 'environmental goods' for distinct negotiations is that it forces a domestic discussion between economic and environmental authorities on a limited universe of goods. It is not possible to define a sound negotiating strategy at the WTO without talking to other government agencies and social actors. A domestic consultative process is particularly warranted for these negotiations. A framework for domestic discussion could be organised around three objectives: defining priorities and goals; finding sound information based on economic, social and environmental assessments involving multiple stakeholders; ,and determining what type of modalities at the WTO would best respond to these sustainable development priorities.

While developing country WTO Members may have differing domestic sustainable development priorities, addressing them within multilateral trade negotiations on environmental goods implies responding strategically to a similar set of challenges.

Part B, Chapter 2 looks forward to the possibilities that are open for negotiating environmental goods within the WTO context. In this section, Mahesh Sugathan proposes options for modalities within the EG negotiations that can deliver on a strategy responding to the immediate challenges facing WTO negotiators that were outlined in Part A. These are the same challenges that Chapter 1 looks at from a domestic strategy perspective. Thus, Chapter 2 is essentially the response to these challenges at the multilateral level.

The key elements within each strategic response describe the various actions that respond to the underlying concerns manifest in the challenges. These responses will then need to be delivered

through an appropriate set of modalities that may involve either the list or project approaches or some combination of the two. If a list approach is adopted, it will be particularly important to respond to these challenges through a creative combination of *selection,* in terms of strategic targeting of various products and product groups of export or import interest to Members, and *treatment* including appropriate flexibility to developing countries through special and differential treatment. Ideally, such a strategy will have been duly informed by different sustainable development considerations, as laid out by Claro and Lucas in Chapter 1 and arrived at through a domestic process of broad-based and inclusive decision-making involving consultation of all stakeholder groups.

Part C, by Mario Marconini, provides a framework on conceptual issues and classification debate in environmental services and an overview of the market realities of trade in environmental services before proceeding to outline a domestic policy process and strategy on environmental services. Marconi also outlines strategies and instruments for negotiations at the WTO, in addition to one for autonomous liberalisation. Marconini proposes a form of effectively "including" the environmental services sector into the GATS, irrespective of already known difficulties in the negotiating process.

Within the environment industry, the environmental services component prevails significantly over the goods component, having accounted in the last few years for over 75 percent of the total market value. The two main services segments around the world are water and wastewater treatment/management and solid waste management, each respectively accounting for roughly 30 percent and 22 percent of the total environmental market. While developing countries may have a small part of the current market, they also constitute the greatest growth markets as attested by the enormous inadequacies, inefficiencies and insufficiencies in the provision of environmental services such as clean water, sanitation and waste management. Supply and demand factors have a crucial effect on the development of indigenous environmental industries. These include the state of environmental degradation and move towards efficiency in energy and resource-use, environmental regulation, domestic purchasing power as well as government expenditure and policies including investment policies.

Studies have shown that technology-transfer in environmental services may best be achieved commercially than by 'decree'. The nature of the contract signed between government and the private sector in cases of concessions or build-operate-transfer (BOT) projects has been important in determining the obligations of firms involved. Marconini points out that attracting investment into essential services such as water or sanitation has been difficult despite the extremely high demand for them.

Those difficulties, according to Marconini, can be traced to the risks of unsustainability of operations where revenue streams are irregular (tariff collection) due to the low purchasing power of populations alongside non-existent or precarious supporting social policies such as subsidies. As a response, BOT contracts have evolved, which attributes to the private sector the design, construction and operation of a facility, while retaining sensitive matters of distribution and tariff collection with local governments. Success or failure of investment may be determined as much by investment appetite as by a good regulatory framework.

As a general rule, export capacities in infrastructural environmental services are relatively absent from the developing world and are dominated by firms from the OECD. However, a few economies such as the Republic of Korea (hereafter Korea) and Chinese Taipei have become exporters of infrastructure-related goods and services through strategic capacitation policies. This has been alongside the existence of world-class "end-use" environmental firms in crucial sectors such as construction, engineering and architecture. For other developing countries, non-infrastructural environmental services and 'environmentally-preferable' services, such as eco-tourism, hold the promise of much

opportunity, although a number of barriers, like those hindering temporary movement of people, remain to be tackled.

As in environmental goods, it is important that developing countries engage proactively to ensure that WTO negotiations on environmental services result in an outcome that is meaningful to sustainable development. Again, this implies liberalising autonomously or within the WTO in the context of a strategic sustainable development policy. According to Marconini, this entails putting in place a national process to integrate domestic sustainable development considerations. The national process involves integrating a number of elements. *Firstly*, countries need to assess crucial aspects of their markets and regulatory frameworks, including their goods and services markets and underlying regulatory frameworks, the dynamic relationships between goods and services as well and the demand and supply factors. *Secondly*, the national policy-mix for the environmental services (ES) sector should be mindful at least of five principal elements: technological prowess; financing and subsidies; foreign direct investment; and small and medium enterprises (SMEs). Thirdly, a consistent national policy on ES could follow a set of 'guiding principles' that comprise strategic vision, integrated approach, pragmatism, creativity, equity, regulatory comprehensiveness, optimal policy-mix, industrial approach, adequate sequencing and international pro-activeness.

All these elements of national process could serve to influence a country's autonomous or WTO-related trade policy. Within the WTO, negotiations should respond strategically to the challenges such as enabling a coherent classification system responsive to market realities, greater specificity and clarity on domestic regulation, negotiating appropriate emergency safeguard measures, ensuring that subsidies and subsidy-disciplines are pro-sustainable development and understanding the relevance of Government Procurement while differentiating GATS Market Access concessions. These strategic responses should be delivered through GATS commitments supported by appropriate instruments such as: (i) A *Sectoral Annex* comprising a set of provisions that would complement and clarify framework provisions by addressing specificities of the environmental services sector; (ii) An *Optional document* such as an understanding or reference paper that would not only clarify framework provisions but also codify important sectoral issues and notions as in domestic regulation, and (iii) *Schedule-based clarifications*.

Marconini states that autonomous liberalisation should be seen as a necessary step for countries that can see the need to internationalise their environmental market, but are not sure of how to go about it. Countries may need policy-flexibility to try out best practices and develop definitive policy and regulatory frameworks before they 'lock-in' liberalisation. 'Credit' for autonomous liberalisation should go farther than the "usual" parameters (sectoral coverage, share of the sector in total trade, etc.) to include social and environmental criteria.

According to Marconini, while the value and benefits of transparency, consistency and predictability through GATS commitments are well-recognised, it may be a second-best option compared to a reliable, clear and well-organised domestic strategy for the environmental sector. In the course of a reasonable period this would clarify national apprehensions and stiffen the resolve to revamp and reform. Thus, it is up to each country to decide the 'ripe' time for committing. Also, it is up to every country to determine whether or not there are aspects touching on environmental matters that may be the object of international commitments, even in the absence of a full-fledged policy and regulatory construct for the sector. The important thing is to be mindful of the fact that solutions cannot be generalised for all countries, and that one country's experience can only be one, and not the, reference for another's reform. Marconini concludes with the assertion that determining what a country wants for itself in environmental goods and services is urgent. Committing internationally, particularly when so many crucial issues are still unresolved at that level, is not.

In Appendix I, Enrique Lendo Fuentes sets out a new methodological approach known as Sustainability Impact Assessment of Trade in EGS for Individual Countries (SIAIC). This methodology suitably adapted from pre-existing ones, was applied to Mexico, within a paper previously commissioned by ICTSD and the North American Commission for Environmental Cooperation (CEC). The methodology can be used by WTO Members to compare the sustainable development gains from liberalising trade in EGS under two (or more) alternative definition/classification approaches. The methodology is qualitative and is based on a hypothetical process logically linking liberalisation in environmental goods and services under alternative definitions of EGS and a number of national sustainable development standards impacted by the liberalisation process. Lendo points out that most quantitative methodologies are not robust enough to generate adequate consensus for their use.

While drawing upon two methodologies-the first of which was developed by Kirkpatrick, Lee and Morrissey, and the second by Bisset, Flint, Kirkpatrick, Mitlin and Westlake, the SIAIC differentiates itself from these two methodologies in seeking to assess the general sustainable development impacts from comparable EGS definition/classification approaches, as opposed to specific EGS categories under a single definition/classification. It also addresses the sustainable development impacts for the specific case of an individual country, in light of its sustainable development standards (e.g. goals, strategies, programmes, etc.), as opposed to broader goals, either defined by international instruments or the literature.

According to Lendo, while selecting a definition/classification for EGS it is important to keep in mind the spirit of Para 31 (iii) which is to ensure mutual supportiveness of trade and environment. Instead of reinventing definitions, WTO Members could build upon existing definitions that are solid and comprehensive enough to accommodate the three dimensions of sustainable development-economic, social and environmental. Taking the OECD classification of the environment industry as an example and by suitably modifying it, Lendo goes on to explain how the original and modified definitions could be used as the basis to compare the sustainable development impact of liberalisation through the SIAIC with the help of its two key components including the causal chain analysis and the potential impact analysis. While the causal chain sets the stage for the potential impact analysis by showing the logical cause-and-effect interplay among various variables that lead to different sustainable development outcomes, the potential impact analysis estimates the number of individual country sustainable development standards that are impacted by liberalisation under both "traditional" and "broad" EGS definitions and the likely direction of such impacts.

Lendo concludes by underlining the importance of suitable enhancing or flanking measures for turning sustainable development impact potential into actual gains.

This EGS Policy Discussion Paper draws on the intensive research and dialogue process carried out by ICTSD since early 2005 as part of a formal Project entitled *Bridging Trade and Sustainable Development in Environmental Goods and Services*. Details of the various dialogues and research outputs that form the basis of the findings in this EGS Policy Discussion Paper are laid out in Appendix II.

PART A: ENVIRONMENTAL GOODS AND SERVICES NEGOTIATIONS: CONCEPTS, KEY ISSUES AND STATE OF PLAY

1. ENVIRONMENTAL GOODS AND SERVICES NEGOTIATIONS: EVOLUTIONARY HISTORY AND THE POTENTIAL FOR A TRADE AND SUSTAINABLE DEVELOPMENT 'WIN–WIN'

Negotiations on environmental goods and services are not new to the multilateral trading system. While there is no universally acceptable definition on what environmental goods are, they have always been part of negotiations under industrial or agricultural goods negotiations and, at least in principle continue to remain so.

Paragraph 31 (iii), for the first time, singled out environmental goods as a group for liberalisation (reduction of tariffs and NTBs) under a WTO negotiating mandate.

Environmental services, on the other hand, have always been considered as inclusive of as a specific set of services within the WTO. These include wastewater treatment (or sewage services) and protection of ambient air and climate (or cleaning services for exhaust gases), even though there is disagreement as to whether to include services with an environmental end-use such as engineering or consultancy as a 'pure' environmental service *per se*.

The inclusion of EGS as part of the negotiating mandate is often attributed to the political dynamics of bargaining during the course of the Doha Ministerial Conference. Some experts have attributed its inclusion, as with the trade and environment mandate as a whole, to a quid pro quo demanded by the European Union (EU) in return for a commitment to phase out export subsidies in agriculture. Trade sources also consider the United States as playing a key role in influencing the EU's push for inclusion of EGS within the Para 31 (iii) mandate. Also relevant were pressures by EU stakeholders such as civil society that increasingly put pressure on policy-makers to address environment-related concerns relevant to the multilateral trading system.

It has been pointed out that greater and cost-effective access to EGS in developing countries would potentially:

- Help developing countries progress towards implementing the Johannesburg Plan of Implementation adopted at the 2002 World Summit on Sustainable Development (WSSD) and achievement of key Millennium Development Goals (MDGs), particularly through the provision of critical services such as clean water and sanitation, aided by appropriate goods and technology. This would obviously translate into better social indicators such as less disease and healthier individuals and cleaner environments;
- Provide a means of employment and economic activity, particularly in the case of trade in environmental services via Mode 3 (commercial presence);
- Enable developing country firms, including those producing for the export market, to economise on resource/energy use and comply with better environmental standards; and
- Increase access to new technologies and know-how "embedded" in EGS.

Trade liberalisation in EGS both narrowly and broadly defined will enable a freer flow of goods and services relevant to environmental protection. However, whether or not the lower costs induced by lower or zero tariffs and NTBs will translate into *greater access* to these goods and services in developing countries, remains to be seen. It is here that the role of suitable flanking policies and their mainstreaming into WTO rules may be important.

Many developing countries would also like any basket of EGS to include products of export interest to developing countries that, apart from obvious environmental benefits, could also

Environmental Goods and Services in Other Fora

Significant outcomes relevant to EGS have also taken place in other environmental and development policy realms, although EGS has not been singled out as in the WTO Doha mandate. Multilateral environmental agreements (MEAs) such as the Montreal Protocol on ozone-depleting substances and the Kyoto Protocol add significance to trade and investment in EGS that will be necessary to meet these environmental goals. For example, these include provisions on technology transfer contained in the Montreal Protocol (Article X: A) and the Kyoto Protocol's Clean Development Mechanism (Article XII). The Johannesburg Plan of Implementation calls on countries to "support voluntary WTO compatible market-based initiatives for the creation and expansion of domestic and international markets for environmentally friendly goods and services, including organic products [...]." The UN Millennium Development Goal #7 enjoins governments to 'ensure environmental sustainability' through, *inter alia*, integrating the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources; halving, by 2015, the proportion of people without sustainable access to safe drinking water and having achieved, by 2020, a significant improvement in the lives of at least 100 million slum dwellers. It is clear that these different goals emerging from various sustainable development fora would require, for implementation purposes or as outcomes, EGS in the broadest sense of the term.

Trade negotiations on environmental goods as a category precede the Doha Round. Sectoral negotiations on these goods first emerged as part of the Early Voluntary Sector Liberalisation (EVSL) initiative launched by the Asia Pacific Economic Cooperation (APEC) in 1997. This was based on the model of the Information Technology Agreement (ITA) that was completed the same year. The EVSL was aimed at rapid liberalisation in selected sectors to be picked by all APEC Members who would also develop frameworks that specified product coverage and phase-outs of tariffs. This would then be proposed to the WTO for broader support. Following lack of significant momentum on liberalisation that depends on voluntary initiatives rather than negotiations at APEC, Members of the economic grouping reportedly shifted the tariff-cutting part to the WTO, preferring to focus instead on NTBs and technical cooperation. The APEC list, drawn up on the basis of individual nominations, refers to the OECD/Eurostat (Statistical Office for the European Communities) definition of the environment industry that was developed for analytical purposes. The industry, according to the OECD and Eurostat, comprises "activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and ecosystems." The OECD has categorised these goods and services under three broad headings: pollution management, cleaner technologies and products, and resource management. Experts have, however, pointed out "inclusion and exclusion" differences in the listing categories of goods. For example, ethanol is included in the OECD list, but excluded from the APEC list.

In addition to the OECD/APEC initiatives, environmental goods have also been a part of other regional trade liberalisation initiatives such as the North American Free Trade Agreement (NAFTA). Tariffs on environmental goods are expected to fall dramatically as a result of regional initiatives such as the Central American Free Trade Agreement (CAFTA). CAFTA, for instance, takes a far more ambitious approach to the liberalisation of services, compared to the WTO. Unless Members explicitly reserve certain services, all service sectors are presumed open. However, public services such as provision of drinking water, if provided solely by the government on a non-profit basis, are automatically excluded. CAFTA also includes disciplines on government procurement for both goods and services which could have implications for trade in environmental goods and services through the government procurement channel.

In regional trade liberalisation initiatives, a separate mandate to liberalise EGS does not usually exist. This is because liberalisation is usually ambitious for *all* goods and services anyway and exceptions or exemptions may be fewer than usually possible at the WTO.

provide an important source of export earnings and livelihood to local populations. Many experts consider that such a shift in focus requires a better understanding and quantification of the sustainable development benefits that would arise from the liberalisation of environmental goods and services. In sum, greater access to and trade in EGS could serve to strengthen the 'economic', 'social' and 'environmental' pillars of sustainable development. From the perspective of EGS trade negotiations, however, a number of issues will need to be confronted and conditions fulfilled in order to make this possible.

2. ENVIRONMENTAL GOODS NEGOTIATIONS

2.1 State of Play

WTO negotiations on environmental goods have not been characterised by a significant degree of momentum, despite numerous submissions and a higher degree of engagement among negotiators, compared to other issues within the Doha Trade and Environment mandate, such as clarifying aspects of the MEA-WTO relationship. This may be attributed to a lack of clarity in the Paragraph 31(iii) mandate, which does not contain a formal timeline for negotiations on EGS, apart from the overall deadline for the Single Undertaking. The mandate does not specify what constitutes EGS and apart from a reference to eliminate tariffs and non-tariff measures *as appropriate* (emphasis added), it does not specify the desired extent of 'reduction' in other cases. The key questions with regard to environmental goods negotiations relate to *what* goods to liberalise and *how* to liberalise them. The various negotiating approaches proposed by WTO Members on environmental goods essentially try to address these two fundamental issues.

The Doha Work Programme Decision, adopted by the General Council on 1 August 2004 (WT/L/579) only takes note of the reports to the Trade Negotiations Committee (TNC) by the Special Sessions of the CTE. Annex B of the Decision that lays down the framework for establishing Modalities in Market Access for Non-Agricultural Products reaffirm that "negotiations on market access for non-agricultural products shall aim to reduce or as appropriate eliminate tariffs, including the reduction or elimination of tariff peaks, high tariffs, and tariff escalation, as well as non-tariff barriers, in particular on products of export interest to developing countries". It also reaffirms "the importance of special and differential treatment and less than full reciprocity in reduction commitments as integral parts of the modalities." It further encourages the Negotiating Group, "to work closely with the CTE in Special Session, with a view to addressing the issue of *non-agricultural* (emphasis added) environmental goods covered in Para 31 (iii) of the Doha Ministerial Declaration.")

The Ministerial Declaration (WT/MIN(05)/DEC) that emerged at the conclusion of the Sixth WTO Ministerial Conference in Hong Kong instructs Members to complete the work expeditiously under Paragraph 31(iii). The language on Non-Agricultural Market Access, the group where actual liberalisation modalities on environmental goods will likely be negotiated (though not all delegations agree to this), set a deadline of no later than 30 April 2006 for the establishment of modalities and no later than 31 July 2006 to submit comprehensive draft schedules based on these modalities. Para 31 of Annex B also speaks about the need for closer coordination between the CTE Special Session and the NAMA Negotiating Group and a stock-taking of the work undertaken in that committee. To date, most activity on environmental goods negotiations has taken place within the CTE Special Sessions, rather than under NAMA.

What and how to liberalise: the list approach

From the outset, it was clear that it would be very difficult to start from the basis of defining what environmental goods were. A number of countries therefore adopted a *'list approach'* to liberalisation by proposing lists of goods that used the ones developed by APEC and OECD as a

starting basis. WTO Members that have formally proposed specific lists of products, at the time of writing, include only Canada (TN/TE/W/50 and TN/TE/W/50/Rev.1), the European Communities (TN/TE/W/47 and W/56), Japan (TN/MA/W/15), Korea (TN/TE/48), New Zealand (TN/TE/W/49), Qatar (TN/TE/W/14, W/19 and W/27), Switzerland (TN/TE/W/57), Chinese Taipei (TN/TE/W/44) and the United States (TN/TE/W/52). The liberalisation intended was to follow normal WTO market access type negotiations involving permanent MFN liberalisation of bound tariffs of the goods identified in the lists subject to negotiation.

On 27 April 2007, Canada, the EU, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States (termed "Friends of Environmental Goods") submitted a joint proposal, JOB(07)/54, containing a revised list of environmental goods subsequent to a review of their previously submitted lists. The review aimed at coming up with a reduced set of goods that was responsive to the concerns of WTO Members and offered the potential for a high degree of convergence among WTO Members. "The Potential Convergence Set" of products, as the co-sponsors termed it, contains 153 products (including a number of ex-outs). The list is significantly lower than the previous consolidated list of goods (TN/TE/W/63) submitted by the 'Friends' group that exceeds 400 products. (In addition to 15 products submitted by Qatar). At the time of writing, this latest list is not yet a formal submission and the 'Friends', however, retain the discretion to add further products, including those previously dropped.

However, the 'list' approach failed to address the concerns that many developing countries have. An assessment of the negotiations to date and informal consultations with delegates in Geneva have revealed the following key challenges that the 'list-approach' failed to address. These can broadly be categorised as environment-related, development-related and others.

2.2 List-Approach: Environment-Related Challenges

Emphasising the 'environment' in 'Environmental' Goods negotiations: the single, predominant and dual use' controversy

This challenge reflects the underlying consideration in having a separate mandate for negotiations on environmental goods, rather than subsuming it within the broader sphere of negotiations on non-agricultural market access (or agriculture). Negotiations on environmental goods should be geared to facilitating the achievement of domestic and global environmental objectives. The environmental benefit of listing products in the negotiations should not be in doubt. The complexity of products and the fact that a product may have environmental as well as non-environmental uses is obviously a challenge that needs to be addressed.

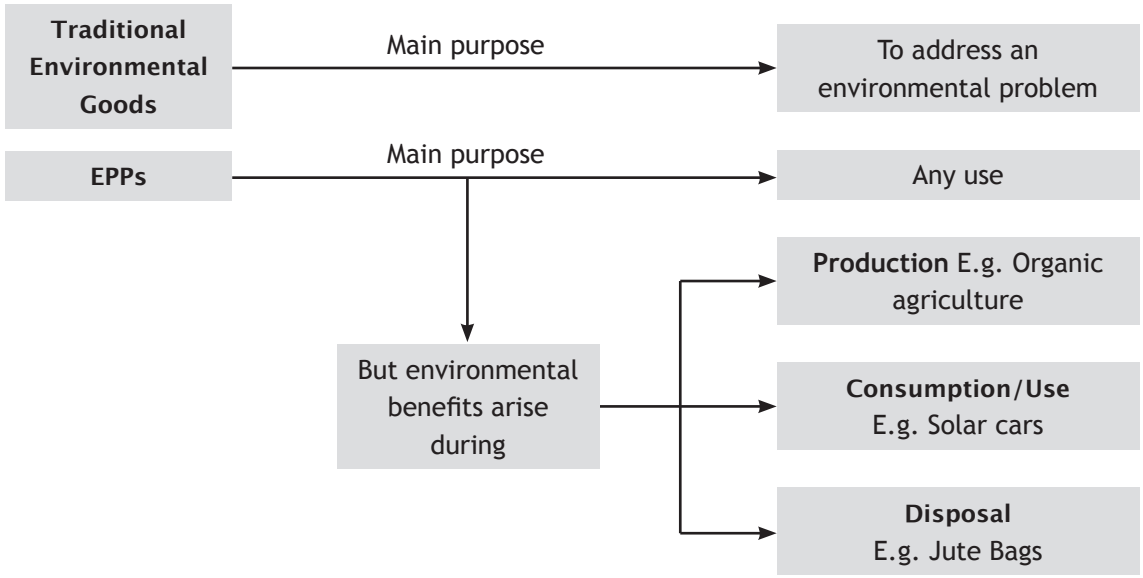
The list approach, while it sought to avoid difficulties involved with trying to define what environmental goods are, could not shake them off. The definitional question came back to haunt Members when many developing country Members raised questions on the environmental credentials of products that were included in Members' lists.

It may be useful to digress a little and go back to review the conceptual underpinnings that have been proposed for environmental goods. Environmental goods and services could, by a rule of thumb, be conceptualised in two ways. The *first* is the narrow, conventional conception that focuses on treating a specific environmental problem through the *end-use* of a particular good or service. This characterises the traditional classification of EGS and includes goods and services such as wastewater treatment equipment or solid waste disposal services.

The *second* conceptualisation is broader and includes within its ambit *environmentally preferable* products (EPPs) and services. The United Nations Conference on Trade and Development (UNCTAD) (1995) defines EPPs as products which cause significantly less "environmental harm" at some stage of their

"life cycle" than alternative products that serve the same purpose, or products the production and sale of which contribute significantly to the preservation of the environment. Thus, the environmental benefits may arise from the (more environmentally benign) production method, during the course of its use (through less pollution and energy-consumption) or during the disposal stage of the product. In this case, the primary purpose of the product or service is not to remedy an environmental problem. Such products in many, if not most, cases will have a non-environmental counterpart and this raises the question of *like products and services* which are addressed in further detail later in this paper. There may also be an overlap between both these categories, and some EPPs may be used to prevent or treat environmental problems as well. For the purpose of the negotiations, Members still lack a universally accepted definition of EPPs.

Figure 1. 'Traditional' Environmental Goods vs EPPs



Note:
For every EPP there exists a substitute or 'like' product with a similar use that is not as environmentally friendly

In trying to pin down the 'environmental credentials' of products within WTO negotiations, Members advocating a 'list approach' have referred to:

- **End-use characteristics,** or only products that have an environmental end-use. For example, Chinese Taipei's (TN/TE/W/44) and Korea's (TN/TE/W/48) submissions focus on pollution control equipment. Korea's submission emphasises the need for practical and simple criteria for the identification of environmental goods.
- **Existing lists** such as OECD and APEC. For instance, Switzerland (TN/TE/W57) has based its list on the OECD classification, while New Zealand (TN/TE/W/46, and TE/W/49) has used 'reference points' to OECD and APEC definitions as a justification for including any products in a list of environmental goods. The Canadian list (TN/TE/W/50) also contains environmental goods identified on the basis of the OECD and APEC lists.
- **Ex-outs** within existing Harmonised Commodity Coding and Description System (HS)-digit classifications: This system aims to further screen out products within 6-digit classifications based on environmental end-use. Ex-outs, specify that only a sub-

category of products under the HS 6-digit level would be eligible for expedited liberalisation. However, while these ex-outs are described, they are not assigned a harmonised HS-code for WTO negotiations as countries follow their own classification for products beyond the 6-digit level. This could result in confusion for customs officials if a different tariff applies only to a sub-category of goods falling under the 6-digit level.

- **Existing certification standards**: The EU in its March 2005 submission (TN/TE/W/47) acknowledged that some products might need to be defined using certification standards and proposed using schemes included in the existing international Gobal Eco-Labelling Network.
- **Internationally Agreed Environmental Objectives** such as the Kyoto Protocol. Qatar's proposal, for example, on efficient, lower carbon pollution emitting fuels and technologies raises the need for agreed environmental objectives. The EU has also referred to MEAs such as the Basel Convention, the Montreal Protocol, the Stockholm Convention on Persistent Organic Pollutants, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade and the Convention on Biological Diversity. In addition, the EU also refers to broader sustainable development mandates such as Agenda 21[1], the WSSD Plan of Implementation and the Millennium Development Goals (MDGs) addressing basic human needs in particular, access to safe water and sanitation, pollution prevention, resource use reduction and waste minimization, e.g. MDG 7 of halving the proportion of people without sustainable access to safe drinking water. (For further details, see TN/TE/W/63). Uruguay has presented an informal 'non-paper' (JOB (06)/144) proposing new parameters for the identification of environmental goods and services.[1] It suggests that they should be based on the broader concept of "environmental activities" – those whose methodologies or related projects are sanctioned by MEAs.
- **Relevance of Products to Delivery of Environmental Services** have been highlighted by Canada (TN/TE/W/50) and the EU (TN/TE/W/47) while submitting their individual 'lists.'

Despite this, many countries, particularly developing countries such as Cuba (TN/TE/W/55) and India (TN/TE/W/51), have expressed concerns about the 'dual' and 'multiple' uses of products listed under various categories (See Table 1 in the Annex).

The issue of whether or not 'single' or 'dual-use' more closely serves the environmental and developmental objectives that WTO Members want Para 31 (iii) to deliver, is an issue that merits further discussion. In many cases, it may not be easy to 'carve out' products based on purely environmental end-use. As mentioned earlier, the same product may have multiple uses, some of which may be non-environmental, or unsustainable or environmentally damaging. For example, pipes imported as part of a sewage treatment plant could also be used for other, non-environmental, purposes. According to a World Customs Organisation (WCO) representative, the harmonised system only distinguished between products based on their physical characteristics, and, therefore, did not lend itself to denoting goods depending on the process and production methods used, or on their end-use (i.e. environmental or otherwise).

The 'dual' and 'multiple-use' issue, in fact, has also been portrayed as a 'double-edged' sword. Impacts from imports of these goods are a source of concern to developing countries. At the same time they may be essential inputs into various environmental activities. For instance, New Zealand has pointed out that many dual and multi-use products are critical to securing important environment and development outcomes; excluding them from the negotiation, by applying the contested 'single end-use' criterion, would sharply reduce the sustainable development outcomes expected from this negotiation. Moreover, these products could also hold out export opportunities for developing countries. According to New Zealand, using

a 'single-end' use approach is likely to be commercially interesting to only four, possibly five, major OECD economies and two developing country Members. (TN/TE/W/49/Rev.2).

New Zealand, therefore, considers it more appropriate to assess the environmental credentials of products, i.e. to consider whether or not the product has a "direct environmental benefit." (TN/TE/W/49/Rev.2). Canada has also considered the 'single-use' criterion as reflecting only the 'trade' interest (TN/TE/W/50/Rev.1), whereas Argentina, Brazil, Egypt, India, Mexico, Canada, the EU, New Zealand, Japan, Norway, Taiwan, Switzerland and the US – referring to themselves as the 'friends of environmental goods' – consider single end-use as an excessively narrow criterion to use for filtering and evaluating potential environmental goods. Instead, they suggest that products be retained if it can be shown that they are *predominantly* used for environmental purposes. (BRIDGES Weekly, 17 May, 2006). However, WTO Members have not yet agreed upon a threshold for 'predominantly.'

South Africa, along with several other developing countries, define themselves as 'friends of the environment and sustainable development', and have tabled an informal document stressing the importance of only liberalising trade in environmental goods that serve a single environmental end-use.

In response to comments from various WTO members during the course of formal and informal consultations, New Zealand revised its list 'substantially and significantly', and reduced the number of environmental goods within it.

In a recent proposal put forward by the US (TN/TE/W/64), the latter raised three questions that could provide parameters for the CTE special session's scope of environmental goods:

- Whether or not the product has a clear and direct environmental benefit; in other words, does the product have an obvious and direct environmental end-use?
- If the product has dual or multiple-uses: (a) whether these could be addressed by using a narrower product-description (i.e. at the 8 or 10-digit code), and (b) whether the product is central to the delivery of environmental and developmental benefits so that exclusion from liberalisation would significantly reduce the intended environmental benefits of this initiative and hinder sustainable development objectives?
- Whether or not the product is sensitive or otherwise raises concerns for delegations? For example, is it inconsistent with sustainable development objectives?

The US also said that while the APEC list was a useful contribution, given the evolutionary nature of the debate, the Negotiating Group should come to its own agreement on scope. This would require Members to consult with their domestic industries, NGOs and other interested stakeholders to identify new products that could be included and to develop a WTO list.

Many developing countries are also in favour of more specific definitions at the 8, 10 or 12-digit levels, rather than 'ex-outs', as appear in many of the lists submitted. (BRIDGES Weekly, 17 May, 2006). The 27 April 2007 revised list of products (JOB (07)/54 submitted by the 'Friends' group also indicates that they have verified the HS descriptions used for the 6-digit entries which changed it from the previous list in many instances. The submission proposed that due to different HS coding used by WTO Members beyond the 6-digit level, credible 'ex-out' be sought wherever possible. Once the 6-digit HS code and 'ex-out' description were agreed by WTO Members, implementation be left to individual Members. Consequently, Members, according to the proposal, would be able to define the product according to their domestic requirements. New 'ex-outs' were also conferred on a number of six-digit products in the revised list.

The JOB (07)/54 proposal also provided for optional 'ex-outs' where Members could have the option of liberalising at the 6-digit category if liberalising at the level of 'ex-out' was deemed administratively cumbersome. Another feature of the revised list was that the various products

were grouped under the broad environmental sectors. Details of the environmental benefits of individual product were described in an additional column.

Harmonising product descriptions for 'ex-outs' to ensure consistency may be more feasible in the short-tem as harmonising HS codes themselves beyond the 6-digit level will be a massive undertaking and would not be viable given the short time horizon for a possible conclusion of the Doha Round as well as the timing of review cycles of the WCO. The WCO considers amendments to the HS once every five years with implementation taking place from one to two years following notifications to Members. The approval of the latest amendment took place in June 2004 and came into force on 1 January 2007. Thus, any new amendments would not come into force before 2012. (Kim, 2007).

Relativity, development of new products and technological change within the same product or product category

Even for those EPPs where the PPM issue does not arise, the fact that 'environmental friendliness' is a relative concept poses potential problems, especially where superior substitutes exist or may be used in the future. Qatar's proposal on natural gas (TN/TE/W/14, 19 and 27), for example, raises the question of whether or not natural resources such as relatively eco-friendly fuels can also be considered an environmental good and benefit from lowering or removing tariffs and NTBs (including possibly subsidies to alternative or 'substitute' fuels such as coal). Some experts believe that if hydrogen evolved into a fuel for popular use, natural gas would lose its status as an environmental good. The question then would be how a preference could be provided to hydrogen if no barriers exist to trade in natural gas and related goods. However, to take such new developments into account, WTO Members such as New Zealand, for instance, have stressed the need to ensure that any list developed at the WTO be considered a 'living list'.

A related issue concerns the need to create a separate tariff category under the HS classification for EPPs, such as energy-efficient products, from the normal tariff heading if such a category is accepted in the course of the negotiations on environmental goods. For example, if countries classified refrigerators into categories of ordinary or energy-efficient refrigerators. Many energy-efficient goods, however, are also subject to rapid change in technology. What may be considered energy-efficient today, may not be efficient tomorrow as technology is used to improve such products. Thus, if an energy-efficient EPP were put under a different tariff heading for purposes of greater tariff preferences, it is not clear how it may be treated if a superior product evolves the next year. The question arises: Which tariff heading will this superior counterpart be classified under? Raising tariffs again on the old product may not be a feasible option, so *trade-based incentives,* such as low or zero tariffs for the new EPP, may not work. But possibilities such as non-discriminatory applications of other market-based incentives such as internal taxes or labelling could be possible options. Here again, the question of whether or not these will be 'like' or 'substitute' products will be important to consider from the perspective of WTO rules.

A notable feature of the JOB (07)/54 submission by the Friends group was the proposal of a review mechanism for any set of products agreed for liberalisation to ensure that it does not remain static over time. Here, there is a lesson from the implementation of the Information Technology Agreement. The Ministerial Declaration and Implementation Document for the ITA[2] provides for review of product coverage every three years and no new products have been added since 1996. Despite additional products being submitted for inclusion by a few countries, the review process has reached a stalemate due to Members being unable to agree on classification of a number of existing products without HS codes (contained in Annex B of the ITA Agreement). Inconsistent product descriptions and encoding of 'ex-heading' goods at the national level have contributed to disagreements which have

slowed down the inclusion of new products. (Kim, 2007) The lesson for environmental goods negotiators, therefore, is to assign clear HS codes and ensure harmonised product descriptions (in case of 'ex-outs') so that any review process to consider inclusion of new products can proceed smoothly.

2.3 List Approach: Development-Related Challenges

The 'market-access' challenge: broadening the export basket for developing countries

Brazil's submission (TN/TE/W/59) voices one of the main concerns developing countries hold regarding the EGS negotiations, notably that negotiations thus far had privileged a definition of environmental goods with the various 'lists' focused on high-technology products of little interest to developing countries. However, only Qatar, Chinese Taipei and Korea have submitted lists of environmental products.

Many, if not most, developing countries are interested in including products of export interest in any basket of environmental goods. The reality, however, is that most developing countries lack a comparative advantage in traditionally defined environmental goods that are capital or technology-intensive. Hence, some countries such as Kenya (TN/MA/W/40) have proposed the inclusion of agriculture or natural resource based products that fall into the broader category of environmentally preferable products. This, for a number of other countries, both developing and developed, has raised the dilemma of Process and Production Methods (PPMs), which in most cases would be the only criteria for including such products. At the time of writing, most WTO Members want to avoid using PPM-based criteria while determining the basket of environmental goods. This raises the difficult issue of finding other suitable criteria for 'Southern' exportable goods that avoid PPM-based distinctions.

A number of delegations included EPPs in their list of products selected according to their 'end-use' or 'disposal' characteristics. The list submitted by New Zealand includes among others, EPPs based on 'end-use' or disposal characteristics such as organic fertilizers, soaps made from natural oils and jute bags. Another submission from the US (TN/TE/W/52) includes seven EPPs, identified by UNCTAD in its list of 158 products.

Both the EU (TN/TE/W/56) and the Swiss (TN/TE/W/57) submissions include EPPs with 'high environmental performance and/or low environmental impact' in their lists, selected according to their end-use or disposal characteristics. Some products included by Switzerland such as bicycles and parts for electric locomotives have been controversial in their inclusion as EPPs, (TN/TE/W/57), as have been the inclusion of energy-efficient appliances by Japan, (TN/MA/W/15).

Brazil in its submission (TN/TE/W/59) entitled 'Environmental Goods for Development' states that any definition of environmental goods should facilitate a triple win situation, i.e. trade promotion, environmental improvement and poverty alleviation. Brazil regards improved market access for products with a low environmental impact and/or is derived from or incorporates cleaner technologies as contributing to poverty alleviation through income generation and job creation for local populations. To this end, Brazil proposes that the definition of environmental goods should cover products such as renewable energy, including ethanol and biodiesel. It also points out that improved market access for products derived from incorporating cleaner technologies, such as "flexi fuel" engines and vehicles, could also encourage the use of environmentally-efficient products and be supportive of the developmental concerns of the developing countries as these vehicles would use fuels obtained from the processing of natural resources in developing countries.

The effects of EGS liberalisation on domestic industries and tariff revenue: special and differential treatment

Another concern for a number of developing countries is the effect of environmental goods liberalisation through the 'list approach' on domestic industries, employment and tariff-revenue. This is a major factor contributing to developing countries' reluctance to liberalise at the HS-6 digit level, thereby giving rise to the controversy about the environmental 'end-use' of a product.

A comprehensive analytical study on the effects of liberalisation of environmental goods on tariff-revenue may not have been undertaken in a number of developing countries and may be needed. It will be necessary to weigh the cost of possible loss of tariff-revenue against benefits that may be derived from importing a particular environmental good. Concerns have also been expressed with regard to the impact of EGS imports on established domestic industries, which are primarily situated in the more advanced middle-income developing countries. In this case, the economic or social benefits to employees and producers and prospects of future development of the industry may need to be weighed against the needs of consumers of environmental goods. Further trade in services through Mode 3 investment by environmental service providers, for instance, could also result in job-creation and valuable backward and forward linkages within the economy, and not necessarily job-displacement. The concern about impacts on domestic industries is more marked if 'environmental goods' are expanded to include the so-called 'dual-use' goods, as well as 'dual-use' parts and intermediates.

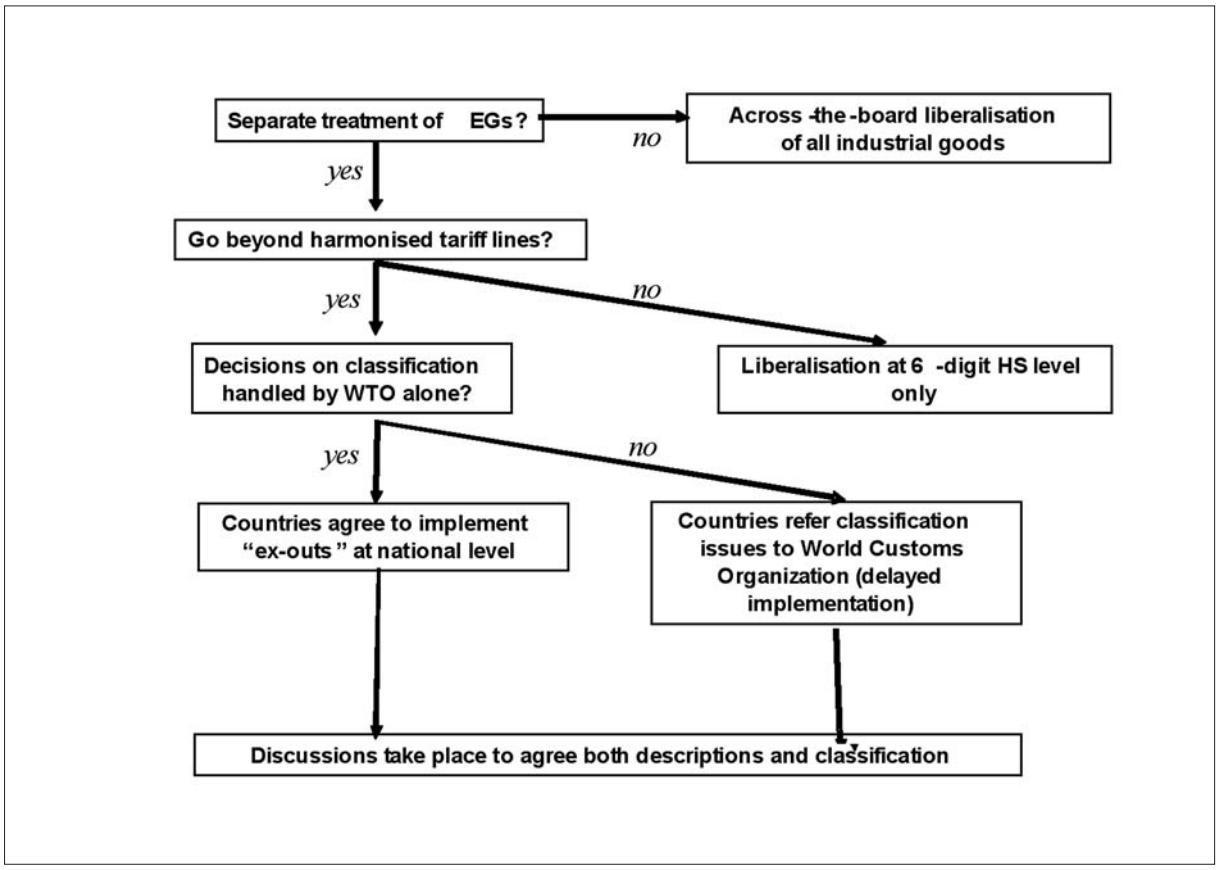
Special and Differential Treatment (S&DT) is one approach that has been proposed to deal with domestic impacts of liberalisation and has received attention from developing countries as well as other delegations during the course of EGS negotiations. The discussion has so far focussed on defensive S&DT, rather than offensive S&DT, partly due to the predominance of defensive rather than offensive concerns among developing countries in the negotiations. In its submission on modalities (TN/TE/W/38), the US has proposed a 'core-list' (on which consensus exists) and a 'complementary list', for which individual countries could nominate products and which would enjoy a wide degree of support. Faster liberalisation is 'envisaged' for core-list products (zero tariffs by 2010) and liberalisation of a minimum of x percent on goods in the complementary list (which Members could choose). China has also put forward a proposal calling for a 'common list' including environmental goods of export interest to both developed and developing countries. It further proposes a 'development list' that would be derived from the common list and comprise goods eligible for special and differential treatment in the form of lower levels of reduction commitments for developing countries (TN/TE/W/42).

Cuba appears to oppose tariff-reduction commitments that are incompatible with sustainable development policies and propose that developing countries decide on the proportion of goods to be liberalised and their own levels of reduction. On the export side, Cuba calls for low-enough tariffs on developing country EG exports in developed country markets to permit effective entry and approval, mutual recognition and financial and technological support measures to achieve such entry where the goods are subject to NTBs (TN/TE/W/69).

Some developing countries such as Cuba also view India's proposed 'project approach' as best suited to making S&DT viable by allowing Members to tailor liberalisation based on domestic environmental and developmental priorities.

The JOB (07)/54 proposal by the 'Friends' envisaged S&DT mainly in terms of extended implementation periods for liberalisation for developing countries although it welcomed further suggestions on implementing S&DT in environmental goods negotiations.

Figure 2. Partial Decision Tree for Negotiations on Environmental Goods: Questions of Classification



Source: Steenblik (2005).

Transfer of technology

During the course of negotiations, many countries have stressed the need to facilitate technology transfer, such as China (TN/TE/W/42). Two views regarding transfer of technology seem to be emerging from the submissions to various discussions. One view is that technology-transfer occurs through aid, private investment, technical assistance, partnerships between research organisations and small companies, and trade in environmental technologies themselves. One view is reflected in the submission by Canada, (TN/TE/W/50/Rev.1). A second view is some type of *differentiated treatment* for developing countries. India, for instance, views the project approach as conducive to transfer of technology through 'S&DT' in application of criteria for designating environmental projects laid down by CTE-SS. But more detailed options or the role that other negotiating bodies such as TBT Committee on Trade-Related Intellectual Property Rights (TRIPS) could or should play, with regard to technology-transfer issues, has not been discussed formally in the negotiating context for environmental goods. Cuba has stated that in the case of environmental goods that constitute environment-friendly technology packages and clean technologies of interest to developing countries, these should be transferred on favourable and preferential terms together with the related know-how with the necessary training for them on a non-discriminatory basis (TN/TE/W/69). Lack of adequate attention to transfer of technology remains one of the main complaints with regard to the 'list approach.'

2.4 List Approach: Other Challenges

Non-tariff barriers

Negotiating reduction of NTBs will require prior-identification and discussion among Members before they can be removed. As an EU submission to the WTO (TN/MA/W/11/Add.8) points out, one NTB may be replaced by another. Moreover, the 'source' of the NTB is often a legitimate policy objective, while the process of implementation can have a trade-distorting effect. So far critics contend that the 'list approach' proponents have not yet addressed the issue of NTBs meaningfully.

Several members have pointed out the need to address the issue of NTBs facing exports of and access to environmental goods. Cuba, for instance, (TN/TE/W/55) has stressed the importance of addressing NTMs such as certification and eco-labelling requirements. These may be much more significant barriers than tariffs and could include, among others, various kinds of technical and sanitary standards, subsidies and labelling. They may also include intellectual property and licensing requirements that have been identified by some experts as a constraining factor for developing countries, particularly small firms, in gaining access to environmentally sound technologies (ESTs). It is possible that Members may decide to focus primarily on tariffs at this stage of the negotiations, leaving the various types of NTBs to be discussed as part of the ongoing negotiations on industrial market access under NAMA negotiations on Rules or in specific committees such as those on Technical Barriers to Trade (TBT), Sanitary and Phytosanitary Measures (SPS), etc.

Negotiating Forum

The question of where sustainable agricultural or forestry products, under the EPP category, and if at all included, would be discussed and whether these would be subject to modalities for NAMA or the modalities for the Negotiating Group on Agriculture, will need to be clarified. This is not, however, an issue that has been significant during the course of negotiations, owing perhaps to WTO Members largely excluding consideration of PPM-based criteria, relevant to agricultural and forestry products and a lack, at the time of writing, of a concrete list of such products put forward by developing country members.

2.5 Project–Based and Integrated Approaches

As a response to the challenges related to the list approach, an alternative 'project approach' was proposed by India (TN/TE/W/51, TN/TE/54, TN/TE/60 and TN/TE/W/67), whereby environmental goods and services, deemed important for an approved project, would be liberalised on a time-bound basis. The key features of the approach in terms of *selection of products* are:

- Wide array of goods and services (including dual and multiple-use ones) to be liberalised for specific projects geared to fulfilling an environmental objective;
- Environmental projects approved by a 'designated national authority' DNA, based on criteria to be developed by the CTE;
- Domestic implementation of these criteria would be subject to WTO dispute settlement.

In terms of treatment:

- Liberalisation is to be bound temporally for the duration of the project on a Most-favoured Nation (MFN) basis;

According to India, the key merits of the project approach are:

- Avoiding negative impacts of unrestricted market access to 'dual' and 'multiple-use' products and diversion for non-environmental uses;
- Safeguarding 'policy-space' while addressing domestic and global environmental

objectives in a 'developmentally-supportive' way;
- Addressing environmental goods and services, tariffs and NTBs in an integrated manner;
- Determining multilateral criteria by the CTE for project-eligibility to ensure transparency.

Despite this, the project approach has been criticised by some WTO Members for not leading to binding and predictable market access and for being inconsistent with WTO rules. Concerns have also been raised regarding the time taken to develop criteria and time for dispute-settlement proceedings relative to the duration of a project. (BRIDGES Weekly, 12 July, 2006). According to some trade delegates, the approach also did not address the issue of meaningful market access for developing country exports of environmental goods.

Argentina made an attempt to bridge the gap between India's project approach and the list approach by incorporating the merits of both into what it called an 'integrated approach' (TN/TE/W/62). Under the proposed integrated approach, national authorities would decide on whether or not to temporarily eliminate tariffs for environmental products used in particular environmental projects. Members would multilaterally pre-identify categories of environmental projects and environmental goods that could be used in them. However, Members opposed to the project approach, in particular the US and Hong Kong, argued that the Argentine proposal was simply a variant of India's earlier submissions.

In a recent informal submission, JOB (07)/77, dated 6 June 2007, India and Argentina outlined the process that the integrated approach would follow both to highlight how goods and services imported in the context of a project would be used only for environmental purposes as well as how the integrated approach could address key areas of concern to developing countries such as transfer of technology and NTBs. According to the Argentina-India proposal, once agreed upon, each Member could submit the list of public and private entities within their territories that carried out the agreed environmental activities in their territories. This list would then be negotiated and notified to the WTO. The proposal also provided for the possibility of periodical negotiations to amend the list. Preferential tariff treatment would extend to all goods and services imported by the notified entities and post-audit systems put in place to monitor actual use of the imported products for the environmental activity. As an S&DT measure, India and Argentina also proposed that developed countries be able to offer a 100 percent tariff concession, while developing countries offer a lower preference margin. Least-developed countries were free to decide individually on concessions or preferences.

The submission also attempted to addresses the issues of technology-transfer and NTBs. The submission pointed out that for a truly environmentally friendly outcome, it is necessary that developing countries have unrestricted access to alternate and clean environmental technologies. The submission also stated that Members would be expected to actively cooperate on technology-transfer related to environmental activities for creation of technical capacities of developing country Members. The proposal provided for the WTO Secretariat to monitor on the basis of Member notifications and report on the technology transferred.

On NTBs, the proposal interestingly referred to the possibility of domestic regulatory requirements acting as NTBs and proposed that Members consider relaxing those requirements to the extent necessary for the effective conduct of the agreed environmental activities.

Many WTO Members have, however, raised questions with regard to the process of identifying these entities. They ask: will this process be through multilateral negotiations or negotiations at the national level? How should the potentially large number of entities, as well as revisions of the lists of entities, be dealt with, given the huge numbers that could be added in some countries? The 'list' supporters generally consider the approach complex and cumbersome to manage and inconsistent with WTO rules on non-discrimination.

An earlier informal 'non-paper' presented by Colombia (JOB(06)149) appears to suggest a compromise between the 'project' and 'list' approaches. It outlines potential criteria for defining products with a single environmental use: they must be used either for improving the environment or reducing waste and the consumption of natural resources, and must have a "direct and verifiable" environmental application that complies with the objectives of MEAs. For goods with dual and multiple uses, Colombia proposes that Members would only need to liberalise trade if they were used in a project, programme, plan or system deemed to have verifiable environmental benefits by a designated national authority. The document aimed to bring together India's project approach, the list approach, and Argentina's "integrated" approach that would create a list of goods and services that would then be eligible for project-specific liberalisation, while also addressing concerns about special and differential treatment and multiple use. (see BRIDGES Trade BioRes, 28 October, 2005).

Table 1. Treatment of Key Issues Under 'List' and 'Project' Approaches

KEY ISSUES AND CONCERNS	LIST APPROACH	PROJECT APPROACH
1. Environmental Justification	• Reference points to 'screen' goods based on environmental criteria and 'environmental benefits' column next to lists of goods. **[New Zealand]** • To be defined in order to contribute to the fulfilment of national and internationally agreed environmental priorities. Goods used in pollution-control and resource management and those with high environmental performance and low environmental impact; products that have a label issued by a scheme included in the existing international network Global Ecolabelling Network (GEN).**[EU]** • Core' List to include goods dealing with 'environmental remediation', 'pollution-prevention' and 'clean-technologies.' **[US]**	• Wide array of goods and services used in a project seeking to fulfil a specific environmental objective. Projects to be approved by 'Designated National Authority' (DNA) based on criteria developed by the CTE. • Projects can be selected on basis of both national as well as global environmental objectives.

Table 1. continued

2. Goods of export interest to developing countries	• No formal list put forward by developing countries • Some WTO Members, such as New Zealand, have included EPPs of export interest to developing countries)	• Focuses on 'import' impacts of environmental goods. • Export-capacity for developing countries to be created through 'forward and backward' linkages with local firms enabled by project approach.
3. Coverage of intermediates and spare-parts	• Represented to some extent in list of 480 products compiled by WTO Secretariat from existing and proposed listings, but many are 'dual-use.'	• Covers intermediates and spare-parts used for approved projects.
4. 'Single', 'Dual' and 'Multiple-use' products	• Very few products at 6-digit level in the list of 480 products compiled by Secretariat deemed 'purely' single-use. According to one analysis by Fulton (2006), only 174 of 480 categories (including ex-outs) qualify, or 36 per cent of the entire-list. • Potential candidates for 'predominantly-environmental' cover 197 categories, or 41 per-cent of the list. [Fulton,2006].	• Liberalisation to extend to 'dual' and 'multiple-use' products only for approved projects so would reportedly prevent 'diversion.'
5. Transparency and predictability of tariff bindings	• Reduction or binding of tariffs and NTBs to be permanent.	• Definitional boundaries of 'Project' will be set by CTE-SS. • Temporal binding of commitments for the duration of the project.
6. Coverage of Non-tariff barriers	• No clear indication as to how non-tariff barriers will be dealt with.	• Reduction, elimination or appropriate treatment of standards, licensing restrictions and non-tariff barriers for goods destined for approved projects.

Table 1. continued

7. Integrated Approach to Goods and Services	• No formal approach to integrate the two pursued; but some delegations working independently to coordinate approach and ensure mutual supportiveness in both areas. E.g. Canada's list of goods informed by products used in environmental services.	• Both goods and services required for approved projects can be procured by firms through 'temporally binding' liberalisation.
8. 'Policy-space' and flexibility in liberalisation; Concerns of SMEs	• 'Development List' to comprise goods eligible for special and differential treatment in the form of lower levels of reduction commitments for developing countries. **[China]** • 'Complementary List' where individual countries could nominate products. Liberalisation on minimum of 'x' percent in this list which Members could choose.**[US]**	• Allows WTO Members to tailor liberalisation based on domestic environmental and development priorities. • Fast-track process could be considered for project approval for SMEs.
9. Technology transfer	• Technology-transfer through aid, technical assistance and trade in environmental technologies emphasised.	• Technology-transfer could be included as part of 'S&DT' in application of criteria laid down by CTE-SS. CTE-SS appropriate for building coalition and co-operative framework for technology transfer based on principles of voluntariness and mutual benefit.
10. Evolution in technology of environmental goods	• Review and updating of environmental goods list; Concept of 'living list'.**[Canada, European Communities, New Zealand, Norway, Singapore, Switzerland, and the United States].**	• Contemporary nature of projects to ensure liberalisation of latest technologies. Will not require re-negotiation.
11. Applicability of dispute settlement	• Dispute-settlement will apply to any binding concessions made.	• Domestic implementation of criteria for projects developed by CTE-SS subject to WTO Dispute Settlement.

3. ENVIRONMENTAL SERVICES NEGOTIATIONS

3.1 State of Play

Within the services dimension, WTO negotiations towards further liberalisation of environmental (and other) services began before Doha as part of the so-called 'built-in agenda' agreed during the Uruguay Round. According to Article XIX of the GATS, Members had to start discussions on negotiating formats and procedures in 2000.

The Doha Ministerial Conference set deadlines for submitting requests (June 2002) and offers (March 2003), which were not met by most Members, as well as for concluding the talks in 2005. In a joint report on the informal discussion on environmental services within the Doha round, the "Friends of Environmental Services" comprising Australia, The EU, Japan, New Zealand, Chinese taipei and the US, laid out some of the key issues discussed on environmental services that fall under the following broad themes-cross-border provision of environmental services, the classification of environmental services, and questions related to the scheduling of commitments in environmental infrastructure services. (Details found in TN/S/W/28).

On services, the 1st August Decision merely "takes note of the report to the TNC by the Special Session of the Council for Trade in Services and reaffirms Members' commitment to progress in this area of the negotiations in line with the Doha mandate." It also provided for the General Council's adoption of the recommendations agreed by the Special Session and set out in Annex C of the Decision for pursual of further services negotiations. It calls for revised offers to be tabled by May 2005, thus going beyond the original Doha declaration deadline of 1 January, 2005. Paragraph D of Annex C, in particular, states that "Members shall aim to achieve progressively higher levels of liberalisation with no a priori exclusion of any service sector or mode of supply and shall give special attention to sectors and modes of supply of export interest to developing countries. Members note the interest of developing countries, as well as other Members, in Mode 4."

The Hong Kong Ministerial Declaration (WT/MIN (05)/DEC.) on services emerging from the conclusion of the Sixth Ministerial Conference expresses the intent of WTO Members to intensify the negotiations in accordance with the principles and the Objectives, Approaches and Timelines set out in Annex C to the document. This is with a view to expanding the sectoral and modal coverage of commitments and improving their quality. It also notes that particular attention will be given to sectors and modes of supply of export interest to developing countries. In addition, Annex C, Para 11, states that, "the negotiations shall adhere to the following dates":

(a) Any outstanding initial offers shall be submitted as soon as possible;
(b) Groups of Members presenting plurilateral requests to other Members should submit such requests by 28 February 2006, or as soon as possible thereafter;
(c) A second round of revised offers shall be submitted by 31 July 2006;
(d) Final draft schedules of commitments shall be submitted by 31 October 2006;
(e) Members shall strive to complete the requirements in 9(a) before the date in 11(c). [Article 9 (a) refers to ".developing appropriate mechanisms for according special priority including to sectors and modes of supply of interest to LDCs".

With regard to the negotiating objectives, the report to the Trade Negotiations Committee by the Chairman of the Special Session for the Council on Trade in Services (TN/S/23) may be taken as a reference point. The document lays down objectives with regard to each mode of supply. In addition, it also lays down certain specific objectives for different sectors. On the scope of commitments in environmental services, the text states that Members had identified individually or in groups the following objectives:

High levels of market access across sub-sectors, as far as possible;

- Mode 1 commitments for as many sub-sectors as possible, in particular advisory services;
- Objective of full commitments for Mode 2;
- Ambitious commitments for Mode 3, removing barriers on commercial establishment; if exclusive rights are awarded, foreign suppliers should be able to participate in the tender and operation of the service;
- Mode 4 commitments to ensure mobility of service suppliers such as remediation specialists, conservationists and geomatic professionals;
- Commitments across all sub-sectors listed in CPC Prov., i.e. 9401 to 9409, taking into account the interplay with related services such as construction, engineering, technical testing, analysis and management consulting services.

Currently, most developing countries have received requests to undertake specific commitments in all environmental services, principally from developed countries. To date, 70 Members have submitted initial offers (counting the EU 25 as one), of which 21 Members are offering to make new or improved commitments in environmental services, including 13 developing Members. For instance, El Salvador has offered to make commitments in the sub-sector of 'cleaning services for exhaust gases, noise abatement, nature and landscape protection services and other environmental protection services'. The EU has offered additional horizontal commitments to environmental services in Mode 4. Guatemala has offered to open up environmental services in Modes 1, 2 and 3. The opening has been confined to the sub-sector "nature and landscape protection services". Mode 4 commitments are subject to horizontal limitations. However, Guatemala has made the offer subject to the condition that the provision of these services is consistent with 'national policies on the development and maintenance of natural resources and biodiversity'.

There is no comprehensive WTO documentation of the requests between Members. Developed countries appear to have submitted requests to almost all Members, with the result that almost all developing countries will be involved in bilateral negotiations with at least one major trading partner. The EU, for example, has submitted requests to 109 WTO Members based on its proposed new classification of environmental services. The EU's initial offer of 10 June 2003 (TN/S/O/EEC) offers additional commitments in all sub-sectors with the notable exception of water collection, purification and distribution services.

On 28 February 2006, the EU, Australia, Canada, Japan, Korea, Norway, Singapore, Switzerland, Chinese Taipei, and the United States) circulated a collective (or plurilateral) request for a number of large developing countries, namely Argentina, Brazil, Chile, China, Colombia, Costa Rica, Egypt, India, Indonesia, Israel, Malaysia, Mexico, Namibia, New Zealand, Nicaragua, Nigeria, Pakistan, Peru, Philippines, Singapore, South Africa, Thailand and Turkey to open their environmental services markets to foreign services providers. Specifically, the request asks them to open up their sewage; refuse disposal; sanitation; cleaning of exhaust gases; noise abatement; nature and landscape protection; and other environmental protection services in specific ways. However, it explicitly excludes any request for water for human use (i.e. the collection, purification and distribution of natural water) that formerly proved controversial among many developed and developing countries and civil society groups.

The request covered all Modes of delivery. Members are free to choose the classification under which commitments will be made with the option of the UN CPC, W/120 or subsequent revised classification headings.

Table 2. Environmental Service Sectors Subject to Plurilateral Request

CLASSIFICATION TYPE	
W/120 BASED ON UN-CPC 94	**REVISED CLASSIFICATION (USED BY SOME MEMBERS)**
9401 -Sewage Services	Wastewater Treatment
9402 -Refuse Disposal Services	Solid/ Hazardous Waste Management
9403 -Sanitation and Similar Services	
9404 -Cleaning Services of Exhaust Gases	Protection of Ambient Air and Climate
9405 -Noise Abatement Services	Noise and Vibration Abatement
9406 -Nature and Landscape Protection Services	Remediation and Clean -up of Soil and Water
Protection of Biodiversity and Landscape	
9409 -Other Environmental Protection Services	Other Environmental and Ancillary Services

The request states that it was understood that "liberalisation in these sectors will not impair the ability of governments to impose performance and quality controls on environmental services and to otherwise ensure that service suppliers are fully qualified and carry out their tasks in an environmentally sound manner. In addition, it added that, "as under current obligations, each WTO Member can establish, maintain, and enforce its own levels of protection, inter alia, for consumers, health, safety, and the environment."

The request also notes the important interplay between the liberalisation of environmental services and the liberalisation of related services, such as construction, engineering, technical testing and analysis, and management consulting.

In the Uruguay Round, South Africa had committed to liberalisation of environmental services on a Consultancy basis (applying to all sub-sectors), with horizontal commitments in Mode 4. There is a horizontal National Treatment limitation on Mode 3: Local borrowing by South African registered companies with a non-resident shareholding of 25 per cent or more is limited. (GATS/SC/78).

During the course of Doha negotiations, South Africa made an initial offer in April 2006. Under this offer, it added under the category of 'other environmental services';

- (b) remediation and clean-up of soil (excluding water and mining-related and mining associated services) and (c) noise and vibration abatement services, excluding water and mining-related and mining associated services. Significantly, these new commitments are full commitments and not restricted to consultancy services. In these new categories, South Africa's improved commitments are as follows: Mode 1: Unbound for both Market Access and National Treatment; Mode 2: None; Mode 3: a joint venture with a local service provider is required, and foreign participation is limited to 51 percent for Market Access, for National Treatment the commitment is "None"; Mode 4: unbound except as indicated in the horizontal section.

Discussions over the plurilateral request have focussed on two sets of questions put forward by the *demandeurs*, namely:

- To what extent do existing practices reflect the commitments being sought in the Environmental Services Plurilateral Request? What plans are being made to bind this access? If the recipient was not planning to bind existing access, why?
- Where existing practices do not reflect the commitments being sought in the Environmental Services Plurilateral Request, what plans are being made to create new access? Would the creation of such access require a legislative change?

At the time of writing, very few developing countries had formally expressed a willingness to make commitments. As in other negotiating areas, progress in critical areas of negotiations such as agriculture may influence the outcome and willingness to make concessions. Except for Chinese Taipei, no developing economy has so far requested market access commitments in environmental services. It should be noted, however, that a number of developing countries, particularly in Asia are developing their supply capacities in this area. (Sawhney, 2007).

What is clear is that unlike certain other services such as telecommunications, for instance, environmental services have witnessed slow progress. This has been reflected in terms of reduced 'depth' of market access commitments, less number of countries that have made commitments, particularly developing ones, and fewer number of sectors and modes covered. These may in large part be attributed to concerns underlying some of the key issues and faultlines mentioned below.

3.2 Key Issues and Fault-Lines

Classification issues

The WTO Services Sectoral Classification list (W/120) is based on the UN Provisional Central Product Classification (CPC). However, there have been a number of proposals by Members who consider that it needs updating. In a submission as early as 1999 (S/CSC/W/25), the EU stated that the list did not, for instance, reflect changes in the environmental industry which was developing beyond traditional end-of-pipe/pollution control/remediation/clean-up towards integrated pollution prevention and control, cleaner technology and resources and risk management. The EU proposed an alternative classification comprising 'core' services which can undisputedly be classified as "purely" environmental and where the services are classified according to the environmental media (i.e. air, water, solid and hazardous waste, noise, etc.). Thus, the mutually exclusive character of the W/120 list is preserved. In addition, subsequent EU submissions in 2000 (S/CSS/W/3 and S/CSS/W/38) also propose a 'cluster' approach whereby conceptual services such as design, engineering, R&D and consulting services which have an environmental 'end-use' would be subject to a special 'cluster' or 'checklist'. The checklist would be used as an aide-memoir during the other sectoral negotiations. Thus, commitments for these 'end-uses' could be scheduled within relevant GATS sectors, other than the environment.

Colombia, while accepting the EU classification as a working basis, has added three more services: (i) the implementation and auditing of environmental management systems; (ii) the evaluation and mitigation of environmental impact; and (iii) advice in the design and implementation of clean technologies (S/CSS/W/121). Some delegations have cautioned against Members making unintended commitments in a number of other sectors while liberalising under the 'cluster approach'.

Presently, Members are free to make use of their own classifications. Multilaterally accepted classification issues can be worked out within the WTO Committee on Specific Commitments (CSC). Sector-specific discussions in the CSC have focused on specific questions, namely:

- Spelling out of remaining CPC categories and making them more visible in the classification;
- Restructuring of the environmental sector into seven instead of four sub- sectors (based on various environmental media, water, air, waste and noise, etc.);
- The specific relation of consultancy services related to environmental services. Many Members have proposed that environmental consultancy services be included explicitly under environmental rather than consultancy services. While no consensus has been reached, some Members such as the EU, the US, Australia and Norway are using these proposals in their offers.

Table 3. Environmental Services: A Preliminary Comparison Between the MTN.GNS/W/120 Classification and the Pollution Management Group of the OECD/EUROSTAT Classification

MTN.GNS/W/120 Classification (with the "other" category elaborated using the CPC)	OECD/Eurostat Manual classifications Pollution management Group
A. Sewage services (CPC 9401)	**Waste water management**
Sewage removal, treatment and disposal services Excludes collection, purification and distribution services of water (in CPC 18000) Excludes construction, repair and alteration of sewers (in CPC 51330) (GATS 3B civil engineering construction services)	Design, operation of systems or provision of other services for the collection, treatment and transport of waste water and cooling water. It includes design, management or other services for sewage treatment systems, waste water reuse systems, water handling systems
B. Refuse disposal services (CPC 9402) **C. Sanitation & similar services (CPC 9403)**	**Solid waste management**
Refuse disposal services: Refuse collection and disposal services; collection services of garbage, trash, rubbish and waste (household, commercial and industrial); transport services and disposal services; waste reduction services. Excludes dealing and wholesale in waste and scrap (in CPC 62118 and 62278; GATS 4 distribution services) Excludes R&D services on environment issues (CPC 85; GATS 1C Business services (R&D)) *Sanitation and similar services:* Sanitation and similar services including outdoor sweeping, snow and ice clearing. Excludes disinfecting/exterminating services for buildings (in CPC 87401; GATS (1F)(o) – Other Business Building Cleaning Services.) Excludes pest control for agriculture (CPC 88110; GATS 1F(f) services incidental to agriculture, hunting and forestry.	Design, operation of systems or provision of other services for the collection, treatment, management, transport, storage and recovery of hazardous and non-hazardous solid waste. It includes design, management or other services for waste handling (including collection of waste and scrap), operation of recycling plants. It includes services for outdoor sweeping and watering of streets, paths, parking lots, etc. Services for treatment of low level nuclear waste are included. Excludes high level nuclear waste. Excludes services for manufacture of new materials or products from recovered waste or scrap and subsequent use of these materials or products.
D. Other services **Cleaning services of exhaust gases (CPC 9404)**	**Air pollution control**

Table 3. continued

Emission monitoring and control services of pollutants into the air, whether from mobile or stationary sources; concentration monitoring, control and reduction services of pollutants in ambient air.	Design, managing systems or providing other services for treatment and/or removal of exhaust gases and particulate matter from both stationary and mobile sources
Noise abatements services (CPC 9405)	**Noise and vibration abatement**
Noise pollution monitoring, control and abatement services, e.g. traffic-related noise abatement in urban areas.	Design, managing systems or providing other services to reduce or eliminate the emission of noise and vibration both at source and dispersed. Includes designing, management or other services for acoustic and sound-proof screens and street covering.
Nature and landscape protection services (CPC 9406) Ecological system protection services, e.g. of lakes, coastlines and coastal waters, dry land, etc. including their respective fauna, flora and habitats. Services consisting in studies on the interrelationship between environment and climate (e.g. greenhouse effect), including natural disaster assessment and abatement services. Landscape protection services n.e.c. Excludes forest and damage assessment and abatement services (in CPC 881, GATS 1F(f). Services incidental to agriculture, hunting and foresting) **Other environmental protection services n.e.c. (CPC 9409)** E.g. acidifying deposition ("acid rain"), monitoring, controlling and damage assessment services	**Remediation and cleanup of soil, surface water and groundwater.** Design, operation of systems or provision of other services to reduce the quantity of polluting materials in soil and water, including surface water, groundwater and sea water. Includes cleaning-up systems either in situ or in appropriate installations, emergency response and spills cleanup systems. Treatment of water and dredging residues are included. **Analytical services, data collection, analysis and assessment** Design, manage systems or provision of other services to sample, measure, and record various characteristics of environmental media. Includes monitoring sites, both operating singly and in networks, and covering one or more environmental medium. Health, safety, toxicology studies, and analytical laboratory services are included. Weather stations are excluded.
[Business Services – R&D natural sciences and engineering; CPC 85] as well as Environmental Services – Other Services, CPC 9406, 9409	**Environmental R&D** Any systematic and creative activity which is concerned with the generation, advancement, dissemination and application of scientific and technological knowledge to reduce or eliminate emissions in all environmental media and to improve environmental quality. Includes creative scientific and technological activities for the development of cleaner products, processes and technologies. It includes non-technological research to improve knowledge of eco-systems and the impact of human activities on the environment.

Table 3. continued

[Construction and related engineering services (CPC 51330)]	Services related to activities for the construction and installation of facilities for: air pollution control ; waste water management; solid waste management; remediation and cleanup of soil, water and groundwater; noise and vibration abatement; environmental monitoring; analysis and assessment; other environmental facilities.
Other environmental protection services, CPC 9409; possibly also [5 – Educational Services – Other]	**Education, training, information** Provision of environmental education or training or dissemination of environmental information and which is executed by specialised institutions or specialised suppliers. Includes education, training, and information management for the general public, and specific environmental work place education and training. The activities of the general educational system are excluded.

Source: UNCTAD 1998 in Kirkpatrick (2006).

Note: Items in square brackets belong to sectors other than environmental services in the MTN.GNS/W/120 classification.

Environmental infrastructure services and the issue of water

According to some experts, foreign commercial presence, through Mode 3, could help ease the constraint on domestic resources in developing country provision of safe water, as well as treatment of polluted water. Many see the GATS as a suitable instrument to offer binding and predictable market access for foreign investment in this sector. Others, however, question the value of such participation, particularly as it raises issues of affordability to poorer sections of the population as well as fears about private ownership and control of water.

These fears were heightened when the EU in its classification proposed "water for human use and wastewater" for inclusion under 'environmental services'. While water is in theory open for negotiations at all times, the proposal marked a shift away from the W/120 classification which does not address water at all and mentions only sewage treatment and tank emptying. It appears certain that it was "water for human use" rather than "waste water treatment" that sparked these concerns.

General obligations under the GATS, such as the most-favoured nation or national treatment, do not apply to 'services supplied under government authority' that are not supplied on a 'commercial basis' or in 'competition with other service suppliers' (Article I: 3). In the case of water supply, for instance, only if the sector already has private actors (including domestic ones) or the sole state entity in charge supplies water on the basis of commercial considerations, would a WTO Member be required not to discriminate between water supply service providers from different Member states or grant them the same treatment as domestic entities.

Assuming that private participation and commercial considerations do exist in the delivery of environmental infrastructure services, Members may wish to preserve regulatory 'policy space' and incorporate adequate safeguards in their GATS commitments so as to facilitate other models for 'delivery of water' and the use

of policy instruments, such as subsidies or tax incentives. Disciplines on subsidies as well as government procurement in services have yet to be negotiated. Discussions, for example, in the Working Party on GATS rules and the Committee on Government Procurement have looked at various kinds of contractual arrangements, such as BOT. Some of these, it is argued, are actually a combination of government procurement and market access concessions. Any future disciplines on government procurement and subsidies could have implications for market access commitments already made. Presently, many countries have stated that they would prefer not to make liberalisation commitments in water without understanding the implications of liberalisation, particularly on access of water to the poor.

Domestic regulations and disciplines not yet negotiated

Detailed knowledge of domestic regulatory and administrative regimes will be relevant for trade negotiations in environmental services as in other services. This is because domestic regulations touch upon provision of services through Mode 3 (commercial presence) and Mode 4 (movement of natural persons) through foreign investment, health, environmental and immigration and intellectual property rights laws and regulations etc. While Article VI disciplines under the GATS have a limited impact on public services, experts believe that future negotiations under Article VI:4 of GATS may influence domestic regulation on public services. Article VI:4 on domestic regulation states: "With a view to ensuring that measures relating to qualification requirements and procedures, technical standards and licensing requirements do not constitute unnecessary barriers to trade in services, the Council for Trade in Services shall, through appropriate bodies it may establish, develop any necessary disciplines. Such disciplines shall aim to ensure that such requirements are, *inter alia*:

a) based on objective and transparent criteria, such as competence and the ability to supply the service;
b) not more burdensome than necessary to ensure the quality of the service;
c) in the case of licensing procedures, not in themselves, a restriction on the supply of the service."

WTO Members should, therefore, assess ongoing negotiations in the WTO Working Party on Domestic Regulation in the light of their regulatory requirements. Disciplines on safeguards, subsidies and procurement mandated by GATS Articles X, XIII and XV have yet to be developed. According to the Guidelines and Procedures for the Negotiations on Trade in Services (S/L/93- 29 March 2001), negotiations on safeguards under Article X shall be completed by 15 March 2002. According to the Decision adopted by the Council for Trade in Services on 1 December 2000, Members shall aim to complete negotiations under Articles VI: 4, XIII and XV prior to the conclusion of negotiations on specific commitments (under market access).

Environmental services of export interest to developing countries

The OECD classifications as well as various other proposals on the classification of environmental services reflect sectors where developed countries enjoy a comparative advantage, as many of these sectors are capital and technology-intensive. However, many developing countries are interested in market access for environmental services that they could possibly export, particularly in Mode 4. Cuba, for instance, whose environmental service segments include studies, assessments and consultancy services, is particularly well developed and has exported such services to Brazil, the Dominican Republic, Haiti, Mexico, Nicaragua, Spain and Venezuela. As mentioned previously, assessing the opportunities in this sector will, however, imply an assessment of the impact of foreign immigration regulations that are a part of domestic regulation, as well as other requirements, such as quality assurance and educational requirements. Provision of consultancy services through Mode 1 (cross-border supply) could also hold opportunities for developing countries for export of environmental services.

Cross-cutting issue: integration of environmental goods and services

In their submissions, Canada (TN/TE/W/50), Cuba (TN/TE/W/55) and India (TN/TE/W/51) highlighted the close linkage between environmental goods and services, noting that environmental services are often supplied through goods and the separation of environmental goods and services in an environmental activity is difficult, owing to their integrated nature. Canada (TN/TE/W/50) and the EU (TN/TE/W/47) have indicated that their lists of environmental goods have been informed by the type of products used in environmental services. The disconnect between environmental goods and service negotiations, as well as the drawback of the 'list' approach in taking account of their integrated nature, have been pointed out. Where appropriate, parallel liberalisation of environmental goods and services has been suggested by the EU (TN/TE/W/47).[See also: Informal note by WTO Secretariat (TN/TE/W/63)]

At present, Members have not agreed to adopt a coordinated strategy on environmental goods and services within the context of the WTO negotiations, but are likely to tailor individual strategies to respond to specific country interests in both goods and services negotiations. The submission on the project approach, suggested by India on environmental goods, points out the need to ensure synergy between environmental goods and services and includes both under its scope. Some experts have suggested that Para 51, calling upon the CTE and the Committee on Trade and Development to identify and debate the environmental and developmental aspects of the Doha negotiations, should play a more useful role in this regard.

4. FUTURE OUTLOOK FOR WTO NEGOTIATIONS

At the time of writing, environmental goods negotiations have proven difficult, due to divergent views among Members on approaches to liberalisation, and more fundamentally, on the scope of what products do or do not constitute environmental goods. Environmental services have been affected by unresolved classification issues and the slower tempo of negotiations for services market access more generally. According to many Geneva-based WTO delegations, progress could be catalysed if disagreements among WTO Members on how to cut agricultural subsidies and tariffs are resolved and an agreement is also reached on the scope and modalities for liberalisation in industrial goods.

Discussions so far have not been able to resolve differences over inclusion of 'dual' use products as well as the issue of which negotiating approach i.e. 'list' , 'project' or any others deemed appropriate to take. Several developing countries maintain that a single potential non-environmental end use should suffice to disqualify a product from consideration; developed countries countered that this would exclude all but a handful of items. Developing countries also reiterate that areas of concern to them, such as special and differential treatment, NTBs, and technology transfer needed to be taken into account in the negotiations.

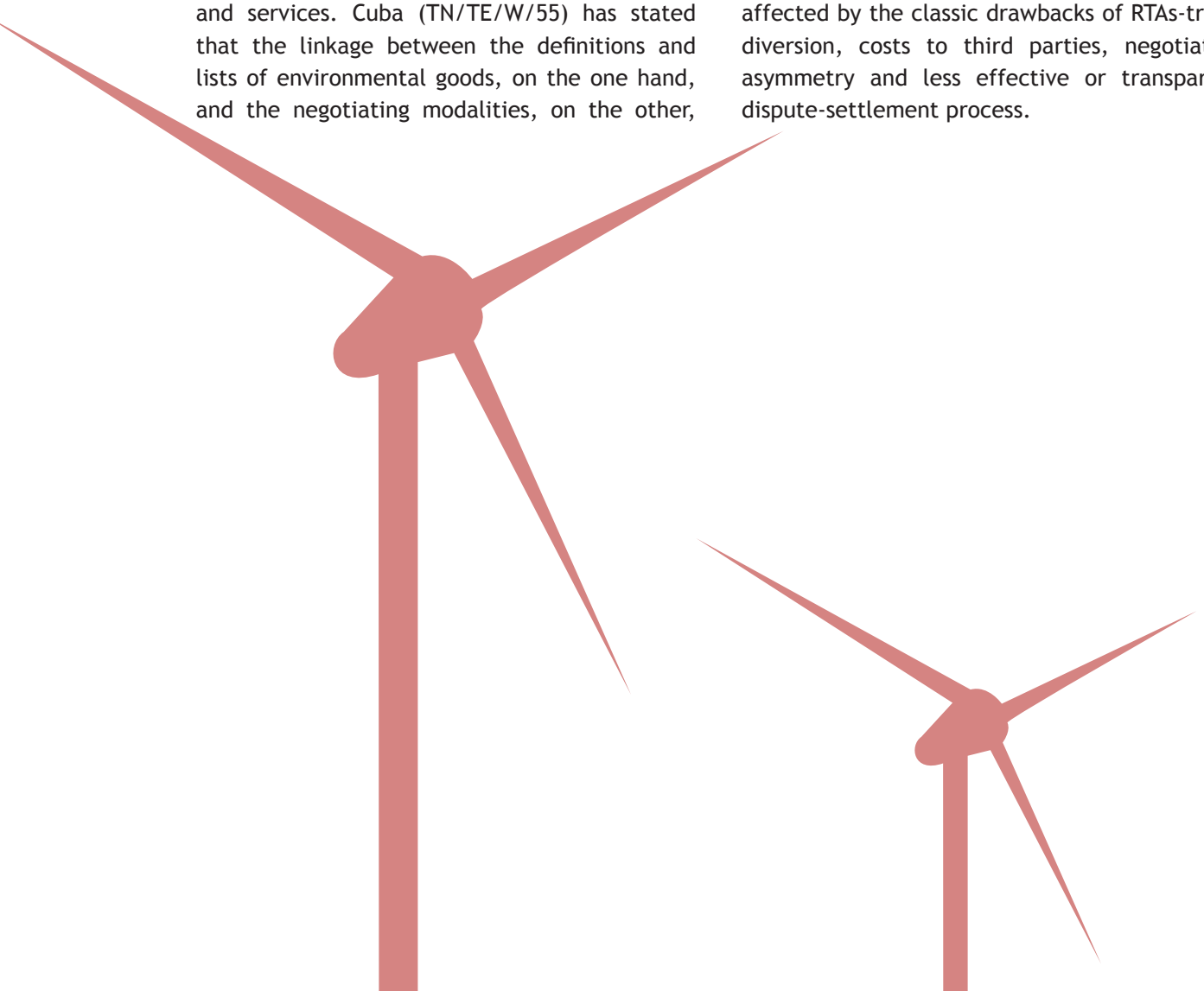
Other delegations, notably the US, Canada, the EU, New Zealand, Norway, Singapore and Switzerland submitted a proposal to both the CTE-SS and NAMA have called for developed countries and developing countries "declaring themselves in a position to do so" to eliminate tariffs on environmental goods by 2008 (TN/MA/W/70 and TN/TE/W/65), with other developing countries doing so by an undetermined later date. The paper acknowledged that the products to be covered by the environmental goods-specific liberalisation initiative still needed to be finalised, but specified that they would be based on the environmental goods identified in the CTE-SS. It also suggested that developing countries could be allowed to exclude a limited number of products from tariff elimination.

The EGS negotiations are in no way isolated from the rest of WTO trade negotiations and the momentum of progress may well depend on the gains made in other areas of negotiations such as agriculture. Any such momentum may also

strengthen widely-held views amongst the trade community that EGS negotiations reflect the 'give and take' bargaining approach across different negotiating sectors that are characteristic of the WTO 'Single-Undertaking Package'. Further, some delegates point out informally that any benefits that could be achieved from liberalisation could be done so autonomously, and that there may be a 'bargaining-chip' value in maintaining high-tariffs and NTBs on EGS in a mercantilist sense.

When asked, many trade delegates conceded that concessions can always be made, if Members so wish, in sectors of export interest to developing countries, whether or not these are formally classified as environmental goods. In other words, the Para 31 (iii) mandate is largely symbolic and there is no restriction on concessions being made in any relevant negotiating group whether NAMA, Services or Agriculture. Others, however, point out the highlighting of EGS under Para 31 (iii) implies an earlier, faster, and deeper rate of trade-liberalisation relative to 'other' goods and services. Cuba (TN/TE/W/55) has stated that the linkage between the definitions and lists of environmental goods, on the one hand, and the negotiating modalities, on the other, should be considered under a systemic and parallel approach, as this is what will determine the outcome, positive or otherwise, of the negotiations.

It is possible that a failure to achieve a meaningful outcome on EGS in the Doha Round may prompt many WTO Members to address it through bilateral or regional initiatives such as through regional trade agreements (RTAs). The greater degree of overall ambition in these negotiations may imply that issues such as 'dual-use' products or HS-codes may not be as great a concern as within the WTO. Other challenges such as non-tariff measures, impacts on domestic industries, building supply-capacities and technology transfer will persist, however, and any regional trade initiatives may need to find innovative solutions to these issues. The lesser number of actors in an RTA may make an agreement on HS-codes or standards easier and lend itself to tailor-made technical assistance and aid programmes. However, they may still be affected by the classic drawbacks of RTAs-trade diversion, costs to third parties, negotiating asymmetry and less effective or transparent dispute-settlement process.



ENDNOTES

1 More specifically, Chapter 4 on changing consumption patterns and chapter 9 on the protection of the atmosphere within Agenda 21.

2 WTO, Ministerial Declaration on Trade in Information Technology Products, WT/MIN (96)/16.

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PART B: ENVIRONMENTAL GOODS: TRADE FLOWS, POLICY CONSIDERATIONS AND NEGOTIATING STRATEGY

B.1 TRADE FLOWS AND DOMESTIC POLICY CONSIDERATIONS IN ENVIRONMENTAL GOODS

Edmundo Claro and Nicolas Lucas

1. INTRODUCTION

If appropriately designed, trade liberalisation of environmental goods (EG) will allow some developing countries to significantly expand their production and export of EG and thus promote increased industrial diversification of their economies. For many others, trade liberalisation of EG may provide gains needed to support rural economies, facilitate the integration of their small and medium sized enterprises into related global supply chains, and thereby increase employment and contribute to poverty reduction. However, if not well designed, liberalising policies for EG might also be the source of harsher times for local producers, especially for small and medium sized enterprises (SMEs).

Although these considerations suggest that different developing countries need different approaches to EG trade liberalisation, there are some common areas of concern that every developing country should address in order to design their EG trade liberalisation strategy. This work aims at facilitating this task for developing countries.

In order to pursue that objective, Section two presents a review of the global market for EGS, differentiating between established environmental technologies (EET) and environmentally preferable products (EPP), and focusing on Asia and South America. While Section three addresses trade in EET, highlighting main markets, prevailing tariff-situation, main NTBs and major trends in domestic capacity, Section four does the same for EEP. Next, Section five reviews the major issues associated with the development of national EG liberalisation strategies. Section six concludes this work by delineating a framework for domestic discussions aimed at developing national EG liberalisation strategies.

2. THE GLOBAL MARKET FOR EGS

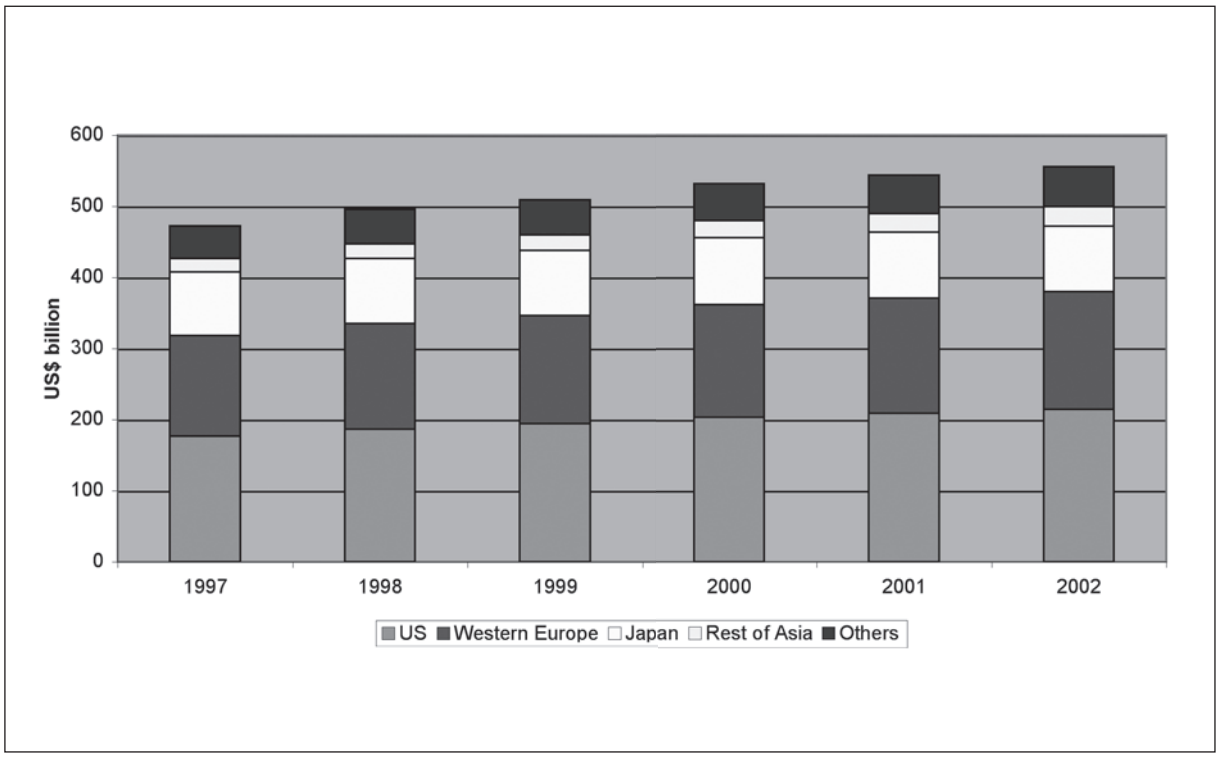
2.1 The Global Environmental Market

In 2003, the global size of the environmental market was estimated at USD500 billion, with the developed countries accounting for about 90 percent (UNCTAD, 2003b). The US, Western Europe and Japan together account for 84 percent of this market, have many of the largest environmental firms in the world, and concentrate global exports of environmental equipment, technology and services (Yu, 2007). Although some argue that the market is split almost equally between environmental goods and environmental services (Kennet and Steenblik, 2005), others are of the opinion that the share of services might be up to 67 percent of the global environmental market (Vikhlyaev, 2006).

Although there are various views on what constitutes the environmental goods and services industry, there is agreement in that its global market is growing at a fast rate. Kennett and Steenblik (2005) argue that whereas in 1990 the global environmental industry was estimated to have generated revenues of around USD360 billion, by 2001 they surpassed USD550 billion, and in 2005 they were expected to reach USD620 billion. Similarly, in accordance with the Organisation for Economic Cooperation and Development (OECD) definition of environmental goods and services, whereas in 1990 the global market for environmental goods and services was

approximately USD200 billion, in 2005 it was USD600 billion (Alavi, 2007). Figure 1 shows the evolution of the global environmental industry distinguishing by region or country.

Figure 1. Global Environmental Market



Source: Office of Environmental Technologies Industries, US Department of Commerce's International Trade Administration (http://environment.ita.doc.gov/).

While the global environmental industry is estimated to have been growing fast during the last years, saturation has slowed market growth in the developed countries and therefore most of the future demand growth is expected to occur in developing countries and countries in transition (UNCTAD, 2003b). Thus, whereas between 2000 and 2001 the environmental industry of developed countries grew 1.6 percent, in developing countries it grew approximately 7.5 percent (UNCTAD, 2003c).

The following areas are expected to experience substantial growth in the market of developed countries: cleaner technologies and processes, renewable energy, waste management and environmental consulting services (Industry Canada, 2003). In developing countries regions, such as Central and Eastern Europe, Southeast Asia, China and Latin America, the environmental market is expected to grow fast, particularly in areas such as water and wastewater treatment, waste management, air pollution control and environmental monitoring and instrumentation (Industry Canada, 2003).

2.2 Definition of Environmental Goods (EG)

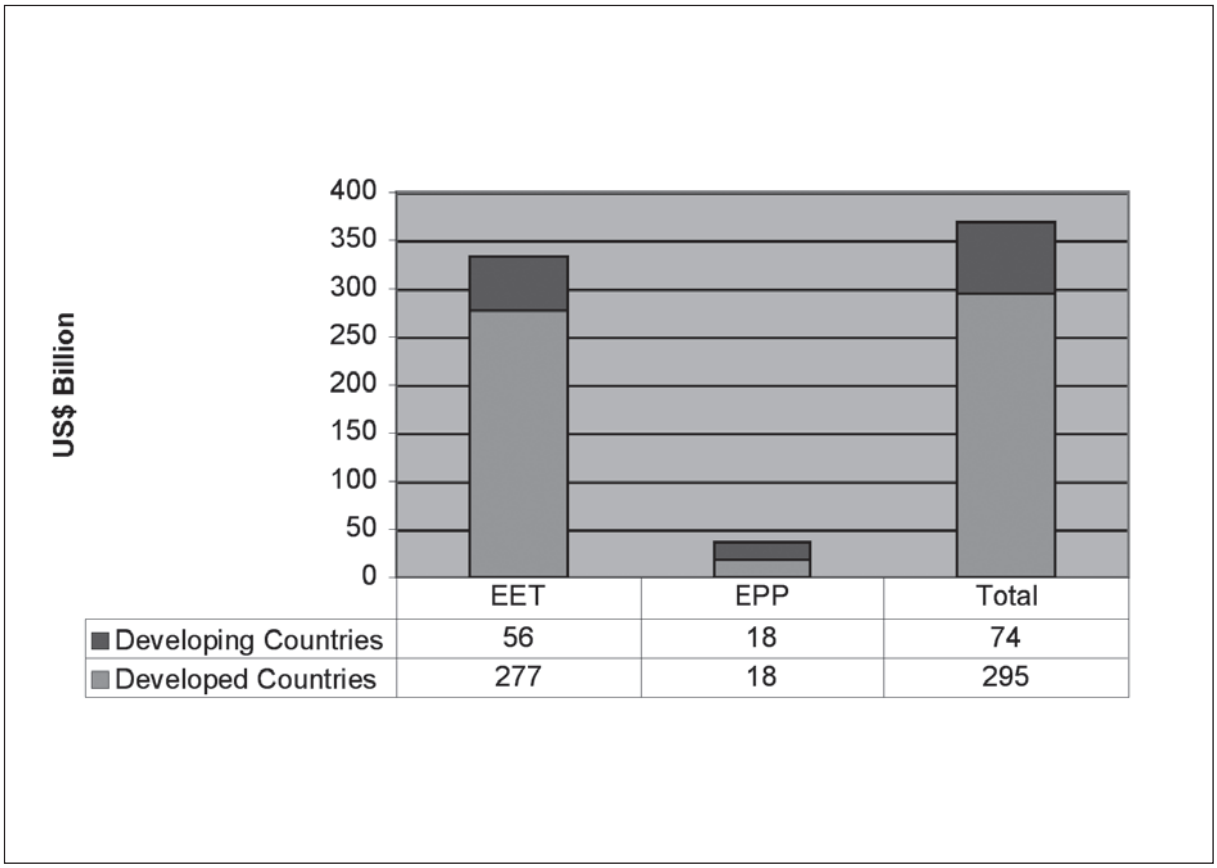
Following Howse and van Bork (2006) and as already described in Chapter 1, environmental goods (EG) are referred to in this chapter as belonging to two categories: a) established environmental technologies (EET) and b) environmentally preferable products (EPP). While the former includes manufactured goods and materials directly used in the provision of environmental services, the latter includes "industrial and consumer goods not primarily used for environmental purposes but whose production, end-use and/or disposal have positive environmental characteristics relative to similar substitute goods" (Hamwey, 2005: 2).

2.3 Trade in Environmental Goods (EG)

2.3.1 Global trade

In 2003 global exports of EG reached approximately USD369 billion, of which USD295 billion (79.9 percent) originated in developed countries and USD74 billion (20.1 percent) in developing countries (Hamwey, 2005). This proves that the export of EG is highly dominated by the industrialised world. Although exports of EPP are balanced between developed and developing countries, its participation within global EG exports is small; whereas EET exports reached USD333 billion in 2003 (90.2 percent), EPP reached USD36 billion (9.8 percent) (see Figure 2). This shows that EET clearly dominate the trade in EG. However, EET exports represent approximately 4 percent of world exports, are smaller than textiles trade, correspond to a third the size of chemicals trade and to a tenth of trade in machinery and transport (Bora and Teh, 2004).

Figure 2. EG Exports to World 2003



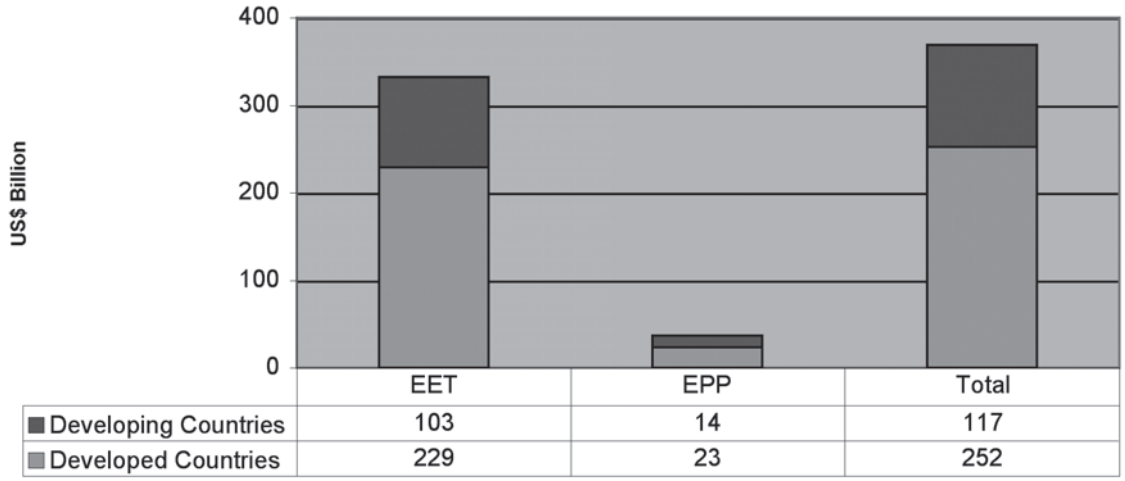
Source: (Hamwey, 2005).

According to Hamwey (2005), during 2003 developed countries imported USD252 billion (68.3 percent) of EG and developing countries USD117 billion (31.7 percent) (see Figure 3). This shows that the import market is more balanced that the export market, and therefore that developing countries are net importers of EG. These figures also show that developed and developing countries have approximately the same share of the EG import market, irrespective of whether it is the EET or EPP market.

These figures indicate that while in 2003 developing countries had a large USD47 billion trade deficit in EET, concerning EPP they experienced a modest USD4 billion trade surplus.

Whereas all developing country regions were net importers of EET, not all of these regions were net exporters of EPP. Considering three regions of developing countries – Africa, Asia and Oceania, and Latin America and the Caribbean – only Asia and Oceania showed a trade surplus of EPP during 2003 which amounted to approximately USD4.9 billion (Hamwey, 2006). In contrast, both Africa and Latin America and the Caribbean evinced slight EPP trade deficits.

Figure 3. EGS Imports from World 2003



	EET	EPP	Total
Developing Countries	103	14	117
Developed Countries	229	23	252

Source: (Hamwey, 2005).

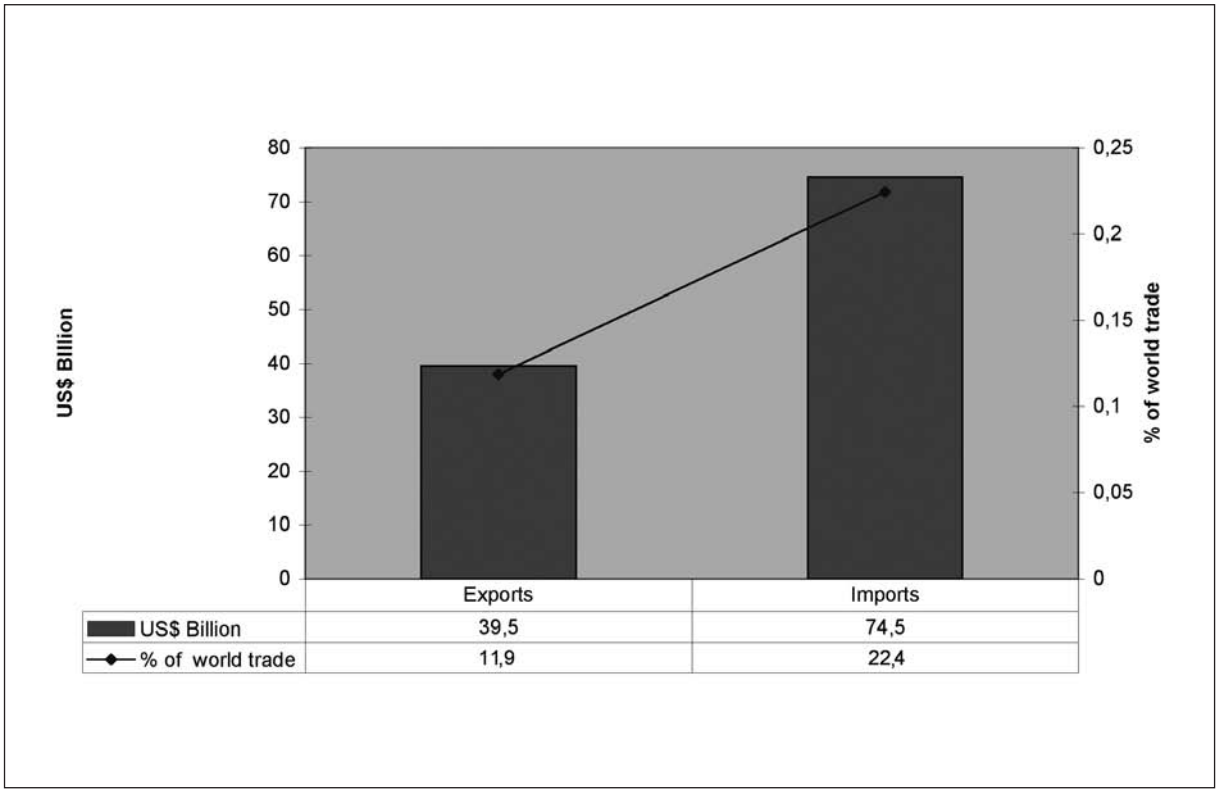
According to these figures, developing countries as a whole had a trade deficit in EET and a surplus in EPP. However, exports of these goods from developing countries grew at an annual rate of 12.5 percent between 1997 and 2003 for EET and of 8.7 percent for EPP. For Hamwey (2005) this seems to indicate that trade liberalisation of EET offer developing countries greater opportunities for income and employment generation than the liberalisation of EPP, provided these countries have the necessary supply capacity and if the definition of EET is broad enough to cover a number of products that may be 'dual-use'; i.e. those which may also have some non-environmental uses such as pumps, valves and filters. At the same time, Hamwey (2005) argues that as the exports of many developing countries, particularly the low-income and least-developed countries, are concentrated in natural resource based commodities, trade liberalisation of EPP is essential in providing them with short term export gains.

Although developing country regions account for a small part of the global EGS market, their environmental industries have been growing, and are expected to grow, at a much higher pace than those of developed countries (Yu, 2007). Considering that approximately 96 percent of the US, Europe and Japanese market is controlled by their own indigenous producers, the expected growth of the EGS market in the developing world opens the door for increasing south-south trade (Yu, 2007).

2.3.2 Trade of environmental goods in the Asia region

Following the country classification of the "UNCTAD Handbook of Statistics, 2004" provided by Hamwey (2005), in 2003 developing countries from Asia and Oceania exported USD55.8 billion of EG, of which USD39.5 billion (70.8 percent) were EET and USD16.3 billion (29.2 percent) were EPP. During the same year, these countries imported USD86.1 billion of EGS, of which USD74.5 (86.5 percent) were EET and USD11.6 billion (13.5 percent) were EPP. These figures make these countries net importers of EET and net exporters of EPP. While Figure 4 resumes this information for EET, Figure 5 does it for EPP.

Figure 4. EET Trade for Developing Countries from Asia and Oceania 2003



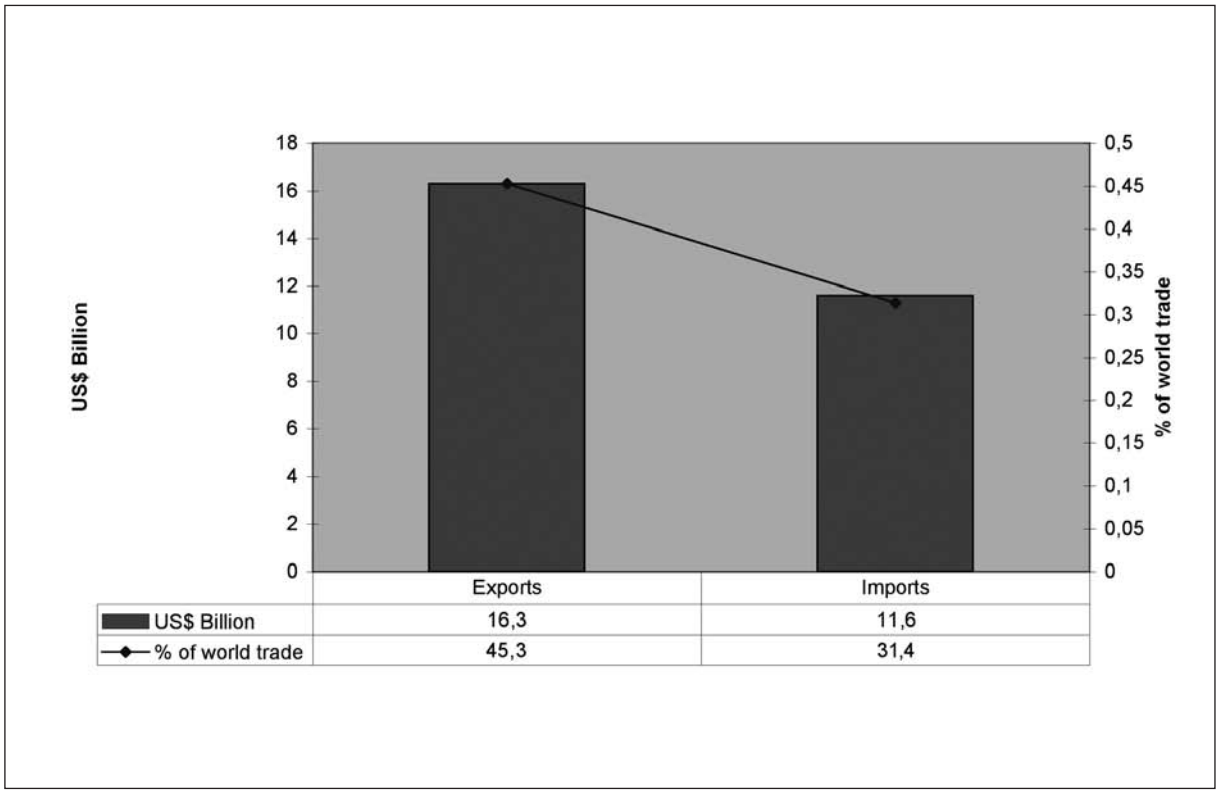
Source: (Hamwey, 2005).

Developing countries from Asia and Oceania are important actors in the global EET trade, accounting in 2003 for 11.9 percent of exports and 22.4 percent of imports. Among developing countries, this group dominated the EET trade with 75 percent of exports and 70 percent of imports. Although the region as a whole is a net importer of EET, there are a few products for which it is a net exporter, especially in the renewable and clean energy areas (Alavi, 2007). According to Yu (2007), some Asian countries, such as Malaysia, Thailand and the Philippines, are net exporters of the following: component goods required to construct renewable/clean energy technologies: hydrogen peroxide; hydraulic turbines, water wheels and regulators; parts for hydraulic turbines, including regulators; instantaneous gas water heaters; solar water heaters; wind-powered generating sets; and photosensitive semiconductor devices, including solar cells. At the same time, China, the Republic of Korea (hereafter "Korea") and Chinese Taipei are important exporters, primarily to other Asian countries, in the water and wastewater management sectors (Alavi, 2007). Other major traders of EET are Singapore, India and Indonesia.

In general, it might be argued that while this region is still a net importer of EET, in the future

this might be attenuated, especially due to its increasing competitiveness in the renewable/ clean energy technology related goods and to the expected growth in the environmental sector of Asian and other developing country regions. As Yu (2007) expresses, while the Asian environment market (excluding Japan) in 2005 was 6 percent of the global market, it is expected to grow to 9 percent by 2010. More specifically, the author expresses that due to a growing population, more stringent environmental regulations and a lack of basic environmental infrastructure for important portions of their population, the Asian market is expected to grow mainly for equipment and chemicals related to water and wastewater management, air pollution control, and solid waste management equipment. He also argues that the environmental markets of Latin America and East Europe are also expected to experience a high growth due to similar reasons.

Figure 5. EPP Trade for Developing Countries from Asia and Oceania 2003



Source: (Hamwey, (2005).

More prominently, developing countries from Asia and Oceania are very important actors in the global EPP trade, accounting in 2003 for 45.3 percent of exports and 31.4 percent of imports. Among developing countries, this group dominated EPP exports and imports, with approximately 90 percent of the former market and 84 percent of the latter (Hamwey, 2006). EPP exports by Asian developing countries include primarily organic products, certified timber products, non-timber forest products, natural resource- or biological-material-based products based on traditional knowledge, products made from natural fibres and biofuels, like ethanol and methanol (Alavi, 2007; Yu, 2007).

For example, forestry exports are dominated by Malaysia, Indonesia and China, and while during the 1980s approximately 60 percent of these exports corresponded to logs and 40 percent to processed products, in 2005 this proportion was 25 and 75 percent correspondingly. Major Asian developing country importers of forestry products are China, Chinese Taipei and Korea (Alavi, 2007). Concerning biofuels, most of world production consists of ethanol. While the leading

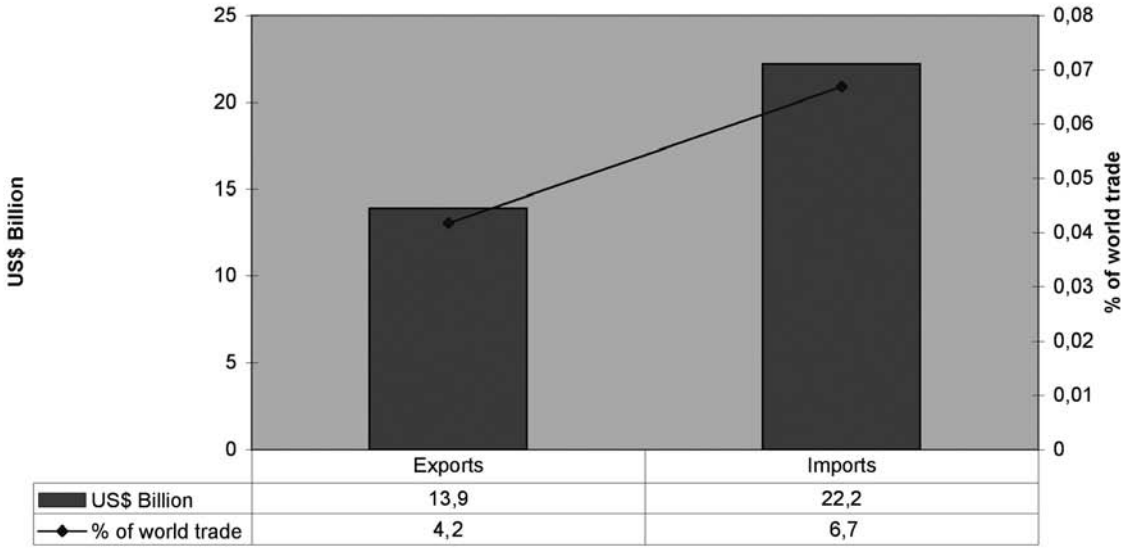
producers by far are Brazil and USA, China is already becoming a very important producer and potential important producers are India, Pakistan, Japan, Thailand and Malaysia (Alavi, 2007). As Asian countries, especially China and India, together with Brazil, appear as the most cost efficient bioethanol producers worldwide, it is expected that they will tend to have a strong presence in this trade.

This brief analysis appears to indicate that Asian developing countries will continue to be net importers, especially from Northern sources, of EET. Nevertheless, it also shows that these countries have the potential to become, and in some cases continue being, important exporters of renewable/ clean energy technology related EET goods and EPP goods, especially if the correct domestic incentive policies are put in place (Yu, 2007).

2.3.3 Trade of environmental goods in the South American region

According to Hamwey (2005), in 2003 developing countries Latin America and the Caribbean exported USD15.2 billion of EG, of which USD13.9 billion (91.4 percent) were EET and USD1.3 billion (8.6 percent) were EPP. During the same year, these countries imported USD23.7 billion of EG, of which USD22.2 (93.7 percent) were EET and USD1.5 billion (6.3 percent) were EPP. While these figures show that this region as a whole is a net importer of EET, they also show that trade on EPP is fairly balanced. While Figure 6 resumes this information for EET, Figure 7 does it for EPP.

Figure 6. EET Trade for Developing Countries from Latin America and the Caribbean 2003



Source: (Hamwey, 2005).

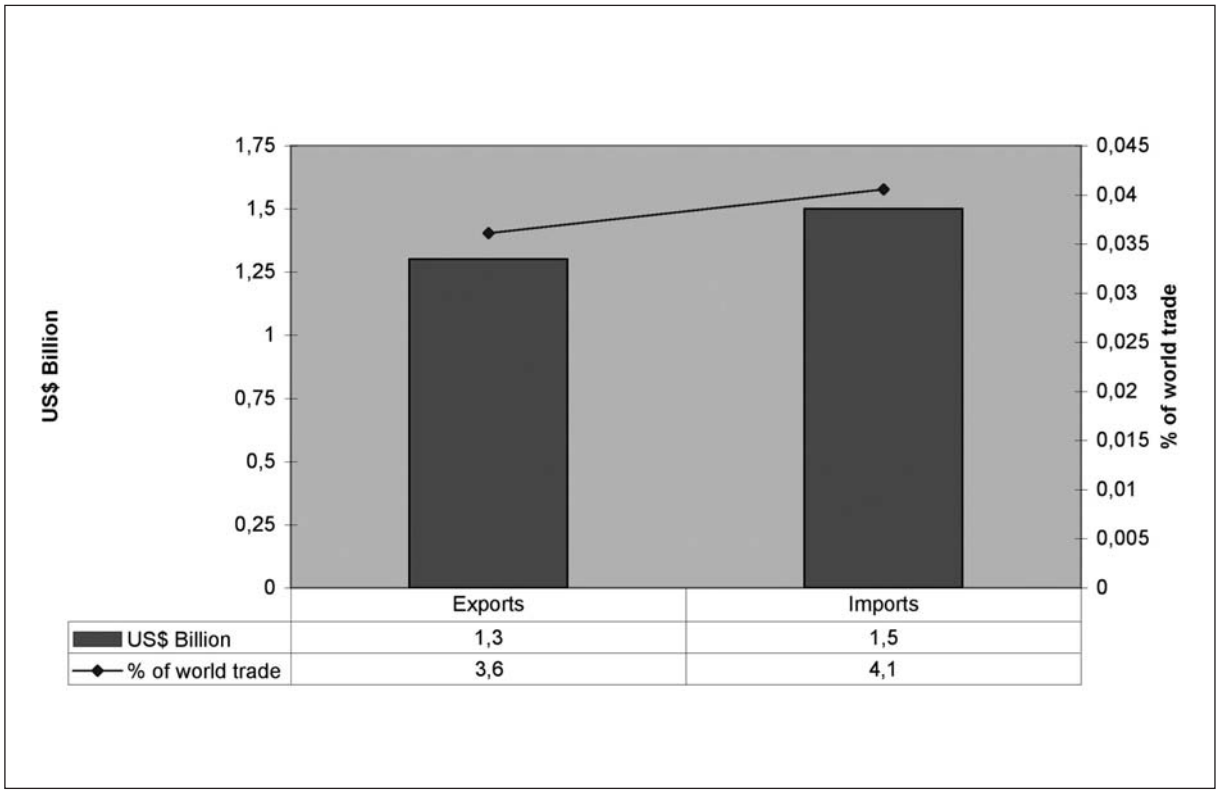
In 2003 the countries of Latin America and the Caribbean as a whole accounted for 4.2 percent of global EET exports and for 6.7 percent of global EET imports. Among developing countries, these countries accounted for 25 percent of global exports and 22 percent of global imports. Although the South American region as a whole, and all of its countries on their own, are net importers of EET, there are a few products for which some countries have a trade surplus.

According to UNCTAD (2003a), in 2000 Brazil and Argentina were net exporters of machinery, mechanical appliances, and their parts, with a surplus of approximately USD700 million for the former and USD42 million for the latter.

The same source tells us that during that year Chile and Venezuela were net exporters of methanol; while the former had a surplus of approximately USD300 million, the latter had a surplus close to USD70 million. Concerning ethanol, UNCTAD (2003a) tells us that in 2000 Argentina, Bolivia, Brazil and Ecuador were net exporters, with a total surplus of USD54 million.

At the same time, Argentina, Peru, Colombia and Venezuela were net exporters of chemical compounds, like anhydrous ammonia and calcium hydrogen-orthophosphate, with a total surplus of approximately USD49 million. Other products for which South American countries were net exporters correspond to plastic films and measuring apparatuses.

Figure 7. EPP Trade for Developing Countries from Latin America and the Caribbean 2003



Source: (Hamwey, 2005).

In terms of trading volume, South American countries are as relevant in the global EPP trade as in the global EET trade, accounting in 2003 for 3.6 percent of world EPP exports and 4.1 percent of world imports. Among developing countries, these countries represented 7.3 percent of EEP exports and 11.1 percent of imports (Hamwey, 2006). Major EPP exports by South American countries correspond to residues and waste from the food industries and to wool; while the former had a surplus of USD6.7 billion, the latter had a surplus of USD400 million. Whereas Argentina and Brazil dominated the export market for residues and waste from the food industries, Argentina and Uruguay dominated South American exports of wool.

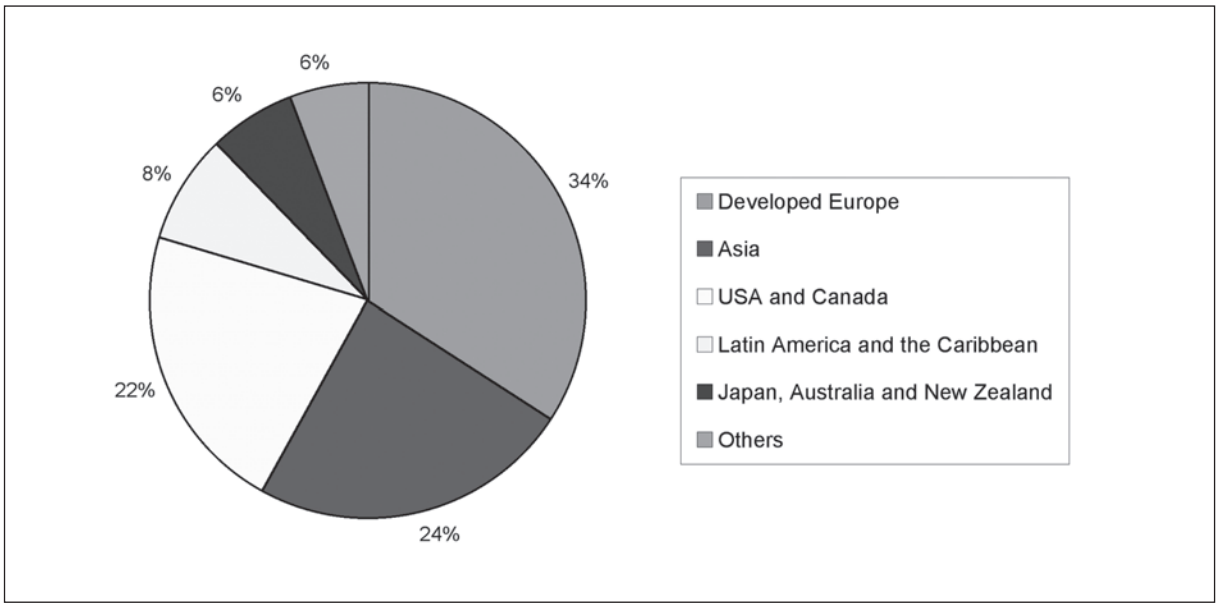
While this brief analysis seems to point out that South American countries will continue to be net importers of EET, it also shows that these countries are important actors in some specific environmental goods. Major opportunities seem to rely on mechanical appliances, clean fuels, chemical compounds, food industry waste and wool.

3. TRADE IN EET

3.1 Main Markets and Prevailing Tariff-Situation

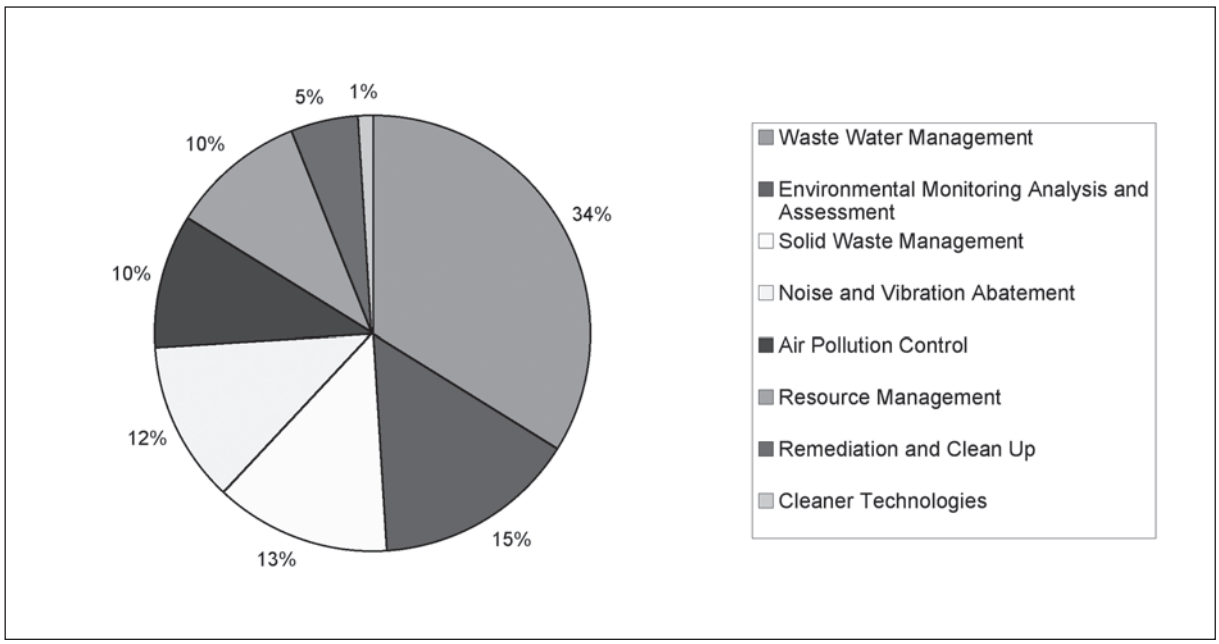
As with the EGS global market, the global EET market is dominated by North America, Western Europe and Japan. Although approximately 96 percent of their markets is controlled by their own native producers (Alavi, 2007), North America, Western Europe and Asia dominate the EET trade. Globally, in 2002 they accounted for approximately 90 percent of exports and 80 percent of imports (Bora and Teh, 2004). While the top 20 exporters made up for 93 percent of world exports, the top 20 importers accounted for 87 percent of world imports.

Figure 8. Regional Share of EET Imports for 2000



Source: Based on UNCTAD (2003a).

Figure 9. Sector Share of EET Trade for 2002



Source: Based on Bora and Teh (2004).

According to UNCTAD (2003a), in 2000 global imports of EET were approximately USD298 billion, of which Western Europe accounted for 34 percent, Asia for 24 percent and North America for 22 percent (see Figure 8). According to Bora and Teh (2004), following the OECD list, in 2002 biggest traded sectors were waste water management (34 percent), environmental monitoring and analysis (16 percent), solid waste management (13 per cent), noise and vibration abatement (12 percent) and air pollution control (10 per cent) (see Figure 9).

Differentiating by import market, AEGIS (2004) states that the key US market for environmental technologies include the water utility business, valued at USD40 billion, waste management (including solid waste management, landfill management, and recycling technologies), and clean up technology. According to Brock and Boadu (2004), while the key sectors of the EET European market are waste water, air pollution, solid waste, and hazardous waste recycling, the major demand from Asian countries is for solid-waste handling and disposal, and filtration and purification equipment for water and wastewater.[1] The same authors express that while Mexico is the largest single market in Latin America, and that it demands mainly air and water pollution monitoring equipment and technologies, Brazil, Venezuela, Chile, Argentina, and Colombia represent together represent a similar market in air and water pollution control and abatement technologies.

There is a clear difference between average applied tariffs on EET by developed and developing countries, with rates being uniformly lower among the former. While in 2001 the applied tariff rates of developed countries was less than 1 percent, average rates applied by developing countries was almost 10 percent (Kim, 2005) (see Table 1). For example, whereas for waste water management technologies developed countries apply on average a tariff close to 2.4 percent and developing countries apply a rate of almost 9 percent, for solid and hazardous waste management technologies the former apply a rate of 1.8 percent and the latter apply close to 6 percent (Iturregui and Dutschke, 2005). This difference in the rates applied by developed and developing countries is not unique to EET, as it reflects a pattern well established in the trade for manufactured goods (UNCTAD, 2003a). While this situation makes Kim (2005) think that accelerating the liberalisation of ETT will offer little of export interest to developing countries, Hamwey (2006) believes it would encourage the growth of South-South trade in EET.

Table 1. Weighed Average Tariff Levels for EET in Ad Valorem Percentage Terms*

COUNTRY GROUP	APPLIED MFN RATE
All countries	4.3
All high-income countries	1.9
OECD countries	3.7
Emerging Asia (China, Hong Kong [China], India, Indonesia, Malaysia, Pakistan, Philippines, Singapore, Chinese Taipei, Thailand, Vietnam)	4.5
Emerging South America (Argentina, Brazil, Chile, Venezuela)	11.7

Source: Kennet and Steenblik (2005).

** It does not include goods from HS chapters 1-24.*

It is also important to note that applied tariffs by some developing countries vary significantly from the average. For example, tariffs applied by Costa Rica, Jamaica and Malaysia are as low as those applied by developed countries (UNCTAD, 2003a). At the same time, there are big differences between countries from the same region: whereas in some Asian markets, such as China, the Philippines, and Malaysia, tariffs on environmental products can be as high as 40 per cent, India imposes a 25 percent tariff to imported pollution control equipment, and Chinese Taipei does not have import duty on pollution control/prevention equipment and duty exemption is granted for equipment procured for environmental projects (Alavi, 2007). In South America, tariffs vary from 6 percent in Chile, to 12 percent in some MERCOSUR countries comprising Brazil, Argentina, Uruguay, Venezuela, and Paraguay (García, 2005).

Another interesting issue concerning EET tariffs is that many countries involved in the production of EET impose an escalating tariff structure, so that while lower tariff are imposed on parts and equipment used as input in the production EET, higher tariffs are applied to EET themselves (Alavi, 2007). For example, according to Steenblik (2005), in order to favour domestic production, Chinese tariffs for wind turbines are 3 percent for individual parts, 8 percent for assembled components and 17 percent for entire pre-assembled turbines.

3.2 Main Non-Tariff Barriers

In view of the tariff levels applied by the major importing markets of EET, such as the US, Western Europe and Asia, many are of the opinion that trade in EET is not significantly impeded by tariffs (Alavi, 2007; García, 2005), especially concerning exports from developing countries. As Howse and van Bork (2006: 27) argue, "it may well be that the market access of developing countries to developed country markets depends more on reduction of structural and non-tariff barriers". These authors go further and express that EET trade liberalisation would increase access of developed country producers to developing country markets.

Nevertheless, EET exports face many of the same NTBs as other industrial sectors. However, the difficulty for EET is increased by the relative infancy of the environmental industry, the lack of clear limits to delineate the sector, and the dynamism of the sector (ETTAC, n.d.). Although the research carried out by Kennet and Steenblik (2005) on trade in environmental goods and services in 17 countries showed that NTBs or other technical barriers to trade were not considered to be important, the same authors argue that technical regulations and standards, among other NTBs to trade, often vary among importing markets and place difficulties for EET producers and exporters.

Non-tariff barriers to EET trade can take various forms, with the most quoted ones being standards, certifications, subsidies and environmental regulations. For example, Khatun (2004) states that technical standards and certification requirements limit trade to a great extent because products from developing countries face important difficulties when entering the market of developed countries due to lack of appropriate standards for their products. The same author argues that barriers are created "where specific patented or patentable technical knowledge is adopted as a standard for an industry through government regulations, standards or special provisions in MEAs" (Kathun, 2004: 32).

A more detailed list of NTBs to EET trade is provided by the Environmental Technologies Trade Advisory (ETTAC) of the US Secretary of Commerce in the document "International Market Access Issues Affecting US Environmental Companies Environmental Technologies" (http://web.ita.doc.gov/ete/eteinfo.nsf/vwettac). After conducting a worldwide survey during 1998 among importers, marketers, applicators and distributors of environmental products in 15 economies in Asia, 9 economies in Africa, and 22 economies in Latin America and the Caribbean, ETTAC adopted the following classification system of NTBs to trade of EET:

- Subsidies;
- Quotas and quantitative restrictions;
- Sanitary/ phytosanitary regulations;
- Restrictions on who can import;
- Labelling, packaging and documentation requirements;
- Standards;
- Intellectual property requirements;
- Harassment of imports;
- Restrictions on distribution, logistics, and banking services;
- Restrictions on marketing;
- Restrictions on investment and the nature of commercial relationships;
- Discriminatory devices; and
- Others.

The frequencies found in the survey show that standards, harassment of imports, and labelling and documentation requirements were the most frequently cited NTBs (see Table 2). Concerning Asian respondents, while marketing restrictions was the barrier most frequently cited, labelling, packing, and documentation requirements, harassment of imports, distribution, logistics and banking restrictions, and sanitary and phytosanitary requirements also had high frequency of occurrence. For Latin American respondents, technical standards were the barrier with the highest frequency, followed by harassment of imports.

Alavi (2007) provides us with some more specific examples of NTBs to EET trade. She cites the case of how the Chinese regulatory system affects imports of ETT to that market, and presumably other kinds of products as well. For instance, import approvals that have been obtained from the local authorities are sometimes overruled by central authorities. Another example is that as laws weaken and there is a lack of enforcement, administrators' understanding of laws and policies is more important than written laws. To those exporters unfamiliar with the system, these aspects become clear and strong barriers to trade.

Alavi also indicates that in many cases bilateral financial programmes in practice become barriers to trade, basically because they imply that the host country has to buy products from the donor country. Thus, these tied-aid programmes can turn into trade barriers for local producers as well as for exporters in other countries without matching tied-aid programmes. The author indicates that the US has various arrangements of this kind to promote their environmental goods and services throughout the world, especially with India and China. She also expresses that the EU has similar programmes with Central and Eastern Europe, Southeast Asia, India, Africa and South America, and Japan with various Asian countries.

Table 2. Rank Ordering of Non-Tariff Barriers to EET Trade by Frequency of Occurrence

RANK	NON-TARIFF BARRIER	FREQUENCY
1	Standards	36
2	Harassment of Imports	34
3	Labelling, Packaging/Documentation Requirements	33
4	Sanitary & Phytosanitary Regulations	25
4	Importer Restrictions	25
4	Discriminatory Devices	25
5	Restrictions/Distribution, Logistics, Banking Services	21
5	Restrictions on Marketing	21
6	Subsidies	14
7	Intellectual Property Infringements	10
8	Restrictions/Investment and Commercial Relations	9
9	Others	6
10	Quotas	2

Source: ETTAC (http://web.ita.doc.gov/ete/eteinfo.nsf/vwettac).

3.3 Major trends in domestic capacity

Domestic markets for environmental goods and services in developing countries tend to be dominated by small and medium sized companies (Kennet and Steenblik, 2005), with the exception of water and wastewater industry where large private multinationals dominate approximately 50 percent of the global market (Yu, 2007). As Yu (2007) argues, since Asian environmental firms are typically small or medium sized, they often become sub-contractors for larger multinational companies from developed countries.

As in many developing countries the public sector is mainly responsible for making the necessary investments and providing the corresponding services. Monopolies, either public or regulated private companies have emerged for the provision of these goods and services (Kennet and Steenblik, 2005). However, this situation is changing. A study conducted by Kennet and Steenblik (2005), covering Brazil, Chile, China, Cuba, the Czech Republic, the Dominican Republic, Guatemala, Honduras, Israel, Kenya, Korea, Mexico, Nicaragua, Pakistan, Panama, Thailand and Vietnam showed that in all

these countries privatisation and deregulation processes are enlarging the role of the private sector in the delivery of environmental goods and services (EGS).

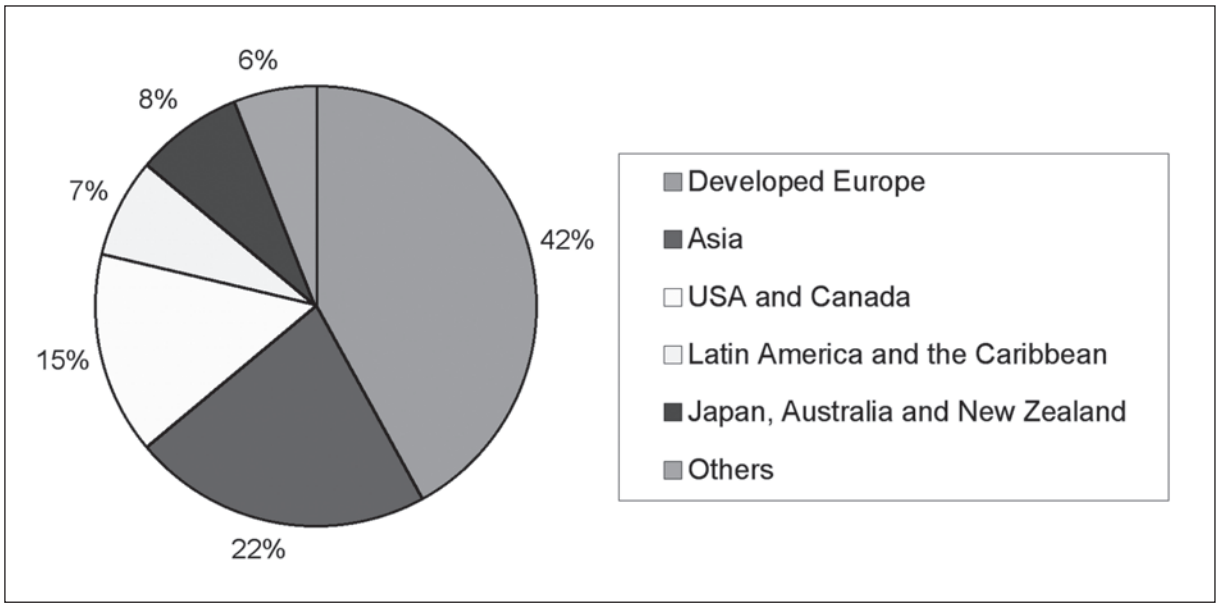
Although exports of EET from developing countries have been increasing during the last years, there are some problems that still constrain their exporting capacity. For example, Singh (2004) notes that Indian firms have difficulty in increasing their environmental goods exports due to their small size, their lack of marketing and infrastructure of after-sales service. He also argues that as Indian technological capabilities in the environmental industry are not highly recognised in the global market, Indian environmental goods are not greatly accepted in international trade. On another front, Kennet and Steenblik (2005) note that Czech exporters of environmental goods experience difficulties associated with lack of capital and the inaccessibility of export credits. This situation has prompted some governments to support their domestic environmental firms. For example, according to Yu (2007) some Asian countries, such as China, Korea, Malaysia and Chinese Taipei have been supporting their local firms in terms of size and technological know-how so that they become more competitive in the global market.

4. TRADE IN EPP

4.1 Main Markets and Prevailing Tariff–Situation

Global EPP trade is dominated by Developed Europe, Asia and North America. In 2000, they accounted for approximately 90 percent of global exports and 79 percent of global imports (UNCTAD, 2003a). According to UNCTAD (2003a), in 2000 global imports of EPP were approximately USD28 billion, of which Developed Europe accounted for 42 percent, Asia for 22 percent and North America for 15 percent (see Figure 10).

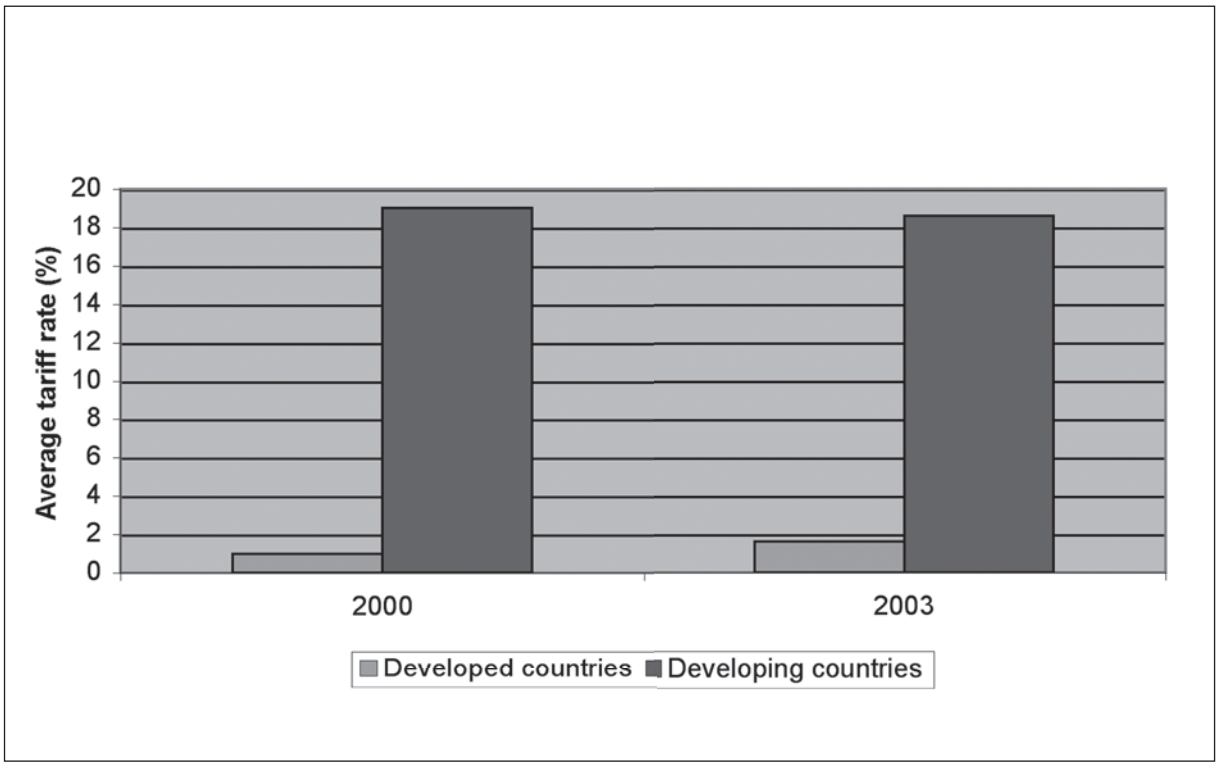
Figure 10. Regional Share of EPP Imports for 2000



Source: Based on UNCTAD (2003a).

As with EET, average applied tariffs on EPP by developed countries are much lower than those applied by developing countries. Moreover, the difference in tariff rates on EPP is greater than that on EET: in 2000, whereas the average tariff rate applied by developed countries was close to 1 percent, this figure for developing countries reached 19 percent (UNCTAD, 2003a). By 2003 the situation had changed very little. Whereas developed countries applied an average tariff rate of 1.6 percent, the average tariff applied by developing countries was 18.6 percent (Hamwey, 2005) (see Figure 11).

Figure 11. Average Applied Tariff Rates on EPP



Source: (Hamwey, 2005).

Despite this great difference between tariff rates applied by developed and developing countries, for some EPP the former do not apply low tariffs. For example, Alavi (2007) states that tariff rates on ethanol are high in importing countries such as the US, Canada, the EU and Japan. García (2005) also highlights that tariffs applied by developed countries to forestry and agriculture based EPP of interest to Latin American countries sometimes reach 10 percent.

As with EET, applied tariffs by some developing countries vary significantly from one another. For example, whereas in 2003 India applied on EPP an average tariff rate of approximately 18 percent, Malaysia applied one close to 5 percent (Hamwey, 2006). Tariffs also vary for the same product depending on the country of import. As Tothova (2005) shows, there can be notable differences in tariffs applied by different countries to bicycles and cooking appliances, sometimes exceeding 50 percent.

4.2 Main Non-Tariff Barriers

Environmental and health-related requirements of exporting markets for EPP are stringent, involve complying with constantly evolving standards and certification might be difficult and expensive. Although to many developed countries these requirements do not constitute EPP trade barriers, most developing countries have the opposite opinion (Borregaard and Dufey, 2005). As put by UNCTAD (2003b: 9), "Trade in EPPs may be affected by standards and certification requirements". Other examples of NTBs affecting EPP exports from developing countries are registration and health requirements for traditional knowledge based products, packaging requirements discriminating against jute as a packaging material, and tied aid by developed countries on solar energy equipment (UNCTAD, 2003c). Alavi notes that forestry products face various non-tariff measures that affect their trade: product standards, technical and grading requirements, phytosanitary requirements, quality certification or test requirements, quantitative restrictions and certification.

García (2005) gives some examples of NTBs that have affected EPP exports from South America.

One example corresponds to the requirements from European eco-labels, especially German, to Colombian flowers. According to Colombian exporters, although they have made great progress towards sustainable flower production, these requirements have made it very difficult for them to commercialise their flowers in Europe. Another example given by (García, 2005) corresponds to the "Novel Food" legislation of the EU, which imposes long and expensive periods of analysis, assessments and studies before a "new" food is allowed in the EU market. According to García (2005), this makes it very difficult for Amazonian or Andean novel food to be exported to Europe.

Concerning biofuels, Alavi provides valuable information about NTBs to trade. According to her, many governments provide tax exemptions, incentives or subsidies to promote domestic production and consumption of biofuel. Other countries and regions like the EU, Japan, Mexico, Brazil and South Africa restrict imports of products that have used biotechnology in the production process and therefore limit imports of biofuels made from ingredients produced with biotechnology. Other barriers to biofuels are differing products standards and campaigns against biodiesel from Southeast Asia and Latin America based on the assumption that their production is a major cause of tropical forest destruction.

Alavi also gives examples of NTBs facing wind turbine exporters. One corresponds to local content requirement policy, a common policy to promote local wind turbine industry in countries such as Spain, Canada, China, Australia, India and Brazil. Diverse certification and approval practices in different countries also act as trade barriers for wind turbine exporters. Finally, Alavi refers to export credit assistance to penetrate the foreign market as another type of barrier faced by turbine exporters, a practice involving Denmark, Germany, the USA and Spain.

4.3 Major Trends in Domestic Capacity

During recent years there has been an increasing consumer demand for EPP, especially for products such as organic food and non-wood forest products. This has been viewed carefully by developing countries as the production and export of EPP may enhance competitiveness, result in price premiums, result in "win-win" situations and provide options for diversification. However, there are clear problems in developing countries for exporting EPP, especially for small and medium sized firms. They include lack of information, technology and capital, difficulty in achieving economies of scale to make the investment profitable, lack of infrastructure, difficulty in acquiring inputs at competitive prices, difficulty in ensuring that raw materials are produced in accordance with environmental criteria, and very high costs of testing, inspection, and verification (Andrew, 2002).

However, despite the inherent gains of producing and exporting EPP and the corresponding problems for exporters, developing countries' governments in general have not made important efforts to support or elaborate an EPP strategy. According to Borregaard and Dufey (2005), this lack of support responds to three major causes. In first place, as developing countries' governments have had a reactive approach towards environmental management, this has prevented the implementation of instruments directed at the identification and promotion of opportunities for EPP. Secondly, governments lack knowledge and experience about the economic, environmental and social impacts associated with the production and trade of EPP and about the corresponding international market opportunities. Lastly, they argue that as certification processes are usually time consuming, complex and expensive, they keep non-experts away from the EPP market.

Howse and van Bork (2006) argue that geographical location is a key determinant in the international EPP trade. For them, developing countries that produce EPP that are time-to-market sensitive, bulky or low-value, could make substantial gains if they are able to export them to developed

markets that are relatively close by. Apart from agricultural EPP, these authors also include in this category products made of stone and large scale energy resources, such as wind, tide, solar, geothermal and biomass.

Once developing countries' governments are aware of the benefits of producing and exporting EPP, they will be able to formulate coherent strategies to promote these products. These strategies need to take into account the different market opportunities, provide appropriate supporting policies, and be coherent both at the national and international level (Borregaard and Dufey, 2005). More specifically, it is crucial that EPP producers in developing countries are able to certify them credibly and that developing countries participate fully in the development of regional and international environmental standards, so that these are not biased towards EPP produced in developed countries (Howse and van Bork, 2006).

5. APPROACHING A NATIONAL DECISION TO NEGOTIATE ENVIRONMENTAL GOODS AT WTO

At the time of writing, little progress had been achieved in fulfilling the mandate of Paragraph 31. This included no progress at all in integrating WTO and MEAs (sub-paragraphs i and ii), and lack of definition on modalities to negotiate "the reduction or, as appropriate, elimination of tariff and NTBs to environmental goods" (sub-paragraph iii). Countries have, over the next few months, an opportunity to reconsider their strategies in the light of discussions so far.

5.1 "Mutual Supportiveness" as the Pivot of National Strategic Approaches

Participating effectively in international trade negotiations is costly and requires a high level of capacity in national delegations. With so many other fronts to cover at WTO, developing countries need to assess the convenience of taking an active part or not, in environmental goods negotiations, both in terms of the risks and opportunities involved.

The international community stated the general purpose of these negotiations in the preamble to the Marrakesh agreement (see Box below) and in the chapeau of Paragraph 31(iii) of the Doha mandate, namely the enhancement of "the mutual supportiveness of trade and environment".

The preambular language of the Marrakesh agreement is a dense and confusing collection of declared goals rather than a synthetic vision of where the trade system wants to go. On the other hand, the chapeau of Paragraph 31(iii), states:

"With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on: … the reduction or, as appropriate, elimination of tariff and NTBs to environmental goods and services"

Agreement Establishing the World Trade Organization

"The Parties to this Agreement, *Recognizing* that their relations in the field of trade and economic endeavour should be conducted with a view to raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, and expanding the production of and trade in goods and services, while 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 in a manner consistent with their respective needs and concerns at different levels of economic development."

This is deceivingly simple, and hides the fact that the international community, in particular the WTO, has not answered which, or how, trade rules support sustainable development.

Thus, countries are left broad room for interpretation and definition of goals. Five years after the mandate was agreed in Doha, negotiations continue to be stalled on both conceptual and technical issues.

What does seem clear is an agreement among governments on a strategic vision of how trade and environment relate, specifically and sectorally, rather than systemically. The systemic relations of the world trade system with global environmental issues and governance were, probably rightly, deemed too much for trade negotiators to address, and WTO the wrong venue for their consideration. Paragraphs 31(i) and (ii) were meant as mechanisms to deal with these relations. There has been limited progress on those fronts, though, and the question of how trade negotiations affect sustainable development globally remains an abstract issue for trade negotiators, and a high priority for the environmental community.

Hence, in the short run and to the practical effects of deciding the nature of participation in Paragraph 31 negotiations, the adoption of a national strategic approach hinges on the national understanding of 'mutual supportiveness'.

Following Howse *et al*. (2006), 'mutual supportiveness' suggests that a country needs to answer two questions to decide whether or not to liberalise which products and under what modalities:

- How will reducing barriers on environmental goods enhance environmental protection?
- How will reducing barriers on environmental goods enhance trade?

5.2 Defining Priorities and Goals: Environmental Considerations

The answer to the first question depends very much on the definition of 'environmental good' adopted, and the question can easily become tautological – if 'environmental goods' do not 'enhance environmental protection', why are they called 'environmental' in the first place?

But more specifically, the first question is somewhat less interesting than the second because, as Howse and van Bork (2006) point out, "it is not clear why negotiation of reductions in bound Most-favoured Nation (MFN) rates at the WTO is needed to achieve environmental benefits". If a country needs to import certain goods for environmental protection purposes, independent of other non-environmental considerations, there are no reasons why it should engage in a multilateral negotiation instead of liberalising unilaterally or bilaterally. In other words, environmental goals can be supported through trade independently of WTO negotiations.

Moreover, in environmental terms, the impact of Paragraph 31(iii) might well be negligible. At a time of accelerated global change, when 'environment' is no longer construed as a matter of 'protection' and 'pollution' but as the very bases of development, a focus on liberalising trade in equipment largely to extract and treat water, waste and end of pipe pollution, or even in products based on natural fibres and colorants of marginal importance, while not negative per se, seems inadequate. Furthermore, the WTO mandate could well be detrimental to environmental goals by providing an incentive to delay decisions that could be taken unilaterally, as discussed below.

Yet, this focus is a step in the direction of integrating trade and environment at least in one regard: it forces a domestic, multisectoral discussion on a limited universe of issues as a step towards discussing more systemic issues, such as the role of international trade as a driver of large-scale ecosystem change, and sustainable development strategies. As Yu (2007) points out, "developing economies should only [liberalise trade in environmental goods] in the context of a strategic sustainable development policy". For

example, the benefits of reducing trade barriers on wind turbines and biofuels in Asian countries may well only be obtained if such reduction is combined with domestic policies and regulations on renewable energy (Alavi, 2007). The absence of such domestic policy and political definitions might be crucial, as it prevents the articulation of clear and effective national negotiating strategies (Yu, 2007).

A developing country's level of engagement in environmental goods negotiations does not depend so much on how trading supports environmental goals as on the actual priority that environmental goals have domestically, the extent to which the WTO is necessary or useful to achieve those goals, and its ability to make trade and environmental policies cohere.

Hence, the second question has attracted the most attention, and the one that, in the limited context of Paragraph 31(iii), deserves to be mainly addressed: How will reducing barriers on environmental goods enhance trade?

One way of framing the strategic decision could be to assess:

- To what extent multilateral trade negotiations are needed to support environmental goals;
- What are the risks for trade and the domestic economy of not participating;
- What are the trade benefits of participating;
- How burdensome these negotiations are to national teams in the light of the above questions

5.3 Defining Priorities and Goals: Non-Environmental Considerations

If 'environmental protection' alone is an insufficient basis to define a strategy, and considering that 'trade' is no longer understood merely as 'exchange' but as an instrument for development, a number of other goals and concerns need to be considered when assessing the liberalisation of environmental goods from a domestic perspective. Perhaps the most important are the following:

5.3.1 Economic growth, employment and income distribution

Naturally, the first reason why a country would want to liberalise trade in environmental goods is to promote economic growth. In the post-structural adjustment world, this goal must be considered jointly with the effects of liberalisation on employment and income distribution.

As noted above, several authors agree that, even though there is a nascent industry of environmental goods in developing countries, these countries have little or no export interest in established environmental technologies (EET), and their environmental goods export potential lies mostly in natural resource-based environmentally preferable products (EPP). Trade in EPP, in turn, amount to just 10 percent of trade in environmental goods – in 2003 EET exports reached USD333 billion (90.2 percent) and EPP USD36 billion (9.8 percent).

At the same time, domestic markets for EET in developing countries tend to be dominated by small and medium sized enterprises (SMEs), with the exception of water and wastewater industry where large private multinationals dominate approximately half the global market. As SMEs are a factor of income distribution and creation of employment, the impact of EET liberalisation on these firms needs to be carefully considered.

On the one hand, SMEs might benefit from cheaper imported technology needed to comply with domestic environmental regulations. However, "given the already low applied tariff rates that exist in most (though certainly not all) cases for established environmental technologies, and given that in most cases environmental benefits from liberalising these goods are only likely to flow if the price effect is large enough to persuade governments to adopt stricter regulation, a focus in the current

negotiations on tariff reductions with respect to only these established environmental goods is unwarranted" (Howse and van Bork, 2006: 25).

On the other hand, for firms that produce these goods, capturing the benefit of liberalisation will depend on government support, for example, to participate in certification schemes (García, 2005). This applies both to EET industries as well as to EPP. Average applied tariffs on both EET and EPPs are generally lower in developed countries than in developing countries. And, whereas NTBs on EETs have not been found to be important (e.g. Kennet and Steenblik, 2005), the opposite appears to be the case with EPPs, where environmental and health related requirements are demanding, standards are in constant flux, and certification is difficult and expensive.

If the goal is economic growth with employment and income distribution through trade on environmental goods, it would seem that NTBs should be the focus of negotiations and, more importantly, that governments should have active policies in place to ensure local industries, particularly SMEs, can benefit from liberalisation. It is worth noting that, for example, developing countries from Asia and Oceania are important players in the global EET trade, in particular of renewable and clean energy technologies, of which these regions are net exporters. As the Kyoto Protocol and other carbon market initiatives gain importance over the next years, these countries may benefit from synergy between WTO rules and multilateral environmental rules. Except that Asian environmental firms often become sub-contractors for larger multinational companies from developed countries (Yu, 2007).

A similar dilemma appears in relation to water services. This sector, which accounts for more than one third of all EET trade[2], is the exception to the general rule of SME preponderance in the market for environmental goods in developing countries: about 50 percent of the water and wastewater industry is dominated by large multinationals. If the trends in the privatisation and deregulation of this sector continue, it is not clear how developing countries will benefit economically from EET liberalisation in the absence of active domestic policies.

So, as part of a domestic discussion on environmental goods liberalisation policy makers might want to know:

- What set of environmental goods have the best domestic industry growth potential?
- Does growth in these industries result in a concentration or a distribution of economic benefit?
- Are these industries dominated by large firms or small- or medium-sized enterprises?

5.3.2 Loss of tariff revenue and non–tariff barriers

Loss of tariff revenue as a result of liberalisation is one possible impact that developing countries need to consider. Goods on the OECD and APEC lists alone accounted for over 6 percent of developing country imports in 2003, and broad based tariff reduction could result in significant loss of tariff revenue. This, however, varies greatly among countries. In South America, for instance, this impact does not represent a significant cost (Garcia, 2005). On the other hand, seen from the point of view of developing country exporters, the main concern is that, as tariffs go down, NTBs will expand rapidly.

The key questions to consider domestically would be:

- Whether the environmental, technological and expected export market benefits outweigh the expected loss in revenue: and
- Whether or not reductions in tariff barriers outweigh expected increases in NTBs.

5.3.3 Technological innovation and industry protection

As many authors have previously argued, it is essential that WTO negotiations avoid 'dumping' older technologies. In the words of Howse and van Bork (2006: 3), as "it is safe to assume that over a period of 10 to 15 years nearly all currently existing or envisaged environmental technologies will be obsolete and will have been replaced by new products … any definition of environmental goods that seeks to facilitate technical innovation should take into account technological innovation and dynamism".

But 'dumping' is not the only issue pertaining to the technological effect of environmental goods liberalisation. Liberalisation may also jeopardize infant national environmental industries (Hamwey, in Yu, 2007), especially if they are SMEs. As mentioned above, some developing countries, especially from Asia and Oceania are net exporters of renewable and clean energy technologies, although it is not uncommon that firms in these countries, normally SMEs, become sub-contractors for larger multinational corporations. And, in the case of the water and wastewater industry, which is dominated by large multinationals, the technological question extends to the local development of know how required for operating large scale water and water treatment.

Hence, the key questions to address domestically seem to be:

- Does the set of environmental goods under negotiation consolidate old, established technologies or allow developing countries to accelerate technological innovation?
- Will liberalisation result in the transfer to private multinationals of the provision of water and treatment of waste water? And if so, are conditions such that this transfer will result in the development of local capacity to manage these services?
- More generally, are current tariff rates an efficient means of supporting the local industry?

5.3.4 Dual use

An important point of contention at WTO over the OECD and APEC lists is that many of the goods listed have multiple uses other than 'environmental', which makes liberalisation on 'environmental' grounds problematic. Although there are some possible technical solutions to this problem, none seems easy to implement. Howse and van Bork (2006), for example, suggest the use of negative lists of products for which particular WTO Members are not prepared to grant preferential treatment and a duty drawback system, with the rebate going to the end user.

The issues to consider domestically would be:

- How large would be the potential harm to domestic industries caused by dual use relative to the benefits obtained from the import of EET?
- Can the country implement an efficient solution to avoid this potential harm?

5.3.5 Process and Production Methods (PPM)

Developing countries shy away from defining goods in which they have advantage because that would open the door to product discrimination based on the way they are produced. The discussion about process and production methods (PPM) is a long-standing one and this is not the place to review it. What is important to note here is that EET and the list approach to modalities are the less likely to raise this particular concern, whereas EPP and the project approach are more likely to demand a substantial discussion of PPM.

On the other hand, developing countries also need to consider the social and environmental effects of liberalisation of EPP that originate from agriculture or biodiversity use. Depending

on the product, the environmental benefits of a significant growth in the industry (the ultimate goal of liberalising that market) may not be automatic. Forms of organic production, for instance, or products such as biofuels, may come at the expense of transforming ecosystems in an environmentally damaging way even when the product itself may be preferable over alternatives.

The questions to ask domestically would be:

- If the country has an advantage on EPP and not on EET, should PPM be discussed?
- Is there a combination of a definition of 'environmental goods' and modalities that would result in greater value for the country (e.g. a list approach to EPP, a project approach to EET, etc.)?

5.3.6 Social impacts

As the questions above are answered, the political economy of environmental goods liberalisation should become apparent to domestic decision makers. Who will win, how much will they gain and at the expense of whom, will determine in which direction the benefits of liberalisation flow. As noted above, trade liberalisation of environmental goods is meant to promote economic growth, a goal that must be explicitly linked to employment and income distribution.

The potential of environmental goods liberalisation on economic growth, employment and income distribution must be carefully considered. For instance, as seen above in the case of water and waste water treatment and cleaner energy technologies, there is a risk that liberalisation will only result in further concentration of wealth without necessarily creating more jobs.

In the case of environmental goods, a further consideration is warranted: the social impact of the scale effect of liberalisation. Opening EPP markets has the potential to offer significant opportunity for community development or spark a process of destitution. The potential scale of EPP markets is large and experience shows that small producers need to organize into larger units to participate in them. But large markets are also an incentive for business concentration in the name of efficiency. In this case, natural resources and labour may end up absorbed by large corporations, and economic benefits poorly distributed.

The key question to pose here, a question that runs through all other considerations as well, is whether the country has the capacity to implement active policies to accompany environmental goods liberalisation and ensure social benefits, and if not, what certainty is there that liberalisation will not be socially detrimental for certain groups.

5.3.7 Bargaining chips

As mentioned above, it is unlikely that environmental considerations will be enough to prompt a country to accept liberalisation of 'environmental goods'. Rather, the decision will be based on economic and other non-environmental policy considerations. But in addition to these more or less substantive considerations, countries may want to assess the 'bargaining' value of 'environmental goods'. By creating this additional, separate category of goods, negotiators have enhanced the universe of goods for exchange on the table. For a country that sees no clear environmental benefits in these negotiations, this value might be big enough to justify being involved in the discussions. It should be noted, however, that from an environmental perspective this may be highly detrimental, as it may delay the adoption of environmental policy decisions that otherwise would not be subject to a broader trade negotiation strategy.

Hence, the domestic questions to ask might be:

- Does the new category of 'environmental goods' offer an opportunity to strengthen the country's negotiating position in other areas?
- And if so, is environmental decision-making negatively affected by this?

6. A FRAMEWORK FOR A DOMESTIC DISCUSSION

For developing countries, whether liberalising environmental goods promote sustainable development depends to some extent on how environmental goods are defined, on the modalities of liberalisation, and, to a larger extent, on the domestic context. With no integrated planning and weak institutions, benefits are unlikely to result.

This points to one of the few clear virtues of singling out 'environmental goods' for distinct negotiations: it forces a domestic discussion between economic and environmental authorities on a limited universe of goods. It is not possible to define a sound negotiating strategy on environmental goods at the WTO without dialogue among government agencies and between government and other social actors. A domestic consultative process is especially warranted for these negotiations. This process could be organized around three objectives: defining priorities and goals, gathering information and defining modalities

6.1 Defining Priorities and Goals

As noted above, the sustainable development benefits of Paragraph 31(iii) are not only contingent on policy coherence, but also unlikely to be significant relative to the most pressing sustainability challenges. Moreover, if there are domestic environmental goals important enough to deserve foregoing tariff revenue and, in its case, force national industries to compete with foreign products, then unilateral or bilateral liberalisation might be better choices over a long, complex multilateral negotiation. As Yu (2007) says, "small, over-stretched, and resource-constrained delegations are not likely to be able to make full use of their right to participate in the WTO negotiations and decision-making processes." National stakeholders, therefore, need first of all decide whether there real benefit and/or costs in actively engaging or not in negotiations and with what aim. These benefits and/or costs should result from considering the eight issues raised in the previous section, namely:

- Whether or not active participation in multilateral negotiations to liberalise environmental goods is justified on environmental grounds, and what might be the trade-related implications of doing so;
- The effects of liberalisation on economic growth, employment and income distribution;
- How much tariff revenue is lost, and what the effect on NTBs will be.
- The effects of liberalisation on domestic technological innovation;
- Whether or not the problem of dual use results in risks to domestic stakeholders;
- Whether or not a discussion on PPM to liberalise environmental goods, in particular EPP, would be beneficial;
- What the effects of environmental goods liberalisation on the social quality of development would be; and
- Whether or not the use of environmental goods as a bargaining chip results in detrimental effects on environmental policy.

6.2 Gathering Information

Whatever decision a country makes, it is important that it is based on sound information. There are multiple tools for undertaking sustainability assessments of trade policy, although these are often complex and expensive to undertake. Information generation, however, is a very valuable opportunity to involve multiple stakeholders in decision making.

For any set of environmental goods, decision makers will want to know:

- Economic: rates of growth of industries, revenue impact of liberalisation, costs of protection of infant industry, prospective technological development;

- Social: employment loss or creation due to liberalisation, sectors of society that benefit, proportion of small, medium or large business involved in industries;
- Environmental: industrial profile favoured by liberalisation, impact of scale effect on exporting sector, compliance with domestic environmental norms favoured by imports.

6.3 Defining Modalities

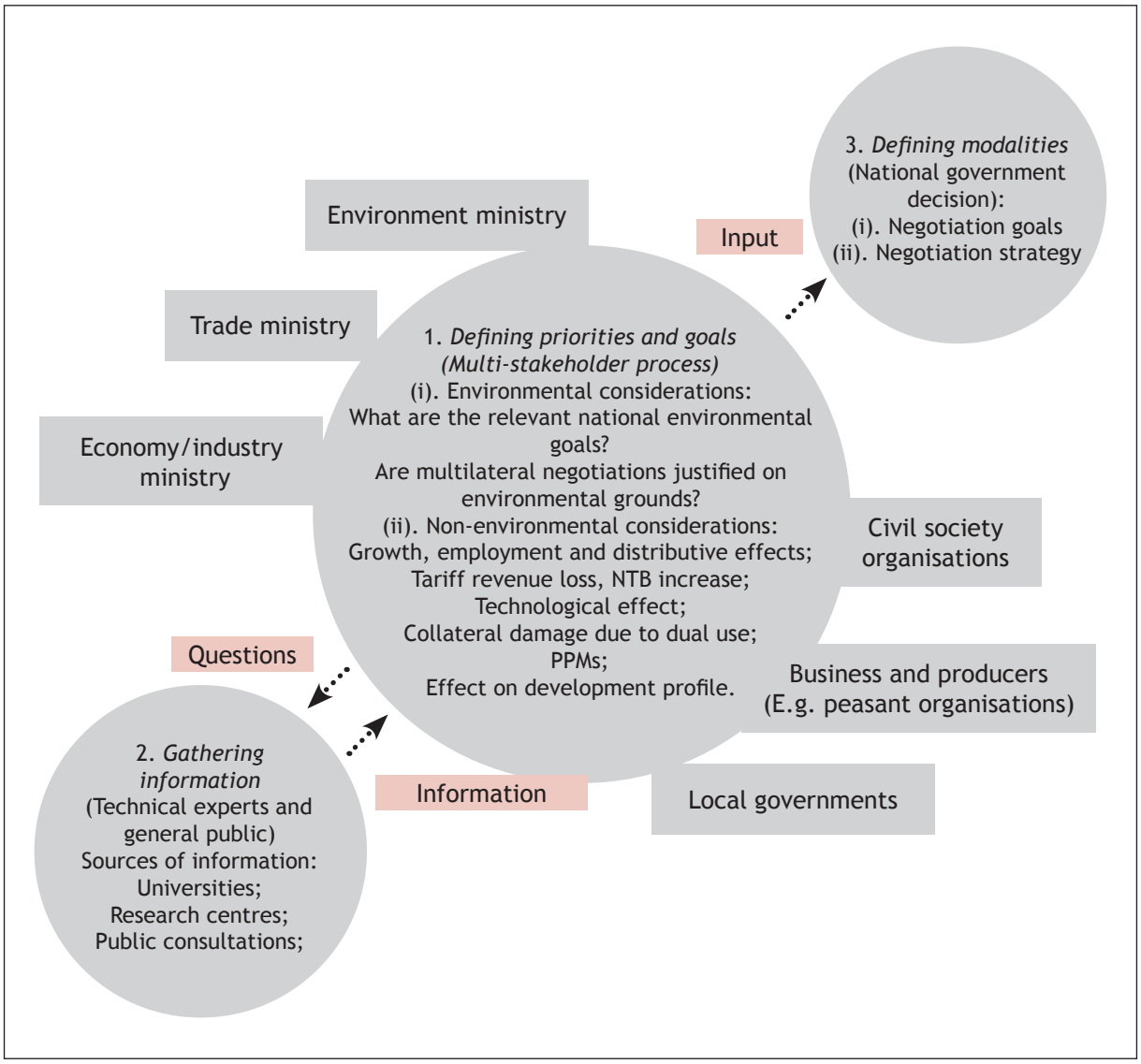
Whether or not the country should favour a list approach that includes EPP, a project approach or some combination of those, depends on the goals that are being pursued. In the process of defining these goals, a country will be able to establish:

- Whether it has the capacity to put in place active policies that will ensure that liberalisation will benefit the local industry, in particular SMEs;
- Whether it has any comparative advantages in the set of goods under consideration;
- Whether the environmental issues identified are best addressed by facilitating the import of certain technologies, the export of certain goods or a specific combination of goods and services best achieved through particular projects; and
- How these negotiations fit in the broader negotiating strategy.

Different modalities need to be considered in the light of these questions. In general, a list approach would appear both to present the largest risks for developing countries and the largest economic benefits, too. A list approach is relatively simple and can be applied more broadly. This favours both rapid implementation and a quick upscaling of trade flows. But the list approach makes the implementation of strong, active domestic policies more important because, once established, it leaves few if any room to control at the international level its effects. In addition, it must be noted that putting together a list of interest to developing countries involves walking the thin line of PPM. In the case of this modality, the definition of 'environmental good', whether implicit in the selection of goods listed or explicit as a criterion, becomes especially important for developing countries.

In contrast, the project approach seems to offer a safer approach to liberalisation but also more limited gains, for the exact opposite reasons stated above for the list approach. A project approach would be much more complex to implement and its application would be more or less case-by-case. This might result in more bureaucracy, slower implementation and more limited trade flows. But, on the other hand, the project approach offers more opportunities to learn how trade liberalisation and sustainable development support each other, allows for the gradual development of active domestic policies, and puts a framework for the discussion of process and production methods (PPM) that might be acceptable to developing countries. It would enable a gradual approach to defining 'environmental goods', and open a potentially rich opportunity to bring WTO and MEAs together.

Figure 12. A Process for Domestic Considerations Around the Liberalisation of Environmental Goods



ENDNOTES

1 It might be worth noting that, according to a report prepared for the US Congress, China's most sought after environmental technologies are air pollution control equipment and engineering, industrial water and wastewater equipment and engineering, resource recycling technologies, high technology instrumentation and monitoring equipment, and clean energy technologies and associated engineering services (Gutierrez, 2005).

2 Waste water management alone accounted for 34% of all EET trade in 2002. Cleaner technologies, accounted for 1% (see Figure 9).

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B.2 A WAY FORWARD ON WTO NEGOTIATIONS ON ENVIRONMENTAL GOODS: ELEMENTS OF A STRATEGIC RESPONSE AND OPTIONS FOR MODALITIES

Mahesh Sugathan

This chapter outlines what could be a way forward for WTO negotiations on environmental goods not only in the limited time-frame that may be available for the Doha negotiations but also for longer-term EGS negotiations, if indeed they are ever mandated to take place in a future post-Doha scenario. The chapter lists the main elements of a strategic response to the various challenges that have contributed to a negotiating deadlock on environmental goods. It then evaluates possible options for modalities for the selection and treatment of environmental goods. It is to be hoped that any negotiating strategy will have been duly informed by different sustainable development considerations, arrived at through a domestic process of broad-based and inclusive decision-making involving consultation of all stakeholder groups. Only then would a meaningful sustainable development outcome emerge from these negotiations.

Yu (2007) points out that the key to effectively negotiating and implementing a successful negotiating strategy lies in:

- Understanding the negotiating context by, inter alia, identifying the negotiating positions and the dynamics that exist;
- Identifying the underlying interests that need to be addressed for the outcome to be positive;
- Identifying BATNA (Best Alternative to a Negotiated Agreement); and
- Defining a negotiating strategy.

Some experts question the need for WTO negotiations on EGS as a means of enhancing environmental protection as they argue that trade in EGS could be liberalised by countries autonomously anyway. WTO negotiations on EGS would, however, result in collective binding and lowering of tariffs and would, arguably, increase predictability, shape trade flows on a global scale and have a bigger impact on the environment, as opposed to unilateral trade liberalisation initiatives.

However, the perception of what is the best way to achieve a desirable state of sustainable development and how trade in EGS can shape it is perceived differently by different WTO Members. Some are open to including products that have both environmental and non-environmental uses whereas others are more cautious and prefer to limit liberalisation, if done through bound tariffs, only to clearly environmental end-use products. Various types of flanking policies and differentiated treatment have also been proposed to respond to the offensive and defensive interests of developing countries.

It is clear, however, that trade policy on EGS, though it may have a global impact, is influenced ultimately by domestic concerns and priorities in the economic, social and environmental dimensions. Often, difficult choices and trade-offs may need to be made among these different dimensions while in other cases a win-win-win situation may be possible. Uncertainty regarding the 'ex-post' impacts of liberalisation as well as outcomes in other important areas of negotiations also determine a country's negotiating stance on EGS. Challenges facing WTO negotiators stem from a number of underlying concerns and movement can occur only if these underlying concerns are addressed in a strategic manner, through appropriate flexibility and creativity both in substance as well as process.

1. REVIEWING THE KEY NEGOTIATING CHALLENGES AND ELEMENTS FOR A STRATEGIC RESPONSE

1.1 Product Coverage: Emphasising the 'Environment' in 'Environmental' Goods Negotiations

Formulating an appropriate response to this challenge will not be easy. When negotiating tariff and NTB reduction on particular goods, important questions for negotiators should be:

- How will reducing or eliminating tariffs and NTBs on this product benefit the environment; and
- How will this enable the realisation of broader sustainable development benefits?

Strategic response

WTO Members certainly need to demonstrate the environmental credentials of a particular product. While the scope of what constitutes 'environmental goods' is likely to continue being debated, it is important that Members demonstrate the environmental credentials of a product being included; otherwise, having a separate environmental goods mandate will not make sense. In the case of goods having more than one use, Members could discuss what impact the absence of binding and permanent liberalisation for certain goods will have on environmental protection.

Key elements

- If a 'list-approach' is adopted, the use of 'reference points', as is already being done, and creating an additional column within any list that underlines the environmental benefits of the listed product, will be important. This could be particularly significant for 'dual' and 'predominantly environmental' end-use products. Some Members have already done this. For example, New Zealand in its submission (TN/TE/W/46), has proposed the use of 'reference points', and has spelt out environmental benefits of the goods included in its environmental goods list (TN/TE/W/49/Rev.1);
- If goods are liberalised only for particular uses (as for specific projects), the criteria for the use or project has to be clearly environmental and responsive to environmental concerns; and
- One consideration that Members could use, no matter what approach they may adopt, would be to state the urgency of the environmental problem for their respective country, and/or the world as a whole. Goods critical for MEA-related uses or that safeguard the global commons, could be prioritised within WTO negotiations. They could also include a fair share of products of interest to developing countries.
- Another aspect that could be considered would be to assess whether or not a good is required to be imported by an environmental service providing firm. While it may involve some administrative formalities an indefinite duty-waiver could be considered if it can be shown at customs that goods are ordered by an environmental service providing firm, whether national or foreign. This is somewhat similar to the 'project approach', the only difference being that liberalisation (reduced or zero-duty) would be permanent as long as these goods are imported by environmental service firms. This would ensure that environmental service firms benefit from access to imports while avoiding diversion of 'dual-use' products for non-environmental purposes.
- It is up to Members to decide whether or not to liberalise agriculture-based products as part of environmental goods negotiations. One way in which to avoid PPM-related problems might be to liberalise those products where the method of production is intrinsically beneficial to the environment and a less-environmentally friendly production method does not exist. Nevertheless,

such products may still fall in the 'niche' category and may not bring in a huge amount of export revenue to developing countries. However, inputs into sustainable agriculture such as low-cost water-saving technologies or natural pesticides may still benefit the environment and developing country farmers.

1.2 The 'Market-Access' Challenge: Broadening the Export Basket for Developing Countries

As Claro (2007) points out, global exports of environmental equipment, technology and services are concentrated in Western Europe, the US and Japan. Hence, from a market-access perspective, removal of tariffs and NTBs to environmental goods through EGS negotiations is perceived by most developing countries to be mainly beneficial to developed countries.

Strategic response

The response should be to broaden the export basket for developing countries in a manner that leads to more interest in engagement on the part of developing countries having an export interest in these goods. Here perceptible gains with regard to market access may arise:

- If the 'broadened' baskets of environmental products based on end-use or disposal include those that show actual or potential export-growth for developing countries and if taken up for liberalisation, they would generate meaningful export earnings. Even in those product categories with a 'single environmental end-use', dynamic products of export interest to developing countries could perhaps be identified;
- If the 'broadened' export basket could also consider inclusion of important intermediate parts and components produced by developing countries, they could, if liberalised, feed into global supply-chains in the environmental industry. The analysis by Fulton (2006a) also identified some intermediate products such as textiles used in the manufacture of 'traditional' environmental goods like filters and pollution control equipment, as well as Intermediate Timber and Wood Products used in the manufacture of EPPs such as furniture; and
- If the 'broadened' export basket includes rapidly-growing EPPs, such as products derived from organic agriculture, this would be controversial, as their inclusion would be on the basis of PPMs, and is presently not under consideration by the broader WTO Membership. The challenge will be to find other, non-PPM related criteria and ways to provide incentives to such exports. For PPM-based environmentally-preferable products such as organics, initiatives outside the WTO could be encouraged, such as accelerated certification and accreditation procedures and price-premiums for producers from developing countries.

Related challenges

Dual-use products: Broadening the basket of environmental goods to include dynamic products may also run into the issue of these products being 'dual-use' or 'predominantly-end' use at the 6-digit level or beyond. In such cases, selective modulation, elimination or suspension of tariffs and non-tariff measures (if arbitrary and unjustified) could be considered by developed country importers for products originating from developing countries. Developing country importers could be granted a grace period to extend the same benefits to their southern trading partners.

Use of 'ex-outs': In the case of intermediates products used for 'single-end use' environmental products, the analysis by Fulton (2006a) reveals that while 'these categories are to some extent already represented on the WTO list of EGS submitted by WTO Members, they are not well represented amongst the goods classified as 'single environmental end -use'. This is usually because their environmental application is unclear. In many cases, according to Fulton, the

use of ex-outs would help to clarify this. However, beyond the 6-digit level, as described in Part A of this EGS Policy Discussion Paper, the absence of Harmonised Nomenclatures may create problems for customs officials. Howse (2006) suggests that an alternative approach would be use to a mix of HS codes and products or terminology similar to that used in the Information Technology Agreement (ITA). For ex-outs of export interest to developing countries, one option could be development by WTO Members of Harmonised Nomenclatures for these 'ex-outs' which may not be viable in the short-term due to lengthy time-intervals required for approval of such amendments in the WCO and subsequent entry into force. (See Part A). Alternatively, 'ex-outs' could be included in a descriptive list to qualify for preferential treatment. However, some developing countries including Egypt, India, Brazil, and South Africa have stated their opposition to the practice of identifying specific products for liberalisation solely by name, rather than by HS code, arguing that this approach would be too complex for their national authorities to implement. (BRIDGES Weekly, 12 July, 2006).

Key elements

Reduction of NTBs to developing country exports, as for other environmental goods, may also need to be pursued through initiatives outside of EG negotiations and in other negotiating bodies. (Details on options will be outlined below.)

1.3 The Effects of EG Liberalisation on Domestic Industries and Tariff Revenue

Strategic response

A thorough assessment and mapping of products that are important from the point of tariff-revenue and those that are produced domestically could be undertaken. Firstly, the environmental benefits of liberalisation will need to be clear, and Members could link their proposed goods with clear environmental benefits. Secondly, WTO Members could look at various options for flexibility that could be provided to developing countries in terms of liberalisation of these products. As mentioned earlier, an important factor that Members need to keep in mind is whether or not the costs of foregoing tariff-revenue and the immediate impacts on domestic industry outweigh the environmental or social benefits that can be derived through trade-liberalisation. This will ultimately be a sovereign decision for every WTO Member, based on a national sustainable development assessment, and possibly include the impact of concessions and developments in other WTO negotiating bodies as well. It is important to note that while many of these products have a negative impact on tariff revenues, they may also be required by domestic environmental goods or service providers as inputs; in which case, the costs of denying access to imports may also need to be assessed.

Related challenges

Use of 'ex-outs': As in the case of exports, differentiation for purposes of preferential liberalisation, between 'single' use and 'dual-use' environmental goods, may need to rely on the use of 'ex-outs' beyond the 6-digit level. This, as mentioned earlier, could involve WTO members opting for a mix of HS-codes and descriptive terms. (Howse, 2006). For intrinsically 'dual-use' goods such as pipes, however, WTO Members may need to evaluate it according to its importance for environmental protection while considering import sensitivities.

Key elements

'Win-wins' may be obtained from granting favourable treatment to those products that can be integrated into existing productive sectors and that also have an immediate impact in terms of environmental and economic gains. An example may be energy-saving technologies. The initial costs of importing such technologies could be outweighed in the long-term by economic gains from reduction in energy-use.

Developing country Members could be given, as part of a package on special and differential treatment (S&DT), a longer time-frame for

reducing their trade-barriers on these products. In addition, they could also be given the option to exempt from liberalisation no more than x percent of any products in such a list. Howse (2006), within the context of a 'positive'/ 'negative' list approach, calls for the inclusion of any EPPs that meet the UNCTAD definition as part of an 'open-ended' positive list. He suggests that products in this list be considered bound at the specified preferential rate of tariff or zero tariff. Countries could, meanwhile, shift problematic products into a 'negative' list to exclude them from liberalisation. In the interests of South-South trade, phase-in may be faster for products of export interest to other developing countries. Options for S&DT are reflected in certain submissions made at the WTO. For example: the 'complementary-list' proposed by the US and New Zealand or the 'development' list proposed by China.

For dealing with differences in application of the HS-system, Howse (2006) proposes liberalising tariffs on two lists of products, an "A" list, based on HS classifications, and a "B" list of product descriptions, where the obligation to liberalise would apply regardless of how those products might fit within existing HS classifications. In effect, each WTO Member would decide how to reflect its obligations to liberalise on the B list through national nomenclature.

Liberalising, subject to agreement, selected goods under a 'project-approach' would maintain tariff-revenue from 'dual-use' products imported for non-environmental uses. At the same time, it would ensure low or zero-duty access if they are imported in the context of an environmental project. The project approach could also be applied in conjunction with a 'list-approach'. Further details on combining a 'list' and 'project' approach are provided later.

1.4 Uncertainty with Regard to Non-Tariff Barriers

Strategic response

With the exception of clarification and improvement of disciplines as in trade-facilitation, NTBs are not easily tackled in a traditional negotiating setting. The EU proposal (TN/MA/W/11/Add.8) for instance, calls for the need to improve available means for WTO Members and their industries to: (a) Reduce the risk of NTBs arising in the future through improved information-sharing, consultancy, notification and transparency measures; and (b) Facilitate more rapid resolution of the NTBs once the DDA negotiations are concluded. Two options for WTO Members have been pointed out: Raising concerns in regular WTO bodies, through notifications and consultations, or through questions and answers in trade policy reviews and using the Dispute Settlement Undertaking (DSU). While the former has worked better for clarification of trade-policies rather than resolution, the latter, while effective, carries with it monetary costs and time which may discourage countries from pursuing the less important types of NTBs. It may also prove a disincentive for the least-developed countries. The EU, for instance, has proposed the establishment of a horizontal mechanism involving expert facilitators to enable parties to reach a mutually acceptable solution without prejudice to the existing DSU mechanism.

It is clear that a complete reduction, or as appropriate, elimination of all NTBs on environmental goods may not be possible in the limited time-frame of the Doha mandate. A strategic response within the EG negotiations may be to prioritise those measures that are seen as particularly affecting EG exporters from developing countries and try to develop stricter rules in the context of the appropriate negotiating bodies. Also for those measures where agreements already exist, as in subsidies, TBT, SPS or Import-Licensing, these could be further strengthened or clarified, so far as specific challenges related to environmental goods are discovered, which may not be effectively addressed by these existing agreements.

Key elements

Once EG (including EPPs) of export interest are identified for developing countries, a suitable

time-line could be granted within which developing countries could consult with their exporters and identify the most problematic NTBs. Those that are easy to deal with could be tackled immediately whereas the rest, including those reportedly fulfilling important public policy objectives, could be resolved by means of whatever mechanism is developed by the WTO Membership to tackle NTBs in general. The reduction timeline for these NTBs could be faster for developed countries.

Another option may be to identify and prioritise NTB reduction for EPPs, relative to established environmental technologies.

1.5 Creating and Enhancing Domestic Capacities in Environmental Goods and Technology–Transfer

A number of WTO Members have put in place initiatives to create and strengthen their domestic environmental industry. Domestic Environmental Regulation (DER) has played a major role in catalysing the emergence of a domestic environmental sector. According to Fulton (2006b), measures to encourage start-ups and corporate investment, privatisation and de-regulation, may also play a role in the development of the domestic private sector by motivating it to conform to international standards.

Korea (Fulton, 2006b) is cited, as a good example of a country where domestic instruments, such as tax-incentives and low-interest loans to small and medium enterprises (SMEs) as well as joint-ventures and licensing agreement with foreign firms, have been used to build capacities in the domestic environmental sector. In Malaysia, a Technology Acquisition Fund for the Financing of Technology Transfer is 'designed to assist the Malaysian private sector gain access to technologies that will improve their technology and also their production processes. Similar examples are also found in South America. In Brazil, for instance, both national (National Bank for Economic and Social Development-BNDES) and regional organisations, such as the Company of Environmental Sanitation Technology (CETESB) in Sao Paulo, provide financial support for investments in environmental technology. Companies seeking to invest in the environmental goods sector in Brazil have had to establish successful trading relationships with local partners via agency agreements, joint ventures, technology transfer agreements or acquisitions. All of these may help to build or strengthen capacity and may also stimulate domestic companies that do not seek foreign investors or partners.

However, according to Fulton (2006b), there is relatively limited evidence as to the effectiveness of supply-side measures in increasing capacity in the environmental goods sector in developing countries. This is borne out, according to Fulton, by the recent OECD review of 17 countries where data availability was identified as one of the major constraints to our understanding of the EGS sector in developing economies. The overwhelming focus of support and evidence according to Fulton relates to demand-side measures.

Based on a review of the literature it is clear that a number of key issues determine the likely success of policies aimed at increasing capacity in the environmental goods sector:

- Environmental investment needs to be integrated in national, regional and local development plans;
- Economic and environmental regulations need to be mutually reinforcing if capacity is to be created;
- Demand-side drivers such as legislation, certification, etc. are fundamental to generating an enabling environment for developing supply-side capacity; and
- Investment in the environment needs to be used to create opportunities for supply-side capacity building; this needs to be an integral part of environmental and economic development policy.

The issue is whether liberalised trade by itself will help create such capacity or transfer technology. According to some WTO Members, notably proponents of the 'list approach', freeing up trade in environmental goods will foster flows of environmental technologies, and combined with aid and technical assistance packages, will encourage innovation and transfer of technologies. Many developing countries, however, are sceptical whether market-access by itself will generate such an outcome and would like to ensure that developing countries are able to protect nascent domestic industries, especially SMEs, from the negative effects of liberalisation. At the same time, they would like to preserve flexibility to exercise domestic industrial policies and channel trade in environmental goods in accordance with national environmental priorities.

Strategic response

It is clear that there is no easy answer to these questions as economists dispute the most efficient and effective ways to build supply-side capacities while maximising welfare. A number of experts such as Howse (2006) and Mytelka (2007) agree that market access by itself will not ensure that the latest technologies are transferred. Developing countries may wish to use policy tools to develop certain segments of the EG sector which they consider important. However, this will need to be done in way which is compatible with domestic priorities and existing WTO disciplines and after weighing a number of sustainable development considerations in the economic, environmental and social spheres. Some sort of S&DT that is time-bound, but can respond to these needs, seems to be the best option to pursue.

Key elements

- Providing flexibility for developing countries in terms of use of certain instruments such as subsidies and through instruments such as government procurement, for a time-bound period;
- Provisions for technical and financial assistance for SMEs and pollution intensive sectors in developing countries to acquire the latest environmental technologies;
- Permitting use of incentives by developing countries to attract FDI in the environmental sector; and If adopting a 'list' approach, Members could include provisions to update environmental technologies on a continuous basis without requiring recourse to negotiations, while preventing 'dumping' of old or outdated technologies. Howse (2006), within the context of a 'positive'/ 'negative' list approach, also calls for the inclusion of the latest technologies as part of an 'open-ended' positive list that would be considered bound at the specified, preferential rate of tariff or zero tariff. Countries could, meanwhile, put only those products that were problematic into a 'negative' list to exclude them from liberalisation. In addition to list and project-based options, Members always retain the ability to propose other new negotiating approaches as well.

1.6 Lack of Movement in Other Negotiating Areas: Tying EG 'Concessions' to a Broader Sustainable Development Package

Delegates in the CTE and the Council on Trade in Services (CTS) are focused on negotiating specifics on EG and ES and the positions of their counterparts, while in reality, progress, or lack thereof, may largely depend on other negotiating areas, particularly Agriculture and NAMA. Trade rules and concessions in EGS, in addition to being influenced by the domestic sustainable development concerns and negotiating positions of EGS partners, may also need to be weighed against the sustainable development costs and benefits arising from concessions in other negotiating bodies. From a sustainable development impact perspective, should EGS liberalisation be locked in to a 'water-tight' compartment, irrespective of the impacts that other negotiations may have? Is this possible or desirable?

It may be that negotiators will consider the outcome of a 'negotiating' package in its entirety

with different negotiating issues tied to each other. In this case, it may also be worthwhile to look at how the sustainable development 'objectives' at which the EGS negotiations aim, could also be realised, or at least supported by well-crafted modalities in other negotiating bodies to ensure coherence and mutual supportiveness.

Key elements

WTO Members could ensure, possibly under the aegis of Para 51 of the Doha Ministerial declaration, that developments, or even lack of substantive progress in other negotiating bodies, do not undermine the sustainable development objectives that guide Para 31 (iii). For instance, maintenance of agricultural subsidies could promote environmentally harmful farming practices which would seem contradictory to the goal of a reduction in pollution that should guide liberalisation of pollution-control equipment.

Similarly, reducing tariffs on EPPs from developing countries may not provide meaningful benefits if these are replaced by unjustifiably stringent TBT or SPS standards. Furthermore, for those developing countries that lack meaningful export opportunities in most or all categories of environmental goods, market access in other sectors where they do have an export advantage, will enhance their ability to import environmental goods and make them less dependent on tariffs as a source of domestic revenue. Thus, within a holistic sustainable development perspective, EG negotiations cannot be viewed in isolation from developments in other WTO negotiating bodies, quite apart from any relevance as 'bargaining chips' within a 'single-undertaking' negotiating package.

It is beyond the scope of this paper to dwell on what sort of modalities in other negotiating bodies will maximise sustainable development in synergy with appropriate ones on environmental goods. Suffice it to say, that a meaningful vehicle, in accordance with Para 51 of the Doha mandate to ensure coherence between all areas of WTO negotiations, seems necessary. In this respect, Members may also wish to enhance levels of coordination and communication in EG negotiations and discussions in other negotiating bodies.

2. EVALUATING OPTIONS FOR MODALITIES IN TERMS OF SELECTION AND TREATMENT OF ENVIRONMENTAL GOODS

Once WTO Members decide on the key elements of their strategy, they should decide on appropriate modalities with regard to **selection** and **treatment** of environmental goods. As the purely project approach is conceptually, at least very straightforward, the options outlined below will be those that could be pursued under the list approach and through a combination of list and project approaches. WTO proposals relevant to these that have already been put forward by various Members are also mentioned.

2.1 Options Under the List Approach

For product coverage, under the various List-Approaches, WTO members may opt for screening and selecting from one or both of the two broadly accepted categories of environmental goods as also referred to in earlier sections:

- **'Traditional' environmental goods according to end-use:** These are environmental goods that are primarily used for environmental remediation or prevention. This category may further be sub-divided according to whether or not they are 'single', 'dual' or 'predominantly-environmental' end use; and
- **Selection of environmentally-preferable products (EPPs):** These are products where the environmental benefits arise during the production, consumption or disposal stage and for which Members wish to extend *preferential* or *differentiated* treatment, compared to their non-environmental counterparts. These could be further

categorised according to whether or not environmental benefits arise during the production, use, or disposal process. Another sub-category that may be useful for customs purposes is the look-alike criteria for EPPs; are they distinguishable on the basis of visible physical characteristics, to their non-EPP counterparts?

While many WTO Members have submitted actual lists of products for consideration, they have also proposed variations of the 'list' approach at a conceptual level. Taken together, the following categories of the List approach may be taken up by Members:

i) *Common List approach:* Under this option, Members would agree by consensus on a single list comprising either traditional environmental goods or EPPs, or both, with bound tariff liberalisation. Various other types of products that could respond to the different types of sustainable development needs and priorities of Members could be considered.

Advantages

- One of the advantages of the common list approach is that it is fairly straightforward. Consensus implies that any final list of goods agreed upon will actually be those that WTO Members consider relevant for environmental protection.
- Many delegations have used 'reference' points to justify the environmental credentials of their lists as well as supported the concept of a 'living' list to respond to changes in technology.

Drawbacks

- While in principle the common list is open for inclusion of all types of environmental goods, in practice, because of the need for consensus and the controversy surrounding 'dual-use' products, it is possible that goods selected through this approach would be confined to a narrow range of products. WTO Members may then need to apply various types of differentiated treatment (for details, please see below) on the goods contained in the list;
- Many of the individual lists put forward by WTO Members have also been criticised by developing countries for including products with other non-environmental uses, and for not including products of export interest to developing countries; and
- Modalities to treat NTBs are missing and will need to be developed.

ii) *Core and Complementary List:* This approach was put forward by the United States is also 'open-ended' as far as selection of products is concerned. However, consensus would need to exist for the products in the core-list with a greater pace and depth of liberalisation envisaged in terms of treatment. (Zero tariffs by 2010). Goods in the complementary list would be those enjoying a 'wide degree of support' and would also be liberalised with a minimum percentage of goods that Members could choose.

Advantages

- Faster liberalisation is envisaged only on products that enjoy consensus. This makes it likely that products in any 'core' list will be those that enjoy a consensus as being relevant for environmental purposes.
- The complementary list would exclude products which do not enjoy a wide degree of support and would allow Members to pick those that they intend to liberalise.

Drawbacks

- The 'core' list and complementary 'list' would be confined to a narrow range of products to be considered, since consensus or a wide degree of support would be essential, and a majority of the 'dual' use products do not enjoy consensus or a wide degree of support. At the same time this implies that goods of export interest to developing countries could also be those that do not enjoy a 'consensus.'

- A selection of products for differentiated treatment that responds to export interests of developing countries may merit inclusion.

iii) Common and Development List: This approach put forward by China proposes a 'common list' based on consensus that includes environmental goods of export interest to both developed and developing countries. It further proposes a 'development list' that would be derived from the common list and comprise goods eligible for special and differential treatment in the form of lower levels of reduction commitments for developing countries.

Advantages

- Responds to, in terms of product selection, the need for broadening market access with priority accorded to exports of developing and least-developed countries. A commitment to reduce both tariffs and non-tariff barriers is envisaged.
- Addresses import-related concerns and provides for differentiated treatment with respect to lower levels of tariff reduction by developing countries.

Drawbacks

- While China's proposal (TN/TE/W/42), mentions the need to facilitate technology-transfer to developing and least-developed countries the actual modalities on how this would be achieved are not spelt-out.

iv) Positive List: This approach would mean that each WTO Member could select its own products for further liberalisation without the requirement of a consensus on the type of products to be included. Perhaps a minimum number or percentage of products from different categories could be specified.

Advantages

- In terms of product-selection, Members could choose the types of products they wish to liberalise perhaps with a minimum number of products specified. This provides flexibility particularly to developing countries in terms of import sensitivities.
- Could respond to 'dual-use' concerns as Members could opt for not including problematic products in their lists.

Drawbacks

- The freedom to select products by each WTO Member may imply a lower degree of ambition for fulfilling the Para 31 (iii) mandate than would otherwise be possible and also reduces the scope for reciprocal concessions.
- The freedom to select products may also hinder inclusion of products of export interest to developing countries.

2.2 Combinations of Project and List Approaches

- Some WTO Members such as Colombia have proposed options to reconcile list and project approaches. In this case different categories of products such as 'single' 'predominantly environmental' and 'dual-use' products are proposed to be assigned for treatment according to the 'list' or 'project' approaches. It will now be entirely be up to WTO Members to determine whether or not this will be a feasible and workable as a compromise.

While the project approach, because of the nature of liberalisation envisaged, shows great flexibility in terms of inclusion of projects, the List Approach, due to consensus required in some cases, will need to be more imaginative in working with various types, categories and combinations of products so that a basket will respond to some of the key challenges mentioned in the previous section.

Therefore, in the scenario that Members go in for a 'list' approach, even if for certain categories of products, it may be useful to further refine and screen out, to the extent possible:

- Products that are dynamic in export composition for developing and possibly least-developed countries;
- Products (particularly developing country exports) that are highly sensitive to NTMs;
- Products that are 'single' end-use and non-controversial for the purpose of negotiations;
- Products that are 'single-end' use and important for the attainment of environmental objectives but are 'sensitive' for developing countries in terms of tariff-revenue or impacts on domestic industries;
- Products that are 'predominantly' or 'dual-use' and are 'sensitive' for tariff revenues or for impacts on established domestic industries but which are nonetheless important for fulfilling environmental objectives or specific environmental projects and/or as inputs in the delivery of environmental services; and
- Products that are 'predominantly', or 'dual-use', but are important for fulfilling domestic environmental objectives and are not sensitive in terms of tariff/revenue or import impacts.

Once these categories are screened out it may be easier to apply differentiated treatment to individual products or product-groups. An additional level of complexity is introduced if Members also apply the above to intermediate goods or components used in the manufacture of environmental goods. If this is feasible and has sustainable development benefits, then Members may wish to consider these as well.

What could **modalities for differentiated treatment** for these products or product combinations be? These may comprise the following options or combination of one or more options:

- **Differentiated treatment in terms of depth of liberalisation:** This may involve applying different degrees of liberalisation commitments to the various categories of products selected. It could, for instance, involve putting various categories of products in different tiers for tariff liberalisation. Developing countries could be eligible in terms of S&DT, such as requiring a lesser degree of cuts on all or some categories of products. There could also be a minimum average level of tariff cut required for all products or product-categories selected, but with members free to modulate tariff reduction between different products or product categories;
- **Differentiated treatment in terms of pace of liberalisation:** This implies applying different time-frames of liberalisation for different products and/or to developing countries;
- **Differentiated treatment in terms of sequencing of liberalisation:** Some products (e.g., those critical for meeting sustainable development objectives) could be front-loaded for liberalisation, relative to other products or product-categories;
- **Differentiated treatment in the application, phasing out of non-tariff measures, subsidies or safeguards; and**
- **Appropriate categorisation under various HS-codes.**

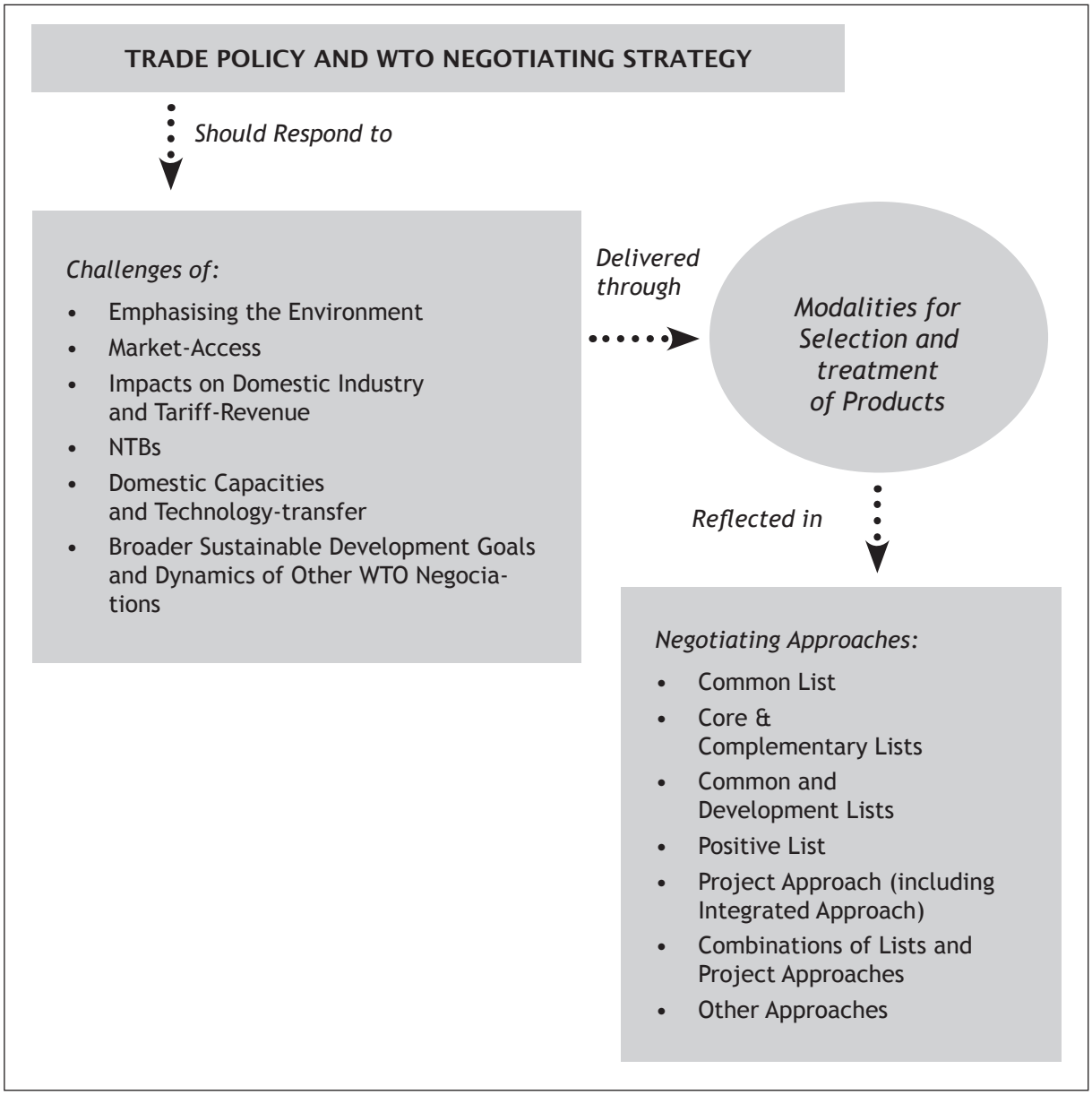
2.3 Other Cross-Cutting Considerations

The above options are relevant to immediate negotiating challenges. In addition, Members may also consider putting in place various mechanisms to deal with issues such as changes in technology, evolving NTBs, and ensuring synergy with realities of trade in environmental services as well as trade negotiations. These are important considerations that have not been given adequate attention in context of the 'List Approach.'

While the 'list' and 'project' approaches proposed above are still debatable with different

perceptions held by different WTO Members, what is important to note and understand are the underlying sustainable development priorities and concerns they seek to address. Responding strategically and creatively through appropriate modalities holds the greatest prospects for a meaningful outcome, an outcome that will reflect the spirit of the Para 31 (iii) mandate, as well as do justice to the broader sustainable development objective contained in the WTO Preamble.

Figure 1. Elements for a WTO Negotiating Strategy on Environmental Goods and Options for Modalities



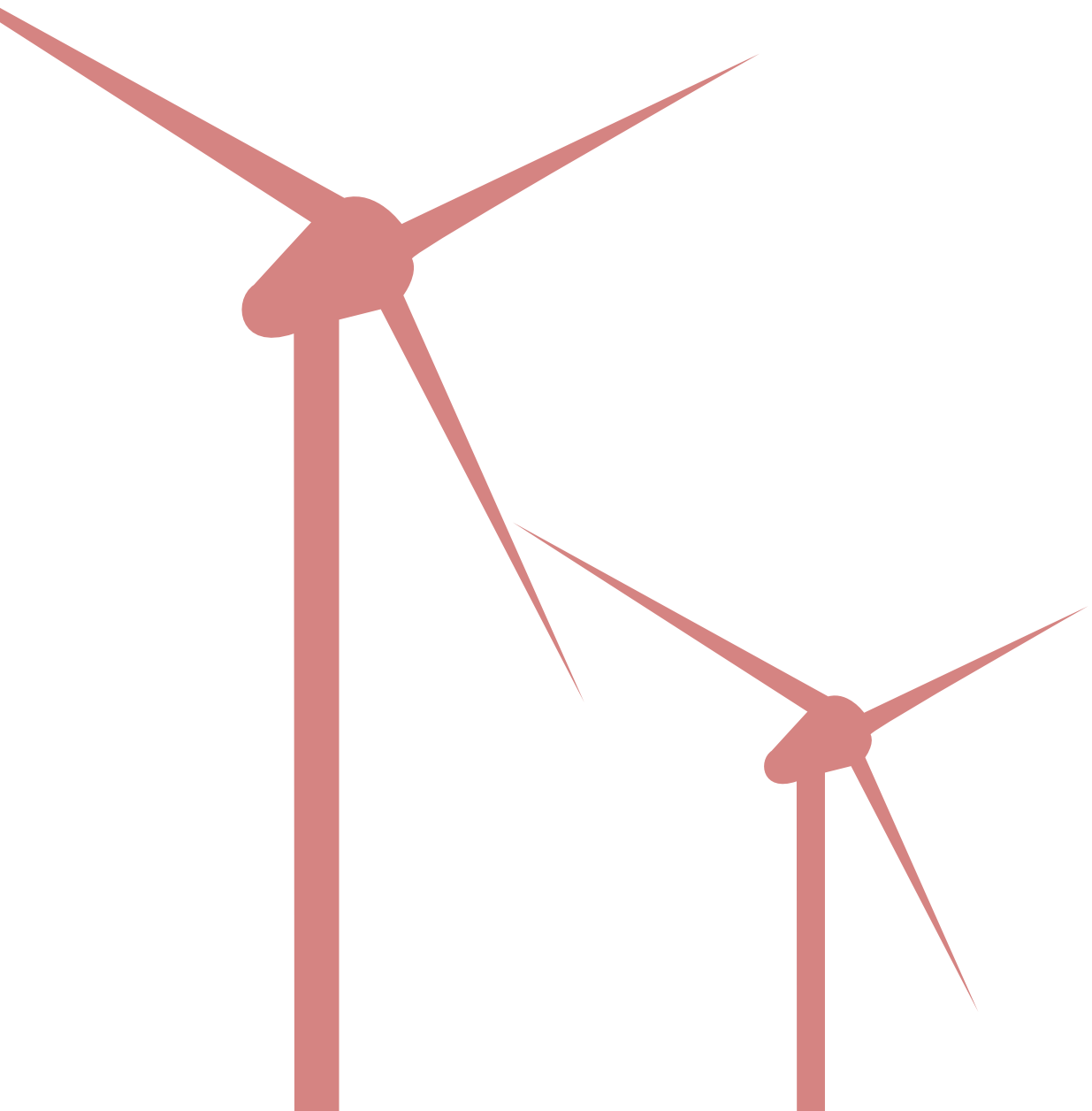
ANNEX

Table 1. Category Coverage of Members' Submissions (Source: WTO Secretariat: Synthesis of Submissions on Environmental Goods, TN/TE/W/63)

CANADA	EUROPEAN COMMUNITIES	JAPAN	KOREA	NEW ZEALAND	QATAR	SWITZERLAND	CHINESE TAIPEI	UNITED STATES	ABB. IN ANN.1
Pollution Management									
Air pollution control	Protection of ambient air and climate[1]	Air pollution control	Air pollution control	Air pollution control			Air pollution control	Air Pollution Control	APC
Environmental monitoring, analysis and assessment equipment	Environmental monitoring, analysis and assessment not already included elsewhere	Monitoring and analysis	Monitoring and analysis	Environmental monitoring, analysis and assessment equipment			Monitoring and analysis and assessment	Environmental monitoring, analysis and assessment	M/A
	Noise and vibration abatement[2]	Noise and vibration abatement	Noise and vibration abatement				Noise and vibration abatement	Noise and vibration abatement	N/V
Remediation and clean-up of soil and water	Protection and remediation and cleanup of soil and water[3]	Remediation and cleanup	Remediation and cleanup	Clean-up or remediation of soil and water			Remediation and clean-up of soil and water	Remediation and clean-up of soil and water	R/C
Solid and hazardous waste management	Solid and hazardous waste management[4]	Solid waste management	Solid and hazardous waste management	Management of solid or hazardous waste			Solid and hazardous waste management	Solid and hazardous waste management	S/H
Waste water management	Water for human use and wastewater management[5]	Waste water management	Waste water management	Waste water management			Waste water management	Waste water management	WWM
Cleaner Technology and Products									
Clean technologies processes and products		Cleaner technology and products		Cleaner or more resource-efficient technologies and products	Cleaner technology and products[6]	Cleaner technology and cleaner products			CT/P
Resources Management									
		Resources Management						Natural resources protection	RM
Heat and energy management		Heat and energy savings and management		Heat and energy management				Heat and energy management	H/EM
				Natural risk management					NRM
Potable water treatment				Potable water treatment				Potable water treatment	PWT
Renewable energy plant	Renewable energies[7]			Renewable energy plant				Renewable energy plant	REP
Recycling systems		Other recycling system		Recycling systems				Recycling Systems	RS

Table 3. continued

Other									
				Environmentally preferable products, based on end-use or disposal characteristics		Environmentally preferable products based on end-use or disposal characteristics		Environmentally preferable products based on end-use or disposal characteristics	EPP
	High environmental performance or low environmental impacts[8]								HEP
Soil conservation				Soil conservation					SC
				Waste and scrap utilisation					WSU



ENDNOTES

1 The European Communities proposed the following three sub-categories: Air pollution measurement and monitoring (gas, particles and aerosols in the environment and at the emission source); air purification, including odour control; and air handling. European Communities, TN/TE/W/56.

2 The European Communities proposed the following three sub-categories: Noise measurement and analysis; vibration measurement and analysis; and noise and vibration abatement. TN/TE/W/56.

3 The European Communities proposed the following four sub-categories: Analysis; pollution control; soil cleaning/ remediation; and soil protection. TN/TE/W/56.

4 The European Communities proposed the following three sub-categories: Waste collection; Waste treatment and disposal, including recycling; and other sanitation. TN/TE/W/56.

5 The European Communities proposed the following five sub-categories: Water analysis, measurement and monitoring; water collection; production of drinking water; water handling equipment; and wastewater treatment. European Communities, TN/TE/W/56.

6 Qatar proposed the following three sub-categories: Gas Turbines Combined Cycle Power Generation; Chemical Gas to Liquid (GTL) Fuels; and Natural Gas Fuel Cell Technologies. For more details, see "Negotiations on Environmental Goods: Efficient, Lower-Carbon and Pollutant-Emitting Fuels and Technologies", Qatar, 28 January 2003, TN/TE/W/19, TN/MA/W/24.

7 The European Communities proposed the following six sub-categories: Solar energy (solar heating, solar photovoltaics, solar thermal power generation, other solar technologies); wind energy (wind generator, wind pump); hydropower; wave power; geothermal power generation; and bio-energy (bio-electricity and bio-heat from waste). TN/TE/W/56.

8 The European Communities proposed the following eight sub-categories: Vegetable plaiting materials; pulps of fibrous cellulosic material; vegetable textile fibres; other natural products; sustainable agriculture or gardening (organic fertilisers, natural pest control); energy efficiency (low consumption bulbs); sustainable transport (public transport of persons/transport of goods, other forms of sustainable transport); and eco-labelled products. TN/TE/W/56.

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PART C: CONCEPTS AND REALITY IN ENVIRONMENTAL SERVICES: INTEGRATING DOMESTIC CONSIDERATIONS AND WTO NEGOTIATING STRATEGY FOR SUSTAINABLE DEVELOPMENT.

Mario Marconini

INTRODUCTION

The treatment of environmental services, whether in markets or international agreements, has been the object of intense debate around the world. Matters relating to definition, classification, regulation and policy for the sector have been in the agenda of governments and entrepreneurs for some time now. All the same, the more experience public and private sectors accumulate, the more complex becomes the consideration of the issue as new problems seem to require innovative solutions not easily found in existing instruments. Much of the difficulty has to do with the fact that the supply of environmental services spans a vast spectrum of universes: the public and the private, the national and the international, the economic and the social, the political and the contractual. Some issues can be best resolved at the national level while others necessarily point to international solutions.

This paper intends to contribute to the debate by proposing new forms of looking at environmental services in the context of regulation – whether national or international. The focus of the paper is primarily trade and investment related and does not purport to teach environmental truths to environmental experts but rather to put environmental services in perspective in various relevant contexts. To do so, the paper is divided into four main parts addressing, respectively, conceptual issues and the classification debate, the market realities, the national processes, and the treatment of the sector under the WTO.

1. THE FRAMEWORK: CONCEPTUAL ISSUES AND THE CLASSIFICATION DEBATE

According to Fairlie Reinoso (2006), *environmental services* can be placed into two different groupings: (i) "those provided by ecosystems which have the potential to generate human welfare"; and, (ii) "activities carried out in order to regulate or control the impact of human actions over the ecosystems". The first grouping refers, for instance, to ecosystems' capacity for carbon absorption, benefits resulting from ozone layer protection – amongst others (ecosystem services). The second grouping can be understood as a series of activities such as: enforcement of environmental legislation, environmental valuation, contamination protection and control, the provision of environmental resources such as water, recycled material and clean energy, and activities aimed at raising resource and energy-efficiency, raising productivity and allowing sustainable development (environmental services).

Kirkpatrick (2006) highlights three major existing classifications for environmental services: the World Trade Organization (WTO) W/120; the Organisation for Economic Cooperation and Development (OECD)/Eurostat (Statistical Office of the European Communities) and the United Nations Conference on Trade and Development (UNCTAD). Much has been said and discussed regarding the classification of environmental services. The following are the main parameters of the current debate:

- The W/120 classification list, based on the UN's Provisional Central Product Classification, is outdated as the result of "several developments in the characteristic features of the environmental services sector [such as] new regulatory requirements for the emergence of private sector involvement in the supply of environmental services, growing

public sensitivities to environmental problems and the shift in environmental regulatory approaches from 'end of pipe' pollution control to pollution prevention through the adoption of technologies for cleaner production and products" (Kirkpatrick, 2006);

- The main differences between the W/120 and the OECD/Eurostat classification lists are that the latter "includes services provided to measure, prevent, minimise or correct environmental damage to water, air, soil, as well as problems related to waste, noise and eco-systems" (Geloso Grosso, 2006). The classification system thus includes services relating: (i) to pollution management, including those related to the construction and installation of facilities for such purposes; (ii) cleaner technologies and products, and (iii) technologies and products which reduce environmental risk and minimise pollution and resource use; and
- UNCTAD classifies environmental services according to four segments: (i) environmental infrastructure services such as water and waste management; (ii) non-infrastructure and commercial environmental services (for example, site clean up and remediation, cleaning of exhaust gases, noise abatement and nature and landscape protection); (iii) remediation services with environmental end-use (for example, construction or engineering services), and (iv) support services (Vikhlyaev, 2004).

According to Fairlie Reinoso (2006), differences resulting from market structures and behaviour, technological development and regulatory frameworks have led to distinctions amongst the following environmental services: (i) infrastructure environmental services (mainly those related to water and disposal treatment); (ii) commercial environmental services (those that are not infrastructure and that comprise the majority of activities of the 94th Division of CPC), and (iii) related services (those whose "end-use" is environmental).

Infrastructure environmental services exhibit public goods characteristics and are often supplied by the public sector or by innovative public-private arrangements. Commercial environmental services require specialised knowledge, access to technology, capacity-building programmes, and professional qualifications and certification, being provided in an integrated manner. Related services are those that may have as a particular end-use the environment or environmental products, processes or services that are normally applicable to a wide range of sectors, such as professional services, investigation and development, consultancy, and construction related to the environment, amongst others.

The WTO's Committee on Specific Commitments has been revising the existing General Agreement on Trade in Services (GATS) classification of environmental services. Various Members have been submitting proposals, amongst which the European Union's has attracted a considerable level of attention as it attempts a sub-division into seven sub-sectors – namely: (i) water for human use and management of residual water; (ii) management of solid and dangerous disposal; (iii) protection of air and climate; (iv) reestablishment and cleaning of soil and water; (v) reduction of noise and vibrations; (vi) protection of biological diversity and landscape and, (vii) other environmental services and support. According to Kirkpatrick (2006), this new classification, which is clearly based on the OECD/ Eurostat classification, has had strong support from several WTO members, with the significant exception of the first item – water for human use – which many countries do not see as an environmental service *per se*. Geloso (2006) considers the first two categories of the EU/OECD/Eurostat classification "infrastructure environmental services" while the remaining five categories and related services are considered as "non-infrastructural environmental and support services".

2. THE MARKET REALITIES: TRADE AND REGIONAL SUSTAINABLE DEVELOPMENT

Estimates put the environmental industry at over USD600 billion in 2005 – an industry highly dominated by the US, Western Europe and Japan which together account for 84 percent of the global market. While developing Asia accounts for around 6 percent of the global market (USD37.5 billion), Latin America accounts for less than 2.5 percent (OECD, 2001). Within the industry, the services component prevails significantly over the goods component, having accounted in the last few years for over 75 percent of the total market value. The two main services segments around the world are water and wastewater treatment/ management and solid waste management, each respectively accounting for roughly 30 percent and 22 percent of the total environmental market (Sawhney, 2007). Environment services do, therefore, comprise a world industry that is highly concentrated in terms of income levels, regions and activity breakdown.

2.1 Stylised Facts

Studies have pointed to a number of other market realities surrounding environmental services, amongst which are the following *inter alia*:

- Developing countries may have a small part of the current market but they also constitute the greatest growth markets as attested by the enormous inadequacies, inefficiencies and insufficiencies in the provision of environmental services such as clean water, sanitation and waste management;
- Developed countries are already experiencing all the common symptoms of highly mature environmental markets: deceleration of growth, intense competition, increasing consumer sophistication, pressure for fixing prices, consolidation of market shares, less profitability and return, intense merger and acquisition movement;
- Pressures for the opening up of developing country markets are the natural consequence of the maturing of their developed counterparts, as developed countries seek out new opportunities for their environmental firms;
- Developing countries have in any case been net importers of environmental services, equipment and technology, although there have been cases, particularly in Asia, of developing countries that have been able to develop a significant export capability in these items such as the Republic of Korea (hereafter Korea), Chinese Taipei and China (in environmental goods);
- The environmental industry, for a long time a domestic phenomenon, has of recently become a great exporter with the advent of environmental standards, global goals and the overall internationalisation of the industry *via* Foreign Direct Investment (FDI), privatisations, infrastructure development and other reform-type developments; and
- Supply and demand factors have a crucial effect on the development of indigenous environmental industries.

Developing Asia has been somewhat ahead of Latin America in the development of its environmental goods and services. While in Latin America the sector has been treated for the most part as a residual element in economic policy, in some Asian countries policies have been put in place with a view to promoting environment-specific segments and/or sectors. Generally, the crucial factor in the upsurge of a competitive environmental industry in some Asian countries has been first and foremost their success in integrating themselves into the world economy. It is no coincidence that Korea and Chinese Taipei happen to be the most industrialised countries in developing Asia as their export-led development strategy dates back to the 1960s. Their success, however, was made possible by an approach which blended aspects of official support for domestic firms alongside a gradual opening up of the economy. China's current success also follows a similar path, albeit at a rather faster pace than its Asian neighbours.

2.2 Supply and Demand

Around the world, growth in environmental goods and services has been directly related to the new demands of urbanisation, regulatory reform including the environmental sector, and infrastructure development. Demand factors have been crucial in moving the industry forward. Thus, the sheer pollution and the degraded state of the environment create demands for cleaning first and then the prevention of pollution. Environmental regulations have become a reality for both reasons (cleaning and preventing dirtying) and that, in turn, constitutes a major driver of demand for environmental services. Clearly, the world has moved from the initial "cleaning-up" exercise of already existing pollution and degradation to the notion of ensuring that any production or economic activity that takes place does so in a clean manner. In addition, a third level of commitment in that regard involves ensuring that any energy produced is also clean.

Studies have conclusively shown that this evolution towards overall cleanliness has created great demand for environmental goods and services. Industrial polluters have had to focus on cleaning and cleaner production which in turn increased significantly the demand for clean technology as well as recycling services. Whether in Asia or Latin America, any regulatory requirement relating to the environment and to cleanliness, such as the collection and disposal of household wastes, for example, have directly influenced the demand for crucial infrastructural services (solid waste management in this case) (Sawhney, 2007). The degradation of the environment and the ensuing regulation regarding its remediation have been a powerful demand factor as well, as remedial services became highly-needed in the context of land degradation (such as from the discharge of dangerous chemical products in the soil or the simple mining of the land), air and water pollution, etc.

It should be noted that the increasing purchasing power of populations is also a great demand-driver. As it so happens, however, it is highly common in the developing world for populations not to have sufficient purchasing power to ensure a reasonable stream of revenue to firms, state or private, in payment for services rendered. Countries that have fared well in this context have managed to mix policies. Whether the environmental service supplier is public or private, subsidisation schemes may need to be in place to ensure the sustainability of the supplying firm and avoid interruptions or full-fledged cancellations.[1]

Supply side considerations are just as important as their demand counterparts. Government here is a major protagonist as the policy-maker and ultimate investor in environmental services, particularly infrastructural. Just the policy orientation may already go a long way in influencing investment decisions and thus improving the supply situation of a particular country. When government actually invests, however, supply capacity is directly improved. Strong government commitment in both counts has been seen more in developing Asia than in Latin America, with China once again stealing the show. Sawhney (2007) indicates the myriad of measures taken by the Chinese Government with the Ninth and Tenth National Five-Year plan, with environmental expenditure reaching beyond USD80 billion or 1.3 percent of GDP in the 2001-2005 period or 3.6 percent of the total fixed investment in the period.

2.3 Technology Transfer and FDI

On the crucial issue of technology transfer, perhaps the single most important determining element in the capacitating of national industries in the developing world, studies have shown that it can be best achieved, in environmental sectors as in others, commercially rather than "by decree" or by mandatory regulatory requirements. Experience in various Asian countries has demonstrated that the nature of the contract signed between government and the private sector in cases of concessions or BOT projects can be crucial in determining the extent

of the accountability of winning firms. In the case of technology transfer, governments that have been successful in their concession/BOT policies have normally included related obligations in the management lease itself. Experience has shown that attracting world-class players into one's market does not constitute by itself any guarantee that the best technology will indeed be conveyed to the firm and then multiplied economy-wide.

In both developing Asia and Latin America, FDI came in significantly when privatisations were launched and continued to do so under new forms of public-private partnerships such as build-operate-transfer (BOT) and concessions. Much of the experience in the developing world points to the difficulties of attracting investment into essential services such as water or sanitation, despite the extremely high demand for them. Those difficulties can be traced to the risks of unsustainability of operations where revenue streams are irregular (tariff collection) due to the low purchasing power of populations alongside non-existent or precarious supporting social policies such as subsidies. In other words, firms do not want to come in unless they can have it in writing that their share of revenues will be reached. Build-operate-transfer contracts do just that, in a manner which attributes to the private sector the design, construction and operation of, say, a water treatment facility, while the sensitive matters of distribution and tariff collecting remain with local governments.

There have been many problematic cases in Asia with BOT arrangements, however. Sawhney (2007) points to particular cases in India and Malaysia where private companies made profits while state distribution companies faced increasing annual deficits until the situation became unsustainable and contracts had to be ultimately broken. Cases in India demonstrated also the sensitivity of another aspect of FDI and private sector involvement in essential environmental services: the allocation of natural resources among competing uses, such as the use of water in a dry and arid agricultural region as opposed to the need to ultimately ensure the direct consumption by the local population. Competing uses of essential environmental services such as water beg for an integrated approach to environmental planning where ecological elements are just as important as economic feasibility.

Much of the privatisation that took place in Asia did not take place in Latin America for essential services such as water, sewage and sanitation services; while consortia, concessions and other innovative approaches to market opening and the attraction of foreign investors were attempted and met with a reasonable level of success – also a major difference with respect to Latin America. Manila, for example, shares with Paris the rare attribution of having two private consortia operating in water and sewerage services. Clearly, in the swampy dividing line between private and public interest, success or failure may be determined, both in developing Asia as in Latin America, as much by investment appetite as by a good regulatory framework.

In Latin America, FDI in essential environmental services did not fare well and is undergoing a period of review by policy-makers. In addition to specific contractual matters, regulatory ambiguities amongst different levels of government have often kept foreign firms away from the market. In cases where deals were struck, many original agreed conditions had to be revisited once the situation became unsustainable. Unlike developing Asia where the recourse to BOT and concessions became relatively common (48 percent of all public-private projects in 1990-2002 were concessions and 40 percent were BOT), in Latin America there has been a stronger bias in favour of keeping essential services in state-owned hands – which also explains a greater pending towards concessions as opposed to BOTs.

2.4 Export Capacity

The export capacity of developing countries in environmental services hinges directly on the domestic policies aimed at greater capacity and supply as well as the level of integration of the sector with the world economy. It is only through the presence of world-class service providers, technology or products that a country can upgrade its own domestic capacity which, in turn, can eventually be projected beyond national borders in the form of environmental services exports. As a general rule, export capacities in infrastructural environmental services are relatively absent from the developing world as mega-firms from OECD countries have already occupied the niche and have all the characteristics necessary in order to leverage financing, know-how and market penetration. Even there, however, firms from countries and territories such as Korea and Chinese Taipei have been able to climb the value-added ladder and become exporters in infrastructural-related goods and services. This is as a result from both strategic capacitating policies alongside the existence of world-class "end-use" environmental firms in crucial sectors such as construction, engineering and architecture.

The greatest export niche for developing countries continues to be non-infrastructural environmental services, a universe that includes both professional as well as other supporting services. New forms of natural resource use alongside an increasing awareness regarding environmental problems have created a great demand for services that support infrastructural environmental services. The sheer opening up of their economies to infrastructural environmental services has resulted in a great boost in the demand for non-infrastructural services that, increasingly, came to be supplied by local firms – in most cases, small-and-medium-enterprises (SMEs). Environment-related professional services include engineering, testing and analysis, research and development and specialised consultancy. In general, they respond to various types of demands: air and climate protection, restoration and cleaning up of soil and water, noise and vibration reduction, protection of biodiversity and the landscape, among others.

Professional services related to the environment face the same types of barriers as any other professional services: residency and citizenship requirements, temporary visas, and professional qualifications. Although the focus of these measures is on Mode 4, the movement of natural persons, the establishment of a presence overseas may also become an issue thus invoking Mode 3-type of restrictions. Additionally, both Modes 1 and 2 can also be relevant; prohibitions on their supply, for example, can significantly hamper the capacity of professionals from developing countries to supply their services from their own home countries (off shoring or outsourcing from developed countries). It should be noted that even in advanced integration processes such as the Andean Community's restrictions are found on professional services in more than one mode of supply.

Finally, ecotourism services also constitute a major niche for developing countries. Their rich natural endowments, alongside the need to preserve them and the surrounding local cultures give rise to a very special array of services which concomitantly represent a significant economic opportunity for host countries and a reliable instrument with which to stimulate the protection of the ecosystem. The sector does not fit a single definition although the principles that underpin a consistent ecotourism sector are widely known and often include, for example: sensitivity towards nature, contribution to the conservation and maintenance of protected areas and local cultures, minimum impacts on the ecosystem, beneficial to the local populations, raising of awareness in visitors and local populations regarding the importance of conservation, promotion of a sustainable management of tourism in general. (Fairlie, 2006:96).

Although the level of attention to the theme is high and a number of international initiatives have consistently put ecotourism at the centre of the international sustainable development debate, the truth is that countries, whether in developing Asia or Latin America or elsewhere

in the developing world, have not yet been able to focus policies, laws and regulatory frameworks on the elements that need to underpin it. Whenever regulatory frameworks exist, implementation lags behind. Ecotourism, as other environmental services, still lacks the sort of concentration and strategic view that can turn it effectively into a reliable, profitable and sustainable economic and social sector – both nationally and internationally.

3. THE NATIONAL PROCESS: DOMESTIC CONSIDERATIONS AND ENVIRONMENTAL SERVICES

A successful integration into the world economy, in general, and in environmental services, in particular, necessarily hinges on the success or failure of domestic policies affecting the sector. Clearly, environmental services constitute a more complex set of activities than even other services sectors; in addition to bringing together into one context trade and national policy objectives, it also relates to international policy objectives such as the preservation and conservation of the planet. The economic opportunity is immense for environmental services but the balance is very delicate between ensuring profits for suppliers and investors and effectively addressing the pressing issues relating to essential service provision, the protection of the environment and overall sustainable development – particularly for developing countries.

3.1 Assessing the Essential

There are a number of elements and principles that necessarily need to integrate a consistent set of policy measures that provide for a reliable domestic supply and a growing export capacity in environmental services in developing countries. First and foremost, however, these countries need to produce trustworthy assessments of a few crucial aspects of their markets and regulatory frameworks – namely:

- Environmental goods. A clear and detailed assessment of the goods that comprise the national market and the regulatory framework that underlies this market. An assessment of trade flows and competitiveness of the environmental goods production;
- Environmental services. A clear and detailed assessment of the services that comprise the national market and the regulatory framework that underlies this market. Once again, the notion here is to ascertain with some empirical basis the services which are competitive, those that may need some support in order to become competitive and, finally, those that perhaps even with some support may not be viable nationally and may need to focus on policies other than official or other support;
- The environmental goods-services divide. An assessment of what are the dynamic relationships between the environmental goods and services markets. Presumably, a clearer picture of how the two universes relate within the national market will reveal important information regarding technological capabilities and needs alongside bottlenecks or internal obstacles that once eliminated may facilitate the growth of domestic capacities;
- Demand factors. An assessment of the effective demand for environmental services in the national market, particularly taking into account the existing regulatory framework, the effective purchasing power of the population in different areas of the country and the actual state of the environment; and
- Supply factors. An assessment of the effective supply of environmental services and of the potential public and private capacity to generate supply within the medium to long term. This would involve revisiting government policies both as the mastermind and principal investor in some cases. As to private involvement, countries should seek to know their full capacity to provide environmental services (including "end-use" services such as construction, engineering and consulting).

3.2 Five Elements

There are a number of national policies that can be devised for a complex sector such as the environmental services sector, particularly given the wide range of possible policy objectives that can be pursued. These policies need to be mindful of a number of elements that can integrate policies to differing degrees and in different mixes, depending on the objective at hand. In what follows, an attempt is made to focus on the principal elements that should somehow integrate any policy mix that may apply to the sector.

3.2.1 Technological prowess

It is a known fact that developing countries need technology in order to move up the "value-added ladder" in just about any economic activity. This is not any different for environmental services where technology has come to play a crucial role in cleaning and restoring products and processes alongside the prevention of pollution and the degradation of the ecosystem. This is all the more important given that the most pressing demands for environmental services do come from the developing world and countries need increasingly to provide for quick solutions for otherwise destitute environments and populations.

The transfer of technology is, therefore, crucial for developing countries. Countries that have been successful in assimilating technologies in their environmental services world have done so *via* a mixture of partnerships with those that have the technologies (world-class firms) and domestic support policies which multiplied the knowledge transferred by means of the educational system or of specialised institutions. Thus, in addition to learning-by-doing in the market itself, successful governments have come up with strategic plans that aimed to "socialise" know-how and build domestic environmental services capacities.

The main examples that come to mind refer to China and Korea. China has had ambitious technological goals imbedded in its Five-Year Plans, and in a complementary policy to the aggressive promotion of FDI in environmental services since the 1990s (subject to joint venture condition). The Tenth Five-Year Plan for 2001-2005, for example, focused on the development of "small and medium-sized environmental protection enterprises *with technological advantages* that provide large-scale companies and enterprise groups with services that are *new, distinctive, specialised and sophisticated*." (10th 5-Year Plan, emphasis added, also quoted in Sawhney (2007). The language of the plan itself is precise enough to demonstrate the determination and objectivity of the Chinese Government insofar as technology for environmental services is concerned.

Clearly, technology is crucial not only to address domestic deficits in essential infrastructural and other services but also to bring domestic capacities to par with world-class conditions – a *sine qua non* condition for entering world markets.

3.2.2 Financing/subsidies

Government's role as financier or the granter of subsidies is crucial in the environmental services sector for a number of reasons. First and foremost, there is the social question which in the context of environmental services refers to ensuring the provision of essential services such as water to destitute populations. There are, of course, a number of possible considerations regarding the place of the private sector, national or foreign, in the provision of public services but experience has shown that such considerations are secondary to the sustainability of environmental projects – particularly those involving the development of infrastructure.

The fact is that alongside the high demand for essential services often comes a very low purchasing power on the part of affected

populations. Private firms in order to be interested in investing in essential services need to be assured a certain regular stream of revenues – a condition which is normally difficult to meet unless government steps in and finances/ subsidises the consumption of such essential services. Studies have shown conclusively that this is the biggest equation to resolve when attempting to ensure a reliable provision of essential services to destitute populations. Cases in diverse places such as India, Malaysia, Ecuador, Bolivia, Argentina and Brazil have confirmed the difficulties involved in making things work. It should be noted that there is no empirical evidence which shows major differences when the firms involved are state-owned or private, or national or foreign. In Brazil, for example, the question of how to subsidise water and sanitation services which are operated by state (provincial) firms (not private, not foreign) but under municipal jurisdiction is very much present in the national debate.[2]

The second aspect relating to financing/ subsidies has to do with the building-up of domestic capacities in environmental services *per se*. This is where, once again, developing Asia seems to be much more advanced than Latin America – particularly insofar as China, Chinese Taipei and Korea are concerned. These countries have for a long time established financing policies aimed at the development of the domestic environment sector. The Korean government, for example, spent USD3.9 billion on environmental infrastructure construction and management in 1999 which accounted for 55 percent of the country's total environmental expenditure. An environmental fund was established as early as 1983 to encourage investment in pollution abatement. In 1992, a fund was created to encourage the development of Environmentally Sound Technologies (ESTs).

3.2.3 Foreign Direct Investment

As mentioned above, the boom in FDI in both developing Asia and Latin America took place during the 1990s – alongside the privatisation policies that had their heyday then in the developing world. Generally, FDI does not occur much in water distribution services although some countries, such as Indonesia, the Philippines, China, Chile and Argentina, did privatise in these areas and welcomed foreign providers. The experience with privatisations has not been perceived as fully satisfactorily and has indeed varied from country to country. Yet, a number of problems did arise with the involvement of multinational firms which have widely been perceived as sufficient reason for caution in many quarters of the world. In fact, in both developing Asia and Latin America, FDI waned after the 1990's and many analysts attribute that trend to major failures in some environmental services projects.

In most cases, the problem has referred to the "political economy of infrastructure pricing" as Sawhney (2007) puts it. Water and sewerage services have been in many cases cancelled due to difficulties in setting and maintaining water tariffs at "feasible" levels. It should be noted that these types of problems may have less to do with FDI or privatisation than with a lack of objectivity in policy-making. The fact is that poor countries suffer a difficult dilemma; in order to attract world-class investment, governments have to promise things that they may not be able to deliver ultimately to supplying firms. If governments cannot afford to subsidise poor or destitute populations that otherwise cannot pay for essential services, they will ultimately have problems with supplying firms since expected revenue levels will not be generated and contracts will have to be broken. The problem here is not exactly the fact that something was privatised. The problem is that there is a much more serious structural problem with the population's purchasing power which has to be either resolved or attenuated if governments really mean to revamp and overhaul their environmental services sectors.

Much of the FDI that came into developing countries did so *via* privatisations or concessions. Concessions have also been perceived as a reliable means to attract new investment and with it new

technologies. Experience has not always been successful but once again regulatory ambiguities and structural problems relating to the real consumption capacity of segments of a country's population have been mostly to blame – and not necessarily the multinational firms themselves. The same applies to other forms of attracting FDI such as the already mentioned "build-operate-transfer" contracts. Although the firms are not directly involved in collecting dues, governments may eventually run into problems themselves when their financial limits are surpassed and they cannot turn over to the supplying firms their expected (and agreed) revenue levels.

Foreign Direct Investment is an important element in the upgrading of domestic capacities and the fulfilment of a government's duty to provide good quality essential services to a country's population. After all, national investors may not be in a position to bank the high sums involved in large infrastructural projects. Yet, the difficulty will continue to be how to reconcile the need to attract world-class investment with the high cost involved in subsidising poor populations so as to make their consumption a feasible proposition in practice. Governments will need to work on income policies, possibly raising taxes or managing other ways to increase budget outlays in order to address this "market flaw".

Foreign involvement and FDI in essential environmental services can indeed contribute significantly to sustainable development but experience has shown that it does not suffice simply to attract world players into the market. In fact, even when regulatory systems are well in place and there are no significant ambiguities relating to regulatory competences (the case of Chile, for example), the sustainability of projects will hinge directly on realistic market demand projections on the part of interested firms (as opposed to the unrealistic estimates often adopted in order to increase the value of projects) and the existence of feasible funding mechanisms on the part of governments that ensure the purchasing power of populations over a particular period of time. If this ultimate equation is not somehow resolved *ex ante*, chances are problems will arise *ex post* no matter how clear, transparent and predictable are the relevant clauses in the applying regulations or contracts.

3.2.4 Imports

To import "correctly" is a crucial aspect of developing the domestic environmental market and its export capacity. Imports of environmental goods or equipment introduce new environmental technologies into the national economy and the question then becomes how to assimilate and "socialise" them internally. The most successful developing Asian economies, Korea and Chinese Taipei, have been at the forefront of environmental technology liberalisation from the main world providers, the US and Japan, and have done so in a manner which has been very effective in transferring know-how in practice (and not just on paper). They have imported *via* subcontracts with domestic firms and alternated between import-substitution policies and liberalisation; privatisation and liberalisation would normally come along with preferences for domestic "end-use" suppliers such as engineering firms.

Imports are therefore crucial in ensuring greater domestic and export capacity. The main lesson to be learned is that imports, particularly in environmental goods and services, are the most consistent initial step towards sustainable development – and not the opposite. Precipitated import-substitution policies may stifle development by delaying access to indispensable technology.

3.2.5 Small and Medium–Sized Enterprises

Small and Medium Enterprises (SMEs) play an important role in the environmental service markets of developing countries. While infrastructural environmental services require

large-scale investment due to economies of scale, consolidation is taking place world-wide and the trend is for just a small number of big firms to survive and thrive in the near future. Non-infrastructural services, however, where developing countries have the greatest growth and potential, tend to be supplied by small and even micro-firms. Even when developing countries manage to provide end-use or infrastructural environmental services, their firms tend to be smaller than their counterparts from developed countries.

The viability of SMEs is highly sensitive to government policies. Domestic support policies that stimulate the growth of national environmental firms can have a significant impact for the small and medium-sized as has been the case with, for example, the sub-contracting practices of Korean firms alongside government financing of research and development. In fact, small size may be indeed a liability since such firms have a limited ability to engage in Research and Development or develop wide-ranging marketing schemes. In addition, the financing of environmental projects by multilateral financial institutions, whenever not tied to goods and services from donor countries often tend to favour internationally renowned firms – an immediate bias against the SMEs that have a much greater difficulty entering and establishing themselves in international markets.

In Latin America, the involvement of the SMEs in environmental markets is still very incipient, particularly in the absence of a focused effort to include them in these markets. They have been mostly successful in the provision of professional and some "end-use" services. Normally, Latin American SMEs do not have the level of competitiveness necessary in order to participate in the supply of public services. There are cases of success but they tend to be the exception and not the rule, as they often occur as a result of isolated initiatives – such as the case of micro-enterprises in Ecuador, the "*cartoneros*" in Argentina or "*catadores de papel*" in Brazil which have emanated from community efforts, including slums, and organised themselves into suppliers of solid waste management services (paper, plastic and other forms of refuse) – particularly refuse segregation and recycling.

In both developing Asia and Latin America, small suppliers of water services have established themselves in the market – a market which is typically dominated by very large firms around the world. Their service is indeed essential as they supply areas where more formal public utility services are precarious or inexistent. Their firms are actually micro in size, often employing less than 10 people. In many countries, both in developing Asia as in Latin America, such services are essential also in larger cities where water service is less than constant. This is a sector which needs to be promoted and supported as they fulfil a very important demand in countries that otherwise have no other means of securing water services in certain cities, areas or regions.

Ten principles

The experience of developing Asian and Latin American countries in environmental services, albeit relatively short and incipient, has been rich and diversified. Much of it can already be consolidated in guiding principles for the sustainable development of domestic supply and export capacities in environmental services in the developing world. At the risk of over-generalising, the items that follow constitute a set of such "guiding principles" for a consistent national policy relating to the environmental services sector.

Strategic vision

Experience has shown that developing countries that have fared well in the environmental industry were guided by a strategic vision of the sector and its role in overall economic, social and ecological development. In most cases, however, environmental services and policies have not come to be perceived as an integral part of economic planning, often being relegated a residual place in the greater domestic policy scheme. This invariably results in conflicting policies as exemplified within the ecological realm itself by the Chennai case in India where a waste management company dumped refuse in the wetlands, thus polluting crucial regional freshwater resources – all in accordance with contractual provisions. The sustainability

principle was absent from the Indian authorities' decision-making on the case and a clear conflict of purposes was created.

The notion that the domestic environmental industry constitutes a distinct economic sector is also part of a consistent strategic vision. It suffices to say that in the absence of such a notion, policy-making regarding the industry/ sector is bound to be piece-meal and partial since not all relevant elements effectively impinging on sectoral decisions will be taken into account. In other words, the consideration of the industry needs to be as wide-ranging as possible, taking into account all relevant economic, social and ecological aspects – something which can only be achieved when the broader contours of the sector are clarified and adopted.

Integrated approach

The ultimate result of having a coherent strategic vision of the environmental services sector is to have an integrated approach to its institutions, regulations and policies. Thus, if a government has been able to integrate development planning with environmental policies on paper, it should do so in practice by putting the right institutions in place or reforming existing ones, by thinking of a regulatory regime that does not contradict stated objectives and by engaging in policies which then can have a strong institutional, regulatory and philosophical basis.

This integrated approach should extend to a number of relationships: that between services and goods, between services and equipment, between demand and supply - amongst others. Sawhney (2007) points out how different segments of the environmental services sector need to be treated jointly in order to ensure that capacity building efforts are maximised. If the institutions, the regulation or the policies applying to water supply, for example, are not mindful of wastewater and solid waste disposal capacities in a particular "eco-region", problems are bound to arise, including an increase in the cost of supplying drinking water. The ecosystem should be the ultimate criterion in an integrated approach.

Pragmatism

Although there can be generalisations on the basis of acquired experiences around the world, the fact remains that there is no one single way to deal with the complexities and challenges of the environmental services sector. Each country is bound to have a particular set of circumstances, priorities and conditions that bear upon the development of indigenous and/ or export capacities, including natural resource endowments, regulatory frameworks and, even, cultural ways of doing things. The important lesson is that pragmatism may shorten policy "distances" by aiming at quick but sustainable solutions.

If BOT contracts, for example, did not work in developing Asia, one should not quickly jump to a generalised conclusion regarding its uselessness for other regions of the globe. Solutions such as the one sought by Argentina vis-à-vis *Aguas Argentinas* -whereby the government would join forces with the firm and create a mixed company in order to move forward on needed infrastructural investment despite the firm's lack of capacity to honour certain contractual obligations – may be good only for Argentina but should be stimulated if it manages to get the country out of a rut on such a crucial matter.

Creativity

Alongside pragmatism, a touch of creativity may always be welcome in the environmental services sector. The case of the informal, small but highly reliable solid waste management services suppliers in various Latin American countries or the also fairly informal water services (for human use) suppliers in various parts of the developing world should serve as an example of how solutions can somehow find themselves if only creativity is duly permitted. In other words, regulation is necessary but should not be stifling, particularly when effective supply responses are given to effective demand puzzles.

Solutions such as BOT contracts or innovative public-private partnerships should also integrate the role of possible options for policy-making in developing countries. If indigenous productive

or financial sectors cannot provide the level of investment necessary for essential projects, ways should be found to facilitate involvement from overseas investors, financiers or firms. There may be additional room for contracts to be more responsive to some of the encountered problems in the field. Perhaps the contracts will not solve, for example, the purchasing power problem of the poor but new ways of avoiding a full severance of contracts should always be welcomed.

Equity

Equity considerations are crucial in the environmental services sector. Access to essential services such as piped water for large sections of often poor and destitute populations, for example, is an objective primarily guided by equity, as opposed to efficiency, considerations. Even when economic efficiency is not attainable in such cases, equity still has to be served – which is what makes the environmental services sector so particular in its nature. Ideally, both efficiency and equity have to be served concomitantly; the risk of rupture in contracts and service supply is all the higher the less well resolved is the relation between these two concepts. Countries may therefore be advised to focus on equity objectives and apply specific measures that fulfil them.

A very common problem in developing countries has been with regard to water services and the continued lack of sufficient revenues to ensure the sustainability of investment in the area. Private firms have come and gone; often, they improved on efficiency, but were absent on equity. It is up to governments, however, to define the policy and regulatory framework under which these firms operate and the division of labour between public authorities and private operators. Governments are ultimately responsible for ensuring that essential services get to the poor and, therefore, that the poor can pay for these services. The way to do that is both by subsidising that level of consumption or by negotiating with interested firms certain basic conditions at the time of entry into the market. These include, for example, price ceilings for consumers, reinvestment shares in infrastructure, local content, technology transfer or cooperation, amongst others.

Regulatory comprehensiveness

The complexity of the environmental services sector requires that the approach to regulation be all the more objective and clear in order to avoid sub-optimal results or even outright conflicts amongst interested parties. From an efficiency standpoint, regulation needs to ensure that policies and projects are implemented in reasonable time frames, that both government and the private sector know exactly their parts when joining forces and that all parties involved know who the effective regulatory authorities on environmental matters are and what the equally effective means are to solving disputes in a particular market.

Efficiency, therefore, calls for clarity on regulatory and judicial bodies, on their relationships to existing ministries or other relevant executive agencies, on the overall linkages amongst various levels of government that may have jurisdiction over environmental services, activities or projects. A very common type of problem in the developing world (not exclusively there, however) refers to the "division of regulation" amongst federal or central, state and municipal entities. Fairlie (2006) points out that environmental services are often under decentralised regimes where municipalities have the attribution to grant concessions while central governments retain a number of regulatory prerogatives *via* national regulatory agencies. Functions and responsibilities become blurred across the State, creating conflicts amongst the various government bodies which ultimately become conflicts between private and public interests.

From an equity standpoint, regulation needs to be equally clear and objective.

Experience has shown in both Latin America and Asia that if equity considerations are absent from regulation (or policy for that matter), the chances of ruptures, interruptions, and outright conflicts, including by means of popular

mobilisations and protest, are considerably high. Built-in recognition of the need to address social and environmental aspects of any related economic activity is, in that sense, an imperative. Countries have to be able to resort to "mitigating" mechanisms that safeguard the public interest (Kirkpatrick, 2006) in order to avoid radical solutions to otherwise avoidable problems. The implication for the undertaking of international liberalisation commitments is clear: extreme caution should be exercised, unless mechanisms are devised, also at that level, in order to allow for mitigating measures whenever necessary (see section on emergency safeguard measures below).

Optimal policy mix

Experience has shown around the developing world (and elsewhere) that there is careful balance to be struck when the matter is defining policies for the environmental services sector. Perhaps more than your "average" services sector, an optimal policy mix for the environmental services sector involves great objectivity and clarity on matters, which though possibly contradictory in principle, often prove to be complementary in nature. Asia has a lot of lessons in this respect. The success of countries such as Korea, Chinese Taipei and China attest to the need to combine both import-substitution with liberalisation or private involvement with a considerable involvement from the public sector both as regulator as well as entrepreneur and partner. The secret is not in adopting one or the other side of an often binomial spectrum, but in reconciling aspects of both sides into a policy mix that does justice to each country's domestic capacities.

"Going private" has definitely not been the ultimate solution to Latin America's or Asia's environmental problems. Scrapping private involvement altogether, on the other hand, has not been an intelligent alternative either since governments continue to be unable to do everything by themselves – particularly as demands, both economic and social in nature, tend to grow beyond public means. Countries need to be mindful of the need to know their own conditions, before adopting textbook solutions or imported models into their domestic markets. Private investment can contribute only up to a point; if appropriate social policies on the part of government are lacking, then there can be no insurance of the purchasing power of the poor and destitute masses.

Industrial approach

A corollary of placing the environmental services sector within an "integrated framework", while having the vision to discern the sector as a "distinct economic sector" in economic and other policy, is to establish its own "industrial" regime; "industrial" here is to be interpreted loosely as an overall regime for the environmental sector as a whole. Once again, the need to look at environmental services alongside goods is imperative in order to avoid contradictions and conflicts. Countries should look at the sector as they do any other when promoting industrial policies. An integrated approach, alongside a comprehensive regulatory regime, both underpinned by a strategic vision of the importance of the sector, should result in sectoral policies aimed at developing the environment as an economic industry. Caution here, however, is imperative as well. Countries that have been successful in taking on the sector as an industry have also been mindful of the environment itself.

Adequate sequencing

There should be sequencing in policies within the environmental services sector. In addition, there should also be sequencing between domestic policies and international commitments such as those being negotiated under the WTO. Ideally, countries should first find their way in the complex maze of institutions, regulations and policies relating to the environmental services sector before committing on anything at all at the WTO. There will be areas where commitments may make immediate sense (some Mode 3 in certain technologically-driven segments, for example) while there will be areas worth pursuing an aggressive market-opening position (related professional services).

Most of the difficult questions will be in the relationship between legitimate economic goals vs. equally legitimate social and environmental concerns. The GATS is not clear on the status of a number of measures that a country may make use of domestically – whether such measures are under the "hard-core" obligations of the agreement and/or require "negotiated specification" under schedules of commitments. Experience has shown that much is still happening on the ground on these matters and that countries may be well advised to take their time and go through a little more before committing.

Another level of the sequencing debate refers to regional initiatives. Countries may want to resort to regional integration as a laboratory on matters as complex as the environmental services sector before committing multilaterally – i.e., vis-à-vis the whole world. On matters such as professional services or ecotourism, for example, developing countries could test the waters (no pun intended with some of the delicate services involved in the environmental services sector) amongst themselves before involving much more well-structured partners from the developed world. Fairlie (2006) suggests also that where progress has been achieved regionally, as has been the case within the Andean Community, efforts should be made by member countries to turn their successful experiences into international examples that may somehow contribute to the on-going rule-making process both at the national and international level.

International proactiveness

The participation of developing countries in global environmental initiatives has been crucial in influencing domestic regulatory and policy moves by governments. The exposure to global environmental issues and to multilateral solutions has added a great deal of substance to policy and decision-makers, triggering domestic overhauls and revamps of existing regulatory regimes and new approaches to national environmental institutions and strategies. Presence in all related international fora is, therefore, an integral part of any successful regulatory or policy approach to the environmental services sector.

4. WTO: STRATEGIES, INSTRUMENTS AND AUTONOMOUS LIBERALISATION

This section of the paper is relatively ambitious. After all, what is attempted here is to take all the particularities of the environmental services sector that have been reviewed here and elsewhere and place them in a WTO context. As the General Agreement on Trade in Services, the GATS, is the principal multilateral instrument governing trade in services, it will necessarily be the focus of the analysis. The section is divided into three main parts: strategies, instruments and autonomous liberalisation. The part on strategies refers to the most salient aspects of the GATS and the current Doha negotiations that impinge on environmental services. The part on instruments provides insights on how to reconcile the specificities of the sector with GATS "saliences" *via* provisions in the agreement itself, in annexes, understandings or schedules. The final part on autonomous liberalisation provides some parameters on the always difficult question of acknowledging independent market openings in a GATS context.

This section should be seen, therefore, as a hypothetical exercise: that of proposing a form of effectively "including" the environmental services sector into the GATS irrespective of already known difficulties in the negotiating process. Ultimately, an implicit message here is that the sector may be just too important to remain a hostage to the horse-trading typical of trade negotiations. Part of the solution, therefore, may be to succeed in distancing it from hard bargaining and adopting a more focused approach to the sector.

4.1 Strategies

Classification issues

There is a strong consensus regarding the fact that the WTO's W/120 is an inadequate and insufficient classification list for environmental services. The narrowness of the WTO's "sectoral list" is evident in the way it covers only end-of-pipe services and does not cover pollution prevention or sustainable resource management. According to Vikhlyaev (2004), the list also touches only on services supplied in operation and not on services that render facilities operable, not capturing services provided directly to industry. OECD studies have consistently pointed out that classification issues have become all the more complicated for environmental services with the advent of new regulatory regimes that straddle the public-private divide, the increasing public awareness regarding environmental problems and the shift from pollution control to pollution prevention (OECD, 2000). A number of directives may be relevant in settling classification-related issues regarding environmental services – amongst which *inter alia*:

Effective market and regulatory realities. Whatever classification list is to be adopted for environmental services, it has to be reflective of actual structure and state of the industry. Clearly, all three main elements of the environmental services sector should be included – namely, pollution control, pollution prevention and sustainable resource management. Generally, the division amongst infrastructural, commercial and support environmental services may come in handy;

Water distribution sensitivities. The most delicate aspect of all proposals made in the negotiations so far refers to the inclusion of water for human use and wastewater (i.e., water distribution). As there is no consensus whatsoever on this, some considering potable water only as an exhaustible resource, others considering water distribution as a goods-related activity and others yet discarding water distribution as an environmental service altogether, negotiators may do best to leave this item as at least an optional item in whatever classification emanates from the deliberations. In market access negotiations, for example, countries could choose whether to include it or not in any list of environmental services being offered;

Intersectoral services. The intention of W/120 drafters was to provide an indicative list of sectors and to avoid overlapping – i.e., to provide a list where each included item could only appear under one particular heading, sector or sub-sector. This mutually exclusivity across activities poses some intriguing problems for the environmental services sector which is "by definition" a hodgepodge of services and technologies alongside products and processes – depending on the cluster or package being offered in the market. The notion of "bypassing" the W/120 when focusing on market access and resorting to "clusters" of services relevant to a particular environmental purpose is, therefore, welcome;

Positive listing. A cluster approach may be inconvenient for countries that do not feel ready to accept commitments on a full range of services. Thus, it may be important to preserve the letter and spirit of the GATS in this respect and permit countries to resort to positive listing when negotiating such clusters – i.e., a cluster could function as a "reference list" for negotiations (and not necessarily as *the* classification list) and countries should be able to pick and choose (and negotiate) their commitments in accordance with national priorities. At least a cluster would be a step forward in focusing the attention of negotiators on synergistic relationships and linkages amongst the variety of services that may somehow integrate the environmental services sector; and

A balance of interests. Any revision of the existing classification of environmental services under the GATS should be mindful of the need to provide for a balance between sectors, sub-sectors or activities or interest to both developed and developing countries. The EU proposal, in that regard, is overly biased in favour of OECD

countries as it does not contain sub-sectors of effective potential export interest on the part of developing countries. One way to move towards a more favourable balance in the classification may be *via* cross-references to sectors, sub-sectors or activities found elsewhere in the list. Professional services of various types, for example, could be of interest to developing countries within the context of environmental services. The other option is, of course, to make sure that these activities are included in the negotiations – whether by themselves or in the context of, for example, a cluster of environmental services.

Domestic regulation

Many authors have characterised Article VI of the GATS on domestic regulation as perhaps the weakest of all central provisions under the agreement. After all, they say, the article is vague regarding "measures of general application" and only calls for future definitive disciplines on qualification requirements and procedures, technical standards and licensing requirements while setting some also vague parameters until those disciplines are actually negotiated. In addition, the preamble of the GATS recognizes the right of Members to regulate and introduce new regulations in order to meet national policy objectives but these objectives are clearly not consensual amongst those members. Finally, the "exercise of governmental authority", which supposedly exempts certain publicly- provided services from obligations, is nowhere clearly defined either.

Yet, the importance of domestic regulation and its relation to market liberalisation is undisputed. For example, if a certain infrastructural environmental service is a public monopoly, it may be outside the scope of the agreement. If, however, the market for that service is open to competition, it would promptly be subject to GATS provisions, particularly those that touch on market access, national treatment and domestic regulation. In addition, if that particular infrastructural environmental service happens to be an essential service such as water for human use, issues of equity and efficiency are bound to "clash" at some level as the economics of the matter may not be fully compatible with related welfare and social objectives. An agreement that privileges one aspect over the other (equity vs. efficiency) is unbalanced by definition. The GATS, however, seeks first and foremost progressive liberalisation: thus, the conflict finds in the environmental services sector one of its most explicit battlegrounds.

The fact that the GATS does not give definitive guidance on domestic regulation may, however, not constitute necessarily a problem for the environmental services sector. As the sector is highly complex in its definition, its objectives, and its regulatory situation across countries, the existing ambiguity may effectively provide for sufficient leeway for governments to decide for themselves on related measures and policies. Indeed, ambiguity might have been the ultimate intention of GATS' drafters as it still is amongst an important group of countries in the Working Party on Domestic Regulation (WPDR) who tend to oppose proposals that aim to define, delineate, circumscribe or make explicit some crucial aspects of Article VI. For example, the possibility of an illustrative, non-exhaustive listing of legitimate objectives has been adamantly opposed by some while the notion of a necessity test for domestic measures that affect trade in services has met with strong objections from countries of "various persuasions" in the negotiations.[3]

Despite known difficulties, negotiators should not lose sight of the fact that the environmental services sector is perhaps the most "qualified" candidate of all sectors for greater specificity and clarity on aims, objectives, procedures and criteria. It so happens, after all, that the sector has been the object of an important number of multilateral agreements (MEAs) and historical conferences that have, as a result, helped the world focus on many global policy objectives. The systemic nature of the sector in principle should justify a greater degree of boldness on the part of both reluctant sides of the debate: those that fear an increase in protectionism on one hand, and those that fear a loss of sovereignty on the other. Perhaps a review of already internationally agreed objectives may help in this context.

As far as specific elements of the negotiations on domestic regulations are concerned, the following elements may be relevant:

Applicability. As the relationship of GATS' domestic regulation provision and environmental services is still "young" and could still benefit from more experience and precedent, it may be better to avoid pressing for new disciplines on Article VI that go beyond the original GATS trait of applying general obligations only to scheduled commitments – and not to all services sectors and modes irrespective of commitments made;

Horizontal *vs*. Sectoral disciplines. Although horizontal disciplines may indeed capture some of the main issues revolving around environmental services, there may be a need for sectoral disciplines that go deeper into the specificities of the sector. Clearly, this will hinge on a more lucid and broader definition of the environmental services sector itself but various aspects differentiate it from others: the public-private divide, the systemic implications (systemic here in terms of the ecosystem and not only of the world trading system), the human-public-trade spectrum – amongst others.

Necessity test. There is a necessity test built in Article VI but it refers to a transitional phase – the period during which "necessary disciplines" are not yet established. The notion that requirements, in the meantime, cannot be "more burdensome than necessary to ensure the quality of the service"[16] functions as a provisional necessity test that in principle prohibits domestic legislation that do not comply with the stated obligation. The central question here is the criteria against which the "necessity" will be tested. In the case of environmental services, it should be whether measures ensure not only the quality of the service but also the pursuit of certain environmental and social objectives (universal access to essential services, for example); and

Transparency. In environmental services, as in any other service, the notion that lack of transparency may itself be seen as a restriction on trade is valid. Transparency regarding qualification requirements, for example, is imperative in order to ensure that all providers, national and foreign, operate in conditions that are not "unnecessarily" restrictive. The main sensitive issue here is *ex ante* transparency – i.e., transparency even before a particular measure effectively exists. The notions of "prior comment" or "prior publication" attempt to ensure that governments reveal the content of proposed regulation for comment prior to actually applying it. This should be seen as too intrusive and be avoided in the negotiations. As Abugattas (2006) points out, a necessity test of sorts might be indeed a good idea in this connection: "a case would need to be made that the absence of prior comment or prior publication effectively restricts trade beyond what is necessary."

Emergency safeguard measures

The negotiations on a possible Emergency Safeguard Measure (ESM) mechanism have taken place since the end of the Uruguay Round and have since missed their original deadline of 1997 as well as various others subsequently. There is no current applicable deadline as such, although it is hoped there will be at the end of the Doha Development Agenda (DDA). An agreement is highly unlikely by the end of the Round, however as there is so far very little consensus on most of the issues on the negotiating table. Currently, the negotiations have no technical basis on which to develop, nor the political will to advance on the basis of the diversity of elements already at hand.

Countries against any type of safeguard mechanism in services have as their main concern the fact that such a mechanism could add "excessive" flexibility to an already highly flexible agreement. If the level of liberalisation commitments continues to be relatively low 11 years into the WTO's history, what is to be thought of commitments that leave open the door to "backtracking", through the application of emergency safeguard measures during import surges? These arguments clearly clash with those from the other side of the spectrum. For some countries, after all, a safeguard mechanism may

actually provide the means to justify further liberalisation at home since reluctant sectors would feel that they have some corrective tool in case things go wrong after opening up. The objective of safeguard measures is sometimes misconstrued but it ultimately should be read like this: to provide a means to deflate opposition to liberalisation while *perhaps* making use of the opportunity to place affected industries on the path of restructuring.

Even if an ESM mechanism were not feasible or desirable[5] for all services sectors, the environmental services sector undoubtedly has strong reasons of its own to justify forms of safeguarding itself against unforeseen developments deriving from services liberalisation. As seen before in this study, experience shows that the opening up to investment or trade flows can indeed result in unexpected situations ("unforeseen developments") which, effectively, may require an interruption in the market opening process. A discussion on safeguards normally include matters such as the definition of the domestic industry, the applicable measures or the issue of compensation once a measure is applied, In addition, in the case of environmental services, an ESM mechanism should be especially mindful of the indicators and criteria to be applied when determining the need of a safeguard measure.

Clearly, public interest issues such as consumer satisfaction tend to be much more readily relevant to services transactions – that often depend on direct client/supplier contact – than to goods production. In services, it would be more difficult not to take a number of non-trade-related factors into consideration when determining the applicability of an ESM, given, therefore, their nature and the nature of their commercialisation. In environmental services where the protection of the planet and its inhabitants is in order, safeguards should be permitted also for an array of environmentally-related reasons. In cases such as Chennai in India, mentioned previously in this and other studies, governments should in practice abide by specific contractual obligations negotiated with private suppliers and run the course of any particular problem that arises – such as the overall unsustainability of the project and the need to ultimately break contracts. In the presence of such cases in the real world, the Indian government should have the right to revise its policy orientation and suspend or modify temporarily any related commitments at the WTO. The Indian government should be able to apply a safeguard measure in case it had, for example, committed in its schedule to FDI with no market access or national treatment limitations. As to the applicable measure, India should be able to suspend the FDI regime it had in place for the environmental services sector or to limit the scope of its benefits to foreign service suppliers.

Subsidies

The role of subsidies in environmental services is crucial. As in many sectors, subsidies here may be applied in order to improve domestic and export capacities. Perhaps with a greater emphasis than in other service sectors, in environmental services economic/development objectives may constitute as strong a reason to subsidise as objectives of a social and ecological *per se* nature. In environmental services, the cross between the economic and the social/ecological would seem to be finer than in a number of other service sectors. In infrastructural environmental services, for example, the notion of subsidizing the construction of structures may not make ultimate sense in the absence of a subsidy scheme for rendering the supply of the final environmental service possible and sustainable. In other words, building infrastructure may be a vain exercise if the final related service – for example, water supply – is not somehow subsidised with a view to ensuring a consistent and predictable flow of revenues. In developing countries where big chunks of the population are destitute and poor, subsidies are more than necessary in order to ensure a minimum purchasing power overall.

For developing countries, the trick will be to fight to keep the right to subsidise whether for economic, social or environmental reasons while combating a similar right – or degrees of that right - on the part of developed countries. Developing countries need to develop, increase

their domestic service capacities and improve their export competitiveness while at the same time ensuring that services, particularly those that tend to be public such as the environmental, are reliable, universal and cost-effective.

All of these aspects may involve subsidies at some level. If these countries do things right, as has been the notable case in environmental services with Korea and Chinese Taipei, domestic environmental service suppliers will inevitably climb the value-added chain and enter international markets. At that glorious moment – when developing country service suppliers finally see the light at the end of the trade in services tunnel, comparative and competitive advantages should be able to play their hand freely, without "artificial" barriers in the principal world markets. This is where developed country subsidies come in: if some sort of understanding is not in place regarding ceilings, freezes and phasing-outs of official support by rich countries, by the time many a developing country muster the edge to enter international markets, the situation may already be beyond remedies or corrections.

Once again, if there is a sector that should be the object of an understanding on subsidies, the environmental services sector could clearly be it. The reality of environmental national and global policy objectives would seem to warrant some sort of arrangement that could ensure economic, social and ecological sustainability while at the same time recognising existing asymmetries in world markets and the need to foster domestic capacities in developing countries. The possibility of a "green box" approach, whereby subsidies would be non-actionable if only directly linked to concrete and clearly defined national policy objectives, is attractive for the environmental services sector. In order to avoid abuses, a two-pronged necessity test would also have to be built into any such scheme: (1) whether a certain subsidy is indeed necessary to achieve a certain national policy objective; and, (2) whether that subsidy is indeed the least trade-restrictive measure available to achieve that national policy objective.

For the time being, as negotiations on service subsidies remain on the backburner, perhaps the best approach is to look inward, define the adequate and feasible domestic approach to subsidies in services in general and environmental services in particular, and be careful when scheduling commitments in the meantime. Discriminatory subsidies go against the letter and spirit of the national treatment principle and would be best scheduled. Even when non-discriminatory within a particular domestic market, however, subsidies may still "modify conditions of competition in favour of services or services suppliers of the Member"; in this case, suppliers under Modes 3 and 4 will have an advantage vis-à-vis suppliers under Modes 1 and 2. The complexity of the issue and the sluggishness of the negotiations warrant great caution when negotiating and an efficient use of the time towards consistent and sustainable domestic subsidy policies.

Government procurement

This is another theme, which despite an obligation to negotiate imbedded in the GATS itself, has not yet become the object of any discipline under the agreement. Negotiations have been taking place since the end of the Uruguay Round but the only provisions relating to government procurement that affect services in the WTO remain those under the plurilateral "Government Procurement Agreement ". For most members, therefore, particularly developing countries, their procurement practices continue to be free from any multilateral rule or principle. Yet, this has not translated into a full *carte blanche* for policies that somehow involve the public and private sector. Experience has shown that new forms of doing business, drafting contracts and establishing public-private relationships in the services field in general, and environmental services in particular, bring with them new issues that touch in any case on crucial aspects of procurement as it has been traditionally known.

The relevance of government procurement for environmental services is significant, particularly insofar as infrastructure is concerned. After all, these services involve a considerable share

of construction and engineering alongside other services that are typically purchased by governments. As it so happens, however, the building of structures, in the case of the environmental industry, is just a part of the overall package since these structures are normally erected with a view to making feasible the provision of other services – such as the supply of water. This combination of services is what makes the environmental industry relatively difficult to "fit" into a traditional procurement context.

Governments often grant concessions to private firms for the provision of environmental services. A typical example is the 30-year concession that the Argentinean Government granted in 1995 to a consortium between the French *Compagnie Générale des Eaux* and a national company. In such arrangements, the government is not actually buying the services and, therefore, is not "procuring" as such (Cossy, 2005). All the same, concessions have been the object of much discussion at the WTO. As it stands, countries do best including measures affecting concessions in their schedule since such measures would indeed seem to affect the provision of services by foreign suppliers – i.e., they are not "exempt" from market access or national treatment obligations as the case is with government procurement.

The case of the so-called public-private partnerships (PPPs) is also relevant in the present context as it involves a set of "mixed" conditions – some relating to procurement *per se*, other relating to concession-type arrangements. PPPs came about in the last 10 to 15 years as an alternative to traditional public procurement in times of mounting public debt levels. The objective was to stimulate private investment in infrastructure in a way that could improve the allocation of risk while leaving to government the ultimate responsibility for essential aspects of services supplied. In some cases, governments provide capital for the initial investment while in others the private sector has to come up with the initial capital on the understanding that the government will pay for services supplied at a later stage.

Build-operate-transfer (BOT) projects have been a very common form of PPPs around the world. BOTs clearly combine aspects of procurement with aspects of concessions (Grosso, 2006) since they normally involve private firms for the building of new facilities and other environmental services – such as the sale of water either to a public water company or directly to consumers. While the building element involves a procurement relationship, subsequent services will be supplied under a concession-type regime run by the government. Once again, the specificity of BOTs should warrant some caution when scheduling commitments since, contrary to typical government procurement, they are not exempt from liberalising obligations under the GATS.

4.2 Instruments

During the Uruguay Round, an important part of the negotiations was the determination of whether certain sectors had enough "specificity" to warrant sector-specific provisions – whether in the form of an annex, an understanding, a reference paper, etc. As it turned out, some sectors did indeed require separate instruments although in no case did additional sectoral provisions replace the core principles of the framework agreement. All specific instruments were complementary to the general provisions embodied in the GATS. Yet, in some cases more than others, the added clarifications and precisions on matters such as definitions, classifications, prudential regulation, access to distribution networks or the core principles of the agreement, made the overall package more workable and less vague, while recognising the significance of certain elements of each of the sectors involved.

If the same approach were adopted today as it was during the Uruguay Round, the environmental services sector would be candidate number one for a sectoral instrument of some kind. After all, even more so than any other service sector, the environmental services sector is difficult to delineate, define and classify. It is governed by

a considerable set of national policy objectives, ranging from public-private partnerships to universal access to essential services for destitute populations. More than any other service sector, it responds also to global policy objectives of a highly systemic nature and in that respect holds the key to a win-win solution on development and environmental grounds.

As there are a number of questions relating to environmental services, a good solution might be to go for a single instrument that treats the sector in an all-embracing manner as opposed to various "pieces" of disciplines scattered across the agreement. As the sector itself is dispersed across a number of very heterogeneous activities, an instrument that reflected a concise logic across all its constituent parts should go a long way in ensuring that liberalisation and policy-making in the sector were mutually reinforcing. The strongest argument against any separate and specific instrument for environmental services is not the lack of specificity in the sector but the risk of making things even more complicated with it than without it. Also, negotiations involve trade-offs across sectors, issues, commitments and provisions. In that sense, the introduction of any new instrument, whether, general or specific, optional or compulsory, is bound to be difficult regardless of the merits of the questions involved.

A sectoral annex

This approach would follow in the steps of the other existing sectoral annexes in the GATS. It would comprise a set of provisions that would complement and clarify framework provisions by addressing specificities of the environmental services sector. As existing annexes, an annex on environmental services should be of general application, thus applying to all members, and avoid any language that was unnecessary or that could be construed to imply additional access or treatment obligations to those embodied in Articles XVI and XVII. In other words, the annex should not alter the balance of rights and obligations already implicit in current GATS provisions but simply do justice to the specificities of a sector which since the advent of the general agreement itself has evolved enormously both in commercial, social and political terms.

The heightened awareness of environmental problems in general, and some of the specific problems encountered within the environmental services sector in particular, could warrant the effort of putting into one place issues of "general interest" that could do away with certain apprehensions regarding the relationship between trade and environmental services. One of the advantages of doing so would be to focus on the sector as a whole and provide a balanced instrument as opposed to a patchwork of specific elements dispersed around the agreement. A balance could also be achieved in an annex between "protectionist" versus "legitimate" elements of the environmental services debate. An interest in ensuring a classification that reflected sectors of export interest to developing countries, for example, and a provision on equity aspects of FDI in the sector could ensure that Mode 3 liberalisation was treated with the necessary flexibility.

An optional document

Another form of recognising unique features of the sector and perhaps going a little beyond just clarifications on framework provisions would be the negotiation of an "understanding" or a reference paper on environmental services in much the same way as it was done for financial and telecommunication services, respectively, during the Uruguay Round. At the time, a group of countries deemed that it was in their interest to seek a higher or broader level of liberalisation commitments through the acceptance of a common document that willing countries would attach, individually, to their schedule of specific commitments.

An optional document such as an understanding or a reference paper has the advantage of permitting willing countries to move forward on some issues while leaving it up to hesitant countries to observe, consider and eventually adopt the same approach at their own time. Such a document could do much to codify some aspects of the debate and move towards

common solutions. For example, certain notions on domestic regulation, such as aspects of a necessity test for the application of measures, could perhaps be agreed and applied by a group of countries. It could, therefore, be more ambitious in some aspects than GATS provisions but always as an option – not an obligation. The only downside might be, however, that as an attachable document to schedules, it would still be subject to bilateral negotiations and depend on the bargaining power of each individual member proposing it.

Schedule-based clarifications

Countries always have the option of including clarifications in their own individual schedules. The difference with the previous approach is that certain entries in schedules may be more difficult to negotiate than if they are a part of a document commonly-agreed by a group of countries. In other words, individual scheduling may only go so far in "innovating" on matters relating to environmental services since it ultimately hinges on the bargaining power of individual countries. A particular country may have strong views on the need for environmental safeguards but may run into difficulties introducing a related reference to them in its own schedule during the negotiations if it does not have enough "clout" to have them accepted by its trading partners.

4.3 Autonomous vs. GATS–Driven Liberalisation

The last couple of decades have witnessed a true transformation in economic relations around the world. Services have spearheaded liberalisation efforts by welcoming trade and foreign direct investment into national markets in an unprecedented manner. Even traditional justifications for the regulation of services such as natural monopolies were questioned and replaced in many cases by new and more flexible forms of structuring markets – such as privatisation, concessions, and procurement, amongst others. The environmental services sector also followed that trend, particularly insofar as essential infrastructural services are concerned – an area which until then had been the clear domain of government, both as owner as well as service supplier. In large measure driven by new global initiatives that influenced national regulatory reforms, the sector has been at the forefront of both market and efficiency-seeking moves. Much of the innovation in the sector has another crucial contribution to overall policy-making: the aim to reconcile economic, social and environmental objectives through sophisticated policy and regulatory mixes.

Trade liberalisation, privatisations, public service concessions, non-discriminatory public procurement and a very positive climate for foreign direct investment constitute important "unilateral concessions" on the part of developing countries – the main protagonists in the reality-changing restructuring in the last decades in services. The autonomous introduction of pollution control and prevention alongside policies that aim at sustainable resource management are also to their credit as they influence not only the immediate environmental sector but also, most importantly, the environment *per se*. For environmental services, the notion of credit for autonomous liberalisation should go farther than the "usual" parameters (sectoral coverage, share of the sector in total trade, etc.) to include social and environmental criteria. After all, this is already recognised internationally: the Kyoto Protocol recognises the value of credits, "carbon credits", which developing countries (Non-Annex 1 countries) receive in exchange for the implementation of projects which reduce emissions of Global Greenhouse Gases. There should be no reason why this logic could not somehow be reflected at the WTO as well.

Given the complexity of the environmental services sector and the overall environmental industry (both goods and services), the reluctance with which countries avoid commitments at the WTO is comprehensible. Experience has shown in both Asia and Latin America – to mention just two regions of the world – that policies adopted

in environmental services have been through a significant stop-and-go process. New approaches to public services and the involvement of the private sector have in many cases proven to be inadequate to secure the fulfilment of primordial objectives such as universality of access to essential services or the sustainability principle. Trade liberalisation *per se* in many cases has not contributed to technological advancement since the policy and regulatory framework did not promote national private sector involvement or entrepreneurial alliances or cooperation with world-class firms. The jury is also still out on the different types of contracts and relationships between the public and private sectors in crucial areas such as infrastructural environmental services.

Autonomous liberalisation should be seen as a necessary step for countries that can see the need to internationalise their environmental market but are not sure of how to go about it. Countries should go through their own trial-and-error processes before adopting definitive policy and regulatory frameworks for their environmental industry – whether in goods or services. Even more importantly, only once the contours of such a policy and regulatory framework are reasonably clear should countries commit internationally *via* undertakings which lock in place the specific measures that underpin such a framework. As countries are still trying their hand at best practices in the environmental sector, they need the flexibility with which to move both back and forth on the policy spectrum. International binding commitments may indeed curtail the necessary leeway that governments need in order to try and err (or succeed, for that matter). Policy space here may be more meaningful than in other sectors given the direct link environmental services have not only to economic efficiency but also to sustainable development. An integrated approach to sustainable development should be the aim of all economic activity. In the environmental industry that aim is doubly important since sustainable development is nothing less than its *raison d'être*.

Although there is some value in committing internationally for transparency, predictability and consistency reasons, GATS-driven liberalisation can only be second-best to a reliable, clear and well-organised domestic strategy for the environmental sector, which in the course of a reasonable period clarifies national apprehensions and stiffens the resolve to revamp and reform. It is up to each country to decide when the time is ripe for committing. Also, it is up to each country to determine whether there are aspects touching on environmental matters which may be the object of international commitments even in the absence of a full-fledged policy and regulatory construct for the sector. The important thing here is to be mindful of the fact that solutions cannot be generalised for all countries and that one country's experience can only be *one*, and not *the*, reference for another's reform. Determining what a country wants for itself in environmental goods and services is urgent. Committing internationally, particularly when so many crucial issues are still unresolved at that level, is not.

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ENDNOTES

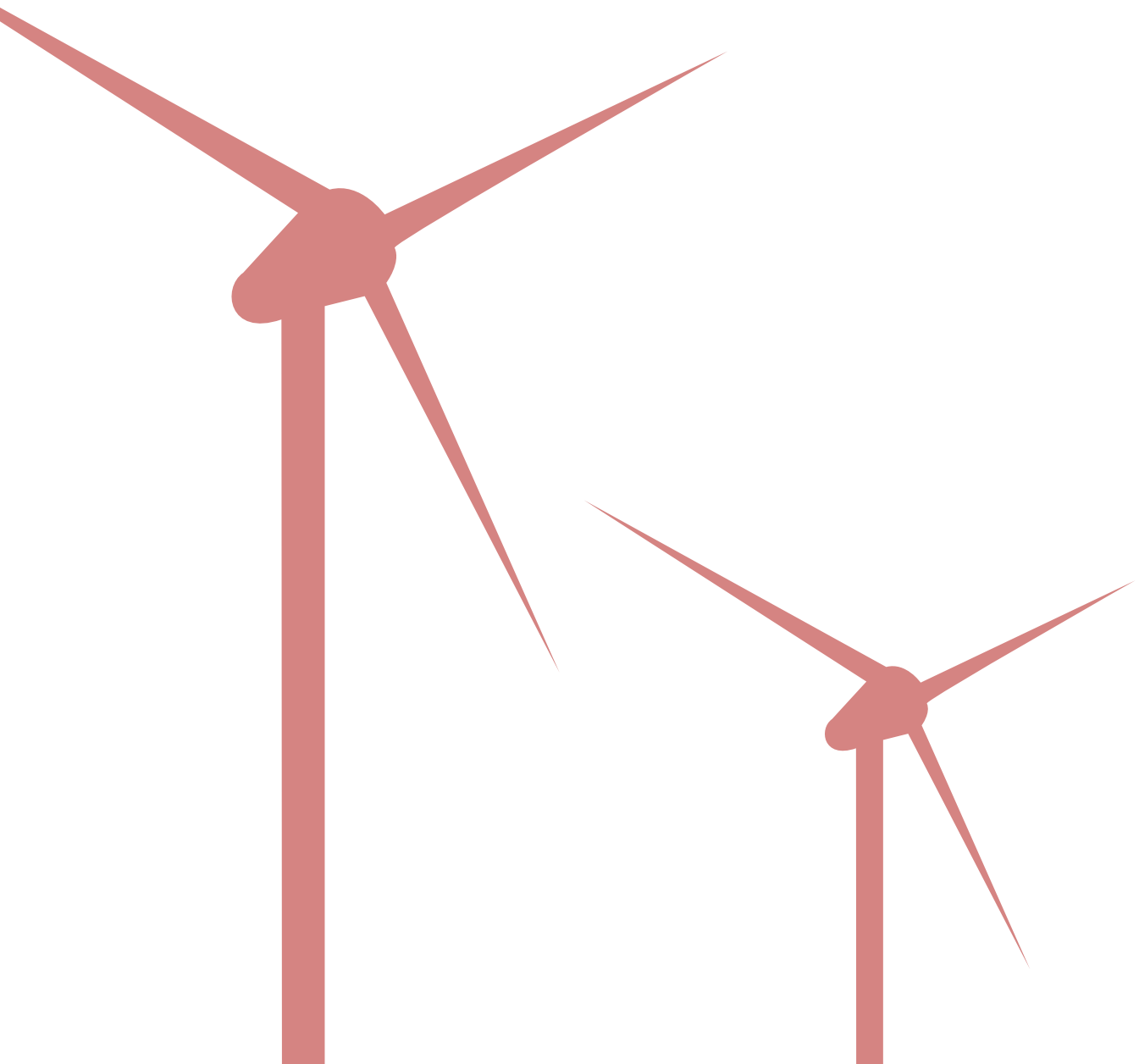
1 Memorable cases include the cancellation of the lease granted originally to Aguas del Tunari, a subsidiary of Bechtel Corporation (US), in Cochabamba, Bolivia in 1999 and of the lease granted to the French multinational Lyonnaise des Eaux also in Bolivia (in the cities of El Alto and La Paz) in 2005.

2 A study by IPEA (2004) argues in favour of direct subsidies (as opposed to cross-subsidies) being given to relevant populations with a view to improving their consumption of essential water and sanitation services.

3 Brazil and the US are both opposed to any necessity test being applied to domestic regulations.

4 GATS, Article VI:4(b)

5 See Marconini (2003) for a full consideration of an ESM mechanism in GATS and the problems encountered in the related negotiations.



APPENDIX I: ASSESSING THE SUSTAINABLE DEVELOPMENT IMPACTS OF EGS TRADE LIBERALISATION– THE COUNTRY PERSPECTIVE

Enrique Lendo

At the beginning of the current millennium, the concept of environmental goods and services (EGS) was addressed directly and indirectly in diverse international fora, notably the Millennium Declaration, the Monterrey Consensus, the World Trade Organisation (WTO) Doha Ministerial Declaration, and the World Summit on Sustainable Development (WSSD) Plan of Implementation. These varied commitments all support the liberalisation and market expansion of the EGS sector as a strategy worth exploring to support the pursuit of sustainable development.

However, implementing such a strategy poses major challenges. Sustainable development is a complex concept. Different definitions and interpretations have been proposed over the last two decades -- both by the international community and by nation states. Governments have been implementing the principles of sustainable development at different speeds according to their particular needs and circumstances. Moreover, despite some attempts undertaken in recent years, the international community has yet to reach a consensus on suitable approaches to defining and classifying the EGS market.

1. SUSTAINABILITY IMPACT ASSESSMENT OF TRADE IN EGS FOR INDIVIDUAL COUNTRIES (SIAIC)

Trade liberalisation and free market economic policies undertaken across the world in the second half of the 20th century promised increases in welfare, efficiency gains, economic growth and poverty alleviation. However, the actual gains from these policies have varied across and within nations. For this reason, interest in assessing the impacts from trade liberalisation has gained momentum in the last years, stimulating the design of different assessment methodologies.

In the area of sustainable development, there is a wide range of methodologies for assessing the impacts of trade measures (Kirkpatrick et al., 1999). *Economic assessments* have used both *ex-ante* and *ex-post* time-frames and are based on general equilibrium and regression models. Both approaches can assist in identifying broad relationships between trade policies and economic performance, but do not easily capture variations in individual country conditions and experiences, which are better addressed by case studies. *Environmental assessments* have used a variety of methods including forecasting models, scenario analysis and case studies. *Social assessments* have relied both on qualitative assessment and quantitative modelling. Lately, a few methodologies for *integrated assessment* of economic, social and environmental variables have also been developed, notably by international organisations.

The most appropriate methodology will vary with the measures being considered, the impacts being assessed and the purpose of the assessment exercise (Kirkpatrick, et al., 1999). In terms of the Doha mandate on environmental goods and services a likely approach would be to assess *ex ante* the sustainable development impacts from different definition/classification approaches. This process could be *bottom to top* or from *top to bottom*. A ***bottom to top*** approach would entail individual WTO members performing their assessment processes at the national level based on their own sustainable development standards. The results from these assessments would support the decisions regarding the lists of good or services commitments that countries would submit in the framework of WTO negotiations. In a ***top to bottom*** process, WTO members as a group would perform such assessment based on global standards sustainable development standards.

So far, a few *ex-ante* impact assessment studies of the Doha round have been carried out[1]. Some of these studies focus on global impacts and others on specific sectors. In most cases, the impact assessment methodologies from such studies use global standards to set the baselines (*top to bottom* approaches). While the literature does not report many studies regarding sustainable development impacts from the liberalisation of EGS for individual countries, some *top to bottom* approaches are useful to develop assessment methodologies for individual countries.

Suitably adapted versions of two methodologies -- the first developed by Kirkpatrick, Lee and Morrissey (Kirkpatrick et al., 1999) and the second by Bisset, Flint, Kirkpatrick, Mitlin and Westlake (Bisset et al., 2003) -- are useful to assess the sustainable development impacts of EGS trade liberalisation at the individual country level (*bottom top* approach). More specifically, a combination of these methodologies can be used to compare the sustainable development gains from liberalising trade in EGS under two (or more) alternative definition/classification approaches. This new methodological approach will be known here as *Sustainability Impact Assessment of Trade in EGS for Individual Countries (SIAIC)*.

As in the case of Kirkpatrick's and Bisset's approaches, SIAIC is a qualitative methodology not based on actual or revealed data or econometric modelling, but rather on a hypothetical process logically linking liberalisation in environmental goods and services under alternative definitions of EGS and a number of national sustainable development standards impacted by the liberalisation process. It is worth noting that most quantitative methodologies in this area are still being developed and they are not robust enough to generate consensus for their use - neither by the international trade community nor by national environmental authorities in most developing countries.

The SIAIC methodology differs from Kirkpatrick's and Bisset's in two ways. First, it seeks to assess the general sustainable development impacts from comparable EGS definition/classification approaches, as opposed to specific EGS categories under a single definition/classification. Second, it addresses the sustainable development impacts for the specific case of an individual country in light of its sustainable development standards (e.g. goals, strategies, programmes) as opposed to broader goals, either defined by international instruments or the literature. The impacts - based on the individual country's own sustainable development standards - can be assessed against two (or more) comparable definition/classification approaches of environmental goods and services.

2. DEFINING AND CLASSIFYING EGS FOR TRADE LIBERALISATION PURPOSES

The WTO Doha Declaration does not define or propose a classification for the EGS sector. In terms of selecting the most suitable definition/classification approach, individual countries have at least three options. First, they can propose their own approach. Second, they can support the proposal from other WTO members that meets their interest. Third, they can support definition/classification approaches developed outside the WTO (e.g. other international forums). Combinations of the three above-mentioned options are also possible.

In practice, post-Doha negotiations on this topic have been based both on documents submitted by WTO members (mainly developed countries) and on the work developed in other forums. Among the latter, the definitions and classifications proposed by the Organisation for Economic Co-operation and Development (OECD), the Asia-Pacific Economic Cooperation Mechanism (APEC) and, more recently, the United Nations Conference on Trade and Development (UNCTAD) stand out.

The debate around the adoption of EGS definitions and classifications for trade purposes tends to converge on the idea that the OECD/APEC proposals do not present a "one size fits all" solution. One argument central to this idea is that most of the EGS included in these lists are

support goods and services, either for pollution control or for natural resource management, as opposed to products and services derived from sustainable activities. Another argument is that most of the EGS from the OECD/APEC lists rely on capital-intensive technological solutions to environmental problems, and represent a comparative advantage for developed countries in the international trade context. Moreover, some of the categories and sub-categories from these classifications are not sufficiently disaggregated in areas in which developing countries could obtain the largest gains from trade liberalisation. This is the case for the Resource Management Group of the OECD classification[2]. One further argument is that developing countries' regulatory and institutional frameworks are not solid enough to engage in a trade liberalisation process under the OECD/APEC lists. This is particularly true in countries where the majority of environmental services are still provided by the government.

Despite the fact that the proposals on the table do not seem to completely meet the interests of developing countries, these countries have not been very active in proposing their own definition/classification approaches. This is probably related to capacity issues. Environmental policy in general and, more specifically, the market for EGS are relatively new in developing countries and there is uncertainty regarding the potential benefits from increasing trade flows in this sector. In general, there is lack of statistical data related to the environmental industry such as the size and the structure of the markets as well as international trade flows of EGS. There is also lack of technical and financial capacities for environmental policy design and enforcement which limits the development potential of the industry. In this context, it is not surprising that environmental authorities from many developing countries have not been able to provide the necessary technical support to trade authorities in terms of *possibilities* and *benefits* while trade authorities have not been able to foresee the potential trade gains associated with the liberalisation process.

When selecting a definition/classification approach for EGS liberalisation at the WTO, it is important to keep in mind the broader objective of paragraph 31 (iii) of the Doha Ministerial Declaration. The spirit of this paragraph according to its *heading* is to enhance the mutual supportiveness of trade and environment.

More generally, paragraph 6 of the same mandate reaffirms the WTO commitment to the objective of sustainable development, as stated in the Preamble to the Marrakesh Agreement. In this regard, it is not too ambitious to expect that the outcomes from negotiations under this paragraph should bring benefits beyond increasing exports for a handful of developed countries. If defined properly, EGS liberalisation could imply export opportunities for developing countries as well as certain benefits in the environmental and social dimensions of sustainable development.

Taking broader objectives into consideration (e.g. economic, environmental and social), WTO members do not need to reinvent the wheel when defining/classifying EGS for trade liberalisation purposes. Instead, they could build on definitions available from other forums or even on definitions proposed by members when these are solid and comprehensive enough to accommodate the three dimensions of sustainable development. For instance, the OECD definition/classification might not be perfect, but it can certainly be adapted to meet the sustainable development interest of many WTO members. The same is true of the APEC approach and other approaches presented by WTO members.

From the individual country perspective, there are different ways to adapt baseline definition/classification approaches of EGS depending on the characteristics and negotiation goals of each country. For instance, the OECD definition/classification approach could be adapted to accommodate the EGS of sustainable development interest to the individual country. For illustrative purposes, Box 1 below includes a proposal to adapt the OECD definition/classification of EGS in order to facilitate the incorporation of goods and services of sustainable development interest to some developing countries. While Groups A (Pollution management) and B (Cleaner Technologies and Products) remain unchanged,

given the fact that they do not present significant export potential for developing countries[6], the definitions of some categories included in Group C (Resource Management) could be modified to incorporate Environmentally Preferable Products (EPPs).

Box 1. Amendment Proposals to the Original OECD/EUROSTAT Classification to Facilitate the Incorporation of EGS Broadly Defined (amendment proposals are underlined)

A. POLLUTION MANAGEMENT GROUP

Environmental equipment and specific materials

III. Environmental services

B. CLEANER TECHNOLOGIES AND PRODUCTS GROUP

C. RESOURCE MANAGEMENT GROUP

Indoor air pollution control
Potable water treatment and distribution
Water supply and sustainable water management
Recycled material
Renewable energy
Heat/energy saving and management
Sustainable agriculture and fisheries

This category includes any activity that produces equipment, technology or specific materials; or designs, constructs or installs, manages or provides other services for systems that reduce the environmental impact of agriculture and fisheries activities. It includes biotechnology applied to agriculture and fisheries activities. In addition, this category embraces products derived from sustainable agriculture and livestock management and the fisheries industry, including ecological farming[3] and conservation agriculture.[4]

Sustainable forestry

This category includes any activity that produces equipment, technology, or specific materials; or designs, constructs or installs, manages or provides other services for programmes and projects for reforestation and forest management on a long-term sustainable basis. It also includes wood species extracted using sustainable management practices from virgin or forested and reforested plantations for marketing purposes as wood by-products or raw materials.

Sustainable biodiversity and landscape

This category includes all biological materials (excluding wood products) extracted in a sustainable manner from natural ecosystems for human use, including individual members of species, resins (rubber, latex, chicle), ornamental plants, wildlife (products and live animals), and raw materials such as bamboo, natural fibres, rattan and bromeliads.[5] It also includes the provision of services for the conservation and sustainable management of biological diversity and landscape and the management and surveillance of parks and natural protected areas.

Natural risk management
Sustainable tourism and eco-tourism

This category includes any activity that designs, constructs, installs, manages or provides other services for tourism that involves the protection and management of natural and cultural heritage or education about the natural environment, and that do not damage or degrade the natural environment. It also includes the provision of different tourism infrastructure and services following environmental and sustainable development criteria.

Source: Lendo, E. (2005) Defining Environmental Goods and Services: A Case Study of Mexico (detailed study) ICTSD.

This implies that the original OECD categories, primarily comprising inputs into activities such as sustainable agriculture and tourism, could be supplemented by outputs deriving from such activities. Thus, for example, the "sustainable agriculture and fisheries" category under the OECD definition includes any activity that produces equipment, technology or specific materials; or designs, constructs or installs, manages or provides other services for systems that reduce the environmental impact of agriculture and fisheries activities and biotechnology applied to agriculture and fisheries activities. Products under a broader definition could include, for example, organic fruit or fish caught through sustainable practices[7].

Under a broad definition/classification approach for EGS, the potential for positive impacts on the economic and social dimensions of sustainable development for some developing countries could increase substantially. Data from field studies suggest that in many cases EPPs are labour intensive and their production/provision processes take place in low-income areas, including indigenous communities. Moreover, data on trade flows indicate that some developing countries are already net exporters in those sectors. Hence, trade liberalisation at the multilateral level has the potential to increase their market penetration into a wide range of countries (Lendo, 2005).

3. PRELIMINARY SUSTAINABILITY IMPACT ASSESSMENT OF EGS–TRADE LIBERALISATION

A comprehensive discussion of a sustainability impact analysis for two comparable definition/classification approaches of EGS goes beyond the scope of this paper. However, for purposes of policy guidance, it is possible to present the main components of the SIAIC methodology. Such methodology comprises two steps:

I. A *causal chain analysis* that provides the context or setting for the potential impact analysis by showing the logical cause-and-effect interplay among various variables that lead to different sustainable development outcomes.

II. A potential impact analysis that estimates the number of individual country sustainable development standards that are impacted by liberalisation under both "traditional" and "broad" EGS definitions and the likely direction of such impacts.

Diagram 1 below includes the main components of a causal chain analysis for an individual country. The trade policy change under consideration is Paragraph 31(iii) of the Doha Ministerial Declaration, which instructs WTO Members to reduce tariff and non-tariff trade barriers to EGS. The direct goal of that mandate is to enhance the mutual supportiveness of trade and environment and the likely indirect goal is to reaffirm the WTO's commitment to sustainable development, pursuant to the preamble of the Doha Declaration. By lowering prices of environmental goods and services through the reduction/elimination of tariff and non-tariff barriers, WTO members seek both to enhance environmental quality in their countries and to create new business opportunities (market expansion in the EGS sector). The analysis could be applied under two potential EGS definitions, i.e. baseline and broad.

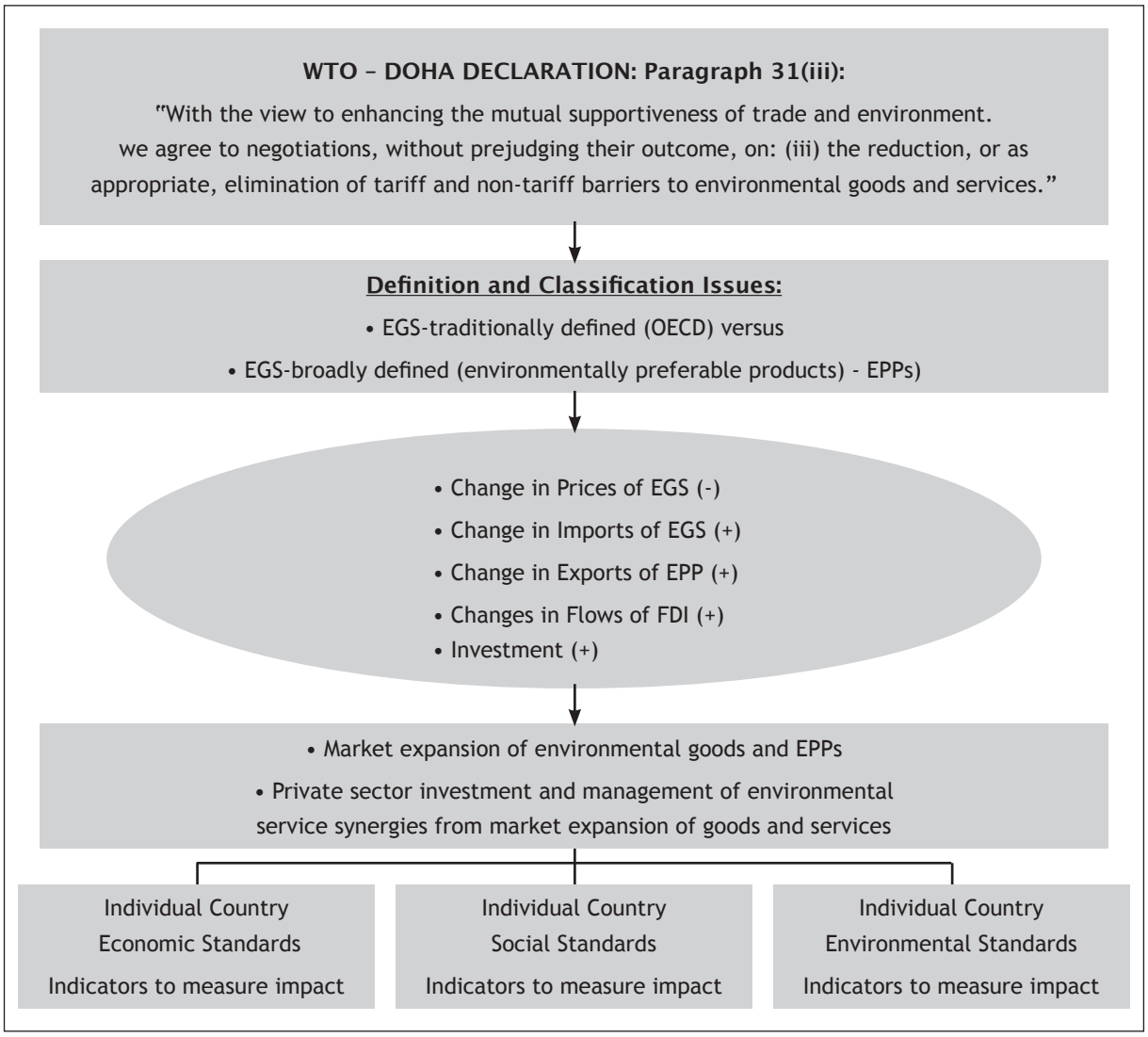
Under the baseline (OECD) definition/classification of EGS, a reduction in tariffs will increase exports of countries with a comparative advantage in the production of environmental quality support goods and the provision of high-skill support services (mainly developed countries) and increase imports for countries without such a comparative advantage (mainly developing countries). In this regard, gains for developing countries will be associated with the reduction of compliance costs with environmental regulations and other environmental quality initiatives.

Opportunities to realize economies of scale and the effects of increased competition on efficiency can be expected to lead to welfare gains. Advanced know-how and environmental technologies will become more readily available, since trade in services and capital goods are an

effective channel for transferring technology. Government institutions at the federal, state and local levels in charge of environmental policy are likely to have a wider range of options (and prices) of goods and services to choose from in order to meet their policy goals with potential efficiency gains in their budgets. Likewise, private companies and individuals will be faced with more options and lower prices in order to comply with environmental regulations. Private participation in the provision of certain services will be needed and reinforced by the liberalisation process. Of course, this price differential rests on the assumption that EGS are liberalised first.

In sum, the net benefit for developing countries from the EGS liberalisation under the traditional definition will centre on the environmental dimension of sustainable development. A broadly defined list of EGS, on the other hand, will permit the inclusion of goods and services of export interest to developing countries. For instance, some developing countries have a comparative advantage in the production and provision of goods and services derived from sustainable agriculture and fisheries, sustainable forest management, biodiversity and sustainable tourism activities. In addition to the typical environmental and potential social gains from the traditionally defined list, the broadly defined approach that considers EPPs should enhance benefits to the economic and social dimensions of sustainable development. Markets for EPPs should expand with direct, positive impacts on equity, regional development, poverty and employment, among other variables.

Figure 1. Causal Chain Analysis Applied Under Two Comparable EGS Definitions



Potential impact analysis

Potential Impact Analysis estimates the likely direction of impacts for each category of EGS under the traditional and the broad definition/classification approaches in relation to the individual country's own sustainable development standards. Depending on the individual country's public policy characteristics, these standards might be contained in national development plans, regional development strategies, sectoral programmes, state (provincial) or local public policy instruments, among others. Most developing countries (and many developed countries) have not advanced in the integration of national sustainable development strategies, so it is likely that baseline indicators as well as the guiding principles, goals and objectives in which to base the EGS liberalisation assessment exercise will need to be derived from sectoral economic, social and environmental policies.

After selecting the proper sustainable development standards for the individual country, an exercise to assess the potential impact on each of these standards by the policy change (tariff reduction/elimination of EGS and EPPs) can be undertaken. The degree of detail in this exercise will depend on the individual country's capacity and availability of information. One option is to assess the potential impact of each good and service subject to liberalisation against each economic, social and environmental standard from the country in question. Then, weighted averages of potentially positive impacts could be derived. Once the definition/classification approach is broadened to accommodate goods and services of export interest to the individual country, the exercise could be undertaken again in order to compare the baseline and adapted definition/classification approaches.

Then, the weighted average of positive potential impacts could be calculated for each of the dimensions of sustainable development. An impact potential (IP) index is derived by adding the weighted average of likely positive impacts from the trade policy change in relation to the economic, social and environmental standards of the individual country. The sum of potential impacts from these dimensions equals the sustainable development impact potential (SDIP).

SDIP = EIP + SIP + EVIP

Where,

IP = Impact Potential
SD = Sustainable Development
E = Economic
S = Social
EV = Environmental

Finally, the net gain from the definition/classification approach change is calculated by subtracting the weighted averages of potential impacts for each dimension of sustainable development under the traditional definition from the same figures under the broad definition. This exercise could be undertaken both for the total list of EGS (e.g. weighted average of groups A, B and C in the OECD approach) or for a group/category of that list (e.g., only group C in the OECD approach).

The above methodology has been applied for the case of Mexico using the OECD definition/classification approach as baseline (traditional definition) and the sustainable development goals and strategies contained in the country's National Development Plan[8]. Liberalisation, under the traditional definition of EGS that includes only environmental-quality support goods and services (EQSGS), still produces benefits in the form of positive impacts on Mexico's sustainable development goals and strategies.

However, the SIAIC as applied to Mexico showed that, by broadening the OECD definition/classification approach to include EPPs of trade interest to that country, the impact potential on the country's sustainable development strategies and goals increases significantly. This is most evident in Group C (resource management), where the impact potential increases by 10 percent for sustainable development goals and 87 percent for sustainable development strategies. Overall, the impact of broadening the EGS definition is greatest with regard to the social goals and social strategies (Lendo, 2005).

4. ENHANCING AND FLANKING MEASURES

While the overall sustainable development gains of a broader EGS definition/classification approach seem quite clear, there are, however, challenges associated with turning such impact potential into actual gains. In this regard, enhancing and flanking measures will play a major role. Some of these measures could include:

- The use of flexible and integrated instruments for environmental protection;
- The strengthening of regulatory capacity, both for environmental enforcement and for addressing private sector participation;
- The adjustment of EGS lists/liberalisation commitments to match national sustainable development goals;
- The adoption of WTO-compatible limitations and safeguards in the liberalisation commitments, particularly in environmental services;
- The sequencing of the liberalisation process to address sustainable development considerations;
- The use of complementary measures to foster foreign direct investment (FDI);
- The design of policy instruments to address the impacts on labour from liberalisation of the EGS sector and specific social impacts of waste management services;
- The application of multilaterally agreed labelling and certification schemes to facilitate the consideration of EPPs in the liberalisation process; and
- The elaboration of comprehensive (beyond the environmental mandate) negotiating strategies to overcome barriers associated with a truly sustainable-development-driven liberalisation process.

ENDNOTES

1 See, for example, Polanski S. (2006) and Anderson K. et al. (2006).

2 In 1999, the OECD, in collaboration with the Statistical Office of the European Communities (Eurostat), developed a manual for the EGS industry, which included a definition, classification and list of goods based on the Harmonised System of Classification (HS Codes). This manual represents one of the first attempts to define and classify the industry at the international level. The classification developed by the OECD is divided into three groups of EGS: A) Pollution Management; B) Cleaner Technologies and Products; and C) Resource Management.

3 Holistic management systems are designed to enhance biodiversity, biological cycles and the biological activity of soil. This type of agricultural production is based on reduced use of inputs and the exclusion of chemical synthesis.

4 Conservation agriculture enhances the efficient use of natural resources through an integrated use of land, water and biological resources combined with external inputs (FAO, 2002).

5 According to the guidelines for assessing the management of non-timber forest products (NTFP) in natural forests developed by the Rainforest Alliance in 1989, this category could be further classified into four groups: Exuded: Resins, latex, rubber, colours and pigments for industrial and non-industrial use in the food, cosmetics and pharmaceutical industries; Vegetative structures: Plant parts, such as stems, leaves and roots used in the pharmaceutical and food industries as raw materials for handicrafts and ornament, as well as construction materials; Reproductive parts: Vegetal parts, such as nuts, fruits and seeds commonly used in the pharmaceutical, cosmetics, food and vegetal oil industries; and Wildlife: Includes live animals and products derived from direct extraction of wildlife (pets, feathers, collection articles, etc.).

6 For developing countries, most of the gains from liberalising EGS under groups A and B of the OECD definition/classification would be in the environmental dimension of sustainable development. Some of these gains could include price reduction and access to a wider range of EGS options, technology transfer, decreasing environmental cost and increasing environmental compliance in these countries.

7 See Lendo, E. (2005). Defining Environmental Goods and Services: A Case Study of Mexico (detailed study). ICTSD. Examples of potential goods and services to be incorporated under these new and modified categories, as well as the conditions and criteria for their incorporation, are presented in Annex I of the detailed study.

8 For detailed results and methodology of Mexico's case study see Lendo, E. (2005). Defining Environmental Goods and Services: A Case Study of Mexico. ICTSD.

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APPENDIX II: ICTSD ACTIVITIES AND OUTPUTS FORMING THE BASIS OF THE EGS POLICY DISCUSSION PAPER

Outlined below are some of the key crosscutting and regional dialogues and outputs (papers) that have contributed in a significant manner to the substance and architecture of this compendium. The relevant web-links on ICTSD's website for each dialogue and output are also provided. Online information regarding the EGS project and an 'EGS Resources' database created as part of ICTSD Trade and Environment Web-portal including EGS Project-related Dialogues and Outputs is accessible at http://www.trade-environment.org/page/ictsd/projects/egs_desc.htm

Papers

Cross-cutting Papers

- *GATS, Water Services and Policy Options*, by Michelle Swenarchuk (Canadian Environmental Law Association) accessible at X:\dlogue\2004-04-22\Gats and water Swchk.pdf
- *Options for the Liberalising Trade in Environmental Goods in the Doha Round*, by Robert Howse and Petrus van Bork accessible at http://www.ictsd.org/pubs/ictsd_series/env/EGSHowse_Bork.pdf
- *Trade in Environmental Services: Assessing the Implications for Developing Countries in the GATS, by* Professor Colin Kirkpatrick accessible at http://www.ictsd.org/pubs/ictsd_series/env/EGSKirkpatrick.pdf
- *Technology Transfer Issues in Environmental Goods and Services: An Illustrative Analysis of Sectors Relevant to Air-pollution and Renewable Energy,* by Lynn Mytelka accessible at http://www.ictsd.org/pubs/ictsd_series/env/2007-04-L.Mytelka.pdf
- *Regulatory Principles for Environmental Services and the GATS*, by Massimo Geloso Grosso accessible at http://www.ictsd.org/issarea/services/products/ICTSDGeloso-Grosso_Eng.pdf
- The Environmental Goods Industry: Options to Categorise Environmental Goods for WTO Negotiations, by Alistair Fulton accessible at http://www.ictsd.org/dlogue/2006-10-12/2006-10-12-Fulton2.pdf
- *The Environmental Goods Industry: Lessons in Creation of Supply-Side Capacity in Developing Countries*, by Alistair Fulton accessible at http://www.ictsd.org

Regional Papers-Latin America

- *Defining Environmental Goods and Services and their Trade and Sustainable Development Implications: a Case Study of Mexico*, by Enrique Lendo. Executive Summary accessible at http://www.ictsd.org/pubs/ictsd_series/env/EGSLendo_ExecSummary.pdf Full Study accessible at http://www.ictsd.org/pubs/ictsd_series/env/EGSLendo_FullStudy.pdf and Annexes accessible at http://www.ictsd.org/pubs/ictsd_series/env/EGSLendo_FullStudy_Annexes.pdf
- *Hacia Una Lista Potencial de Bienes Ambientales Para Sudamérica:Criterios Para Una Perspectiva De Desarrollo[1] Sostenible*, by Jaime García accessible at X:\pubs\ictsd_series\env\JaimeGarcia_South America_EG.pdf
- Una Aproximación A Las Negociaciones Comerciales Sobre Servicios Ambientales, by Alan Fairlie Reinoso accesible at X:\pubs\ictsd_series\env\EGSFairlie.pdf
- *Towards Commercial Liberalization of Environmental Goods in South America – The Argentine Case What can the Expected Impact of Trade Negotiations be Like?*, by Mauricio López Dardaine accessible (with case reports and data sheets) at http://www.ictsd.org/dlogue/2006-10-12/2006-10-12-Lopez.pdf

Regional Papers-Asia

- *Environmental Goods and Asia - Draft Background Paper for Discussion,* by Robert Hamwey accessible at http://www.ictsd.org/dlogue/2006-03-02/Hamwey.pdf
- *An Overview of Key Markets, Tariffs and Non-tariff Measures on AsianExports of Select Environmental Goods*, by Rokiah Alavi accessible at http://www.trade-environment.org
- *Building Supply Capacity for Environmental Services in Asia:The Role of Domestic and Trade Policies,* by Aparna Sawhney accessible at http://www.trade-environment.org
- *WTO Negotiating Strategy on Environmental Goods and Services for Asian Developing Countries,* by Vicente Paolo Yu accessible at http://www.ictsd.org/pubs/ictsd_series/env/2007-04-V.Yu.pdf

Regional Papers-Africa

- *Environmental Goods and Services:The Reality and the Potential for Africa*, by Alistair Fulton accessible at http://www.ictsd.org/dlogue/2006-10-12/2006-10-12-Fulton.pdf

Dialogues

Cross-cutting Dialogues

- *Ensuring Access to Water and Sanitation - The Trade Dimension*-Side-event on Water and Sanitation organised by ICTSD and the World Conservation Union (IUCN) in collaboration with North American Commission for Environmental Cooperation (CEC) at the -New York, United States, 22 April 2004. Details of the session can be accessed at http://www.ictsd.org/dlogue/2004-04-22/22-04-04-prog.htm
- *Identifying Environmental Goods of Export Interest to Developing Countries: Options and Legal Implications*-Informal Lunch Discussion with Robert Howse, Geneva, Switzerland, 13 June 2005. Accessible at http://www.ictsd.org/dlogue/2005-06-13/2005-06-13-desc.htm
- *Trade in Environmental Services: Assessing the Implications for Developing Countries in the GATS*-Informal Lunch Discussion with Colin Kirkpatrick, Geneva, Switzerland, 10 November 2005. Accessible at http://www.ictsd.org/dlogue/2005-11-10/2005-11-10-desc.htm
- *Environmental Technologies, Sustainable Development and WTO Negotiations*- Informal Lunch Discussion with Lynn Mytelka, Geneva, Switzerland, 6 June 2006. Accessible at http://www.ictsd.org/dlogue/2006-06-06/2006-06-06-desc.htm
- *Delivering on Sustainable Development in the Environmental Goods and Services Negotiations*-An ICTSD informal Roundtable, Geneva, Switzerland, 13 October. Accessible at http://www.ictsd.org/dlogue/2006-10-12/2006-10-12-desc.htm

Regional Dialogues-South America

- *Dialogo Regional Sudamericano Sobre Bienes Y Servicios Ambientales*-Organised by ICTSD and Agenda Colombia, Caratagena de Indias, Colombia, 1-2 June 2005. Accessible at http://www.ictsd.org/dlogue/2005-06-01/2005-06-01_desc.htm
- *Taller Nacional sobre Comercio y Ambiente: Negociaciones en Bienes y Servicios Ambientales en el Contexto Multilateral y Regional*-Organised by ICTSD, UNCTAD, MICIP, UNEP y Ministerio del Ambiente, Quito, Ecuador, 17-18 July 2006. Accessible at http://www.ictsd.org/dlogue/2006-07-18/2006-07-18-desc.htm

Regional Dialogues-Asia

- *Asia Regional Dialogue on Environmental Goods and Services*--Organised by ICTSD and Philippine Institute for Development Studies, Boracay Island, Aklan Province, The Philippines, 2-3 March 2006. Accessible at http://www.ictsd.org/dlogue/2006-03-02/2006-03-02-desc.htm

SELECTED ICTSD ISSUE PAPERS

Agricultural Trade and Sustainable Development

Trade and Sustainable Land Management in Drylands.
Selected Issue Briefs, 2007.

A Comparison of the Barriers Faced by Latin American and ACP Countries' Exports of Tropical Products.
Issue Paper No. 9 by Jean-Christophe Bureau, Anne-Celia Disdier and Priscila Ramos, 2007.

South-South Trade in Special Products.
Issue Paper No. 8 by Christopher Stevens, Jane Kennan and Mareike Meyn, 2007.

The ACP Experience of Preference Erosion in the Banana and Sugar Sectors: Possible Policy Responses to Assist in Adjusting to Trade Changes.
Issue Paper No. 7 by Paul Goodison, 2007.

Competitiveness and Sustainable Development

Basic Concepts and Proposals on the use of Policy Spaces in Trade-supported Strategies for Sustainable Development.
Issue Paper No. 1 by Werner Corrales-Leal, 2007.

Special and Differential Treatment for Small and Vulnerable Countries Based on the Situational Approach.
Issue Paper No. 2 by Werner Corrales-Leal, Felipe Baritto, and Sarah A. Mohan, 2007.

Dispute Settlement and Legal Aspects of International Trade

Compliance and Remedies against Non-Compliance under the WTO System: Towards A More Balanced Regime for All Members.
Issue Paper No. 3 by Virachai Plasai, 2007.

Access to Justice in the WTO: The Case for a Small Claims Procedure, A Preliminary Analysis.
Issue Paper No. 2 by Håkan Nordström and Gregory Shaffer, 2007.

Appeal Without Remand: A Design Flaw in the WTO Dispute Settlement System.
Issue Paper No. 1 by Joost Pauwelyn, 2007.

Fisheries, International Trade and Sustainable Development

Fisheries, International Trade and Sustainable Development
Policy Discussion Paper, by ICTSD, 2006.

Aquaculture: Issues and Opportunities for Sustainable Production and Trade
Issue Paper No. 5 by Frank Asche and Fahmida Khatun, 2006.

Market Access and Trade Liberalisation in Fisheries.
Issue Paper No. 4 by Mahfuz Ahmed, 2006.

Trade and Marketplace Measures to Promote Sustainable Fishing Practices.
Issue Paper No. 3 by Cathy Roheim and Jon G. Sutinen, 2006.

Fisheries Access Agreements: Trade and Development Issues.
Issue Paper No. 2 by Stephen Mbithi Mwikya, 2006.

Intellectual Property Rights and Sustainable Development

Intellectual Property Provisions in European Union Trade Agreements: Implications for Developing Countries.
Issue Paper No. 20 by Maximiliano Santa Cruz S., 2007.

Maintaining Policy Space for Development: A Case Study on IP Technical Assistance in FTAs.
Issue Paper No. 19 by Pedro Roffe and David Vivas with Gina Vea, 2007.

New Trends in Technology Transfer: Implications for National and International Policy.
Issue Paper No. 18 by John H. Barton, 2007.

Trade in Services and Sustainable Development

Opportunities and Risks of Liberalising Trade in Services: Case Study on Bangladesh.
Issue Paper No. 3 by Ananya Raihan and Mabroor Mahmood, 2007.

Trade and Sustainable Energy

The WTO and Energy: WTO Rules and Agreements of Relevance to the Energy Sector.
Issue Paper No. 1 by Julia Selivanova, 2007.

Linking Trade, Climate and Sustainable Energy.
Selected Issue Briefs, 2006.

These and other ICTSD resources are available at
http://www.ictsd.org/pubs/series.htm

The ICTSD project on Bridging Trade and Sustainable Development on Environmental Goods and Services aims to enhance developing countries' capacity to understand trade and sustainable development issue linkages with respect to environmental goods and services (EGS) and reflect regional perspectives and priorities in regional and multilateral trade negotiations. Project publications include:

- Technology Transfer Issues in Environmental Goods and Services: An Illustrative Analysis of Sectors Relevant to Air-pollution and Renewable Energy.
  Issue Paper No. 6 by Lynn Mytelka, 2007.

- WTO Negotiating Strategy on Environmental Goods and Services for Asian Developing Countries.
  By Vicente Paolo Yu III, 2007.

- Building Supply Capacity for Environmental Services in Asia: The Role of Domestic and Trade Policies.
  Issue Paper No. 5 by Aparna Sawhney, 2007.

- An Overview of Key Markets, Tariffs and Non-tariff Measures on Asian Exports of Selected Environmental Goods.
  Issue Paper No. 4 by Rokiah Alavi, 2007.

- Trade in Environmental Services: Assessing the Implications for Developing Countries in the GATS.
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- Options for Liberalising Trade in Environmental Goods in the Doha Round.
  Issue Paper No. 2 by Robert Howse and Petrus von Bork, 2006.

- Defining Environmental Goods and Services: A Case Study of Mexico.
  Issue Paper No. 1 by Enrique Lendo, 2005.

For further information, visit www.trade-environment.org

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Founded in 1996, the International Centre for Trade and Sustainable Development (ICTSD) is an independent non-profit and non-governmental organization based in Geneva. By empowering stakeholders in trade policy through information, networking, dialogue, well-targeted research and capacity building, the centre aims to influence the international trade system such that it advances the goal of sustainable development.