

CUTS Centre for  
International Trade,  
Economics & Environment  
**Research Report**

# Liberalising Trade in Environmental Goods and Services:

*In Search of 'Win-Win-Win' Outcomes*



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## Preface

Ever since the Doha Ministerial Conference in 2001, trade in environmental goods and services has assumed a centre-stage position, its importance being amplified by the fact that many “environmental” tasks such as waste-water management and sanitation, traditionally considered the preserve of the public sector, are increasingly being privatised.

Unlike many industries, it is difficult to de-link environmental goods from services. The purchaser demands a solution rather than a specific product or service, and vendors are thus required to offer a package comprising a mix of the two. Indeed, it is this offer of solutions rather than goods or services which helps to sort out in part the complex question of exactly what is an environmental product. This becomes vital in the absence of any other acceptable definitions.

Further, compounding the issue of definitional difficulties is the fact that GATT applies to trade in (environmental) goods, whereas GATS applies to trade in (environmental) services and there is no clarity on orders of precedence or supersession. Additionally, since several environmental services such as sanitation are still within the purview of the public sector, market access could be denied to foreign vendors on the grounds that this constitutes government procurement with no direct commercial gain.

The authors estimate that the global environmental industry has been growing at 14 percent since 1996 and will reach a value of US\$600bn by 2010. At the moment, firms in developed countries command about 90 percent of the market share, whereas the future growth is likely to come from developing and transition economies. A resolution of the problems identified by the authors would conceivably result in a more equitable distribution of the market shares, assist in the achievement of the projected market size and simultaneously protect the environment.

This excellent analysis of the issue involved in environmental trade concludes with soundly reasoned policy recommendations which show the direction that future negotiations must take if the originally envisaged ‘win-win-win’ situation is to be achieved.

**Jaipur**  
**July 2004**

**Bipul Chatterjee**  
**Director**

## Chapter 1

# Introduction

Environmental goods and services have been identified as key sectors where the potential is fairly high for ‘win-win-win’ outcomes from trade liberalisation for the promotion of environmental protection and economic development. It is considered that expansion of trade liberalisation in environmental goods and services could help address acute environmental problems and resource efficiency in many countries, particularly the developing countries. The global market in environmental goods and services shows rapid growth potential and this may economically benefit both developed and developing countries.

At the Fourth Ministerial Conference of the World Trade Organisation (WTO) at Doha in November 2001, WTO members agreed in Paragraph 31 (iii) of the Doha Ministerial Declaration (DMD) as follows:<sup>1</sup>

‘31. With a view to enhancing the mutual supportiveness of trade and environment, we agree to negotiations, without prejudging their outcome, on... (iii) the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services.’

The DMD further states that the elimination of trade barriers would lead to ‘win-win-win’ situations, as it would have beneficial effects on trade, the environment and development. Questions arise (a) what are environmental goods and services, (b) what kind of ‘win-win-win’ situations may emerge from their further liberalisation, and (c) what specific trade and environmental interests can WTO members identify from the ‘win-win-win’ scenarios?

This Paper discusses the issues raised by the call for trade liberalisation in environmental goods and services sector. Chapter 2 examines the environment industry and Chapter 3 provides various definitions of environmental goods and services by international organisations and WTO developed and developing members. It outlines the definitional challenges and briefly explores some post-Doha developments. Chapter 4 and 5 analyse the mandate under the DMD and the implications for trade. Chapter 6 identifies and examines the environmental regulatory framework required to address the increasing demand for environmental goods and services. Chapter 7 explores various challenges related to the market structure and Chapter 8 provides conclusion and policy recommendations.

## Chapter 2

# The Environment Industry

### 2.1 The Global Market

Environmental goods and services are part of a vast environment industry, which is made up of products, services and technologies. The industry has grown on the back of technological advances begun in the 1960s, particularly in electronics and computers. Production processes have been enhanced, and thus, efficiency in production and trade in goods is now increasingly dependent on services.

The environment industry is estimated to have grown over 14 percent between 1996 and 2000.<sup>2</sup> Most analysts expect that the industry will continue to expand throughout the 21<sup>st</sup> century, reaching US\$600bn by 2010.<sup>3</sup> Firms in the OECD (Organisation for Economic Cooperation and Development) countries account for about 90 percent of the total market,<sup>4</sup> although over-capacity in the industry has slowed the market growth. Thus, these firms are increasingly looking to penetrating emerging markets in environmental goods and services. The most rapid growth rates occur in developing and transition countries, where growth forecasts between 1999 and 2000 averaged between 8 and 12 percent, respectively.<sup>5</sup> Fees generated from the provision of services account for half of the market, while the remainder is divided between equipment sales and the sale of environmental resources such as water or energy.

### 2.2 The Structure of the Industry

Growth in the environment industry has been driven by several factors, including compliance with and enforcement of existing environmental legislation, evolving international environmental standards, pressure from communities and consumers, as well as increasing economic development, driving urbanisation and population growth.

One of the most important changes to the structure of the industry has been the technological shift among polluting industries from traditional 'end-of-pipe' activities to the use of cleaner technologies, which reduce pollutants at source.

The environment industry is characterised by a few dominant multinationals in sectors such as water and a large number of small and medium-sized firms, including from developing countries.<sup>6</sup> A Brazilian state-owned company specialising in the water sector is the only company in the top 50 from a developing country. Mergers,

*One of the most important changes to the structure of the industry has been the technological shift among polluting industries from traditional 'end-of-pipe' activities to the use of cleaner technologies, which reduce pollutants at source.*

acquisitions and general consolidation are affecting the structure of the industry as it reflects the change from compliance with regulations to the efficient use of resources.

*The expansion of worldwide environmental standards has opened up international markets to more foreign firm participation. Thus, the industry is expected to become increasingly internationalised and trade-oriented as it develops, particularly in more mature areas such as waste and water management and air pollution control.*

*Privatisation and deregulation of markets in the environment industry have contributed to a larger role for the private sector in the delivery of goods and services in sectors such as water, energy and waste management. The public sector has, thereby, become an important purchaser of such goods and services.*

In responding to more diversified and multi-disciplinary demand, the environment industry is geared towards providing packaged environmental solutions that include both goods (equipment) and services. This usually means developing more complex and integrated approaches requiring more financial investment and capital and, therefore, larger firms. Larger firms also make it easier to monitor compliance and establish liability in respect of stricter regulations. Nevertheless, there are a growing number of smaller specialist firms, including from developing countries, providing environmental consultancy services, such as environmental audits.<sup>7</sup>

The expansion of worldwide environmental standards has opened up international markets to more foreign firm participation. Thus, the industry is expected to become increasingly internationalised and trade-oriented as it develops, particularly in more mature areas such as waste and water management and air pollution control. The combination of industry consolidation, privatisation and de-regulation of utilities, such as water and electricity, will increase trade opportunities, ensuring that the industry becomes more export-oriented.<sup>8</sup>

### **2.3 Significance of the Sectors**

Although the relative importance of individual segments of the environment industry may vary between countries, the most important activity in the OECD, as a whole, is water and waste water management, closely followed by waste management and air pollution control.<sup>9</sup> The same is true for developing countries, where they are likely to continue to be prioritised.<sup>10</sup> The provision of goods and services in water and waste management and air pollution control have, typically, been delivered by various levels of government, since they are public goods. In these sectors, considerable long-term investment is involved, without immediate or substantial returns. Thus, natural monopolies have been built up around the provision of goods and services in these sectors, where municipal or state authorities produce goods and services themselves or heavily regulate private actors in the provision of such goods and services.

This situation is changing. Privatisation and deregulation of markets in the environment industry have contributed to a larger role for the private sector in the delivery of goods and services in sectors such as water, energy and waste management. The public sector has, thereby, become an important purchaser of such goods and services. In the OECD, environmental expenditure is divided equally between the public and private sectors, while in developing countries, the public sector accounts for about 70 percent of overall environment expenditure.<sup>11</sup>

Liberalisation of environmental goods and services could mean increases in the participation of foreign and domestic private actors in sectors of vital importance to the economy and society. This raises

issues of ownership and control of essential services, particularly in developing countries, where the most urgent environmental problems arising from urbanisation and population pressure are more visible.

Environmental products, services and technologies may be provided either 'horizontally' by a firm or a group of firms, bringing together a range of materials and expertise required to undertake an entire project for a particular environmental medium (e.g., water, air, habitat), or they may be provided 'vertically' by firms specialising in construction and engineering across several environmental media. Liberalisation may, therefore, include several sectors in a single package, where both developed and developing countries may find a trade interest. At the same time, this makes the definitional and classification boundaries of environmental goods and services (to be determined in the negotiations) significant in determining the nature and level of commitments countries assume across sectors.

*The demand for environmental goods and services varies considerably across and within countries. In Latin America, expanding population and urbanisation mean there is a need to find solutions to serious air, water and waste problems.*

*In South East Asia, most countries have implemented legislation related to air, land and water protection and have set up environmental authorities.*

## **2.4 Challenges and Opportunities Raised by Further Liberalisation**

On the face of it, trade liberalisation in environmental goods and services may be a route to the enhancement of human welfare. Yet, there are multiple factors that may present challenges to the WTO members seeking to negotiate in these sectors. Much depend on the nature of the industry itself, the factors affecting availability and diffusion of goods and services, the pre-conditions for technology co-operation and innovation, local capabilities and the nature of domestic environmental and economic conditions.

The demand for environmental goods and services varies considerably across and within countries.<sup>12</sup> In Latin America, expanding population and urbanisation mean there is a need to find solutions to serious air, water and waste problems. Therefore, the market has seen infrastructure-related projects, primarily in sewage treatment and water delivery, as the main drivers. In particular, the market for water and waste water treatment is expanding rapidly.<sup>13</sup>

In South East Asia, most countries have implemented legislation related to air, land and water protection and have set up environmental authorities. Region-wise standards and regulations, particularly on hazardous waste and vehicle emissions, are being developed. Malaysia is in the process of privatising the sewerage system of the entire country, while Indonesia, Thailand and the Philippines have started build-operate-transfer schemes in public utilities and public/private collaborations open to foreign participation.

Some leading industries, such as the electronics industry, have already made the switch from end-of-pipe to cleaner technologies, but fast-paced development and the concentration of industries in specific areas still creates enormous environmental problems. Opportunities exist especially in the most essential areas like drinking water, immediate health concerns and clean-up of properties of high commercial value. In the Republic of Korea, the environmental market is mainly related to air pollution control and waste management, as

a result of the implementation of strict legislation on air emissions and a new waste policy which encourages incineration, rather than landfill, and aims at increasing recycling.

## 2.5 Liberalising Trade in Environmental Goods and Services

*The DMD mandate on environmental goods and services could be the most important trade and environment issue in the WTO trade talks. If the negotiations provide space for products and services from developing countries to qualify as environmental goods or services, this would provide a concrete example of the 'win-win-win' scenarios from the relationship between trade, development and environment.*

The DMD mandate on environmental goods and services could be the most important trade and environment issue in the WTO trade talks. The mandate could present an opportunity for the WTO to break the deadlock in the trade and environment debate, by designing liberalisation schedules that support environmental objectives. Further, if the negotiations provide space for products and services from developing countries to qualify as environmental goods or services, this would provide a concrete example of the 'win-win-win' scenarios from the relationship between trade, development and environment.

As things currently stand, the negotiations favour capital-intensive environmental equipment, technologies and services, which predominate in developed countries. This signals a distinct imbalance in the trade interests among WTO members. Reducing and eliminating trade barriers affecting the demand and supply of environmental goods and services depends on ensuring that all WTO members find trade interests in the negotiations.

Negotiations in the WTO will take different tracks. Negotiations on environmental goods have been assigned to the Negotiating Group on Market Access for Non-Agricultural Products (NGMA), while the negotiations on environmental services are under the auspices of the special sessions of the Council for Trade in Services (CTS). However, the Special Session of the Committee on Trade and Environment (CTE) has been given a monitoring role over progress in the negotiations and will contribute to these negotiations by examining the definitional aspects and the scope of environmental goods and services.

## Chapter 3

# Definitions of Environmental Goods and Services

Definition and classification issues have become crucial to the negotiations on environmental goods and services. There is no agreed definition of either of the terms, nor are there internationally agreed criteria to classify environmental goods and services. Thus, it is not clear which goods or services would automatically qualify for liberalisation. Some WTO members have argued that negotiations on reduction or elimination of tariff/non-tariff barriers cannot proceed to completion, until definitional issues have been resolved.

### 3.1 WTO Agreements

Confusion about the meaning of the terms in the DMD mandate is potentially exacerbated by the fact that different WTO agreements will apply to the liberalisation of environmental goods and services. Measures regulating trade in environmental goods will be covered under the General Agreement on Tariffs and Trade (GATT), while services will fall under the scope of the General Agreement on Trade in Services (GATS).

#### 3.1.1 The General Agreement on Trade in Services

The General Agreement on Trade in Services (GATS) forms part of the collection of WTO Agreements negotiated under the Uruguay Round, which entered into force in 1995. GATS establishes a framework for the progressive liberalisation of trade in services. However, the Agreement does not precisely define the term 'services'. Article I: 2 defines 'trade in services' by reference to the delivery of services to the consumer, known as 'modes of supply'. In Article I: 3 (b) the Agreement states that "*services include any service in any sector except services supplied in the exercise of governmental authority.*" In ordinary language, however, a service is essentially understood as an act, although the result of the service may be embodied in a person, product or data.<sup>14</sup>

There is no specific reference to the term 'environmental services' in the GATS. Instead 'environmental services' are included as the sixth-sector category among the twelve broad sectors in the Services Sectoral Classification List (W/120), which is based on the United Nations Provisional Central Product Classification (CPC).<sup>15</sup> These services are divided into four categories (see Table 1): sewage systems; refuse disposal, sanitation and similar services; and other environmental services. It is assumed that 'other' environmental services include other CPC service categories such as cleaning of exhaust gases, noise abatement services, nature and landscape protection services and other environmental protection services not

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<b>Table 1: CPC and GATS Categories of Environmental Services</b>	
<b>CPC Division 94: Sewage and Refuse Disposal, Sanitation and Other Environmental Protection Services</b>	<b>GATS Sectoral Classification 6: Environmental Services</b>
9401 Sewage Services	A. Sewage Services
9402 Refuse Disposal Services	B. Refuse Disposal Services
9403 Sanitation and Similar Services	C. Sanitation and Similar Services
9404 Cleaning Services of Exhaust Gases	D. Other
9405 Noise Abatement Services	
9406 Nature and Landscape Protection Services	
9409 Other Environmental Protection Services n.e.c.	

included elsewhere.<sup>16</sup> This classification is mutually exclusive, i.e., services in one sector cannot be covered by another sector.<sup>17</sup> This has implications for the cross-sectoral approach to the design and delivery of integrated environmental services.

### **3.1.2 The General Agreement on Tariffs and Trade**

*GATT does not define 'environmental goods'. Nevertheless, ordinarily, the term 'good' is synonymous with 'product', a term which is used throughout the GATT 1994. This is true of, inter alia, GATT Articles I, II, III and XI. WTO members are, therefore, free to decide amongst themselves what products constitute 'environmental goods', for the purpose of trade liberalisation.*

Trade in any types of goods between WTO members would be governed by the General Agreement on Tariffs and Trade (GATT). GATT does not define 'environmental goods'. Nevertheless, ordinarily, the term 'goods' is synonymous with 'product', a term which is used throughout the GATT 1994. This is true of, *inter alia*, GATT Articles I, II, III and XI. WTO members are, therefore, free to decide amongst themselves what products constitute 'environmental goods', for the purpose of trade liberalisation.<sup>18</sup>

### **3.2 Definitions by International Organisations**

#### **3.2.1 Organisation for Economic Cooperation and Development (OECD)**

The OECD and the Statistical Office of the European Communities (Eurostat) have developed a broader classification of environmental services and goods. First, relevant industry activities are defined and, then, a preliminary and indicative list of goods and services in the environment industry are developed. The classification includes goods and services such as water, solid waste, air, soil, noise, natural resources and miscellaneous services.<sup>19</sup> Industry activities are classified under three broad headings: pollution management group;<sup>20</sup> cleaner technologies and products group;<sup>21</sup> and resource management group.<sup>22</sup>

#### **3.2.2 Asia Pacific Economic Cooperation (APEC) Forum**

At the Asia Pacific Economic Cooperation (APEC) Forum meeting in November 1997, the environmental goods and services sector was one of the nine sectors selected to be advanced under the accelerated liberalisation initiative. Over the course of 1998, a series of technical

expert meetings took place to elaborate the details of this trade liberalisation proposal. The resultant proposal that was presented and endorsed by the APEC leaders at their annual meeting in Kuala Lumpur, in November 1998, was a comprehensive initiative that included undertakings on the following four elements: tariffs, services, non-tariff measures, and economic and technical co-operation (Ecotech). The APEC recognised the challenges in defining and classifying these goods and services (including technologies) in a manner that would readily serve as the basis for reaching an agreement on trade liberalisation.

For this exercise, the APEC used the OECD definition of the environment industry as a benchmark: “*activities which produce goods and services to measure, prevent, limit or correct environmental damage to water, air, and soil, as well as problems related to waste, noise and eco-systems. Clean technologies, processes, products and services which reduce environmental risk and minimise pollution and material use are also considered part of the environment industry.*” Proceeding from this definition, the APEC identified, by its Harmonised System (HS) codes, a list of goods to be covered under the agreement.<sup>23</sup>

### **3.2.3 United Nations Conference on Trade and Development (UNCTAD)**

*From the communications made to the WTO by member states, it is clear that countries differ in defining environmental goods and services. The WTO website, commenting on the DMD, notes that “Examples of environmental goods and services are catalytic converters, air filters or consultancy services on wastewater management.”*

*Moreover, there are problems in distinguishing between services and goods within a particular environmental activity.*

The UNCTAD has divided environmental services in four different parts.<sup>24</sup> (i) environmental infrastructure services<sup>25</sup>; (ii) air pollution control services<sup>26</sup>; (iii) remediation services<sup>27</sup>; and (iv) support services.<sup>28</sup> Environmentally Preferable Products (EPP) (not ‘environmental goods’) have been classified by the UNCTAD in three broad groups:<sup>29</sup> (i) products that are more environmentally friendly; (ii) products which cause *significantly* less environmental harm at some stage of their life cycle (production/processing, consumption, waste disposal) than alternative products that serve the same purpose; or (iii) products the production and sale of which contribute *significantly* to the preservation of the environment.

### **3.3 Definitional Challenges**

From the communications made to the WTO by member states, it is clear that countries differ in defining environmental goods and services. There is no consistent view, *inter alia*, on whether collection of household refuse, supply of drinking water and energy-saving products are included in classifications of environmental goods and services.<sup>30</sup> The WTO website, commenting on the DMD, notes that “*Examples of environmental goods and services are catalytic converters, air filters or consultancy services on wastewater management.*”<sup>31</sup> Moreover, there are problems in distinguishing between services and goods within a particular environmental activity. For example, many environmental activities come in integrated packages, including both the delivery of services and the use of goods.<sup>32</sup> Thus, trying to classify cross-sectoral environmental activity may have implications for trade liberalisation efforts.<sup>33</sup>

The OECD has identified several definitional problems in the scope of environmental goods and services:

“the *multiple use* of products, including non-environmental as well as environmental uses; the fact that for *customs policy purposes* goods is defined according to its physical characteristics; the environmental characteristic of goods is often due to its *embedded technology*; the *diversity* of the industry addressing various environmental media as well as natural resource management, thus presenting further challenges to definition and description; the division of the industry according to *maturity and sophistication*, covering both low-tech and high-tech goods; that pollution prevention as a key goal in environmental policy is usually accomplished by better process control (*dual motivation*); and that today’s *cleaner technologies*, may become tomorrow’s relatively less environmentally friendly products.”<sup>34</sup>

### 3.4 Positions of WTO Members

*The broader OECD definition/classification has found favour with some developed countries, such as the European Commission (EC), US, Canada, Japan, Switzerland and Australia. In their view, the current WTO classification system (W/120) is too narrow and fails to reflect the market realities of the industry.*

Since the WTO already had a basis for the classification of environmental services (i.e., W/120), the negotiations on environmental services are considerably more advanced than those on environmental goods.

#### 3.4.1 Environmental Services

The broader OECD definition/classification has found favour with some developed countries, such as the European Commission (EC), US, Canada, Japan, Switzerland and Australia. In their view, the current WTO classification system (W/120) is too narrow and fails to reflect the market realities of the industry. Adopting a core listing approach, the US is in favour of a new classification that incorporates a list of environmental sectors that are significant to the provision of environmental services, e.g., construction, engineering and consulting.<sup>35</sup> The US also mentions the need to focus the classification on pollution prevention, rather than ‘end-of-pipe’ clean up services, i.e., goods that are used to clean the environment or contain or prevent pollution.

The EC has suggested an advanced definition that offers more categories than the W/120 classification, based on what it considers ‘pure’ environmental services.<sup>36</sup> Such services would be the subject of a cluster negotiation, so that they would fall within other sections of the GATS (avoiding the mutual exclusivity pitfall). Australia and Switzerland are broadly in favour of the EC’s approach.<sup>37</sup>

Switzerland is of the view that there are several fields of activities that would accommodate the gradual integration of environmental services, which include: professional services relating to the environment, research and development relating to the environment, consultancy, sub-contracting and engineering relating to the environment, and construction relating to the environment.<sup>38</sup>

Canada also proposes the use of clusters in the negotiations, as a check-list,<sup>39</sup> noting that there are relevant services available elsewhere in the W/120 that are important for the delivery of

environmental services, such as technical testing and analysis services, scientific and technical consulting services, engineering services and construction services.

*Developing countries have not made express proposals on environmental services, apart from Colombia, which emphasised pollution control and waste management. It accepts the EC classification as a working basis, but would add three further services. Cuba has proposed that developed countries should commit themselves to import services from developing countries in the modes of supply that are of key developing country interest.*

Developing countries have not made express proposals on environmental services, apart from Colombia, which emphasised pollution control and waste management. It accepts the EC classification as a working basis, but would add three further 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.<sup>40</sup> Cuba has proposed that developed countries should commit themselves to import services from developing countries in the modes of supply that are of key developing country interest.<sup>41</sup> It calls for differential treatment, in order to enhance the competitiveness of developing countries.

For the moment, environmental services are being negotiated in the Committee on Specific Commitments on a bilateral basis, as WTO Members respond to each other's requests, and thus, it is likely that in the short term members will use a variety of different classifications for environmental services. Meanwhile, the Committee on Trade & Environmental Special Session (CTESS) has not yet played the guiding role it has been given on the definitional issues. However, it is likely that the Quad (EC, US, Canada, and Japan) will continue to push strongly for a broadening of the W/120 classification.

### **3.4.2 Environmental Goods**

*Proposals for the composition of the final list are showing a clear split among WTO members. The EC is a major proponent of using process-based criteria [so-called process and production methods (PPMs)] to include goods produced in an environmentally friendly way. This view is firmly resisted not only by developing countries, such as Korea and Singapore, but also by the US and Switzerland.*

Members of the CTESS have broadly supported a proposal by New Zealand<sup>42</sup> for classification based on lists compiled by the Asia Pacific Economic Cooperation (APEC) forum, which, in turn, is based on the definitions developed by the OECD. New Zealand also produced an annex, listing all products it considered 'environmental goods', together with examples for each category.<sup>43</sup> The classification focuses on end use, rather than production characteristics. The list is considered 'open' and subject to further elaboration and discussion.

Proposals for the composition of the final list are showing a clear split among WTO members. The EC is a major proponent of using process-based criteria [so-called process and production methods (PPMs)] to include goods produced in an environmentally friendly way. It considers that there is a particular need to "pay attention to goods whose sustainable materials or production characteristics mean that increased trade in such products would also be environmentally supportive."<sup>44</sup> This view is firmly resisted not only by developing countries, such as Korea<sup>45</sup> and Singapore,<sup>46</sup> but also by the US<sup>47</sup> and Switzerland.<sup>48</sup> Most developing countries prefer the focus to remain on an "end-use" approach that focuses on goods that can be used to remedy environmental problems. This position is supported by several members across the economic spectrum, including Australia, New Zealand, India,<sup>49</sup> Argentina, Chile<sup>50</sup> and Canada.<sup>51</sup>

### 3.5 Post-Doha Developments

#### 3.5.1 World Summit on Sustainable Development (WSSD)

The Plan of Implementation adopted by the World Summit on Sustainable Development (WSSD) specifically encourages liberalisation of environmental goods and services, with slightly different terminology from the language in the DMD. Paragraph 93 of the Plan of Implementation urges countries to:

*“...complement and support the Doha Ministerial Declaration and the Monterrey Consensus by undertaking further action at the national, regional and international levels, including through public/private partnerships, to enhance the benefits, in particular for developing countries as well as for countries with economies in transition, of trade liberalisation, through, **inter alia**, actions at all levels to: .....(b) 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, which maximise environmental and developmental benefits through, **inter alia**, capacity-building and technical assistance to developing countries.”<sup>52</sup>*

*The Plan of Implementation adopted by the World Summit on Sustainable Development (WSSD) specifically encourages liberalisation of environmental goods and services, with slightly different terminology from the language in the DMD. The Plan calls on countries to support the creation and expansion of domestic and international markets ‘for environmentally friendly goods and services, including organic products’.*

Furthermore, countries are to “...promote public procurement policies that encourage development and diffusion of environmentally sound goods and services.”<sup>53</sup>

A significant part of the language in the Plan of Implementation refers to the ongoing negotiations at the WTO, which, *inter alia*, include negotiations on the liberalisation of trade in environmental goods and services launched at the Doha Conference. The Plan calls on countries to support the creation and expansion of domestic and international markets ‘for environmentally friendly goods and services, including organic products’.

Some noted that this paragraph might be of relevance in the ongoing negotiations at the WTO on the ‘reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services’, in particular, as an input to shaping the interpretation of environmental goods and services to include organic products. They acknowledged, however, that it still remained debatable whether ‘environmentally friendly’ could be equated to ‘environmental’. In addition, this call could be used at the WTO talks as leverage to bring PPM (process and production methods) based criteria to the definition of ‘environmental goods and services’. Observers noted positively the approach based on incentives, rather than sanctions emphasised on this issue.<sup>54</sup>

#### 3.5.2 Report of the Committee on Trade and Environment (CTE)

The December 2002 report of the Chairperson of the CTESS to the Trade Negotiations Committee<sup>55</sup> noted the consultations that had taken place between the Chairs of the NGMA (Non-Agricultural Market Access), the Council on Trade & Services Special Session (CTSSS) and the CTESS. The consultations were designed to avoid the duplication of work under paragraph 31(iii) and to enhance

information flows between the three negotiating bodies. At the meeting, several participants opposed the use of the process and production method (PPM) criterion in the identification of environmental goods. A number of participants referred to the work that had been conducted by the OECD and the APEC on environmental goods, with some suggesting that it could be taken as a starting point for work under this mandate. A number of participants supported the proposal made for energy efficient technologies and systems to be considered under paragraph 31(iii). Finally, the point was also made that technical assistance would help identify the environmental goods of export interest to developing countries.

## Chapter 4

# Review of the Doha Work Programme

This section will analyse the mandate under the DMD, make a comparative evaluation of definitions and examine implications for trade.

### 4.1 Analysis of the EGS Mandate under the DMD

*Defining environmental goods and services more broadly could have environmental policy benefits. A broader classification could take into account the complementarity in the provision of different environment-related goods and services.*

The scope of each classification of environmental goods and services is of tremendous significance. Defining environmental goods and services more broadly could have environmental policy benefits. A broader classification could take into account the complementarity in the provision of different environment-related goods and services. For example, a supplier of integrated waste management services may need liberal conditions of access not only in refuse disposal equipment but also in related engineering, construction and management services. Trade liberalisation based on a broader definition of environmental goods and services could help create incentives for firms to adapt to cleaner technologies and manage resources for pollution prevention.

At the same time, broad classification of environmental goods and services may draw some WTO members into commitments on some additional sectors that they had not readily envisaged. For instance, countries that have made fully liberal commitments on all three modes of supply, such as Ecuador (for the full range of environmental services) and Rwanda (for sanitation and similar services), may find themselves committed, as a consequence, to liberalisation in construction, engineering, legal, accounting, auditing and management consulting services.<sup>56</sup>

#### 4.1.1 Environmental Services

From the proposals already tabled, it appears that the environmental service classification may be divided into 'core' and 'related' services for the purposes of the negotiations, pursuant to the DMD mandate. It seems clear that, barring a complete revision of the WTO classification, the environmental services contained in W/120, which focus mainly on pollution control and waste management, may be the 'core' environmental services; they are a sub-set of the first category in the OECD/Eurostat classification: pollution management group.<sup>57</sup>

At the same time, the cleaner technologies and resource management group activities under the OECD/Eurostat classification could fall into the 'other' category in W/120, which is yet to be precisely defined. Yet, some of the OECD/Eurostat categories could also fall within

other GATS sectors such as business, construction and engineering services, or education services. These constitute the 'related' services.

The WTO Secretariat notes that members are free to decide collectively on new classification clusters for environmental services that depart from the CPC.<sup>58</sup> However, in order to preserve the mutually exclusive nature of the classification, any activity considered to be part of a new environmental service category, which is already part of another service sector, would need to be excluded from the sector where it is currently placed. This would mean that education, engineering and construction services used in environmental activities would need to be separated from the same activities not related to the environment. In other words, it means classifying these services by environmental end-use (i.e., conferring environmental benefits). However, the difficulties already noted above concerning multi-purpose services and dual motivation in cleaner technologies would need to be addressed.

*There is cause for concern, however, that the direction of the negotiations appears to be focused only on those goods (equipment) where developed countries have a comparative advantage. It is important that goods in which developing countries have a comparative advantage, such as organic foods, also benefit from trade liberalisation.*

#### **4.1.2 Environmental Goods**

It seems clear from the wording of the Doha mandate that trade liberalisation in environmental goods is intended to take place in conjunction with that of environmental services. Some products included in the UNCTAD's categories of Environmentally Preferable Products (EPPs) fall into either the cleaner technologies or resource management groups identified by the OECD. These products may be integral or incidental to the supply of services within those categories. WTO members are also free to include environmental goods, which have no relation to the delivery of an environmental service.

There is cause for concern, however, that the direction of the negotiations appears to be focused only on those goods (equipment) where developed countries have a comparative advantage. It is important that goods in which developing countries have a comparative advantage, such as organic foods, also benefit from trade liberalisation. In particular, the broadening of the environmental goods classification to include products derived from sustainable agriculture, fisheries, or forestry may provide opportunities for specific trade interests from developing countries that the current WTO classification does not provide.

Unfortunately, the issue of PPMs in the negotiations on environmental goods has become problematic and it is difficult to imagine how substantial liberalisation can take place without addressing this issue. Developing countries are in a difficult position vis-à-vis the PPMs. They are understandably anxious to exclude the PPMs from the negotiations because of their potential to undermine market access or competitiveness of their products.

At the same time, in some key product sectors, such as organic products, developing countries may find comparative advantage through the differentiation inherent in consideration of the PPMs. Yet, how can such goods be distinguished from other products without considering the way in which they have been produced? Developed countries are not in such a quandary, because the products for which

they have a competitive advantage are more or less recognised in their own right as technologically enhanced (environmental) goods (e.g., catalytic converters, water purifiers, etc.). They, therefore, have less to gain from an insistence on consideration of the PPMs in the definition of environmental goods.

To avoid consideration of the PPMs, it could be argued that organic products (for instance) are different from other goods because they are inherently environmentally friendly (through their impact on human health, etc.). However, this means that such goods must have different customs codes assigned under the international customs system known as the Harmonised System (HS), which is maintained by the World Customs Organisation (WCO). The six digit codes, which are regularly updated by the WCO to take account of changes in technology or patterns of international trade, are based on national customs codes.

In the latest amendments to the HS codes in January 2002, the WCO, for the first time, included social and environmental fields, particularly relating to products under certain MEAs (Multilateral Environmental Agreements), including CITES, the International Convention on the Conservation of Atlantic Tunas (ICCAT) and the Basel Convention.<sup>59</sup> Amendments to the HS codes, in order to differentiate between products based on their environmental characteristics, are arrived at through fairly protracted deliberations in the WCO.<sup>60</sup> As a start, such customs codes may need to be developed at the national level and then gradually be harmonised. This issue may also provide an opportunity for developing countries to play a more proactive role in the WCO to ensure that their trade interests are taken into account in the development of customs codes.

## Chapter 5

# Implications for Trade

### 5.1 Overlap between GATS and GATT: Treaty Interpretation

As has already been established, environmental industry activities intertwine goods and services. It is worth noting that the GATS governs “*all measures affecting trade in services*.” Measures disciplining trade in goods (governed by GATT), which are used in the supply of services, may constitute ‘measures affecting trade in services’, thereby giving the GATS a broad reach. Several possibilities, therefore, arise in which a government measure may be subject to obligations under both the GATS and GATT. Those obligations either overlap or conflict with each other. The recent WTO case law in the *Bananas*,<sup>61</sup> *Canada Periodicals*<sup>62</sup> and the *Canada Auto-Pact*<sup>63</sup> disputes determines the situation where the GATS and GATT provisions coincide.

In the *Bananas* case, for example, the Appellate Body confirmed that certain measures could fall within the scope of the GATS, as well as the GATT. The decision states that this would be the case for measures involving a service relating to a particular good or measure involving a service supplied in conjunction with a particular good. The Appellate Body concluded that any measure taken by a WTO member to regulate trade in goods also has to comply with that member’s obligations arising from the GATS.<sup>64</sup>

Where conflicting obligations arise, two conflict rules exist. Provisions of the WTO Agreement “*prevail to the extent of any conflict with other provisions of the attached agreements*”,<sup>65</sup> and provisions of the specialised goods agreements in Annex 1A which conflict with the GATT 1994 “*shall prevail to the extent of the conflict*”.<sup>66</sup> These two rules may not cater for every eventuality. Where trade in services occurs within the jurisdiction of the goods-importing country, national treatment obligations, with respect to the goods under GATT Article III, may conceivably overlap with commitments, or absence of commitments, in the equivalent service sectors.

A WTO member could argue that the absence of commitments in the equivalent environmental service justifies less favourable treatment to goods that would normally be subject to national treatment under Article III.<sup>67</sup> Article 3.2 of the Dispute Settlement Understanding provides that the “*customary rules of interpretation of public international law*” should guide the resolution of conflicts. Those rules are found in Article 31 of the Vienna Convention on the Law of Treaties, which determines that interpretation should start with the “*ordinary meaning of the words in their context*”, in the light of the object and purpose of the treaty.

*Where conflicting obligations arise, two conflict rules exist.*  
**Provisions of the WTO Agreement “prevail to the extent of any conflict with other provisions of the attached agreements”; and provisions of the specialised goods agreements in Annex 1A which conflict with the GATT 1994 “shall prevail to the extent of the conflict”.**

## 5.2 Environmental Goods

The major obligations under GATT of most-favoured-nation treatment (MFN), national treatment, quantitative restrictions and tariff commitments would attach to environmental goods.<sup>68</sup> It is worth noting that GATT disciplines measures primarily on the basis of origin or destination of goods. For example, Article I requires no less favourable treatment of any like product “*originating in or destined for*” the territories of other contracting parties. This is not a problem where the measure involves cross-border trade in environmental goods.

However, things become problematic where environmental services are being delivered by a foreign service supplier in a given country and the production and consumption of environmental goods by the same foreign supplier within the same country is incidental to the delivery of those services. For example, the installation and operation of mechanical, physical and fermentative processes used to produce organic food or textiles. GATT does not apply to goods where both the producer and consumer are in the same jurisdiction. This leaves open the question of the GATT treatment of internal restrictions or quotas on the production of environmental goods in the regulating state, as part of the delivery of environmental services by a foreign supplier.

*The ‘like products’ issue will be central to the liberalisation of trade in environmental goods. The GATT has tended to assess the validity of regulatory distinctions between otherwise like products on physical characteristics, market demand and consumer preferences. To date, the GATT rules do not allow distinctions between ‘like products’, based on their production and process methods.*

Article XI only forbids quotas “*on importation of any product*”. Are such goods domestic environmental goods for the purposes of GATT? How could GATT disciplines be applied to the situation where the regulating state differentiates through quotas, or internal regulations, in treatment between domestic service suppliers producing the same, or similar, environmental goods as the foreign service supplier in the same country? In this case, both the environmental goods produced by the domestic and the foreign supplier may be “*like products of national origin*”, within the meaning of Article III. Domestic regulators, therefore, do not have the basis of *origin* for distinguishing these goods.

The ‘like products’ issue will be central to the liberalisation of trade in environmental goods. The GATT has tended to assess the validity of regulatory distinctions between otherwise like products on physical characteristics, market demand and consumer preferences.<sup>69</sup> Where a particular product’s production process is incorporated in the final product’s characteristics, such as may be the case with products using cleaner embedded technology, the issue of distinguishing ‘like products’ on the basis of their process and production processes may not arise. A different scenario exists in the case of some EPPs such as organic products whose process and production methods are not visibly incorporated in the final product. To date, the GATT rules do not allow distinctions between ‘like products’, based on their production and process methods.<sup>70</sup>

Other WTO agreements, such as the Agreement on Technical Barriers to Trade (TBT) and the Agreement on Sanitary and Phytosanitary Measures (SPS), may also affect trade in environmental goods. Technical regulations concerning environmental products must comply with Article 2.2 of the TBT Agreement, i.e., they must not be “*more*

*trade restrictive than necessary to fulfil a legitimate objective..."* The interpretation of 'necessary', on which there is considerable WTO case law, would be the key to the determination of whether measures were barriers to trade. Similar provision in Article 2 of the SPS Agreement requires that sanitary or phytosanitary measures be "*based on scientific principles and not maintained without scientific evidence...*"

### 5.3 Environmental Services

#### 5.3.1 Modes of Supply

***A large part of trade in the 'core' environmental services takes place through commercial presence, accompanied by the presence of natural persons. However, other modes of supply may be used in the delivery of some environmental services, such as the use of mass communications systems (post, Internet) in cross-border supply of design or environmental analysis.***

Environmental services may be delivered to consumers through four means (modes of supply), identified in Article I of GATS. Services supplied from one country to another are known as cross-border supply (Mode 1). This may include international telecommunications or financial transactions between banks in different countries. Services consumed in another country are termed consumption abroad (Mode 2). This would include services such as eco-tourism, where firms establish and operate offices abroad. This is known as commercial presence (Mode 3), such as establishment of a law firm or engineering firm. If individuals travel to another country to provide temporary labour or consultancy services, this is termed as presence of natural persons (Mode 4).<sup>71</sup>

A large part of trade in the 'core' environmental services takes place through commercial presence, accompanied by the presence of natural persons. However, other modes of supply may be used in the delivery of some environmental services, such as the use of mass communications systems (post, Internet) in cross-border supply of design or environmental analysis.<sup>72</sup>

***While MFN applies to all the sectors under the GATS, only those environmental services specifically submitted by WTO members in their Schedules are subject to national treatment and market access.***

That said, unlike goods, which can be stored, a service is usually supplied and received at the same time and place. This means that, normally, the service supplier must be in the same legal jurisdiction as the person receiving or consuming the service. For the purposes of service trade, the absence or presence of the supplier in the importing states' jurisdiction is a crucial issue. In the traditional sphere of cross-border trade in goods, only consumption activities, and not those of production, are within the territorial jurisdiction of the importing state.

However, GATS has enlarged the scope of coverage in service trade to situations in which production and consumption both occur outside the territorial jurisdiction of the importing state and in which both occur inside.<sup>73</sup> Where both occur inside, WTO members may make a distinction between measures applied to the delivery of the same service between commercial presence, where the service supplier's presence is relatively durable, and presence of natural persons, where the supplier's presence is temporary.

#### 5.3.2 MFN and National Treatment

Similar to the GATT, a core principle of the GATS is non-discrimination-based on 'most-favoured-nation' (MFN) treatment and 'national treatment'. Equal treatment must be accorded by each WTO member to the services and service suppliers of other members in

respect of all the service sectors under the GATS.<sup>74</sup> Members may exclude some sectors from the MFN requirement, and have done so.<sup>75</sup> Such exceptions, which are to expire in 2005, are listed in an Annex to the Agreement.<sup>76</sup> Members must also extend equal treatment to domestic and foreign services and service suppliers identified in their commitment schedules.<sup>77</sup>

***About a third of WTO members have made commitments on environmental services, and this includes the major trading partners. The main restrictions placed on commercial presence by WTO members, in respect of environmental services.***

However, exceptions permitting differential treatment of services based on country of origin are listed in individual members' schedules. In addition, each WTO member must provide to other members access to national markets in the service sectors identified in its commitment schedule, on terms no less favourable than those specified in the schedule.<sup>78</sup> Members may not adopt measures such as restrictions on the number of service suppliers, the total value of services, the number of employees or the extent of foreign ownership, unless expressly included in their schedules.<sup>79</sup> In sum, while MFN applies to all the sectors under the GATS, only those environmental services specifically submitted by WTO members in their schedules are subject to national treatment and market access.

The general obligations under GATS, including MFN and national treatment, do not apply to services supplied under government authority, which are not supplied on a commercial basis or in competition with other service suppliers.<sup>80</sup> WTO members can, therefore, protect those public utilities, or other environmental services, that are essential to the economy or society from participation by foreign actors.<sup>81</sup> Other exceptions include government procurement of services not intended for commercial sale; measures necessary for the protection of human, animal or plant life or health; measures necessary for the protection of essential security interests; and balance of payments measures.<sup>82</sup>

***Commitments on the presence of natural persons are limited to quotas and length of stay for business visitors, specialists and managers. There are no commitments for movement of low-skilled staff that would be important in services like refuse disposal and in services connected to sustainable forestry or fisheries.***

A range of laws, including foreign investment regulations, immigration restrictions, health and environmental regulations and standards, property, planning and zoning laws and company laws may place important limitations on environmental services and service suppliers. In addition, whole sectors may be excluded from trade liberalisation.<sup>83</sup> About a third of WTO members have made commitments on environmental services, and this includes the major trading partners. The main restrictions placed on commercial presence by WTO members, in respect of environmental services, include limitations on purchase or rental of property, restrictions on equity holdings, residency requirements for directors and tax and subsidy measures.<sup>84</sup> Commitments on the presence of natural persons are limited to quotas and length of stay for business visitors, specialists and managers. There are no commitments for movement of low-skilled staff that would be important in services like refuse disposal and in services connected to sustainable forestry or fisheries.

### **5.3.3 Market Access**

Qualitative restrictions on environmental services such as licensing requirements arise mostly from regulatory frameworks designed to achieve a range of policy objectives involving protection of the environment, corporate environmental behaviour or consumer

protection.<sup>85</sup> Such measures are dealt with under Article VI of GATS. They must be based on objective and transparent criteria and must not, in themselves, constitute a restriction on the supply of services. Article VI is similar to Article 2 of the TBT Agreement and the question arises whether the term 'necessary' will be interpreted in the same way as it has been in Article XX of the GATT, meaning 'least trade restrictive'.

The danger is that panels resolving cases of conflict may second-guess regulators' intentions with regard to the least trade restrictive means of accomplishing a stated policy goal. Since specific licensing of service supply arising from environmental regulatory frameworks occurs most often in the traditional environmental services classified in W/120 (waste management, air pollution, etc.), this potentially affects a significant segment of the environmental service industry. Moreover, licensing and qualification requirements for the range of service suppliers that provide environmental services, including engineers, lawyers, education professionals, would also need to comply with Article VI.

*As commercial presence and presence of natural persons are the key to the delivery of environmental services, effective market access may often require that disciplines apply to all the phases of the service transaction that occur in the jurisdiction of the regulating state.*

As commercial presence and presence of natural persons are the key to the delivery of environmental services, effective market access may often require that disciplines apply to all the phases of the service transaction that occur in the jurisdiction of the regulating state. This means that, unlike the case of goods, treatment accorded to persons and production processes will be relevant.<sup>86</sup> Measures according less favourable treatment applied not to the product but to another aspect of the transactions, including persons or legal remedies, have been found to be within the scope of the national treatment obligation (Article III) under GATT.<sup>87</sup>

The national treatment provision in Article XVII is a voluntary commitment (members can opt into the provision in respect of certain sectors), rather than an obligation. However, if it is found to be analogous to GATT Article III, any treatment that 'affects' the service transaction, including treatment of the service supplier and the processes within the delivery of its service, would be within the scope of the provision.

#### **5.3.4 'Like Services'**

The issue of 'like' services and service suppliers arises within the provisions of the national treatment commitment and the MFN obligation in GATS. Like the case of trade in goods, the determination of whether two services or service suppliers are 'like' is crucial, since it depends on whether the distinction made by government, where the consequence may be less favourable treatment of the foreign service or service supplier, is acceptable. The degrees of technological sophistication in the environmental service sector make this a delicate and complex issue. Moreover, the integration of goods and services may involve regulatory distinctions based on differences between a combination of acts, products and technologies, in addition to the differences in the characteristics of the environmental service suppliers.

*Whereas the GATT prohibits export restrictions, the GATS contains no explicit liberalisation of exports of services. WTO members are, therefore, free to impose restrictions on the activities of their own services and service suppliers.*

Whereas the GATT prohibits export restrictions, the GATS contains no explicit liberalisation of exports of services. WTO members are, therefore, free to impose restrictions on the activities of their own services and service suppliers. Limited liberalisation of service exports can be inferred from the import-oriented modes of supply in Article I: 2. It is notable that the obligations of MFN and the national treatment and market access commitments only apply to the treatment of foreign origin services and service suppliers. There are no disciplines on services being exported from a country or purely domestic service suppliers.

The consequences of varying disciplines on services exports may be significant. The ease and low cost with which certain services can be exported by telecommunications or the Internet may result in many service industries using these exports as inputs to other services. For instance, databank services in environmental quality testing and analysis or architectural and engineering specifications. However, the predominantly traditional environmental services that are *in situ* activities, such as construction, are not deliverable through such mechanisms. Where there are no effective disciplines on export restrictions applied by a particular service supplier's own government, service suppliers of other countries may not have the legal and commercial security that they have with respect to their own exports.<sup>88</sup>

*Under the GATS, the level of treatment to be accorded to a service, or service supplier, depends on the determination of its 'origin'. However, the dual requirement of treatment to the service and service supplier does not mean a double set of rules of origin; the origin of the service is the same as for the service supplier.*

Under the GATS, the level of treatment to be accorded to a service, or service supplier, depends on the determination of its 'origin'. However, the dual requirement of treatment to the service and service supplier does not mean a double set of rules of origin; the origin of the service is the same as for the service supplier. An individual service supplier's origin is his country of nationality, or permanent residence. For a company, it is generally the country of constitution, where it must have substantial business operations.

When the service is being supplied through commercial presence, it is the country of origin of the individuals who own or control it, or the country of constitution of the company that owns or controls it, provided there are substantial interests there. Some environmental services supplied through commercial presence may have extended chains of ownership and control, especially where a multinational company is involved; multiple origins may, therefore, be possible. Since ownership and control need not be proximate, intermediate or ultimate, all links in the chain that fulfil the requirements of a controlling interest in the country of constitution, by individuals of a country, will be the origin of the particular service supplier.

## Chapter 6

# Domestic Regulatory Framework

The environmental goods and services sectors will be affected by a wide range of government regulations, whether aimed directly at all industries, in the form of environmental laws, or targeted at environmental services such as land use planning or zoning restrictions. Indeed, it is acknowledged that legislation is one of the most important drivers of demand for environmental goods and services.

*As environmental performance within industries improves, economic instruments, such as environmental charges and taxes, tradable permits and emission fees, may be introduced, as a complementary measure to the regulatory framework, designed to provide incentives for pollution abatement.*

### 6.1 Environmental Regulation

The design of environmental regulatory frameworks is the key to encouraging demand for and trade in environmental goods and services. By and large, such regulatory frameworks, where they are supported by strong enforcement mechanisms, have contributed to an improvement in the general state of the environment. For example, the 1970 US Clean Air Act reduced allowable emissions of three major pollutants by 90 percent.<sup>89</sup> As the environmental performance within industries improves, economic instruments, such as environmental charges and taxes, tradable permits and emission fees, may be introduced, as a complementary measure to the regulatory framework, designed to provide incentives for pollution abatement. These economic instruments raise environmental performance beyond compliance and stimulate continuous environmental improvement.<sup>90</sup>

*It is important that environmental regulations do not themselves become barriers to trade. Environmental authorities may be tempted to design environmental norms and standards to match the strength, or technological capacity, of domestic (or preferred foreign) suppliers.*

Of course, it is important that environmental regulations do not themselves become barriers to trade. Environmental authorities may be tempted to design environmental norms and standards to match the strength, or technological capacity, of domestic (or preferred foreign) suppliers. Developing countries' service markets may be affected by environmental regulations taken pursuant to technical assistance, which favours the donor country's suppliers.<sup>91</sup> In this respect, the role of export credit agencies in the delivery of environmental goods and services may need further assessment.

In India, most legislation is 'command and control' based.<sup>92</sup> Only a handful of environmental legislation allows the government to pursue the polluter and recover the expenses incurred by any government authority or agency to remedy or clean up environmental damage caused by the activities of the polluter. The Indian Government is providing the industries with incentives. One such scheme is for the promotion of common effluent treatment plants in clusters of small-scale industrial units. This promotional scheme has been instituted by the Ministry of Environment and Forests to provide financial assistance for setting up common effluent treatment plants (CETP) in industrial estates.<sup>93</sup> Projects for assistance are prioritised on the

basis of toxicity of pollutants, pollution load treated and number of units covered. Central assistance amounts up to 25 percent of the total cost of the CETP as a grant on the condition that the State Government gives a matching contribution.<sup>94</sup>

The main aim of this scheme is to promote adoption of cleaner technologies and best manufacturing practices/techniques for environmental benefits amongst industrial units. Preference is given to technologies for process changes in small-scale industrial units. The scheme provides assistance for development and demonstration projects.<sup>95</sup> This scheme covers three main areas within the environmental field: cleaner technologies,<sup>96</sup> procedures for sanction of assistance,<sup>97</sup> eligible proposers/applicants.<sup>98</sup> Some of the examples of collaborative projects include projects for:

- assessing feasibility or economics of an industrial recycling scheme;
- assessing the feasibility of a newly developed waste treatment or waste reduction process with a common waste disposal problem;
- disseminating information on new and emerging techniques in clean process technology;
- new and innovative uses for material that would otherwise be disposed of as waste;
- involving new technology rather than a conventional alternative;
- a unit wishing to demonstrate an example of good environmental management practice to a wider audience; and
- a unit using biotechnological process and biotechnological solutions to prevent pollution.

*The Trade in Environmental Services and Technologies (TEST) programme was established to improve environmental protection and productivity of Indian industry on a sustainable basis, through linkages between Indian and US firms. The features of the programmes are bridging technology gaps in the area of pollution prevention and abatement and access to environment services, technologies and latest information available with specified agencies and various databases.*

The Trade in Environmental Services and Technologies (TEST) programme was established to improve environmental protection and productivity of Indian industry on a sustainable basis, through linkages between Indian and US firms. The features of the programmes are bridging technology gaps in the area of pollution prevention and abatement and access to environment services, technologies and latest information available with specified agencies and various databases. The TEST assistance is provided in the form of loans, conditional grants and technical assistance. The TEST programme offers assistance to environment-related industrial projects. The major technology gaps that will be addressed include:

- removal/reduction of dissolved solids from waste water streams;
- recovery and reuse of chemical resources from waste water streams, atmospheric emissions and solid wastes;
- systems for removing special pollutants from waste water, atmospheric emissions and manufactured products;
- handling and management of hazardous wastes;
- reduction of colour, odour and biochemical/chemical oxygen demand load in waste water;
- reduction of suspended particles, sulphur dioxide and oxides of nitrogen emitted into the atmosphere from industrial processes; and
- availability of adequate instrumentation for monitoring and analysis for controlling both water and air pollution.

In order to ease the burden of installation of pollution control equipment/systems, the Government of India has provided excise duty concessions for specific pollution control equipment/systems. Other promotional measures include environmental awards and eco-labelling. Under the environmental awards, the Ministry of Environment and Forests has set up a scheme of national awards to encourage industries and operations to take significant steps for prevention of pollution.<sup>99</sup> Under the eco-labelling scheme,<sup>100</sup> any product that is made, used or disposed of in a way that significantly reduces the harm it would have otherwise caused the environment could be considered as an 'environment-friendly product'.

## 6.2 Other Regulations

Given the 'holistic' approach to solving environmental problems that the industry has cultivated, a host of other regulations are likely to affect trade liberalisation in environmental goods and services. These include: foreign investment laws, competition policies, particularly in relation to the regulation of utility monopolies, health regulations, property and land use laws, laws on intellectual property protection and even development co-operation policies.

*The TRIPs Agreement is premised on the theory that strong intellectual property protection will foster the creation and transfer of technology, including ESTs. However, this relationship is yet to be precisely understood. What may be highlighted are: the widening scope of patents and intellectual property protection; the high access costs for technology; and the growing misallocation of technologies between developed and developing countries, exacerbating inequalities.*

## 6.3 Environmentally Sound Technologies and Intellectual Property Rights

The production of environmental goods and services, particularly in developing countries and countries in transition, implies substantial access to environmentally sound technologies (ESTs). It is worth remembering that, although trade liberalisation of environmental goods and services will take place in the context of state-to-state negotiations, technology is possessed by and technology transfer takes place between private enterprises, whose standing in international law is much more opaque. Indeed, this may explain the disjunction between the provisions of several MEAs encouraging the promotion of ESTs and their actual transfer.

Also significant is the fact that more than 90 percent of existing ESTs involve proprietary knowledge, often developed and belonging to TNCs (Transnational Corporations).<sup>101</sup> Thus, any efforts towards facilitating ESTs must give consideration to the property rules on technology, including intellectual property rights existing both in the home state of the proprietor and in the host state where technology transfer should take place, and in international treaties dealing with the issue. The TRIPs Agreement is premised on the theory that strong intellectual property protection will foster the creation and transfer of technology, including ESTs. However, this relationship is yet to be precisely understood. What may be highlighted are: the widening scope of patents and intellectual property protection; the high access costs for technology; and the growing misallocation of technologies between developed and developing countries, exacerbating inequalities.

An illustration of how proprietary rights may affect circulation and diffusion of technology and, thereby, impact on trade in environmental goods and services is the case of *neem*. The *neem* tree is native to India, Burma and some parts of Africa. Extracts from its seeds and

*The lack of protection for indigenous production systems and knowledge may have implications for the development of and trade in specific natural-based environmental goods and services from developing countries.*

*Under the GATS, government procurement of services not intended for commercial sale is excluded from the MFN, national treatment and market access obligations.*

*A first step to facilitating trade liberalisation of environmental goods and services would be to eliminate subsidies that implicitly favour products and production processes that harm the environment. Some developing country products, including organic products, may be disadvantaged in developed country markets, where domestic producers benefit from the provision of subsidies.*

leaves make ideal insecticides, attacking over 200 pestiferous species and leaving warm-blooded animals and beneficial insects unharmed. They have proved as effective as chemical insecticides on cotton, rice, tobacco and coffee pests. *Neem* production and processing provides employment and generates income, particularly in rural communities. It is becoming a valuable export item in some parts of Africa, where a ton of *neem* seeds sell for over twice the price of peanuts.<sup>102</sup>

But, trade in the *neem* natural pesticide is likely to be affected by the fact that chemical companies have patented extracts of the *neem* seeds and leaves, without concomitant economic or other benefits flowing to the source countries or communities.<sup>103</sup> Moreover, the lack of protection for indigenous production systems and knowledge may have implications for the development of and trade in specific natural-based environmental goods and services from developing countries.

Barriers to trade in environmental goods and services may also be created where specific (patented or 'patentable') technical knowledge is adopted as a standard for an industry, either through government regulation or standards. In such a case, intellectual property owners may be required to license their rights under reasonable conditions. Article 31 of the TRIPs Agreement specifically authorises compulsory licensing within specified conditions.

#### **6.4 Subsidies and Government Procurement**

As governments divest themselves of control and ownership of public utilities and other environmental services, private markets, particularly in the water industry, are being created. Nevertheless, various levels of government still play a large role in the industry, because they are often the largest purchasers of environmental goods and services. Governments wishing to assist fledgling domestic industries in building capacity for the delivery of environmental goods and services may exclude foreign companies from bidding for contracts and enter into exclusive contracts with the relevant domestic private actors, especially where public utilities are concerned.

Under the GATS, government procurement of services not intended for commercial sale is excluded from the MFN, national treatment and market access obligations. Non-discrimination in government procurement is the subject of further negotiations under the GATS.<sup>104</sup> The provisions of the Agreement on Government Procurement (GPA) may also affect government procurement of environmental services. Most of the WTO members who have signed the GPA have included the W120 classification of environmental services within the scope of their commitments.<sup>105</sup>

A first step to facilitating trade liberalisation of environmental goods and services would be to eliminate subsidies that implicitly favour products and production processes that harm the environment. Some developing country products, including organic products, may be disadvantaged in developed country markets, where domestic producers benefit from the provision of subsidies. At the same time,

a stimulating demand for environmental goods and services and, therefore, the development of the domestic environment industry may involve providing subsidies for research and development of new environmental technologies and products, or for adaptation to new environmental techniques or applications.

Nevertheless, it will be important to ensure that even where subsidies are provided for environmental adaptation, they do not become trade barriers for environmental goods and services from other countries. Subsidies for environmental goods will be governed by the Agreement on Subsidies and Countervailing Measures, which contains exceptions for assistance to promote adaptation to new environmental requirements imposed by law. Subsidies for environmental services are subject to disciplines yet to be negotiated under GATS.<sup>106</sup>

## Chapter 7

# Challenges for Market Access

The benefits of trade liberalisation in environmental goods and services (whether environmental or economic) for developing countries are by no means automatic. It will be important to match not only the trade interests of the exporting country with the environmental protection objectives of the importing country, but also the importing country's objectives in building domestic capacity in environmental goods and services. Appropriate domestic environmental legislation must be established and enforced. Conditions must be generated for the transfer of environmentally sound technologies, and generally, environmental education and public awareness need to be enhanced.

*Growth of the industry in developing countries will also depend on the ability of potential producers and consumers, particularly SMEs, to be aware of export opportunities for and be able to access information on environmental goods and services.*

Growth of the industry in developing countries will also depend on the ability of potential producers and consumers, particularly Small Manufacturing Enterprises(SMEs), to be aware of export opportunities for, and be able to access information on, environmental goods and services.<sup>107</sup> This may come in the form of partnerships or joint ventures between developed and developing country service suppliers, whereby environmental expertise is imported and used with indigenous capacity, making it possible to increase the adoption and operation of new technologies and generate knowledge and skills which can contribute to improving the environment.

Even where this is successful, reliable and substantial supply of environmental goods from SMEs is a key factor. It is a fact that many developing country producers of environmental goods, particularly natural-based products, may only appeal to niche markets. However, markets are expected to expand in the future for products such as organic foods or non-timber forest products. For example, in Tanzania, trade in honey and other bee products, such as beeswax and royal jelly, is a larger contributor to the country's GDP than all other forest products combined.<sup>108</sup>

*The most rapid market growth of environmental goods and services occurs in developing countries, where soaring populations, rapid urbanisation and emerging industrialisation create enormous need for environmental goods and services.*

### 7.1 Potential Benefits for Developing Countries

As already noted before, the most rapid market growth of environmental goods and services occurs in developing countries, where soaring populations, rapid urbanisation and emerging industrialisation create an enormous need for environmental goods and services. The OECD has noted that a wide range of the fastest growing industrial sectors in developing countries would benefit from enhanced access to environmental goods and services. Examples include pulp and paper processing, steel-smelting and refining, energy, coal, textiles and footwear.<sup>109</sup>

The GATS recognises the need for participation by developing country members, especially least developed country members.<sup>110</sup> When negotiating commitments in their schedules, members should aim to strengthen developing countries' capacity in domestic services (including access to technology), improve developing countries' access to information networks and liberalise market access in sectors and modes of supply of export interest to developing countries.<sup>111</sup> Although firms from developed countries presently meet most of the emerging demand for environmental goods and services in developing countries, firms from other developing countries may be able to enter these markets too. This will depend on them being able to a) offer integrated packages of goods and services; b) offer specialised services; c) target regional markets; and d) establish links with foreign firms.<sup>112</sup>

Firms from developing countries may be in a better position to address environmental problems peculiar to developing regions. Moreover, they may be able to offer a range of products and services that are not only price competitive with those from developed countries but also based on appropriate technology for the developing country market. An example is the Brazilian public company CETESB (Companhia de Tecnologia de Saneamento Ambiental).

Motivated by federal and state environmental regulations,<sup>113</sup> CETESB developed the capacity to absorb, adapt and modify environmentally sound technologies imported from developed countries. The company has entered into projects with private companies in Sao Paulo, aimed at replacing end-of-pipe technology with cleaner technologies. With its comparative advantage in the knowledge of environmental problems specific to the region and adaptive and appropriate technology, CETESB has been providing consultancy services to other Latin American countries. This transfer of skills and technology may influence the development of environmental legislation in those countries and increase export opportunities for their private and public companies in the delivery of environmental services to other developing countries.<sup>114</sup>

Trade liberalisation in environmental goods and services, as between countries in different developing country regions, could create export opportunities for firms with acquired technologies for addressing similar environmental problems. The ability to offer integrated packages of such goods and services or provide multidisciplinary services creates a market advantage. For example, in Malaysia, a private company operating privatised waste water plants is following the example of British and French water companies, by providing integrated water services domestically and to other countries in the Asia Pacific region.<sup>115</sup> Another Malaysian company has expanded into manufacturing in order to complement its design of licensed and proprietary water-treatment systems, enabling it to serve markets in Indonesia and Thailand.

## 7.2 Factors Generating and Affecting Demand and Supply

Trade in environmental goods and services will be affected by key demand and supply factors. The factors on the supply side are those that affect the overall availability of and access to environmental

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*The demand for environmental goods and services is likely to be shaped by several factors, including regulations, market-based instruments, education, information, consumer pressure, economic and financial considerations and tax policies.*

goods and services. Demand side factors are considered to be the most important drivers of trade in the industry.

### **7.2.1 Demand**

*In developing countries, scarce financial resources and competing needs, the absence of environmental regulations, lack of enforcement instruments and limited awareness of the risks associated with environmental problems reduce the potential demand for environmental goods and services.*

The demand for environmental goods and services is likely to be shaped by several factors, including regulations, market-based instruments, education, information, consumer pressure, economic and financial considerations and tax policies.<sup>116</sup> The evolution of regulatory frameworks in OECD countries has focused on making environmental policies more effective, hence initial environmental regulation generated the production of equipment to deal with end-of-pipe treatment of pollutants in various environmental media.

Regulatory reform, focusing on the use of economic instruments, has, however, encouraged technological changes for pollution prevention in the direction of more cost effective, multimedia approaches. These changes have tipped the balance in favour of services as 'know-how' features, more predominantly in the integrated packages of technology-laden goods and services.

However, in developing countries, scarce financial resources and competing needs, the absence of environmental regulations, lack of enforcement instruments and limited awareness of the risks associated with environmental problems reduce the potential demand for environmental goods and services.<sup>117</sup> Some low income and least-developed countries are below the economic threshold that would allow them to provide basic environmental services to their populations.

*Depending on the boundaries of the classification of environmental goods, high tariffs and tariff escalation may affect trade liberalisation, particularly of natural-resource-based goods. For services, as already noted, an array of barriers related to foreign investment or corporate regulations may limit commercial presence and the presence of natural persons.*

It is important to note though that developing countries are not a homogenous group. Most are in the first-phase of addressing environmental problems through command and control instruments. This is likely to generate a demand for a broad spectrum of environmental goods and services relating to health and sanitation. Others are introducing market instruments to complement regulations, which generate differentiated demands for goods and services in cleaner technologies and resource management.

The introduction of environmental requirements and standards in export markets and the need to comply with such requirements and standards will increasingly lead to changes in production processes and generate a demand for environmental goods and services. The impact of life cycle analysis has also been beneficial in production processes, and the use of environmental management systems, such as ISO 14000, and voluntary eco-labelling programmes, as companies move towards more efficient use of raw materials, water and energy.

Such developments are also helped by compliance with multilateral agreements such as the 1987 Montreal Protocol on Substances that deplete the Ozone Layer, the 1992 United Nations Framework Convention on Climate Change (UNFCCC) and the 1997 Kyoto Protocol to the UNFCCC. The role of instruments, like the Montreal Protocol's Multilateral Fund, in assisting development of technological capacities should also be noted.

### **7.2.2 Supply**

As discussed before, potential limitations to trade in environmental goods and services are likely to come from restrictions taken under the GATT or GATS with respect to MFN, national treatment and market access. Depending on the boundaries of the classification of environmental goods, high tariffs and tariff escalation may affect trade liberalisation, particularly of natural-resource-based goods. Technical regulations applied to environmental goods will affect the type of goods used to meet environmental requirements. And, the way in which standards are designed can either strengthen or limit the possibility of them becoming technical barriers to trade.

For services, as already noted, an array of barriers related to foreign investment or corporate regulations may limit commercial presence and the presence of natural persons. Where there is a strong public function aspect to the provision of certain essential services, such as water supply and waste management, trade may be affected by monopoly or exclusive supplier rights, in respect of public utilities. GATS Article VIII provides disciplines on monopolies and exclusive service suppliers. However, the obligations relating to procurement or sub-contracting of services by private firms, with an exclusive supplier right granted by governments, is not clear.<sup>118</sup> Other supply side concerns may include government procurement, subsidies and protection of intellectual property. These are detailed below.

*Given that a few countries have developed significant comparative advantage in the delivery of environmental services and the production of environmental goods, how should countries with less capacity (in so called 'catch-up' mode) approach trade liberalisation in environmental goods and services?*

### **7.3 Equity Issues**

Trade liberalisation in environmental goods and services raises some interesting equity issues, which are pertinent to the development of the environment industry, generally, and in developing countries. Given that a few countries have developed a significant comparative advantage in the delivery of environmental services and the production of environmental goods, how should countries with less capacity (in so called 'catch-up' mode) approach trade liberalisation in environmental goods and services? Where the private sector is increasingly involved in the management and ownership of public goods, such as provision of drinking water, this issue is very pertinent.

Another question is the extent of the scope of public service functions, as public authorities cede control of environmental goods and services to private firms. Developing countries, in particular, may need to develop effective regulatory and incentive frameworks that reinforce both equity and efficiency. Governments may seek to impose limitations on market access commitments under the GATS (Article IV and XIX). This would be in the form of ceilings on prices for public goods and minimum level of percentage of profits that must be reinvested in the national infrastructure, to ensure equity and technology transfer and training, to build capacity.

## Chapter 8

# Conclusion and Policy Recommendations

### 8.1 Conclusion

The picture that emerges of the environment industry is one of an integrated, technology-intensive, globalised industry, which predominates principally in developed countries. The industry has largely been driven by enforcement of environmental regulation, and in this respect, developing countries are struggling to catch up. However, it is clear that developing countries are quickly achieving a comparative advantage in certain sectors, such as environmental audits, education, etc.

Classification and definition of environmental services and environmental goods are the key to liberalisation, and therefore, progress in the WTO negotiations. The negotiations on services, which are essentially bilateral negotiations within a multilateral framework, are further advanced than those on goods. However, the services and goods under consideration by WTO members show a marked emphasis in favour of services and goods in which developed countries have a comparative advantage. Currently, the WTO list of environmental goods and services is restricted to the infrastructure sectors of sanitation and water, while the OECD classification would include other areas, such as sustainable forestry, fisheries and agriculture. However, distinguishing such goods and services necessarily involves a consideration of their process and production methods (PPMs), which many WTO members, including developing countries, are reluctant to do.

Moreover, the integrated manner in which traditional environmental goods and services are delivered is not reflected in the way the WTO classifies such goods or disciplines trade in these goods. The multiple uses of such goods and services (where it is unclear whether there is a clear environmental benefit from use or delivery) may cause problems in defining and classifying such goods and services, as well as assigning them specific H.S. (Harmonised System) codes to differentiate them from other goods. In addition, different GATT or GATS rules may, ultimately, apply to the same environmental process where goods and services are packaged together.

While the bundling of environmental goods and services could result in some inadvertent opening of markets to foreign competition, WTO members have a great deal of discretion in deciding which sectors are subject to liberalisation. For instance, under the GATS, only those services that are specifically submitted in their schedules are subject to national treatment and market access. Moreover, developing

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countries, in particular, may exclude from liberalising those critical public services where foreign ownership may raise equity issues.

One of the critical drivers of demand for environmental goods and services is domestic environmental regulation. Firms in Asia and Latin America are beginning to respond to this demand and are becoming competitive in the delivery of environmental services, and the production of cleaner technology goods. Continued enforcement of environmental regulation is likely to see an increase in trade, particularly among developing countries from different regions.

## 8.2 Recommendations

*The prospects for ‘win-win-win’ achievements depend on determining a more precise definition of environmental goods and services, which will facilitate the identification of barriers to trade in the goods and services included in the industry. In this vein, developing countries, in particular, will need to be proactive in the negotiations, so that the classifications reflect products and services where they have specific trade interests or environmental needs.*

Advocates of trade liberalisation in environmental goods and services argue that removal of trade restrictions and distortions in these sectors has the potential to provide gains for trade, environment and development.<sup>119</sup> However, the benefits of such liberalisation may not be realised, unless the participating WTO members can find viable trade interests and environmental strategic objectives within the framework of the negotiations. Two issues, therefore, arise:

- a) The extent to which trade liberalisation may enhance the availability of environmental goods and services used to address national environmental problems; and
- b) The necessary conditions for trade liberalisation to open markets for environmental goods and services from both developed and developing countries.

The prospects for ‘win-win-win’ achievements depend on determining a more precise definition of environmental goods and services, which will facilitate the identification of barriers to trade in the goods and services included in the industry. In this vein, developing countries, in particular, will need to be proactive in the negotiations, so that the classifications reflect products and services where they have specific trade interests or environmental needs. This means, all environmental media should receive the same priority attention in the negotiations. Thus, the same focus should be put on nature protection and sustainable resource use, as on water, solid and hazardous waste and air pollution.

To ensure that countries are not unwittingly drawn into commitments that are burdensome, it will be important to establish goals for the desired level of market access to be achieved. Therefore, the particular interests of developing countries should be taken into account in terms of the priority areas for the goods and services entering their markets and their existing and emerging strengths as exporters of environmental goods and services. The discussion in section 7 above shows the spectrum of demand in larger developing countries. The shape of their markets demonstrates the need for co-operative partnerships between SMEs and larger firms, between foreign and local firms and between public and private entities. Such partnerships will help strengthen domestic environmental capacities and economic opportunities in these countries.

*The negotiations on environmental goods and services should also reflect differential approaches for least developed countries that face special difficulties in participating in the multilateral trading system as a whole. They will need assistance in enacting domestic legislation, institutional and administrative systems and procedures on environmental and trade policies.*

The negotiations on environmental goods and services should also reflect differential approaches for least developed countries that face special difficulties in participating in the multilateral trading system as a whole. They will need assistance in enacting domestic legislation, institutional and administrative systems and procedures on environmental and trade policies; implementation and enforcement of enacted laws; policy and institutional co-ordination; and training and capacity-building of relevant personnel, in order to create 'win-win' outcomes from the negotiations.

As a negotiation strategy for environmental goods and services, developing countries should not be wary of making trade-offs. They may be able to advance their trade and environment agendas in the negotiations, provided they can forward-plan and co-operate among themselves. Developing countries should take a two-pronged approach. They should decide:

- a) which negotiated outcomes they wish to see emerge from environmental goods and services; and
- b) how to derive real sustainable development outcomes from the results of their negotiations.

Under the first approach, first, they must establish which pressing environmental problems they wish to resolve through access to environmental services and goods, and second, what desired level of market access they wish to achieve for their own environmental goods and services in foreign markets. Thereafter, they can match these goals with the relevant products and services and demand specific inclusion of such goods and services in the classifications to be determined in the WTO.

*Developing countries should have worked out, in advance, how the achieved results of the negotiations will assist in providing real environmental quality on the ground. For this, they must have in place plans for domestic regulation, covering environmental protection (including, e.g., environmentally sound technologies, eco-labelling, etc), infrastructure development, government procurement, intellectual property rights and, in some cases, even health and sanitation.*

In the second approach, developing countries should have worked out, in advance, how the achieved results of the negotiations will assist in providing real environmental quality on the ground. For this, they must have in place plans for domestic regulation, covering environmental protection (including, e.g., environmentally sound technologies, eco-labelling, etc.), infrastructure development, government procurement, intellectual property rights, and in some cases, even health and sanitation. They must also have strategies regarding international trade in order to continue to maintain their hard won market access. This may cover issues such as dispute settlement, subsidies, technical barriers to trade, sanitary and phytosanitary measures and technical co-operation.

At the same time, developing countries must fully understand their capacity-building and technical assistance needs, in order to ensure that such assistance is well targeted and applied to support their environmental protection and trade objectives. In this way, developing countries may be able to achieve the 'win-win-win' scenarios that are implied by the negotiations on liberalisation of environmental goods and services.

## Endnotes

- 1 WT/MIN (01)/DEC1. Doha Ministerial Declaration (20 November 2001).
- 2 In 1996, the industry was estimated to be worth about US\$453bn, by 2000 it was worth US\$518bn
- 3 Environmental Benefits of Removing Trade Restrictions and Distortions. Note by the Secretariat, Addendum. Committee on Trade and Environment. WT/CTE/W/67/Add.1, 13 March 1998, [WTO (1998a)], para 1.
- 4 Environmental Goods and Services: The Benefits of further Global Trade Liberalisation, OECD, 2001, p. 12.
- 5 UNCTAD estimates that the environmental industry in developing countries has grown between 5 – 25 percent. See Report of the Expert Meeting on Strengthening Capacities in Developing Countries to develop their Environmental Services Sector, 20-22 July 1998. TD/B/COM.1/18, TD/B/COM.1/EM.7/3, 5 August 1998. [UNCTAD (1998b)]
- 6 Ibid. p. 5
- 7 S/C/W/46. Environmental Services, Background Note by the Secretariat. Council for Trade in Services. (6 July 1998) [WTO (1998b)], para 18.
- 8 Strengthening Capacities in Developing Countries to Develop Their Environmental Services Sector, Background Note by the UNCTAD Secretariat, TD/B/COM.1/EM.7/2, 12 May 1998 [UNCTAD (1998a)], para 16.
- 9 WTO (1998b), para 12.
- 10 UNCTAD (1998a), para.
- 11 Ibid, para 14.
- 12 Jolita Butkeviciene, 'GATS Negotiations and Issues for Consideration in the Area of Environmental Services from a Development Perspective', Workshop on Post-Doha Negotiating Issues on Trade and Environment, in Paragraph 31 (Singapore, May 16, 2002) <<http://www.unep-uncptad.org/cbtf/meetings/singapore.htm>>
- 13 In 1996, the global environment industry was estimated at US\$453bn. Basic infrastructure services of waste treatment, water treatment and water supply take more than half and equipment nearly a quarter of the total. COM/TD/ENV(98)37/FINAL. Future Liberalisation of Trade in Environmental Goods and Services, OECD, at page 7.
- 14 P.K Morrison, WTO Dispute Settlement in Services: Procedural and Substantive Aspects, in *International Trade Law and the GATT/WTO Dispute Settlement System*, E-U Petersmann (ed.), Kluwer, at 384.
- 15 Group of Negotiations on Services. MTN/GNS/W/120, July 1991 ['W/120']. According to para. 5 of the OECD information note to WTO (WT/CTE/W/172 (20 October 2000), the OECD/Eurostat manual 'reflects the evolving, integrated nature of the environmental industry', whereas the W/120 sectoral classification list used by GATS 'takes a traditional and very limited view of environmental services in the earlier, largely "public infrastructure" form of this sector'. It adds that the OECD study presents a 'framework approach', the goal of which is to show the ranges of services involved in the environmental industry.
- 16 WTO (1998b), para 6.
- 17 Ibid, para 10.
- 18 B. Chaytor, Negotiating Further Liberalisation of Environmental Goods and Services: An Exploration of the Terms of the Act. RECIEL 11(3) 2002, at 290.
- 19 Environmental Goods and Services Industry: Manual for the Collection and Analysis of Data, OECD/Eurostat (1999), Paris.
- 20 The pollution management group, which is the most developed environmental sphere, consists of activities that produce equipment, technology or services to treat or remove environmental effects. This usually includes end-of-pipe treatment that is intended solely for environmental purposes and is statistically identifiable. The following activities fall into this category: air pollution control; waste water management; solid waste management; remediation/clean up of soil and water; noise/vibration abatement; monitoring, analysis and assessment. Of these, waste water management is of crucial importance to many countries.
- 21 The cleaner technology and products group includes any activity that continually improves, reduces or eliminates the environmental impact of technologies, processes or products, but which may be supplied other than for environmental purposes. Methods of classification and assessment are still under discussion in this group. This group comprises cleaner or resource-efficient technology or products such as those that reduce energy consumption, recover valuable by-products, reduce emissions or minimise waste disposal problems.
- 22 Within the resource management group are activities that prevent environmental damage to air, water and/or soil. These include activities that produce equipment, technology or specific materials, design, construct or

install, manage or provide other services for recycling new materials or products; for the generation of renewable energy (such as biomass, solar, wind, tidal or geothermal sources); for reducing climate change, for sustainable agriculture and fisheries (such as biotechnology applied to agriculture and fisheries activities); for sustainable forest management; for natural disaster risk management; or related to eco-tourism.

23 APEC list includes: (i) air pollution control – soot removers for boilers, scrubbers/precipitators (wet/dry, electrostatic), catalytic converters and waste gas incinerators; (ii) water pollution control – pumps (sewage), and equipment for filtering/purifying water or other liquid industrial discharge; (iii) solid/hazardous waste management waste incinerators – electric-resistance heated, induction or dielectric and other trash compactors; (iv) remediation/clean-up of soil and water-absorbent material used in booms or socks used for containing oil spills, inflatable spill recovery barges and pollution protection booms; (v) noise/vibration abatement – industrial mufflers; (vi) monitoring/analysis and assessment – pH meters and gas or smoke analysis apparatus; (vii) potable water treatment systems; (viii) other recycling systems, metal recycling equipment, machinery for cleaning or drying bottles or other containers and asphalt recycling equipment; (ix) renewable energy plant wind turbine pumps and solar panels; (x) heat/energy management – heat exchangers and economisers for boilers; and (xi) others – soil conservation erosion control matter and environmental protection cloth. APEC followed OECD/EUROSTAT Informal Working Group on the Environment Industry, OECD/GD(96)1.

24 Paragraph 25. Strengthening Capacities in Developing Countries to Develop their Environmental Services Sector, Background Note by the UNCTAD Secretariat (TD/B/COM.1/EM.7/2, 12 May 1998) <<http://www.unctad.org/en/docs/c1em7d2.pdf>>

25 Paragraph 26. Environmental infrastructure services include services mainly related to water and waste management. More specifically, they include: the engineering design of equipment for the delivery and treatment of drinking water; the design of equipment for handling, storing and transporting solid, liquid or hazardous waste; the design, management and operation of waste water treatment plants; the management and maintenance of drinking water systems; the collection, treatment and disposal of solid waste; and waste recovery and recycling.

26 Paragraph 27. Air pollution control services consist of engineering, design, installation and operations management of pollution control and abatement equipment and systems at stationary and mobile pollution sources, usually addressed in industries according to the intensity of their energy use, with power utilities in the forefront, followed by producers of primary metals and heavy industry.

27 Paragraph 28. Remediation services include site cleanup activities, emergency response to specific accidents and remediation assessment and design. Remediation services are usually provided by medium-sized specialised firms or by large firms which also operate in other segments of the market.

28 Paragraph 29. Support services include analytical services such as environmental laboratory testing or onsite analytical and monitoring services, legal services, consulting services, auditing, research and development and strategic environmental management. Consulting and engineering services also support local and federal governments with environmental institution-building, monitoring, compliance, assurance and enforcement. These services are typically provided by small or medium-sized companies.

29 Environmentally Preferable Products (EPPs) as a Trade Opportunity for Developing Countries, Report by the UNCTAD Secretariat (UNCTAD/COM/70, 19 December 1995) at 5-7. EPPs are classified in three groups by UNCTAD, according to their environmental justification of benefit: (i) products which are more environmentally friendly than their petroleum-based competitors (at some stage of their life cycle); (ii) products which are produced in an environmentally friendly way (production/ processing stage); and (iii) products that contribute to the preservation of the environment. See B. Chaytor, Negotiating Further Liberalisation of Environmental Goods and Services: An Exploration of the Terms of the Act. RECIEL 11(3) 2002, at 291.

30 See Liberalising Environmental Services: The Ultimate Win-Win? *Bridges*, Year 6 No 1, January 2002, p. 7.

31 <http://www.wto.org/>

32 Chaytor, *supra*, at 292-293.

33 *Ibid.*

34 Para 3. Environmental Goods and Services: An Assessment of the Environmental, Economic and Development Benefits of Future Global Trade Liberalisation. WT/CTE/W/172 (20 October 2000). <[www.oecd.org/ech/envi.htm](http://www.oecd.org/ech/envi.htm)> Also see: Environmental Goods and Services: The Benefits of Further Global Trade Liberalisation (OECD, 2001), pp. 14-16, for a detailed discussion.

35 Communication from the United States to the Council for Trade in Services, S/CSS/W/25, 18 December 2000.

36 Communication from the European Communities and their member states to the Council for Trade in Services, S/CSS/W/38, 22 December 2000. The proposal also covers all sectors and sub-sectors of the environmental services 'cluster' or 'checklist' described in the EC Communication S/CSC/W/25, as modified on 28 November 2000.

37 Communication from Australia to the Council for Trade in Services S/CSS/W/112, 1 October 2001). Australia supported the EC communication on classification of environmental services (S/CSC/W/25, 28 September 1999) i.e., to schedule commitments according to a revised classification which preserves the mutually exclusive nature of W/120 while addressing most of its recognised problems.

38 Communication from Switzerland to the Council for Trade in Services, S/CSS/W/76, 4 May 2001.

39 Communication from Canada to the Council for Trade in Services, S/CSS/W/51, 14 March 2001.

40 Communication from Colombia to the Council for Trade in Services, S/CSS/W/121, 27 November 2001. According to Colombia, the commercial presence of foreign enterprise in the provision of environmental services may be beneficial for developing countries through (i) increased investment and contribution to capital formation (ii) technology transfer (iii) wider coverage (iv) an improvement in environmental and sanitary conditions.

41 Communication from Cuba to the Council for Trade in Services, S/CSS/W/142, 22 March 2002.

42 Communication to the Committee on Trade and Environment, TN/TE/W/6, 6 June 2002. See particularly Section III, paragraphs 5-8. Annex III.1 and Annex III.2.

43 New Zealand's Communication includes some examples of environmental goods: (i) air pollution control includes soot removers for boilers, scrubbers/precipitators, catalytic converters, waste gas incinerators; (ii) water pollution control includes pumps, equipment for filtering/purifying water or other liquid industrial discharge; (iii) solid/hazardous waste management: waste incinerators; (iv) remediation/clean-up of soil and water-absorbent material used in booms or socks used for containing oil spills, inflatable spill recovery barges and pollution protection booms; (v) noise/vibration abatement includes industrial mufflers; (vi) monitoring/analysis and assessment includes pH meters, gas or smoke analysis apparatus; (vi) potable water treatment includes water treatment systems; (vi) other recycling system includes metal recycling equipment, machinery for cleaning or drying bottles or other containers and asphalt recycling equipment; (vii) renewable energy plant includes wind turbine pumps and solar panels; (viii) heat/energy management includes heat exchangers and economisers for boilers; (ix) others include soil conversion, erosion control matter and environmental protection cloth. Annex III.2 of the communication includes some additional product specifications.

44 Communication to Negotiating Group on Market Access, TN/MA/W/1, 24 June 2002). See paragraphs 6, 11 and 21. Second Communication TN/MA/W/11, 21 October 2002 deals with Post-Doha developed-developing countries market access issues.

45 Communication made to the Negotiating Group on Market Access, TN/MA/W/6, 5 August 2002. In Paragraph 5, Korea makes the point that "environmental goods to be included in the list should be determined in terms of their end-use, but not in terms of their production and process methods."

46 Communication made to the Negotiating Group on Market Access, TN/MA/W/8, 10 September 2002. Para 16 adds that OECD and APEC's list should be the starting point to define environmental goods.

47 Communication to the Negotiations Group on Market Access, TN/MA/W/3, 3 July 2002. Second communication, TN/MA/W/18 was made on 5 December 2002.

48 Communication made to the Negotiating Group on Market Access, TN/MA/W/16, 28 November 2002. In paragraph 13, Switzerland notes that there is a lack of internationally recognised standards in the application of PPM. Secondly, the application of such a criterion may prove to be difficult at the border.

49 Communications made to the Negotiating Group on Market Access, TN/MA/W/10, 22 October 2002. See paragraph 9, where India notes that environmental goods need to be defined in the light of the need of developing countries and LDCs and may include environmentally friendly products. See also TN/MA/W/10/Add.1, 8 January 2003.

50 Communication made to the Negotiating Group on Market Access, TN/MA/W/17, 2 December 2002.

51 See Summary Report on the Third Meeting of the Committee on Trade and Environment Special Session, TN/TE/R/3, 31 October 2002.

52 For full report on the Plan of Implementation:  
[http://www.johannesburgsummit.org/html/documents/summit\\_docs/2309\\_planfinal.doc](http://www.johannesburgsummit.org/html/documents/summit_docs/2309_planfinal.doc)

53 WSSD Plan of Implementation, paragraph 18 (c).

54 BRIDGES Trade BioRes – Special WSSD Update No. 5 (5 September 2002): <[http://www.ictsd.org/biores/wssd\\_updates/english/update5.htm](http://www.ictsd.org/biores/wssd_updates/english/update5.htm)>

55 TN/TE/3, 2 December 2002.

56 WTO (1998b), para 47.

57 For instance, sewage services are closely related to waste water treatment services; refuse disposal and sanitation services are synonymous with solid waste management; and cleaning of exhaust gases closely resembles air quality control services.

58 WTO (1998b), para 10. The revised CPC has sub-categories of environmental sectors. For instance, refuse disposal services have been divided into non-hazardous and hazardous waste collection, treatment and disposal services.

59 See <http://www.wcoomd.org>

60 See Vaughan, S. *Trade Preferences and Environmental Goods, Trade Equity and Development*, Issue 5, February 2003, Carnegie Endowment for International Peace.

61 *EC – Regime for the Importation, Sale and Distribution of Bananas [EC-Bananas]*, Report of the Appellate Body, 9 September 1997, WT/DS27/AB/R, paras 217-222.

62 *Canada – Certain Measures Concerning Periodicals*, Report of the Appellate Body, 30 June 1997, WT/DS31/AB/R, section IV.

63 *Canada – Certain Measures Affecting the Automotive Industry*, WT/DS139/AB/R, 31 May 2000, paras. 148-167.

64 See *EC – Bananas*, paras 217-222.

65 See WTO Agreement, Article XVI: 3.

66 See WTO Agreement, General Interpretative Note to Annex 1A.

67 Morrison, op cit., p. 386

68 GATT Articles I, III, XI and II respectively.

69 See *Working Party on Border Tax Adjustments*, L/3464, BISD 18S/97; *Japan – Customs Duties, Taxes and Labelling Practices on Imported Wines and Alcoholic Beverages*. Report of the Panel, L/6216, BISD 34S/83, para 5.5.

70 See *United States – Restrictions on Imports of Tuna*. Report of the Panel, 33 International Legal Materials (1994), 839; *United States – Restrictions on Imports of Shrimp*. Report of the Appellate Body.

71 GATS, Article I:2

72 WTO (1998b), para 20.

73 Morrison, op cit., p. 387

74 Article II

75 See WTO (1998b), paras 50-52 for a detailed discussion of limitations placed by WTO members on environmental services.

76 See GATS Annex on Article II Exemptions

77 Article XVII

78 Article XVI

79 Article XVI:2

80 Article I:3

81 For instance, Turkey and the EC have indicated in their schedules that services considered to be public utilities are subject to public monopolies and therefore closed to private investment. See WTO (1998b), para 51.

82 Article XIII, XIV (b), XIV *bis* and XII respectively.

83 WTO (1998a), para.25.

84 Ibid, para 50.

85 A number of countries like India operate a 'one stop' procedure for application and clearance systems for environmental permits and licenses. OECD (2001), p. 45.

86 See GATS Articles II, XVI and XVII.

87 Morrison, op cit., p. 386, citing *United States – Section 337 of the Tariff Act of 1930*, BISD 36S/345, para 5.10.

88 Morrison, op cit, p.390.

89 UNCTAD (1998a), para 35.

90 For instance, tradable permits under the 1990 Amendments to the US Clean Air Act.

91 WTO (1998b), paras 36-40

92 Rosencranz A., & Divan S., (Eds.) *Environmental Law and Policy in India* (2001, OUP, India); K. Thakur, *Environmental Protection Law and Policy in India* (1997, Deep and Deep, New Delhi).

93 Initially, it was for a period of five years from 1990-91 to 1995-96. This scheme has been extended further.

94 Central assistance will only provide for the capital cost and there will be no assistance for any recurring cost. The assistance will be provided in three instalments. To obtain this subsidy from the Government, a company

will obtain a loan from the Industrial Development Bank of India (IDBI), or other financial institutions. Then the company/IDBI will approach the State Government/Central Government for their contribution of the subsidy. The subsidy would be released into the account of the company opened in IDBI, or other financial institutions. Another type of programme is for adoption of clean technology by the small- scale industries.

- 95 Assistance is available for two kinds of projects: collaborative projects which prove the feasibility of adopted or new techniques; or demonstration projects which illustrate best practices, based on proven techniques. Organisations eligible for support include research and technology organisations, government research establishments and higher education institutions. A company involved in environmental technology as a supplier or a user of innovative solutions; a company with problems for which there is no 'off the shelf' technical solution; and a private or recognised research organisation with interest in practical solutions for environmental problems. Assistance is offered for project cost with grant up to 50 percent of the total cost, subject to a maximum of Rs. 5 lakh.
- 96 Cleaner technologies include reduction of waste and pollution from manufacturing processes or generation of less pollution; recycling, collecting, storing and processing industrial and household wastes for re-use; and waste and effluent treatment and disposal.
- 97 It states that the proposal should be submitted to the Ministry of Environment and Forests, Government of India. The proposal will be examined by the Ministry of Environment and Forests and will be put up to the Steering Committee for approval.
- 98 Projects in the general environment technology field will be considered for funding. All projects must involve an innovative application of existing technology.
- 99 Awards numbering up to 18 given each year, one in each of the identified categories of the highly polluting industries.
- 100 Objective of the Scheme includes: to provide for an incentive for manufacturers and importers to reduce adverse environmental impact of products; to reward genuine initiatives by companies to reduce adverse environmental impact of their products; to assist consumers to become environmentally responsible in their daily lives, by providing information to take account of environmental factors in their purchase decisions; to encourage citizens to purchase products which have less harmful environmental impacts; and, ultimately, to improve the quality of the environment and to encourage the sustainable management of resources. Sandeep Shrivastava (Ed.) *Environmental Legislation in India: A Guide for Industry and Business* (1995, New Delhi, CII).
- 101 See Factors affecting Transfer of Environmentally Sound Technology. Note by the Secretariat. WT/CTE/W/22, 1996.
- 102 See UNCTAD (1995), p. 18
- 103 See Marden, E., The Neem Tree Patent: International Conflict over the Commodification of Life (1999), 22 Boston College International & Comparative Law Review, 279
- 104 Article XIII.
- 105 WTO (1998b), para 33.
- 106 Article XV.
- 107 WTO (1998a), para 10
- 108 UNCTAD (1995), p. 24.
- 109 See *Cleaner Production and Waste Minimisation in OECD and Dynamic Non-Member Countries*, OECD, Paris 1998.
- 110 Article IV
- 111 Articles IV:1 and XIX:2.
- 112 Ibid, para 49.
- 113 Brazil was the first Latin American country to implement a coherent set of environmental legislation.
- 114 UNCTAD (1998a), p. 20
- 115 Ibid, para 52.
- 116 UNCTAD (1998a), para 31.
- 117 Ibid, para 19.
- 118 Article VIII:5 appears to allow WTO members to formally, or in effect, authorise and establish a small number of service suppliers in its territory, and substantially, prevent competition among those service suppliers.
- 119 See OECD (2001), pp. 49-60.

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This study also examines pros and cons of Carrots and Sticks approaches, and analyses incorporation of these approaches in three major MEAs, the Montreal Protocol, The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Basel Convention, to find out which approach has been more successful in ensuring enforcement and compliance.

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come out with a handy, yet easy-to-afford monograph, dwelling upon the “hows” and “whys” of FDI. This monograph is third in the series of “Globalisation and India – Myths and Realities”, launched by CUTS in September 2001. “How is FDI defined?” “What does it constitute?” “Does it increase jobs, exports and economic growth?” Or, “Does it drive out domestic investment or enhance it?” are only some of the topics addressed to in a lay man’s language in this monograph. (48pp, #0306, Rs.30/US\$5)

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Enable and empower representatives of the civil society, from developing countries in particular, to articulate and advocate on the relevant issues at the appropriate fora.

Create a questioning society through empowerment of civil society representatives thus ensuring transparency and accountability in the system.

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