

Lists of Environmental Goods: An Overview

by Mahesh Sugathan*

Introduction

This note provides an overview of developments related to the construction of lists of environmental goods (EGs). Such lists have been developed both for purposes of research as well as to facilitate trade negotiations (with a view to reducing tariffs and non-tariff barriers). The note seeks to examine, in particular, the motivations or drivers behind various lists of EGs that have been developed, the broad scope of ‘environmental’ sectors and goods that have been included or excluded—particularly on lists submitted in the context of World Trade Organization (WTO) negotiations—and some broad observations that can be drawn from a preliminary observation of the scope or content of these lists. It will conclude by highlighting some implications for future trade negotiations on EGs and putting forward proposals that could help increase momentum, in particular, toward a ‘dual-pronged’ approach for developing EGs lists that could help economies reap both ‘environmental’ and ‘development’ benefits.

Lists of EGs were drawn up for both illustrative and trade negotiation purposes well before the launch of the WTO’s Doha Round of trade negotiations. However, it was the Doha Round that for the first time singled out EGs (and services) for accelerated trade liberalization at a multilateral level. While there is no universally accepted definition of what constitutes EGs, and many WTO members have chosen not to engage in a definitional debate, the question cannot be wished away entirely given the critical need to determine what goods should or should not be within the scope of any ‘list.’ One of the biggest challenges has been that most EGs, particularly at the 6-digit subcategory of the Harmonized System (HS)—under which customs codes are harmonized for all WTO members—often comprise products that have environmental as well as non-environmental end-uses. Among WTO members as well as experts generally, one point of view is that as long as a certain good has an environmental application, however minor, it should be included for negotiations as the end-goal is environmental protection. Another view is that, if negotiations are to take place within the WTO’s Committee on Trade and Environment (CTE), goods at the HS 6-digit level should have solely or ‘predominantly’ environmental end-uses.



* Mahesh Sugathan is a Senior Research Fellow with ICTSD

1. Environmental Goods Lists: Different Institutional Settings, Different Objectives

For more than a decade, within different settings there have been efforts to establish lists of EGs. These include:

(i) **The Asia-Pacific Economic Community (APEC) Early Voluntary Sector Liberalization (EVSL) initiative:** APEC was the first to single out EGs as a category for trade liberalization purposes as part of the EVSL launched in 1997, which was similar to the Information Technology Initiative (ITA) launched the same year. The EGs EVSL was based on rapid liberalization of a set of products that would be individually nominated by APEC members and then arranged according to an agreed classification system. As the aim of the APEC EVSL list was to obtain more favourable tariff treatment for EGs, APEC member economies limited themselves to specific goods that could be readily distinguished by customs agents and treated differently for tariff purposes.

(ii) **The Organisation for Economic Co-operation and Development (OECD) list of EGs.** This list, which is purely illustrative (not exhaustive), is based on the definition of the environment industry highlighted above and was developed for analytical purposes and not trade negotiations (unlike the APEC EVSL list). It flowed directly from joint OECD and Eurostat work on a manual for national statisticians to assist them in measuring their national environmental industries. The OECD has categorized EGs and services under three broad headings: pollution management, cleaner technologies and products, and resource management. The OECD's larger list was created deductively, starting from general categories based on the classifications in the environment industry manual.

A detailed comparison of both lists has been provided by Ron Steenblik (2005).¹ According to Steenblik, there is only a 30 percent overlap between the products on the OECD and APEC EVSL lists. He attributes

this to various factors, such as a difference of weight with respect to the categories emphasized. For instance, under the category "Heat/energy savings and management," the OECD list specifies 14 tariff lines, and the APEC EVSL lists only three. The OECD's list contains five tariff lines each under the sub-categories "Hazardous waste storage and treatment equipment" and "Waste collection equipment," while the APEC EVSL list contains none. But, the APEC EVSL list contains more goods in the "environmental monitoring, analysis and assessment" list than the OECD list, including products such as electricity and gas meters. Another reason, for the lack of greater overlap between the two lists, was the inclusion of certain products, such as chlorine, in a separate APEC EVSL initiative for chemicals. (As a result they were not included in the APEC EVSL EGs list.) In other cases, the OECD list simply did not go into that same degree of specificity for certain product categories as the APEC EVSL list. If the OECD had done so, the degree of overlap would certainly have been greater.

(iii) **Lists of EGs submitted by WTO Members pursuant to the Doha Round negotiations:** Both the APEC EVSL and the OECD lists informed the various country submissions on lists of EGs made by WTO members during the course of the Doha Round, but they were regarded as a helpful, not definitive, reference lists. Therefore, it may be worth examining briefly some of the lists of EGs that have been submitted in the WTO context. The WTO has compiled a list of products and product categories that have been submitted by WTO members (TN/TE/19). A review of these submissions shows a wide variety of products that have been submitted under various categories. The most comprehensive submission (comprising diverse sectors with a total of 153 HS-codes) that has been submitted in the context of the Doha negotiations so far is an informal one (JOB(09)/132) by the so-called 'Friends of Environmental Goods' comprising Canada, the European Union, Japan, Korea, New-Zealand, Norway, Chinese Taipei, Switzerland and the United States. This list will be referred to in

1 Steenblik, R. (2005). Environmental Goods: A Comparison of the OECD and APEC Lists, OECD Trade and Environment Working Paper No: 2005-4.

the rest of the note as ‘the Friends’ 153 List’ and the Group as ‘Friends of EGs’ or simply ‘Friends’. This list was the result of the downsizing of a previous list earlier submitted by the Friends which exceeded 400 products

(termed as the Friends’ 400 plus list in this paper).² Both the ‘153’ as well as the earlier ‘400 plus’ lists were the result of compiling products from individual submissions by the countries in the Friends’ group.

Table 1. Environmental Categories and Lists Submitted in the WTO Doha Round

Environmental Category and Sub-category	No: of HS Codes	WTO Members	Document Reference	Date of Submission
I. Air-Pollution Control				
	13	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
	22	Japan	TN/TE/W/75/ADD.1	22 March 2010
Total	35			
II. Renewable Energy				
	28	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
	12	Philippines	JOB/TE/2	16 Feb 2010
	25	Japan	TN/TE/W/75/ADD.1	22 March 2010
Total	65			
III. Waste-Management, Water-Treatment and Remediation				
<i>Clean Up Or Remediation of Soil And Water (R/C)</i>	4	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
<i>Management of Solid and Hazardous Waste and Recycling Systems (SHW)</i>	24	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
<i>Waste Management, Recycling and Remediation (WMR)</i>	3	Philippines	JOB/TE/2	16 Feb 2010
<i>Waste Water Management and Potable Water Treatment (WWM)</i>	29	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
Total	60			
IV. Environmental Technologies				
<i>Carbon Capture and Storage Technologies (CCS), Gas Flaring Emission Reduction Technologies (GFR), Efficient Consumption of Energy Technologies (EC)</i>	263	Saudi Arabia	JOB(09)/169	6 Nov 2009

² This bigger list has been compiled by the WTO Secretariat in its document TN/TE/W/63

Environmental Category and Sub-category	No: of HS Codes	WTO Members	Document Reference	Date of Submission
<i>Natural Gas and Related Technologies, Cleaner Technologies and Products (CT/P)</i>	16	Qatar	TN/TE/W/19 and TN/TE/W/27	28 January 2003 & 25 April 2003
<i>Cleaner or More Resource Efficient Technologies and Products (CT/P)</i>	4	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
<i>Energy Efficiency (EE)</i>	29	Japan	TN/TE/W/75/ADD.1	22 March 2010
<i>Environmental Monitoring, Analysis and Assessment Equipment (M/A)</i>	29	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
<i>Heat and Energy Management (H/EM)</i>	6	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
<i>Natural Risk Management (NRM)</i>	3	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
<i>Noise and Vibration Abatement (N/V)</i>	4	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
Total	354			
V. Others				
<i>Environmentally Preferable Products based on End-Use or Disposal Characteristics (EPP)</i>	6	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
<i>Natural Resources Protection (NR)</i>	3	Canada, the European Communities, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States	JOB(09)/132	9 Oct 2009
<i>Other (OTH)</i>	1 (Distilling apparatus for desalination plant)	Philippines	JOB/TE/2	16 Feb 2010
	1 (Evaporators)	Philippines	JOB/TE/2	16 Feb 2010
Total	11			

Source: WTO, WTO Committee on Trade and Environment in Special Session, Report by the Chairman, Ambassador Manuel A. J. Teehankee, to the Trade Negotiations Committee for the purpose of the TNC stocktaking exercise, TN/TE/19, 22 March 2010.

(v) **The World Bank's 43 Climate-friendly goods list:**

In 2007, the World Bank identified a set of 43 climate-friendly goods (World Bank, 2008), including a variety of products, such as solar collectors and system controllers, wind-turbine parts and components, stoves, grates and cookers, and hydrogen fuel cells.³ The World Bank report (2007) also proposed accelerated liberalization of products, technologies, and services used in projects supported under the Clean Development Mechanism (CDM). According to the report, such liberalization could reduce equipment costs and contribute to lowering transaction costs for potential investors as long as they were complemented by certain measures, such as supportive local regulatory measures. The list was drawn from a broader list of 153 products proposed at the WTO by the Friends of Environmental Goods that comprised categories, such as renewable energy products, solid waste management, and heat and energy management products.⁴ The World Bank's list eventually became the basis for an informal submission by the United States (US) and the European Union (EU) that proposed zero tariffs on these 43 'climate-friendly' products by 2013.⁵

(vi) **The International Centre for Trade and Sustainable Development (ICTSD) climate-friendly goods list:** The ICTSD commissioned three mapping studies on climate-mitigation technologies and associated goods in three

sectors: the first on energy supply undertaken by the Energy Research Centre of the Netherlands (ECN); the second on residential and commercial buildings undertaken by the Energy and Resources Institute (TERI) in India; and a third on the transport sector was commissioned to the Energy Research Institute (ERI) in China.⁶ Subsequently, the technologies mapped were matched with relevant HS codes. For example, renewable energy products were classified into a list comprising 85 different HS codes.⁷

(vii) **The APEC List of EGs (the APEC '54' List):** On 9 September 2012, leaders of 21 Asia-Pacific economies agreed in Vladivostok, Russia to lower applied tariffs to no more than 5 percent by 2015 on a set of EGs product categories classified under 54 different HS subheadings. Tariff reductions may be implemented by APEC member economies on a voluntary basis, but only for more narrowly defined products, taking into account additional product characteristics. Table 2 below shows the various subheadings to which the 54 product categories belong. It must be noted that certain product subcategories as well as individual products could have applications in more than one sector, but the table below tries to present them in a mutually exclusive manner. A complete list of the 54 product categories can be accessed at: [http://www.apec.org/Meeting-Papers/Leaders Declarations/2012/2012_aelm/2012_elm_annexC.aspx](http://www.apec.org/Meeting-Papers/Leaders%20Declarations/2012/2012_aelm/2012_elm_annexC.aspx)

3 World Bank (2008), *International Trade and Climate Change: Economic, Legal and Institutional Perspectives* accessible at http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2007/11/15/000310607_20071115153905/Rendered/PDF/41453optmzd0PA101OFFICIAL0USE0ONLY1.pdf

4 The 'Friends of Environmental Goods' comprise Canada, the European Union, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States.

5 ICTSD (2009), *Liberalization of Climate-friendly Environmental Goods: Issues for Small Developing Countries*, ICTSD Information Note Number 14, October 2009

6 See *Mapping Climate Mitigation Technologies and Associated Goods within the Renewable Energy Supply Sector*, by Paul Lako, ICTSD Programme on Trade and Environment, 2008; *Mapping Climate Mitigation Technologies and Associated Goods within the Buildings Sector*, by Anandajit Goswami, Mitali Dasgupta and Nitya Nanda, ICTSD Programme on Trade and Environment, 2009; *Mapping Climate Mitigation Technologies and Associated Goods within the Transport Sector*, by Jiang Kejun, ICTSD Programme on Trade and Environment, October 2010 accessible at: <http://ictsd.org/programmes/climate-change/research-analysis/>

7 Izaak Wind (2008), *HS Codes and the Renewable Energy Sector*, ICTSD Programme on Trade and Environment accessible at: <http://ictsd.org/programmes/climate-change/research-analysis/>

Table 2. Environmental Categories for Product Subheadings in the APEC List

Categories of main environmental protection	Number of sub-headings
Renewable Energy (RE)	15
Environmental Monitoring, Analysis and Assessment Equipmet	17
Environmental-protection (principally SHW, WWM and APC)	21
Environmentally Preferable Products (multi-layered bamboo flooring panels)	1
Total	54

In practice, environmental goods falling within a particular sub-heading may have more than one environmental application. The application of sub-heading to environmental categories may differ slightly from data presented in other papers.

Source: Vossenaar, R. (2013); The APEC List of Environmental Goods: An Analysis of the Outcome & Expected Impact;

The table shows the importance of the renewable energy and the environmental protection category of EGs (included in the submissions for solid and hazardous waste (SHW), waste-water management (WWM) and air pollution control (APC).

2. Observations on the EGS Lists

The review of various EGs lists leads to a couple of interesting observations. These are:

- (i) **Difficulties for tracking trade in the environmental end-use or green economy applications for a large number of products:** While many listed products have environmental applications (including as intermediates) and could be of export interest to developing countries, they are very difficult to classify in terms of their environmental end-uses while tracking trade flows.
- (ii) **Dominance of manufactured products:** All the products that were officially proposed at the WTO are industrial or manufactured products. While a number of developing countries appeared interested in proposing agricultural goods of interest, it would be difficult to differentiate those that were produced in an organic or sustainable manner from the rest for customs officials to implement tariff concessions, as the (ii) customs descriptions for goods are based on their physical characteristics. However, as most organic and sustainable agricultural produce require labelling and certification, streamlining certification procedures for these products, reducing labelling confusion, and assisting developing countries in responding to the opportunities

and challenges for certified agricultural product markets could be ways of expanding opportunities and challenges for existing and potential exporters of these products from developing countries. The OECD category does make a provision for sustainable agriculture and fisheries, but these are meant for EGs that would serve as inputs into these sectors rather than outputs from these sectors. A good example would be drip-irrigation systems for agriculture and fishing nets that would enable fishermen to catch fish in a more sustainable manner. However, even for some of these products there may be a need for the customs classification to be developed in a manner that would more precisely capture these products and enable them to be tracked for trade statistics and analysis purposes.

- (iii) **Predominance of climate-friendly and low-carbon goods in WTO submissions:** Low or lower-carbon goods as reflected in 'ex-outs' and HS codes submitted under sectors of renewable energy, energy efficiency, heat and energy management and carbon capture and storage appears to be dominant in the various lists submitted. This however does not imply consensus among all WTO members that these are indeed 'low-carbon' or even 'environmental'. A number of 'cleaner' fuels (relative to coal), such as natural gas and associated technologies have been proposed by Qatar and Saudi Arabia. This, of course, raises the interesting question of 'relative greenness' in the submission of EGs, which is again associated with definitional issues. Similarly, a number of energy-efficiency products proposed by Japan do not have distinct HS codes of their own to identify them

and cannot be identified as such on the basis of physical properties alone. . However, the renewable energy category does contain items that are very trade-intensive, such as solar-photovoltaic (PV) panels, light-emitting diodes (LEDs) and wind-powered generating sets.

3. Commonalities Between Various WTO List Submissions

In terms of categories under which products in the various lists submitted have been classified, it appears that ‘Cleaner Technologies’ (with 22 HS codes) appear as the most common category among all lists submitted (counting the ‘Friends’ ‘153’ list as one). However , the ‘cleaner technologies’ category includes a diversity of sectors and environmental end-uses and amongst these include electricity meters and other primary cells and batteries that are also used in association with renewable energy products. It also includes sectors such as carbon and capture and storage, heat and energy management and energy efficiency and environmental monitoring, analysis and assessment equipment.(See Table in

Annex 2). Decomposing this rather broad category of goods, it appears that about 13 HS codes submitted under the category of Environmental Monitoring Equipment in the ‘Friends 153 list’ appear to have featured the most in a second list, namely that of Saudi Arabia but under a different category, namely that of ‘carbon-capture’ together with products relevant to gas-flaring and/or efficient consumption of energy. Table 3 below shows the products common to the APEC’s 54 list and at least two or more submissions at the WTO. The comparison reveals once again that environmental monitoring equipment (also relevant according to Saudi Arabia’s proposal to sectors such as carbon capture and storage, efficient consumption of energy and gas flaring) appear to feature the most with at least eight HS codes, followed by at least four HS codes relevant to renewable energy, two HS codes relevant to Waste-Management, Water Treatment and Remediation and one relevant to Natural Risk Management (also relevant according to Saudi Arabia’s proposal to sectors such as carbon capture and storage, efficient consumption of energy and gas flaring).

Table 3. Product Subheadings Common to the APEC’s 54 List and to at least Two or More WTO Submissions

Sector/Sectors: Renewable Energy	Total No: of HS Codes:4
HS Codes and Description	Countries Proposing at the WTO
1.HS 841182-Other gas turbines of a power exceeding 5,000 kW	‘Friends of EGs’ and the Philippines
2.HS 841919- Instantaneous or storage water heaters, non-electric (other than instantaneous gas water heaters)	Friends of EGs’ and the Philippines
3. HS 850231- Other electric generating sets: Wind-Powered	‘Friends of EGs’ and the Philippines
4. HS 854140- Photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitted diodes.	‘Friends of EGs’ and the Philippines
Sector/Sectors:Waste-Management, Water Treatment and Remediation	Total No: of HS Codes:2
1.HS 840290-Super-heated water boilers and parts of steam generating boilers	‘Friends of EGs’ and the Philippines
2.Auxiliary plant for use with boilers of heading84.02 or 84.03 (for example, economisers, superheaters,soot removers, gas recoverers); condensersfor steam or other vapour power units.	‘Friends of EGs’ and the Philippines
Sector/Sectors:Waste-Management, Water Treatment and Remediation	Total No: of HS Codes:2
1. HS 840290-Super-heated water boilers and parts of steam generating boilers	Friends of EGs and the Philippines
2. Auxiliary plant for use with boilers of heading84.02 or 84.03 (for example, economisers, superheaters, soot removers, gas recoverers); condensersfor steam or other vapour power units.	Friends of EGs and the Philippines

Sector/Sectors: Carbon-capture and Storage and Efficient Consumption of Energy/ Natural Risk Management	Total No: of HS Codes: 1
1. HS 901580-Other surveying, hydrographic, oceanographic, hydrological, meteorological or geophysical instruments and appliances, excluding compasses, not elsewhere specified in 90.15	Friends of EGs and Saudi Arabia
Sector/Sectors: Carbon-capture and Storage and Efficient Consumption of Energy/Environmental Monitoring and Analysis	Total No: of HS Codes: 8
1. HS 903180-Other instruments, appliances and machines	Friends of EGs and Saudi Arabia
2. HS 903190-Parts and accessories of the instruments and appliances and machines of 90.31	Friends of EGs and Saudi Arabia
3. HS 903290-Parts and accessories for nominated articles of subheading 9032	Friends of EGs and Saudi Arabia
4. HS 903300-Parts and accessories (not specified or included elsewhere in this Chapter) for machines, appliances, instruments or apparatus of Chapter 90.	Friends of EGs and Saudi Arabia
5. HS 902610-Instruments and apparatus for measuring or checking the flow or level of liquids or gases.	Friends of EGs and Saudi Arabia
6. HS 902620-Instruments and apparatus for measuring or checking pressure.	Friends of EGs and Saudi Arabia
7. HS 902680-Other Instruments and apparatus for measuring and checking gases or liquids	Friends of EGs and Saudi Arabia
8. HS 902690-Parts and accessories for articles of subheading 9026.	Friends of EGs and Saudi Arabia

4. Country Reactions to Various Lists of Environmental Goods

The submissions of environmental goods lists during the course of WTO negotiations have been initiated mainly by OECD countries. The initial submission of lists of products (that comprised about 480 HS 6-digit lines) was accompanied by a ‘product-by-product’ evaluation approach to determine which of these goods would truly qualify as ‘environmental.’ These discussions were often marked by disagreements between developed and developing countries, the former arguing that a single potential non-environmental ‘end-use’ should suffice to disqualify a product from consideration and the latter countering that this would all but exclude a handful of items. Argentina, Brazil, Egypt, India, Mexico and South Africa, along with several other developing countries that referred to themselves as ‘Friends of Environment and Sustainable Development’ (FESD) through an informal

submission detailed more systematic complaints and criticisms regarding the list approach, stressing the importance of only liberalising trade in environmental goods that serve a single environmental end-use.

The arguments of many developing countries were based on the fact that there was a need to show clear environmental as well as developmental benefits from the products that were included in the 400 plus list initially submitted by the Friends of EGs.⁸ Some WTO members, notably Argentina and India have proposed a ‘project’ or ‘integrated’ approach that would temporarily liberalize any good or service used for designated environmental projects. However, other members contend that such selective implementation would not result in binding, long-term liberalization and would be difficult to implement and administer. Many from the ‘Friends’ group that submitted lists also argued for considering the environmental benefits of the products that were already included in their submissions.

8 Developing Countries Present Views on Environmental Goods, *Bridges Trade BioRes* • Volume 6 • Number 11 • 16th June 2006 accessible at <http://ictsd.org/i/environment/9042/>

The general critique and discussions eventually led to the 'Friends' list being reduced to about 153 products from the 400 plus earlier. For instance revised lists individual lists were submitted by Canada and New Zealand that excluded a large number of products with no 'direct' environmental benefits such as chemicals and recyclable material. These changes were reflected in the Friends' 153 list. However the tensions and disagreements over their 'environment and development' credentials continued to persist as earlier. Many developing countries also contended that the practise of identifying specific products for liberalisation solely by name rather than by HS code (the so-called 'ex-out' approach)- would be too complex for their national authorities to implement.

Another aspect of the developing country critique was the lack of inclusion of products of export interest to them in the various lists submitted. However except for Brazil that proposed ethanol, no other specific product or products have been proposed by developing countries. One reason may have been the lack of resolution of the 'list' vs. 'project' approaches in the negotiations as the project approach considered within its ambit all goods and services used for a particular environmental project where the emphasis was on the 'project' rather than a specific 'good' or 'service.'

5. Conclusions and Implications for Trade and Trade Negotiations

A review of the lists of EGs developed so far reveals that almost all lists include products that are 'relevant' to environmental protection, although most of them have non-environmental end-uses as well. Some lists, such as the OECD list, are agnostic of trade interests or considerations, while others, such as those submitted by WTO members, also include products that are usually of commercial significance to the submitting members. None of these lists may be considered 'exhaustive' in terms of what the EGs universe could comprise, as they exclude a number of products that could be environmentally significant, such as 'organic' agricultural products (which are however hard to categorize as a distinct segment for tariff liberalization purposes). Thus, issues of definition or interpretation by different economies could

very well influence the lists they have submitted or may submit in the future.

Therefore, it may be desirable not to attempt a precise definition of EGs for trade negotiation purposes, but to consider a 'checklist' of diverse criteria based on certain broad principles as well as member interests. Ultimately, tariff and non-tariff barriers to these products could be reduced based on prior mutual agreement or further negotiations based on a 'request-offer' approach along the lines of that proposed by Brazil during the WTO EGs negotiations. However, a very clear understanding on what exactly is being liberalized for tariff purposes will be essential, particularly in those cases where individual economies may wish to liberalize only specific 'ex-outs' or national tariff lines (NTLs) within a 6-digit HS category, rather than the 6-digit category as a whole. It could be important, for instance, to clearly identify the scope of voluntary commitments that APEC economies may wish to make pursuant to the agreement on the 54 HS 6-digit categories if they choose to selectively liberalise only certain NTLs. Different economies may use different national codes and descriptions for a product covered under a specific national tariff line. In such cases, the member economy liberalizing only one or a few NTLs should make the respective codes and descriptions transparent for its trading partners. Such an approach could also be followed for the WTO EGs negotiations as well. In certain cases, such as, for the reduction of non-tariff measures, the individual national tariff line or 6-digit HS code may be less important, and the focus could be on the specific non-tariff measure, such as a certain labelling requirement or a certain technical standard. Thus, an agreement to eliminate certain types of non-tariff measures that EGs exporters deem problematic could be beneficial irrespective of the HS code or the specific national tariff line the affected good falls under. Finally, an important consideration should be to provide for synergy between EGs lists and environmental services to ensure greater coherence between the two sets of negotiations. While some members have professed to internally coordinate within their delegations to ensure the relevance of EGs lists to environmental services, this could be adopted as one of the key principles or 'checklist' criteria to be considered by WTO members. Thus, if a

product is deemed 'critical' or exclusive to the delivery of environmental services, it could be included in a future list, and a final list could be agreed based on mutual negotiations and consideration of national sensitivities. It is clear from a review of both the APEC lists as well as lists submitted by various WTO members that some products such as 'single-end' use products related to renewable energy as well as products related to environmental monitoring and analysis may enjoy a greater degree of acceptance and could be a good starting point for discussions within the WTO. While trade negotiations cannot be divorced from mercantilist considerations, negotiators and policymakers should try to keep 'environment' as well as 'development' dimensions in the forefront.

One option that could deliver on the 'environmental dimension' could be to take a '*cost of environmental compliance*' approach, i.e. to identify those products for which prevailing tariffs or non-tariff barriers significantly raise the cost for an economy to undertake 'environmental compliance' measures or pursue important domestic environmental regulations. Such products could then be prioritized for liberalisation. On the development dimension, consideration could be made for products that deliver '*development*

benefits' including dynamic growth products or those that show great potential for exports from developing countries and least-developed countries (LDCs). Tariffs and non-tariff barriers for such products could be eliminated (starting with OECD countries) if these products are shown to be relevant to environmental applications (even if there is difficulty in identifying the 'environmental end-uses' based on the description of such items). One example may be certain components used in environmental applications. Steps to liberalise such products could, for instance, also be taken in the context of negotiations on non-agricultural market access (NAMA) or as part of agriculture and services negotiations. This could result in environment and development benefits even if the liberalisation outcomes under NAMA or Agriculture are not identifiable as a deliverable under the distinct EGS mandate of WTO's Para 31 (iii). Trade liberalization, using a 'cost of environmental compliance' as well as a 'development benefits,' approach would have varying environmental benefits under both approaches and clear development benefits under at least one approach. If mainstreamed into various negotiating mandates under the Doha Development Agenda (DDA), these approaches could contribute to environmental and development outcomes not only under the EGS negotiations but also the Doha round as a whole.

Annex 1: Comparison of Products Covered Under APEC's EVSL Initiative and the OECD's Illustrative List of Environmental Goods

List coverage		HS ¹		Product description	Additional product specification
OECD	APEC				
A. POLLUTION MANAGEMENT					
1. Air pollution control					
	X	8404.10		Auxiliary plant for use with boilers of HS 8402 or 8403 (for example, economisers, super-heaters, soot removers, gas recoverers)	
	X (ex)	8405.10		Producer gas or water gas generators, with or without their purifier; acetylene gas generators and similar water process gas generators, with or without their purifiers	Includes only those with purifiers
<i>1.1 Air-handling equipment</i>					
X	X	8414.10		Vacuum pumps	
X		8414.30		Compressors of a kind used in refrigerating equipment	
X		8414.40		Air compressors mounted on a wheeled chassis for towing	
		8414.59		Fans (and blowers) other than table, floor, window, ceiling or roof fans with a self-contained electric motor of an output not exceeding 125 W	
X	X	8414.80		Other air or gas compressors or hoods	
X		8414.90		Parts for air or gas compressors, fans or hoods	
<i>1.2 Catalytic converters</i>					
X	X	8421.39		Filtering or purifying machinery and apparatus for gases	
X	X	8421.99		Parts for filtering or purifying machinery	
<i>1.3 Chemical recovery systems</i>					
X		2521.00		Limestone flux	
X		2522.20		Slaked (hydrated) lime	
X		2816.10		Magnesium hydroxide and peroxide	
X				Activated earths	
X	X	8421.39	*	Filtering or purifying machinery and apparatus for gases	
X	X	8421.99	*	Parts for filtering or purifying machinery	
<i>1.4 Dust collectors</i>					
X	X	8421.39	*†	Filtering or purifying machinery and apparatus for gases	
X	X	8421.99	*†	Parts for filtering or purifying machinery	
<i>1.5 Separators/precipitators</i>					
X		7019.90		Other glass fibre products	
X	X	8419.60		Machinery for liquefying air or other gases	
X		8419.89		Other machinery for treatment of materials by change of temperature	
X	X	8421.99	*†	Parts for filtering or purifying machinery	

List coverage		HS ¹		Product description	Additional product specification
OECD	APEC				
1.6 Incinerators, scrubbers					
X	X (ex)	8417.80		Other furnaces, ovens, incinerators, non-electric waste incinerators	
X	X	8421.39	*†	Filtering or purifying machinery and apparatus for gases; other	
X	X	8421.99	*†	Parts of filtering or purifying machinery and apparatus for liquids or gases	
X	X (ex)	8514.10		Industrial or laboratory electric resistance furnaces	Waste incinerators or other waste treatment apparatus
X	X (ex)	8514.20		Industrial or laboratory induction or dielectric furnaces	Waste incinerators or other waste treatment apparatus
X	X (ex)	8514.30		Other industrial or laboratory electric furnaces and ovens	Waste incinerators or other waste treatment apparatus
X	X (ex)	8514.90		Parts, industrial or laboratory electric furnaces	Parts of waste incinerators
1.7 Odour control equipment					
X		8424.90		Parts for sprayers for powders or liquids	
2. Wastewater management					
2.1 Aeration systems					
X		8414.30	*	Compressors of a kind used in refrigerating equipment	
X		8414.40	*	Air compressors mounted on a wheeled chassis for towing	
X	X	8414.80	*†	Other air or gas compressors or hoods	
X		8414.90	*	Parts for air or gas compressors, fans or hoods	
	X (ex)	8543.89	†	Electrical machines and apparatus, having individual functions, not specified or included elsewhere in this chapter; other	Ozone production system
2.2 Chemical recovery systems					
X		2521.00	*	Limestone flux	
X		2522.20	*	Slaked (hydrated) lime	
X		2801.10		Chlorine	
X		2814.10		Anhydrous ammonia	
X		2815.11		Sodium hydroxide solid	
X		2815.12		Sodium hydroxide in aqueous solution	
X		2816.10	*	Magnesium hydroxide and peroxide	
X			*	Activated earths	
X		2818.30		Aluminium hydroxide	
X		2820.10		Manganese dioxide	
X		2820.90		Manganese oxides (other)	
X		2824.10		Lead monoxide	
X		2832.10		Sodium sulphites	
X		2832.20		Other sulphites	

List coverage		HS ¹		Product description	Additional product specification
OECD	APEC				
X		2835.10		Phosphinates and phosphonates	
X		2835.21		Phosphates of triammonium	
X		2835.22		Phosphates of monosodium or disodium	
X		2835.23		Phosphates of trisodium	
X		2835.24		Phosphates of potassium	
X		2835.25		Calcium hydrogenorthophosphate	
X		2835.26		Other phosphates of calcium	
X		2835.29		Other phosphates (excl. polyphosphates)	
X		3802.10		Activated carbon	
X	X	8421.21		Water filtering or purifying machinery and apparatus	
X	X	8421.29		Other machinery for purifying liquids	
X	X	8421.99		Parts for filtering or purifying machinery	
2.3 Biological recovery systems					
2.4 Gravity sedimentation systems					
	X			Flocculating agents	
2.5 Oil/water separation systems					
X	X	8421.19		Other centrifuges	
X	X	8421.21	*†	Water filtering or purifying machinery and apparatus	
X	X	8421.29	*†	Other machinery for purifying liquids	
X	X	8421.91		Parts of centrifuges	
X	X	8421.99	*	Parts for filtering or purifying machinery	
2.6 Screens/strainers					
X	X (ex)	3926.90		Other articles of plastics and articles of other materials of HS 3901 to 3914; other	1. Bio-film medium consisting of woven fabric sheets that facilitate the growth of bio-organisms
				Other articles of plastics and articles of other materials of HS 3901 to 3914; other	2. Rotating biological contactor consisting of stacks of large (HDPE) plates that facilitate the growth of bio-organisms
	X (ex)	5603.14		Non-wovens, whether or not impregnated, coated, covered or laminated: of man-made filaments; weighing more than 150g/m ²	Fabric of polyethylene, polypropylene, or nylon for filtering wastewater
X	X	8421.21	*†	Filtering or purifying machinery and apparatus for liquids: for filtering or purifying water	
X	X	8421.29	*†	Filtering or purifying machinery and apparatus for liquids; other	
X	X	8421.99	*†	Parts for filtering or purifying machinery	
2.7 Sewage treatment					
X				Flocculating agents	

List coverage		HS ¹		Product description	Additional product specification
OECD	APEC				
X		5801.90		Woven pile & chenille fabrics of other textile materials	
	X (ex)	5911.90		Textile products and articles, for technical uses, specified in note 7 to this chapter; other	
X		7309.00		Tanks, vats, etc., > 300 litres	
X		7310.10		Tanks, drums, etc., >50 litres <300 litres	
X		7310.21		Cans < 50 litres, closed by soldering or crimping	
X		7310.29		Other cans < 50 litres	
X		8410.00		Hydraulic turbines 00	
X	X	8410.11		Hydraulic turbines 11	
X	X	8410.12		Hydraulic turbines 12	
X	X	8410.13		Hydraulic turbines 13	
X	X	8410.90		Parts for hydraulic turbines	
X	X	8417.80	*	Incinerators, non-electric	
X		8423.81		Weighing machines capacity <30 kg	
X		8423.82		Weighing machines capacity >30 kg <500 kg	
X		8423.89		Weighing machines	
X		8424.90	*	Parts for sprayers for powders or liquids	
	X (ex)	8428.33		Other continuous-action elevators and conveyors, for goods or materials; other, belt type	Belt-type above-ground conveyor used to transfer solids or slurries between plants
	X (ex)	8479.82		Mixing, kneading, crushing, grinding, screening, sifting, homogenising emulsifying or stirring machines	Agitator for wastewater treatment
X	X (ex)	8514.10	*†	Industrial/lab electric resistance furnaces	Waste incinerators or other waste treatment apparatus
X	X (ex)	8514.20	*†	Industrial/lab induction, dielectric furnaces	Waste incinerators or other waste treatment apparatus
X	X (ex)	8514.30	*†	Industrial/lab electric furnaces & ovens, n.e.s.	Waste incinerators or other waste treatment apparatus
X	X (ex)	8514.90	*†	Parts, industrial/lab electric furnaces	Parts of waste incinerators
<i>2.8 Water pollution control, wastewater reuse equipment</i>					
<i>2.9 Water handling goods and equipment</i>					
X		7325.10		Articles of cast iron	
X		8413.20		Root-control equipment	
X		8413.50		Positive displacement pumps, hand-operated [centrifugal pumps]	

List coverage		HS ¹	Product description	Additional product specification
OECD	APEC			
X	X (ex)	8413.60	Pumps for liquids, whether or not fitted with a measuring device; other rotary positive displacement pumps	Submersible mixer pump to circulate water in wastewater treatment process; sewage pumps, screw type
X	X (ex)	8413.70	Pumps for liquids, whether or not fitted with a measuring device; other centrifugal pumps	Centrifugal pumps lined to prevent corrosion; centrifugal sewage pumps
X		8413.81	Other pumps	
X		8481.10	Valves, pressure-reducing	
X		8481.30	Valves, check	
X		8481.40	Valves, safety	
X		8481.80	Other taps, cocks, valves, etc.	
X	X	9026.10	Instruments for measuring the flow or level of liquids	
X	X	9026.20	Instruments for measuring or checking pressure	
3. Solid waste management				
<i>3.1 Hazardous waste storage and treatment equipment</i>				
X		6810.99	Other articles of cement, concrete	
X		7806.00	Other articles of lead	
X		8516.29	Other electric space heating and soil heating apparatus	
X		9013.20	Lasers	
X			Vitrification equipment	
<i>3.2 Waste collection equipment</i>				
X		3924.90	Household & toilet articles of plastic	
X		9603.10	Brooms, hand	
X		9603.50	Brushes as parts of machines, appliances	
X		9603.90	Mechanical floor sweepers	
X			Trash bin liners (plastic)	
<i>3.3 Waste disposal equipment</i>				
X		3920.20	Polypropylene sheeting, etc.	
	X (ex)	8462.91	Machine tools for working metal, other than punching or notching and combined punching and shearing; hydraulic presses	Shredders/balers for metals; hydraulic
	X (ex)	8472.90	Other office machines	Paper shredders
X			Compactors	
	X (ex) ³	8479.89	Machines and mechanical appliances having individual functions, not elsewhere specified or included in this chapter, other	Trash compactors
	X (ex) ⁴	8479.90	Parts of machines and mechanical appliances having individual functions, not elsewhere specified or included in this chapter, other	Parts of trash compactors
X			Refuse disposal vehicles	

List coverage		HS ¹		Product description	Additional product specification
OECD	APEC				
<i>3.4 Waste handling equipment</i>					
<i>3.5 Waste separation equipment</i>					
	X (ex)	8474.10		Sorting, screening, separating or washing machines	Machines of a kind for use in screening and washing coal
	X (ex)	8505.90		Electromagnets; other, including parts	Electromagnet
X				Magnetic separators	
<i>3.6 Recycling equipment</i>					
X	X	8422.20		Machinery for cleaning or drying bottles or other containers	
	X (ex)	8474.10	†	Sorting, screening, separating or washing machines	Waste foundry sand reclamation equipment
	X (ex)	8474.32		Machines for mixing mineral substances with bitumen	Asphalt recycle equipment
X		8474.39		Other mixing or kneading machines for earth, stone, sand, etc.	
X	X (ex)	8479.82		Mixing, kneading, crushing, grinding, screening, sifting, homogenising emulsifying or stirring machines	Other than kneading machinery
X	X (ex)	8479.89	†	Machines and mechanical appliances having individual functions, not elsewhere specified or included in this chapter, other	Radioactive waste press
X			*	Magnetic separators	
X				Tire-shredding machinery	
<i>3.7 Incineration equipment</i>					
	X (ex) ⁵	6902.10		Refractory bricks, blocks, tiles and similar refractory ceramic constructional goods, other than those of siliceous fossil meals or similar siliceous earths; containing by weight, singly or together, more than 50% of the elements Mg, Ca or Cr, expressed as MgO, CaO or Cr ₂ O ₃	Industrial incineration
	X (ex) ⁵	6902.20		Refractory bricks, blocks, tiles and similar refractory ceramic constructional goods, other than those of siliceous fossil meals or similar siliceous earths; containing by weight more than 50% of alumina (Al ₂ O ₃), of silica (SiO ₂) or of a mixture or compound	Industrial incineration
	X (ex) ⁵	6902.90		Refractory bricks, blocks, tiles and similar refractory ceramic constructional goods, other than those of siliceous fossil meals or similar siliceous earths; other	Industrial incineration
X	X (ex)	8417.80	*†	Industrial or laboratory furnaces and ovens, including incinerators, non-electric; other than bakery ovens and furnaces for treatment of ores	Waste incinerators
X	X (ex)	8417.90		Parts of Industrial or laboratory furnaces and ovens, including incinerators, non-electric	Parts of waste incinerators
X	X (ex)	8514.10	*†	Industrial or laboratory furnaces and ovens; electric, resistance heated	Waste incinerators or other waste treatment apparatus

List coverage		HS ¹		Product description	Additional product specification
OECD	APEC				
X	X (ex)	8514.20	*†	Industrial or laboratory furnaces and ovens; electric, induction or dielectric	Waste incinerators or other waste treatment apparatus
X	X (ex)	8514.30	*†	Industrial or laboratory furnaces and ovens, electric, other	Waste incinerators or other waste treatment apparatus
X	X (ex)	8514.90	*†	Parts of industrial or laboratory electric furnaces and ovens or other laboratory induction or dielectric heating equipment	Parts of waste incinerators
4. Remediation and cleanup					
<i>4.1 Absorbents</i>					
	X (ex)	2302.10		Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of corn	Booms or socks consisting of ground corn cobs contained in a textile covering
<i>4.2 Cleanup</i>					
X		8516.29		Other electric space-heating and soil-heating apparatus	
X		9013.20	*	Lasers	
X				Vitrification equipment	
<i>4.3 Water treatment equipment</i>					
X				Surface active chemicals (not finished detergents)	
X	X (ex)	8543.89	†	Other electrical machines and apparatus with one function	Ozone production system
	X (ex)	8907.10		Inflatable rafts	Inflatable oil spill recovery barges
	X (ex)	8907.90		Other floating structures	Pollution protection booms
X				Oil spillage cleanup equipment	
5. Noise and vibration abatement					
<i>5.1 Mufflers/silencers</i>					
X	X (ex)	8409.91		Parts suitable for use solely or principally with the engines of HS 8407 or 8408; suitable for use solely or principally with sparkignition internal combustion piston engines	Industrial mufflers
X		8409.99		Parts for diesel or semi-diesel engines	
X		8708.92		Silencers and exhaust pipes, motor vehicles	
<i>5.2 Noise-deadening material</i>					
<i>5.3 Vibration control systems</i>					
<i>5.4 Highway barriers</i>					
6. Environmental monitoring, analysis and assessment					
<i>6.1 Measuring and monitoring equipment</i>					
	X (ex)	6903.10		Other refractory ceramic goods (for example, retorts, crucibles, mufflers, nozzles, plugs, supports, cupels, tubes, pipes, sheaths and rods), other than those of siliceous fossil meal or of similar siliceous earths; containing by weight more than 50% of graphite or other carbon or of a mixture of these products	Laboratory refractory equipment

List coverage		HS ¹	Product description	Additional product specification
OECD	APEC			
	X (ex)	6903.20	Other refractory ceramic goods (for example, retorts, crucibles, muffles, nozzles, plugs, supports, cupels, tubes, pipes, sheaths and rods), other than those of siliceous fossil meal or of similar siliceous earths; containing by weight more than 50% of alumina (Al ₂ O ₃) or of a mixture or compound of alumina and of silica (SiO ₂)	Laboratory refractory equipment
	X (ex)	6903.90	Other refractory ceramic goods (for example, retorts, crucibles, muffles, nozzles, plugs, supports, cupels, tubes, pipes, sheaths and rods), other than those of siliceous fossil meal or of similar siliceous earths; other	Laboratory refractory equipment
	X (ex)	6909.19	Ceramic wares for laboratory, chemical or other technical uses; other	Laboratory equipment
	X	7017.10	Laboratory, hygienic or pharmaceutical glassware, whether or not graduated or calibrated; of fused quartz or other fused silica	
	X	7017.20	Laboratory, hygienic or pharmaceutical glassware, whether or not graduated or calibrated; of other glass having a linear coefficient of expansion not exceeding 5 x 10 ⁻⁶ per Kelvin within a temperature range of 0 °C to 300 °C	
	X	7017.90	Laboratory, hygienic or pharmaceutical glassware, whether or not graduated or calibrated; other	
	X	8414.10	Vacuum pumps	
	X	8414.80	Air or vacuum pumps, air or other gas compressors and fans; ventilating or recycling hoods incorporating a fan, whether or not fitted with filters; other	
	X	8419.40	Distilling or rectifying plant	
	X	8419.60	Machinery for liquefying air or other gases	
	X	8421.19	Centrifuges, including centrifugal dryers, other than cream separators and clothes dryers	
	X (ex)	8421.91	Parts of centrifuges, including centrifugal dryers	Centrifuges, accessories & parts; except clothes dryers and clothes-dryer furniture
	X	9015.40	Photogrammetric surveying instruments and appliances	
	X	9015.80	Other surveying, hydrographic, oceanographic, hydrological, meteorological or geophysical instruments and appliances, excluding compasses	
	X (ex)	9015.90	Parts and accessories of surveying, hydrological, meteorological or geophysical instruments and appliances, excluding compasses	Photogrammetric instruments; parts and accessories for articles of HS 9015.40
	X	9022.29	Apparatus based on the use of X-rays or of alpha, beta or gamma radiations for other than medical, surgical, dental or veterinary uses	
	X (ex)	9022.90	Apparatus based on the use of X-rays or of alpha, beta or gamma radiations for other than medical, surgical, dental or veterinary uses	Parts and accessories for goods of HS 9022.29

List coverage		HS ¹		Product description	Additional product specification
OECD	APEC				
X	X	9025.11		Thermometers and pyrometers, not combined with other instruments: liquid-filled, for direct reading	
X	X	9025.19		Thermometers and pyrometers, not combined with other instruments: other than liquid-filled, for direct reading	
X	X	9025.80		Hydrometers and similar floating instruments, thermometers, pyrometers, barometers, hygrometers and psychrometers, recording or not, and any combination of these instruments	
	X	9025.90		Parts and accessories for hydrometers and similar floating instruments, thermometers, pyrometers, barometers, hygrometers, and psychrometers, recording or not, and any combination of these instruments	
	X	9026.10	†	Instruments and apparatus for measuring or checking the flow or level of liquid	
	X	9026.20	†	Instruments and apparatus for measuring or checking pressure	
X	X	9026.80		Other instruments and apparatus	
X	X	9026.90		Parts and accessories for articles of HS 9026	
X	X	9027.10		Gas or smoke analysis apparatus	
X	X	9027.20		Chromatographs and electrophoresis instruments	
X	X	9027.30		Spectrometers, spectrophotometers and spectrographs using optical radiations (ultraviolet, visible, infrared)	
X	X	9027.40		Exposure meters [including sound-level meters]	
X	X	9027.50		Other instruments and apparatus using optical radiations (ultraviolet, visible, infrared)	
X	X	9027.80		Other instruments and apparatus for physical or chemical analysis	
X	X	9027.90		Microtomes; parts and accessories	
	X	9028.10		Gas meters	
	X	9028.20		Liquid meters	
	X	9028.30		Electricity meters	
	X	9028.90		Parts and accessories for articles of HS 9028	
X	X	9030.10		Instruments and apparatus for measuring or detecting ionising radiations	
	X	9030.20		Cathode ray oscilloscopes and cathode-ray oscillographs	
	X	9030.31		Multimeters	
	X	9030.39		Other instruments and apparatus, for measuring or checking voltage, current, resistance or power, without a recording device	
	X	9030.83		Other instruments and apparatus for measuring or checking electrical quantities, with a recording device	
	X	9030.89		Other instruments and apparatus for measuring or checking electrical quantities	
	X (ex)	9030.90		Parts and accessories (for nominated articles of HS 9030)	
	X	9031.10		Machines for balancing mechanical parts	
	X	9031.20		Test benches	

List coverage		HS ¹		Product description	Additional product specification
OECD	APEC				
	X	9031.30		Profile projectors	
X		9031.49		Other optical instruments	
X	X	9031.80		Other measuring or checking instruments, appliances and machines, not elsewhere specified in this chapter	
	X (ex)	9031.90		Parts and accessories (for nominated articles of HS 9031)	
X	X	9032.20		Manostats	
X	X	9032.81		Hydraulic and pneumatic instruments and apparatus	
X	X	9032.89		Automatic regulating or controlling instruments, other	
	X	9032.90		Parts and accessories	
	X	9033.00		Parts and accessories (not specified or included elsewhere in this chapter) for machines, appliances, instruments or apparatus of Ch. 90	
X				Auto emissions testers	
<i>6.2 Sampling systems</i>					
<i>6.3 Process and control equipment</i>					
X	X	9032.10		Thermostats	
X				Electrical process control equipment	
X				On-board monitoring/control	
<i>6.4 Data acquisition equipment</i>					
<i>6.5 Other instruments/machines</i>					
B. CLEANER TECHNOLOGIES AND PRODUCTS					
1. Cleaner/resource-efficient technologies and processes					
X				Electrochemical apparatus/plant	
X				Extended cooking (pulp)	
X				Oxygen delignification	
X				Ultrasonic cleaning	
X				Fluidised bed combustion	
2. Cleaner/resource-efficient products					
X				CFC substitutes	
X		2847.00 ⁶		Hydrogen peroxide	
X				Peat replacements (e.g. bark)	
X				Water-based adhesives	
X		3209.10		Paints and varnishes, in aqueous medium, acrylic or vinyl	
X		3209.90		Other paints and varnishes, in aqueous medium	
X				Double-hulled oil tankers	
X				Low-noise compressors	
C. RESOURCES MANAGEMENT GROUP					
1. Indoor air pollution control					
2. Water supply					
<i>2.1 Potable water treatment</i>					
<i>2.2 Water purification systems</i>					
X		2801.10	*	Chlorine	
	X (ex) ³	8543.89	†	Electrical machines and apparatus, having individual functions, not specified or included elsewhere in this chapter; other	Ozone production system

List coverage		HS ¹		Product description	Additional product specification
OECD	APEC				
2.3 Potable water supply and distribution					
X		2201.00		Water, incl. natural or artificial mineral water	
X		2851.00		Distilled and conductivity water	
X		3914.00		Ion exchangers (polymer)	
3. Recycled materials					
3.1 Recycled paper					
3.2 Other recycled products					
4. Renewable energy plant					
4.1 Solar energy					
X		8419.11		Instantaneous gas water heaters	
X	X (ex)	8419.19		Other instantaneous or storage water heaters, non-electric	Solar water heaters
X	X (ex)	8541.40		Photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light-emitting diodes	Solar cells
4.2 Wind energy					
X				Windmills	
X				Wind turbines	
	X (ex)	8413.81		Pumps for liquids, whether or not fitted with a measuring device; other pumps	Wind turbine pump
	X	8502.31		Generating sets, electric, wind-powered	
4.3 Tidal energy					
4.4 Geothermal energy					
4.5 Other					
X		2207.10		Ethanol	
X		2905.11		Methanol	
X				Hydroelectric plant	
	X		†	Hydraulic turbines and water wheels of a power not exceeding 1 000 kW	
	X		†	Hydraulic turbines and water wheels of a power exceeding 1 000 kW but not exceeding 10 000 kW	
	X		†	Hydraulic turbines and water wheels of a power exceeding 10 000 kW	
	X		†	Hydraulic turbines and water wheels; parts, including regulators	
5. Heat/energy savings and management					
X		3815.00		Catalysts	
X		7008.00		Multiple-walled insulating units of glass	
X		7019.90	*	Other glass fibre products	
	X	8404.20		Condensers for steam or other vapour power units	
	X (ex)	8409.99		Parts suitable for use solely or principally with the engines of HS 8407 or 8408; other	Industrial mufflers
X	X	8419.50		Heat exchange units	
X		8419.90		Parts for heat exchange equipment	
X				Heat pumps	
X				District heating plant	
X				Waste heat boilers	

List coverage		HS ¹		Product description	Additional product specification
OECD	APEC				
X				Burners: fuel other than oil or gas	
X		8539.31		Fluorescent lamps, hot cathode	
X				Electric cars	
X				Fuel cells	
X	X	9028.10	†	Gas supply, production and calibrating metres	
X	X	9028.20	†	Liquid supply, production and calibrating metres	
X		9032.10	*	Thermostats	
6. Sustainable agriculture and fisheries					
	X (ex) ³	4601.20		Mats, matting and screens of vegetable materials	1. Erosion control matting (biodegradable)
					2. Ecologically safe ground covers (biodegradable)
	X (ex) ³	8436.80		Other agricultural, horticultural, forestry, poultry-keeping or beekeeping machinery	Hot-water weed-killing system
7. Sustainable forestry					
8. Natural risk management					
8.1 Satellite imaging					
8.2 Seismic instruments					
9. Eco-tourism					
10. Other					

1. An asterisk (*) indicates that the HS code appears previously in the OECD list; a cross (†) indicates that the HS code appears previously in the APEC list.

2. An "ex" in the column indicates that only the "ex-heading" product (described in the last column) is nominated.

3. Classified under "Wastewater management" in the APEC list.

4. Classified under "Potable water treatment" in the APEC list.

5. Classified under "Monitoring/analysis" in the APEC list.

6. Originally listed as HS 2801.10 in the OECD list.

Source: Steenblik, R. (2005). *Environmental Goods: A Comparison of the OECD and APECLists*, OECD Trade and Environment Working Paper No: 2005-4.

Annex 2: Common Environmental Goods Among WTO Member Submissions

This table shows the number and description of the various HS codes that are common to at least two or more submissions made by WTO members.

The ‘Friends of Environmental Goods’ or Friends’ ‘153’ submission is counted as one submission for this purpose.

Environmental Goods Category	Submitting WTO Members/ Submission Reference and Date	HS Codes Common to at Least two or more Submissions (Indicate number of submissions)	Total Number of Common HS Codes for each Category
Air-Pollution Control	‘Friends of EGS’ JOB (09)/132, 27 April 2007		
	Japan, TN/ TE/75/Add.1 27 Nov 2009		
Renewable Energy	‘Friends of EGS’ JOB (09)/132, 27 April 2007	(i) HS 730820 (Towers and Lattice Masts for Wind Turbines)-2 submissions (Friends and Philippines)	10 HS Codes
	Philippines, JOB/TE/2, 16 Feb 2002	(ii) HS 840681 - Steam and other vapour turbines (other than turbines for marine propulsion): Of an output exceeding 40 MW)- 2 submissions (Friends and Philippines)	
	Japan, TN/ TE/75/Add.1 27 Nov 2009	(iii) HS 841011 - Hydraulic Turbines and water wheels of a power not exceeding 1,000 kW. 2 submissions (Friends and Philippines) (iv) HS 841090 - Hydraulic turbines, water wheels, and regulators; parts, including regulators. 2 submissions (Friends and Philippines) (v) HS 841181 -Other gas turbines of a power not exceeding 5,000 kW. 2 submissions (Friends and Philippines) (vi) HS 841182 -Other gas turbines of a power exceeding 5,000 kW. 2 submissions (Friends and Philippines) (vii) HS 841919 - Instantaneous or storage water heaters, non-electric (other than instantaneous gas water heaters). 2 submissions (Friends and Philippines) (viii) HS 850231 - Other electric generating sets: Wind-Powered 2 submissions (Friends and Philippines) (ix) HS 854140 - Photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitted diodes. 2 submissions (Friends and Philippines) (x) HS 850680 -Other primary cells and primary batteries (Japan and Friends)[Relevant Sectors indicated: (a) Also submitted under Cleaner or More Resource Efficient Technologies and Products	
Waste-Management, Water Treatment and Remediation	‘Friends of EGS’ JOB (09)/132, 27 April 2007	(i) HS 840290 -Super-heated water boilers and parts of steamgenerating boilers.2 submissions (Friends and Philippines)	2 HS Codes
	Philippines, JOB/TE/2, 16 Feb 2002	(ii) HS 840410 -Auxiliary plant for use with boilers of heading84.02 or 84.03 (for example, economisers, superheaters,soot removers, gas recoverers); condensersfor steam or other vapour power units. 2 submissions (Friends and Philippines)	

Environmental Goods Category	Submitting WTO Members/ Submission Reference and Date	HS Codes Common to at Least two or more Submissions (Indicate number of submissions)	Total Number of Common HS Codes for each Category
<p>Environmental Technologies This category includes a diverse range of sectors (as indicated in Member submissions), namely:</p> <p>(a) Carbon Capture and Storage Technologies (CCS), Gas Flaring Emission Reduction Technologies (GFR), Efficient Consumption of Energy Technologies (EC)</p> <p>(b) Cleaner or More Resource Efficient Technologies and Products (CT/P)</p> <p>(c) Energy Efficiency (EE)</p> <p>(d) Environmental Monitoring, Analysis and Assessment Equipment (M/A)</p> <p>(e) Heat and Energy Management (H/EM)</p> <p>(f) Natural Risk Management (RM)</p> <p>(g) Noise and Vibration Abatement (N/V)</p>	<p>Japan, TN/TE/75/Add.1 27 Nov 2009,</p> <p>‘Friends of EGS’ JOB (09)/132, 27 April 2007</p> <p>Saudi Arabia, JOB (09)/169</p>	<p>(i) HS 850680-Other primary cells and primary batteries (Japan and Friends) [<i>Relevant Sectors indicated: (a) Cleaner or More Resource Efficient Technologies and Products (b) Also submitted under ‘Renewable Energy’</i>]</p> <p>(ii) HS 840991-Parts suitable for use solely or principally with the engines of heading 8407 or 8408 (Friends and Saudi Arabia) [<i>Relevant Sectors indicated(a) Noise and Vibration Abatement (b)Efficient Consumption of Energy</i>]</p> <p>(iii) HS 840999-Other Parts suitable for use solely or principally with the engines of heading No. 84.07 or 84.08(Friends and Saudi Arabia) [<i>Relevant Sectors indicated (a) Noise and Vibration Abatement (b)Efficient Consumption of Energy</i>]</p> <p>(iv) HS 901540-Photogrammetrical surveying instruments and appliances (Friends and Saudi Arabia) [<i>Relevant Sectors indicated (a) Carbon-capture and storage and efficient Consumption of Energy (b) Natural Risk Management</i>]</p> <p>(v) HS 901580-Other surveying, hydrographic, oceanographic, hydrological, meteorological or geophysical instruments and appliances, excluding compasses, not elsewhere specified in 90.15 (Friends and Saudi Arabia). [<i>Relevant Sectors indicated (a) Carbon-capture and storage and efficient Consumption of Energy (b) Natural Risk Management</i>]</p> <p>(vi) HS 901590-Parts accessories of the instruments and appliances of 90.15 (Friends and Saudi Arabia)) [<i>Relevant Sectors indicated (a) Carbon-capture and storage and efficient Consumption of Energy (b) Natural Risk Management</i>]</p> <p>(vii) HS-903130-Profile projectors. (Friends and Saudi Arabia) [<i>Relevant Sectors indicated (a) Carbon-capture and storage and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment</i>]</p> <p>(viii) HS 903180-Other instruments, appliances and machines. (Friends and Saudi Arabia)[<i>Relevant Sectors indicated (a) Carbon-capture and storage and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.</i>]</p>	<p>22 HS Codes</p>

Environmental Goods Category	Submitting WTO Members/ Submission Reference and Date	HS Codes Common to at Least two or more Submissions (Indicate number of submissions)	Total Number of Common HS Codes for each Category
		<p>(ix) HS 903190-Parts and accessories of the instruments and appliances and machines of 90.31. (Friends and Saudi Arabia). <i>[Relevant Sectors indicated (a) Carbon-capture and storage and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.]</i></p> <p>(x) HS 903210-Thermostats. (Friends and Saudi Arabia)<i>[Relevant Sectors indicated (a) Carbon-capture and storage, Gas-flaring Reduction and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.]</i></p> <p>(xi) HS 903220-Manostats. (Friends and Saudi Arabia) <i>[Relevant Sectors indicated (a) Carbon-capture and storage, Gas-flaring Reduction and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment]</i></p> <p>(xii) HS 903281-Hydraulic and pneumatic instruments and apparatus. (Friends and Saudi Arabia) <i>[Relevant Sectors indicated (a) Carbon-capture and storage, Gas-flaring Reduction and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.]</i></p> <p>(xiii) HS 903290-Parts and accessories for nominated articles of subheading 9032. (Friends and Saudi Arabia) <i>[Relevant Sectors indicated (a) Carbon-capture and storage, Gas-flaring Reduction and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.]</i></p> <p>(xiv) HS 903300-Parts and accessories (not specified or included elsewhere in this Chapter) for machines, appliances, instruments or apparatus of Chapter 90. (Friends and Saudi Arabia). <i>[Relevant Sectors indicated (a) Carbon-capture and storage, Gas-flaring Reduction and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.]</i></p> <p>(xv) HS 901530- Levels: Hydrological, oceanographic, meteorological instruments and appliances. Exclusive of 90.31. (Friends and Saudi Arabia) <i>[Relevant Sectors indicated (a) Carbon-capture and storage and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.]</i></p>	

Environmental Goods Category	Submitting WTO Members/ Submission Reference and Date	HS Codes Common to at Least two or more Submissions (Indicate number of submissions)	Total Number of Common HS Codes for each Category
		<p>(xvi) HS 902610-Instruments and apparatus for measuring or checking the flow or level of liquid. (Friends and Saudi Arabia) [<i>Relevant Sectors indicated (a) Carbon-capture and storage and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.</i>]</p> <p>(xvii) HS 902620-Instruments and apparatus for measuring or checking pressure. (Friends and Saudi Arabia) [<i>Relevant Sectors indicated (a) Carbon-capture and storage, Gas-flaring Reduction and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.</i>]</p> <p>(xviii) HS 902680-Other Instruments and apparatus for measuring and checking gases or liquids. (Friends and Saudi Arabia). [<i>Relevant Sectors indicated (a) Carbon-capture and storage, Gas-flaring Reduction and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.</i>]</p> <p>(xix) HS 902690-Parts and accessories for articles of subheading 9026. (Friends and Saudi Arabia) [<i>Relevant Sectors indicated (a) Carbon-capture and storage, Gas-flaring Reduction and efficient Consumption of Energy (b) Environmental Monitoring, Analysis and Assessment Equipment.</i>]</p> <p>(xx) HS 902830-Electricity meters. (Friends and Saudi Arabia) [<i>Relevant Sectors indicated (a) Carbon-capture and storage and efficient Consumption of Energy (b) Heat and Energy Management.</i>]</p> <p>(xxi) HS 902890-Parts and accessories: Gas, Liquid or Electricity Supply of Production Meters. (Friends and Saudi Arabia) [<i>Relevant Sectors indicated (a) Carbon-capture and storage, Gas-flaring Reduction and efficient Consumption of Energy (b) Heat and Energy Management.</i>]</p> <p>(xxii) HS 902810-Gas Meters (Friends and Saudi Arabia) [<i>Relevant Sectors indicated (a) Carbon-capture and storage, Gas-flaring Reduction and efficient Consumption of Energy (b) Heat and Energy Management.</i>]</p>	

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

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