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The liberalization of environmental goods and services: Overview and implications for Latin America and the Caribbean

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Abstract

Combating climate change is one of the most important challenges facing the international community, in particular how to balance the goals of poverty reduction and development, better global economic governance, and environmental sustainability. Trade policy has an obvious role to play in reducing overall emissions of products and promoting more sustainable, “greener” economies. One proposal to accomplish this is to reduce the trade barriers of goods and services that are in themselves more climate friendly, or that are used in the production of climate friendly products can help accelerate the adoption of greener technologies and processes around the world. In addition to its direct environmental effect, liberalizing Environmental Goods and Services would be an opportunity for some countries in Latin America and the Caribbean to compete in new markets and leverage existing advantages. However, many countries are also trying to promote domestic competitive sectors to produce and export EGS and are reluctant to open their borders to competition from China and the United States.

This paper focuses primarily on proposals to liberalize trade of Environmental Goods, characterizing the trade of these products in Latin America and the Caribbean. The objective is to help identify trends, risks and opportunities for exporters as well as for importers, in a context of increased global competition in manufactured products from Asia and China in particular. For Latin America and the Caribbean, implementing policies aimed at both lowering trade barriers to environmental goods and services and “greening” the region’s export basket will result in gains both for the environment and for productive and export diversification since some countries are already leaders in global markets of environmental goods and services and are well positioned to expand their positions. There are large risks, however, given the existing preferential access by some developing countries and the significant differences in manufacturing capacity that threaten domestic industries of key technologies.

Introduction

Combating climate change is one of the most important challenges facing the international community, in particular how to balance the goals of poverty reduction and development, better global economic governance, and environmental sustainability. Trade policy has an obvious role to play in reducing overall emissions of products and promoting more sustainable, “greener” economies. To this end, the World Trade Organization (WTO) is working to harmonize its traditional role as a promoter of greater trade with the global need to address climate change. The established core principles of international trade (non-arbitrary discrimination, elimination of quantitative restrictions, and common but differentiated responsibilities) embodied in the existing WTO rules, can be an impediment to multilateral and unilateral incentives to reduce the production and the trade of goods that are harmful to the environment. Penalizing polluting industries is a difficult proposition to those who rely on these industries without proper compensation as emission reduction commitments result in the loss of competitiveness in countries facing the restrictions. In addition, the production and trade of harmful products takes place in countries with diverse levels of income, bringing the issue of development into the mix. Finding the proper way to accomplish broad trade liberalization and an appropriate mix of incentives to promote less harmful trade — all the while satisfying the needs and responsibilities of individual nations — has been at the center of recent discussions (for more on the interaction between WTO rules and climate change legislation, see (Low, Marceau and Reinaud, 2011; Herreros, 2010; ECLAC, 2009, p. 41, 2008, p. 82).

In addition to the issue of how to discourage trade of polluting goods, another obvious way that trade policy can promote greener economies is by reducing the trade barriers to environmental goods (e.g., solar panels, wind turbines, batteries), and environmental services (e.g., environmental engineering and consultancies). Greater trade of goods and

services that are in themselves more climate friendly, or that are used in the production of climate friendly products can help accelerate the adoption of greener technologies and processes around the world. This would serve to promote less harmful trade by reducing the relative costs of more environmentally friendly technologies.

Given the difficulties in multilateral negotiations shown in Copenhagen, and the extension of these difficulties to multilateral trade negotiations, it is hoped that this more narrow approach will be easier to negotiate and implement in the Doha round, particularly as it is in fact liberalization and not new restrictions on trade. Such a liberalization is part of the Doha Round mandate and, according to the WTO's Director General, Pascal Lamy, liberalizing these Environmental Goods and Services (EGS) is an immediate contribution that the WTO can make to effect climate change (Lamy, 2008). Moreover, liberalizing Environmental Goods and Services could present some countries in Latin America and the Caribbean with the opportunity to capitalize on existing competitive advantages by opening new markets. Reducing tariffs for these products would also result in lower input costs for climate friendly technologies and improve the ability of the region to use these technologies in its production process.

However, many countries in a position to "green" and modernize their production and consumption patterns are also trying to promote domestic competitive sectors to produce and export EGS. Because of this, they are reluctant to open their borders from competition from manufacturing and services centers such as China and the United States. This tension has plagued the WTO negotiations (Cosbey, 2011). Negotiations on how to best achieve these goals have coalesced around two main issues: 1) should tariffs be reduced based on a positive list of EGS products that have certain characteristics, based on environmental projects identified by each country (such as the building of solar energy farms), or based on a request-offer bilateral negotiation that is extended on a MFN basis; 2) how to define the products or projects that would be eligible in such a way as to make the process effective and efficient.¹

This paper focuses primarily on proposals to liberalize trade of Environmental Goods using positive lists of products since this is the only available proposal that provides concrete examples that go beyond conceptual definitions. The purpose of this analysis is to characterize Latin American and Caribbean countries trade in these products and where the opportunities lie for the region.

¹ The use of "negative lists" of banned products, following the model of the 1987 Montreal Protocol on Substances that Deplete the Ozone has a number of practical and economic hurdles, ensuring that "a negative approach will not work in a post-2012 climate regime." See (UNCTAD, 2010a, p. 179) for an analysis of the viability of negative lists, positive lists, project-based, and integrated proposals.

I. Defining Environmental Goods (EG) and Environmental Services (ES)

Environmental goods (EG) under discussion in WTO negotiations are defined as manufactured goods and chemicals used in the provision of environmental services (Class A) or industrial and consumer goods whose production, end-use and/or disposal have positive environmental characteristics relative to similar substitute goods (Class B). These definitions are overly broad, however, and negotiations are underway on a more practical and specific definition of EG that can be implemented by member countries. That is to say, how to map any definition to the Harmonized System that is used by customs agencies. The outcome of these negotiations has implications for which goods and services are included or excluded from an eventual liberalization, and thus which countries and sectors will be most affected.

Environmental Services (ES) are also pertinent for climate change mitigation efforts and, since they are often supplied together with EG, liberalization efforts must consider any synergies between goods and services (World Bank, 2008). The traditional definition of Environmental Services has revolved around infrastructure-type services such as treatment of waste and water. These services are the typical public good services and were the focus of the Uruguay Round of liberalization. More recently the definition has been expanded to include non-infrastructure services (e.g., pollution control) and services to support environmental goals (e.g. consultancies). While infrastructure ES is typically in the realm of the public sector, non-infrastructure environmental services offer more opportunities for SMEs, have a greater number of B2B trade, and has the public sector as a client (Kirkpatrick, 2006).

II. Proposals for promoting greater trade in Environmental Goods and Services (EGS)

A. Environmental Goods (EG)

A number of proposals exist for how to define the list of EG targeted for lower trade restrictions. Currently, negotiations revolve around the proposals by the APEC and by the OECD (WTO, 2002), the proposal by the so-called “Friends of Environmental Goods” (“friends-153 list”), the proposal by the US and the EU (“WB43”), as well as individual country proposals. See below for a more detailed description of each proposal.

The proposed lists of EG being discussed cover mostly Class A environmental goods, with few Class B items, including capital equipment, their manufactured components, and chemicals. Proposals to liberalize Class B EG, also known as Environmentally Preferable Products (EPP) are more likely to run into difficulties under existing WTO rules. EPPs may be defined based on their demonstrated environmental superiority to substitutes in at least one stage of their lifecycle. However, WTO rules prevents differentiated treatment of like products based on process and production methods (PPMs), adding a level of complexity to negotiations for this class of EG.²

The proposals are based on previous efforts to classify the environmental sector. The APEC list was created following an explicit

² See (Hamwey, 2005, p. 4) for a more detailed discussion of the technical difficulties in liberalizing Class B EGS. Current negotiations also exclude environmental services—which are being discussed at the Council for Trade in Services—and non-industrial products as environmental goods, such as ethanol.

effort to obtain more favorable tariff treatment for environmental goods. The OECD proposal is the result of an effort to characterize tariffs for trade in the broadly defined environmental industries.³ The “friends-153” list uses the APEC and the OECD as reference points, and it was itself the starting point for the World Bank’s list of 43 products (“WB43”) that are important to climate change mitigation, proposed by the United States and the European Union. None of these lists attempt to provide a complete coverage of Environmental Goods and Services. The proposals are intended as illustrative of more general definitions and as a way to provide some concrete examples for use in negotiations.

1. APEC and OECD proposed lists

The APEC and the OECD proposed lists serve as the basis for the more recent proposals. The two lists, however, were created for different objectives and thus have different definitions of what constitutes an environmentally preferable good or service. The APEC approach followed the methods used in typical trade negotiations, and the resulting 104 goods (at the 6-digit level of the Harmonized System) were selected based on their ease of identification by customs agents and other practical considerations. As such, this approach fails to consider life-cycle, process and production, and “like products” issues (Steenblik, 2005, p. 3). The APEC list also excludes many mineral and chemical products that were in negotiations for liberalization in another forum, to avoid entanglements.

The OECD proposal, on the other hand, is derived from the general classification of the environmental industry. It defines EGS as “goods and services capable of measuring, preventing, limiting or correcting environmental damage such as pollution of water, air soil as well as waste and noise-related problems”. Starting from this broad definition, specific products were identified as examples. The proposed list includes 132 products (at the 6-digit level of the Harmonized System) and, in contrast to the APEC proposal, it includes minerals and chemicals.

2. The Friends of Environmental Goods list (“friends 153”)

Negotiations at the World Trade Organization on the best way to promote trade of — and better access to — environmentally friendly technologies have not settled on the issue of whether the use of positive lists is preferred to other mechanisms. However, the “friends-153 list” has emerged as the list-based proposal at the center of negotiations. This list was first specified in a WTO non-paper (WTO, 2007) by a group of countries referred to as “Friends of Environmental Goods” as part of the ongoing negotiations under paragraph 31 (III) of the Doha Ministerial Declaration (reduction of Customs tariff rates for environmental goods).⁴

The 153-product list covers the following areas (Wind, 2008):

- Air pollution control,
- management of solid and hazardous waste and recycling systems,
- clean up or remediation of soil and water,
- renewable energy plant,
- heat and energy management,
- waste water management and potable water treatment,
- environmentally preferable products, based on end use or disposal characteristics,
- cleaner or more resource efficient technologies and products,
- natural risk management,

³ See (Steenblik, 2005) for a history of these proposals.

⁴ The “Friends of Environmental Goods” countries are Canada, Japan, Korea, New Zealand, Norway, Switzerland, Chinese Taipei, Taiwan, The United States, and the members of the European Union.

- natural resources protection,
- noise and vibration abatement,
- environmental monitoring, analysis and assessment equipment.

A study of the global pattern of trade of EGS, using the “friends-153” list shows that emerging and developing countries are rapidly catching up to developed economies in terms of shares of the EGS market (Jha, 2008, pp. 19–20). China is rapidly gaining ground, in line with its emergence as the world's manufacturing leader, and is followed by other East Asian countries, Mexico, and Brazil. Building upon this work, the analysis below focuses on the trade characteristics of the Latin American and the Caribbean region.

3. The World Bank list (“WB43”)

In addition to the APEC and the OECD proposed lists, the World Bank has analyzed the potential impact of reducing barriers to trade of climate friendly technologies (World Bank, 2007). The study identified 43 products, derived from the aforementioned “friends-153” list, that are relevant to climate mitigation. This list was informally proposed by the United States and the European Community to the WTO prior to the December 2007 UNCCC in Bali, with the goal to eliminating tariffs on the 43 products by 2013 (Wind, 2008).

4. Other proposed lists

The ICTSD commissioned a mapping study to identify key climate-mitigation technologies and associated goods, building on previous work by the ICTSD and other partner organizations in the Netherlands, India, and China. As a result of this study the ICTSD has identified the main components (i.e., parts, subassemblies, etc.) of climate mitigation technologies in three sectors: renewable energy, commercial and residential buildings, and transport. One limitation of this classification is that it only includes the components of these goods and not the completed goods themselves, which would have a different HS classification (Jha and Vossenaar, 2010; Wind, 2008).

TABLE 1
PROPOSED ENVIRONMENTAL GOODS POSITIVE LISTS, 2009

Region and List	Trade value (US\$ billions)	Share of total trade	Share of manufactured products' trade ^a
WORLD exports			
Friends 153	728.3	6.04	8.87
APEC	435.0	3.61	5.30
OECD	491.6	4.08	5.99
WB43	181.8	1.51	2.21
WTO-All ^b	2719.8	22.56	33.12
LAC (33) exports			
Friends 153	23.6	3.49	8.24
APEC	13.2	1.95	4.60
OECD	19.0	2.81	6.64
WB43	6.4	0.95	2.23
WTO-All ^b	135.0	19.94	47.06

Source: Authors' calculations based on UN (2011), United Nations COMTRADE database <<http://comtrade.un.org/db>> [accessed: May 4, 2011].

^a SITC revision 3, codes 5+6+7+8-667-68.

^b “WTO-All” refers to the sum of all the proposals currently being discussed in the WTO. List available in (WTO, 2011).

Overall, the negotiations have led to over 400 products being proposed in the various lists (see “WTO-All” list) (WTO, 2011). It is clear that there are significant gains to be made from favoring global trade in environmental goods and services, but so far negotiations have proven difficult. While these lists exist as illustrative examples and starting points for ongoing negotiations, they also serve as a basis for analysis of potential winners and losers of EGS liberalization, and serve to illustrate another aspect of the debate about how to incorporate climate change goals into the trade liberalization agenda.

Despite the ongoing efforts to promote trade of environmental goods through lower tariff and non-tariff barriers, negotiations have failed to reach an agreement on how to define environmental goods precisely in the nine years since the start of the Doha Round talks that established the specific mandate to accomplish “the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods.”

Alternative approaches to classify environmental goods for the purpose of trade liberalization have been proposed (ICTSD, 2011). Mexico has proposed a system by which countries designate their own list of products to be negotiated, based on the totality of products proposed so far (the “WTO-ALL” list). This has the merit of avoiding the need for a universally accepted definition of environmental goods that has proven elusive and allows for country specific considerations to be clearly negotiated.

B. Environmental Services (ES)

Generally, WTO members classify Environmental Services based on two reference documents: the Services Sectoral Classification List (“W/120”) and the 1991 version of the UN Central Product Classification List (“CPCprov”) (United Nations, 2010; WTO, 1991). There is no compulsory standard, however, and countries are free to opt for a system of their choice.

TABLE 2
ENVIRONMENTAL SERVICES CLASSIFICATION “W/120” BASED ON “CPCPROV” CLASSIFICATION

Description	CPC prov.
Sewage services	9401
Refuse disposal services	9402
Sanitation and similar services	9403
Other	
Cleaning services of exhaust gases	9404
Noise abatement services	9405
Nature and landscape protection services	9406
Other environmental services n.e.c.	9409
Other activities, found in various sections of the W/120, relevant for the provision of environmental services and for the protection of the environment:	
Research and development services on natural science	851
Engineering design services for the construction of sewage, industrial and solid waste treatment plants	86724
Integrated engineering and project management services for water supply and sanitation works turnkey projects	86732
Testing and analysis services of chemical and biological properties of materials such as air, water, waste, soils	86761
Construction services of water and sewer mains	5135

Source: WTO (2010b), “The Negotiations on Environmental Services in the CTS - SS.

Efforts to improve this classification are hampered because while GATS requires that each service be classified in a mutually exclusive sector, many services can be classified in multiple sectors. For example, business, construction and engineering, education, and tourism services can all be environmental depending on their application (WTO, 2010b). In addition, the current classification (the “W/120 list”) has not kept pace with changes in the market or in the policy characteristics of the sector. These changes include new regulatory requirements, the emergence of the private sector in the supply chain, growing public consciousness, and the greater focus of regulators on pollution prevention through the adoption of technologies for cleaner production and products.⁵

A number of proposals are being discussed for improving the classification of environmental services. A proposal by the OECD and Eurostat would define environmental services as those that “measure, prevent, minimize or correct environmental damage to water, air, soil, as well as problems related to waste, noise and eco-systems.” The European Commission (EC) proposes a similar definition and subdivides the sector into seven subsectors:

1. Water for human use and wastewater management,
2. solid/hazardous waste management,
3. protection of ambient air and climate,
4. remediation and clean-up of soil and water,
5. noise and vibration abatement,
6. protection of biodiversity and landscape,
7. other environmental and ancillary services.

The EC proposal has received significant support by WTO member countries, though there are disputes over whether to include water for human use under GATS obligations. There are also proposals to define a list of “cluster” services that are important to the provision of environmental services (e.g., business services, research and development services, consulting, construction and transport services with an environmental component) (Kirkpatrick, 2006).

The WTO countries have not reached a consensus on how to modify the classification of environmental services from the current “W/120” list and, with no progress on multilateral discussions, a new classification will not likely emerge in the near future. However, any new classifications can—and are—used in negotiations by countries that choose to do so.

1. Negotiations to liberalize trade in environmental services

Negotiations on the liberalization of Environmental Services (ES) are being conducted in the context of the WTO’s General Agreement on Trade and Services (GATS). The negotiations aim to improve market conditions for trade in services and to establish necessary rules and disciplines for the system as a whole. The former occurs on a bilateral and plurilateral basis to improve national schedules of specific commitments made by individual countries, national treatment, and promoting most-favored nation treatment. Negotiations to establish new principles and rules are conducted in a multilateral setting and also address the need of special provisions for part of the WTO membership (e.g., least-developed countries) (WTO, 2010c).

The negotiations on services trade liberalization use a “request-offer” procedure, in which countries request improvements in existing terms from other countries of interest to their exports and imports. Countries can also specify the improved “schedule” of commitments they are willing to accept in response to these requests, which would apply to all members. Final offers become legally binding commitments for trade in services.

⁵ For a more complete discussion on the shortfalls of the current classification system and the changing nature of the sector, see Kirkpatrick (2006).

The Doha Ministerial Declaration established that initial offers should be submitted by the end of March, 2003 and for negotiations to be concluded by January 2005. Following the Cancun Ministerial Meeting in 2003 and the Hong Kong Ministerial Conference in 2005, the target date for offers was pushed back to end-July 2006. Negotiations were suspended from mid-July until January 2007, however, and no new timelines have been established. Based on a survey of WTO members' activities in bilateral negotiations, there has been no significant progress in negotiations since July 2008 (WTO, 2010a).

As of end of June 2008, 71 initial offers and 31 revised offers had been submitted. Of these, 21 countries have offered new or improved commitments in environmental services.⁶ The countries point to gaps in sector coverage, in levels of commitment, and a lack of political will to complete other areas of the Doha Round as reasons for the slow progress in GATS negotiations.

In July 2008, the WTO convened a conference to establish how each country's current services offers might be improved in response to received requests. According to the report by the Chairman of the Trade Negotiating Committee (TNC), there were many indications of improvements in offers for liberalization in all sub-categories of environmental services. Countries indicated willingness to expand sector coverage and the modal scope of commitments, in addition to reduce other restrictions (e.g., joint venture requirements and foreign equity limitations) (WTO, 2008).

For Latin America and the Caribbean, and developing countries in general, greater trade in environmental services will have a more limited benefit since they are not large exporters of this type of service and since any significant increase in imports of ESs by developed economies will require lower barriers to the movement of people.⁷ Nonetheless, there are some opportunities for Latin American and Caribbean countries that can provide professional services given the highly specific nature of the demand for consultancies and studies. Countries in the region can also leverage their cultural, geographic and linguistic connections to exports services within the region and to other developing countries with lower barriers.

⁶ El Salvador has made commitments in the sub-sector of "cleaning services for exhaust gases, noise abatement, nature and landscape protection services and other environmental protection services". Guatemala has offered to open Mode 1, 2 and 3 in "nature and landscape protection services". The United States has opened up its noise and vibration abatement services in all four modes, while the European Union has offered horizontal commitments to environmental services in Mode 4 (Kirkpatrick, 2006).

⁷ Environmental services are mainly transacted through Mode 3 (commercial presence) and Mode 4 (temporary movement of persons).

III. Trade in Environmental Goods

In 2008, total Environmental Goods (EG) exports for the 153 products in the WTO's "Friends of Environmental Goods" list⁸ amounted to US\$ 905 billion, or 6.1% of the world's total trade. Relative to total manufactured exports, EG exports represented 8.8% of the US\$ 10.3 trillion traded in 2008. Using an alternative proposal—the "APEC list" of 104 products—EG exports amount to US\$ 535 billion, or 5.2% of the world total manufactured exports (see Table 1.) In addition, the WTO has published a list of all the products being discussed, which forms the reference universe of environmental goods of interest across all proposals and submissions ("WTO-all") (WTO, 2011). In 2009, global exports of products in the "WTO-all" list amounted to US\$ 2.7 trillion, or 33% of total trade in manufactures. Latin America and the Caribbean's exports of these products amounted to US\$ 135 billion, 20% of the region's total exports and nearly half of its total exports of manufactures.

Trade in Environmental Goods is highly concentrated with the 20 largest exporters accounting for 85% of the total. Given the high technological content of the products in the EG lists, it is not surprising that the top exporters are the world's largest industrialized economies. Latin America and the Caribbean lags behind other regions in the world, partly as a result of its comparative advantages on natural resource exports. In the region, only Mexico is a significant exporter of EG (see Table 3). The country ranks as the 10th largest exporter of EG in the world, a position that reflects its preferential access to the United States. The US is the single largest buyer of environmental goods, absorbing 12% of the world's total EG trade and over 88% of Mexico's total exports of EG products.

⁸ This list was first specified in a WTO non-paper (WTO, 2007) by a group of countries referred to as "Friends of Environmental Goods" as part of the ongoing negotiations under paragraph 31 (III) of the Doha Ministerial Declaration (which calls for "the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services"). The countries are: Canada, Japan, Korea, New Zealand, Norway, Switzerland, Chinese Taipei, Taiwan, the United States, and the members of the European Union.

TABLE 3
TOP EXPORTERS AND IMPORTERS OF ENVIRONMENTAL GOODS IN 2009, "FRIENDS 153" LIST

Region/Country	Exports USD billions	Share of Total Percent	Region/Country	Imports USD billions	Share of Total Percent
United States	85.7	11.8	United States	85.4	12.1
Canada	13.6	1.9	Canada	21.4	3.0
EU-27	339.3	46.6	EU-27	249.9	35.4
Germany	117.8	16.2	Germany	58.6	8.3
Italy	46.4	6.4	France	28.6	4.0
France	29.2	4.0	United Kingdom	23.1	3.3
United Kingdom	24.0	3.3	Italy	21.2	3.0
Netherlands	18.1	2.5	Spain	16.0	2.3
Asia Pacific (16)	217.6	29.9	Asia Pacific (16)	190.2	26.9
China	77.1	10.6	China	70.7	10.0
Japan	65.0	8.9	Rep. of Korea	28.5	4.0
Rep. of Korea	19.7	2.7	Japan	22.5	3.2
Singapore	13.3	1.8	Singapore	14.6	2.1
Hong Kong	13.0	1.8	Taiwan	14.6	2.1
LAC 33	23.6	3.2	LAC 33	47.5	6.7
Mexico	16.2	2.2	Mexico	19.7	2.8
Brazil	5.1	0.7	Brazil	9.7	1.4
Argentina	1.1	0.2	Venezuela	3.1	0.4
Colombia	0.2	0.0	Argentina	3.0	0.4
Chile	0.2	0.0	Chile	3.0	0.4
Rest of the World	48.5	6.7	Rest of the World	111.8	15.8
Grand Total	728.3	100.0	Grand Total	706.3	100.0

Source: Authors' calculations based on UN (2011), United Nations COMTRADE database <<http://comtrade.un.org/db>> [accessed: September 13, 2011].

Considering the European Union and Asia Pacific as single markets, these two regions become the largest buyers of EG products. In Europe, Germany stands out as the largest exporter and importer, while China has surpassed Japan as the largest exporter and is by far the largest importers of EGS.

In the European Union EG trade is mostly intra-regional, since countries benefit from having preferential to the internal market. Intra-regional EG trade is also boosted by strong economic integration and established value added chains for manufactured inputs (see Table 4). More than half of the EU members' total EG exports (54%) are sold within the region. In Asia Pacific, intraregional trade reaches 30% of the member countries' total EG exports. Latin America and the Caribbean, in contrast, only exports 17% of its total EG exports to other countries in the region. However, excluding Mexico's trade flows (due to its preferential access to the US market) the region's intraregional trade in EG reaches 47%.

TABLE 4
SELECTED COUNTRIES AND REGIONS: EXPORTS OF ENVIRONMENTAL GOODS
BY TRADING PARTNER IN 2009, “FRIENDS 153” LIST

(In percentages of each exporter's total)

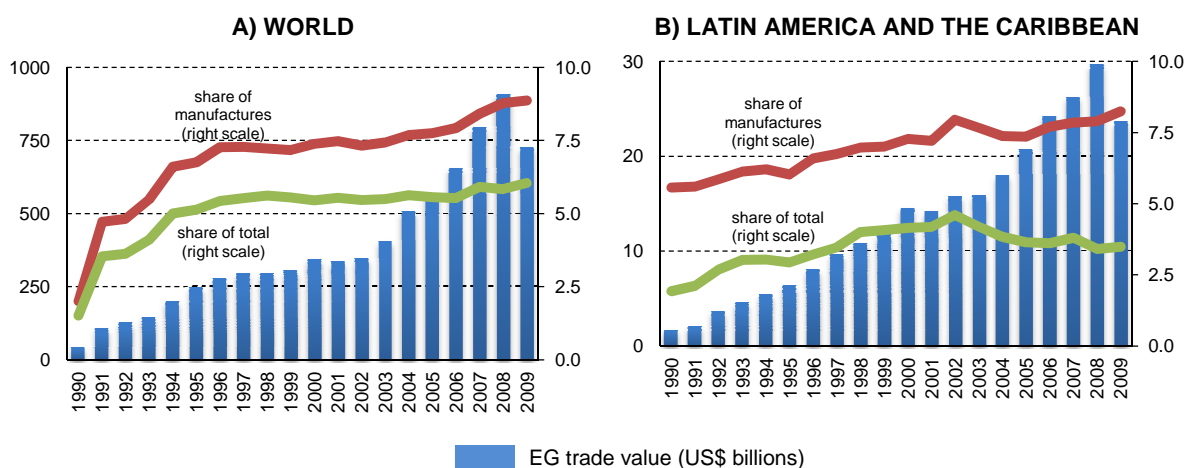
Exporter	Importer							TOTAL
	United States	Canada	LAC 33	EU-27	Asia Pacific 16	Rest of the World		
United States	---	18.27	20.07	18.31	27.14	16.21	100	
Canada	68.34	---	4.12	9.22	8.95	9.37	100	
Latin America and the Caribbean	66.24	1.76	17.39	8.42	2.85	3.34	100	
Mexico	87.95	2.21	3.42	3.57	1.73	1.12	100	
Others (32 countries)	19.66	0.79	47.4	18.82	5.25	8.10	100	
EU-27	7.38	0.68	3.06	53.70	12.43	22.75	100	
Asia Pacific 16	14.99	0.85	3.16	17.12	48.73	15.15	100	
Rest of the World	8.56	0.67	2.11	39.82	14.89	33.94	100	

Source: Authors' calculations based on UN (2011), United Nations COMTRADE .

Global trade in environmental goods (EGs) — defined for the purpose of this analysis as those in the “Friends-153” list — has increased significantly, from 1.5% of total exports in 1990 to over 6% in 2009. Relative to manufactured trade, EGs have also gained significant ground, from just 2% in 1990 to nearly 9% in 2009 (Figure 4 A). EG exports declined in 2009 due to the widespread economic crisis, falling to US\$ 728 billion after an all time high of US\$ 908 billion in the previous year (see Figure 1 A). Latin America and the Caribbean exports of EGs have followed the same pattern, growing steadily since 1990 before suffering from the global crisis in 2009. As a share of total exports, however, the resurgence of primary products' exports shown above has resulted in a decrease in the share of EGs in the export basket, from a high of 4.6% in 2002 to 3.5% in 2009. However, as share of manufactured exports, environmental goods continue to expand, from 5.6% in 1990 to 8.2% in 2009 (see Figure 1 B).

Total expenditures in environmental goods and services are expected to increase significantly in the next decade. By 2020, total expenditures in EGS will more than double relative to their total in 2004. This increase would be even higher if more stringent environmental policies are enacted that result in a greater demand from environmental goods and services (Blazejczak, Braun and Dietmar, 2009).

FIGURE 1
EXPORTS OF ENVIRONMENTAL GOODS, “FRIENDS 153” LIST, 1990-2009
 (US\$ billions and percentages)



Source: Authors' calculations based on UN (2011), United Nations COMTRADE .

Note: Total value is calculated using all available data in each year as reported in COMTRADE. The total value of the “Friends 153” list for each year is the sum of the values reported by each country in any of three versions of the Harmonized System (HS): 1992, 1996 and 2002, opting to the latest version where possible. Manufactured exports are defined as the following sum of codes of the SITC revision 3: 5+6+7+8-667-68.

40% of total global EG trade takes place within the European Union or Asia Pacific. Table 5 provides a picture of global trade within and outside trading blocs. Again, Latin America and the Caribbean emerge as small players in the global EG market, with only 3.3% of total global exports. The European Union is the largest exporter even when intra-regional trade is excluded. The region is also the largest importer of environmental goods, both including and excluding intra-regional trade. Asia Pacific imports nearly as much as the EU region from outside their respective regions. Overall, Asia Pacific countries absorb nearly a quarter of the world's total EG trade. It is notably that Latin America and the Caribbean exports to the Asia Pacific region amount to less than one tenth of global EG exports, slightly more than its sales to Canada.

TABLE 5
SELECTED COUNTRIES AND REGIONS: EXPORTS OF ENVIRONMENTAL GOODS
BY TRADING PARTNER IN 2009, "FRIENDS 153" LIST
(In percentages of total world trade of EGS)

		Importer						TOTAL	Excluding intra-regional trade
		United States	Canada	Latin America and the Caribbean	EU-27	Asia Pacific	Rest of the World		
Exporter	United States	---	2.15	2.36	2.16	3.20	1.91	11.78	11.78
	Canada	1.28	---	0.08	0.17	0.17	0.18	1.87	1.87
	LAC 33	2.16	0.06	0.57	0.27	0.09	0.11	3.26	2.69
	EU-27	3.44	0.32	1.43	25.05	5.80	10.61	46.65	21.60
	Asia Pacific	4.45	0.25	0.94	5.09	14.47	4.50	29.70	15.23
	Rest of the World	0.58	0.05	0.14	2.68	1.00	2.29	6.73	4.05
	TOTAL	11.91	2.82	5.52	35.42	24.73	19.59	100	57
	Excluding intra- regional trade	11.9	2.82	4.95	10.4	10.26	19.59	60	

Source: Authors' calculations based on UN (2011), United Nations COMTRADE .

In Latin America and the Caribbean, export patterns follow a clear logic: Mexico and Caricom countries export largely to the United States, while the rest of the region exports to the intra-regional market (see Table 6). Mercosur economies are more diversified in their export partners, while the Andean countries (including Venezuela) are the most dependent on the intra-regional market. Again it should be noted the small participation of Asia Pacific in all of the sub-regions, particularly given that Asia Pacific's is the largest inter-regional importer of EG. This indicates a strong potential market for EG exports from Latin America and the Caribbean.

TABLE 6
LATIN AMERICA AND THE CARIBBEAN EXPORTS OF ENVIRONMENTAL GOODS
BY TRADING PARTNERS IN 2009, "FRIENDS 153" LIST

		Importer						TOTAL
		United States	Canada	LAC 33	EU-27	Asia Pacific 16	Rest of the World	
Exporter	Mercosur (4)	18.8	0.8	43.4	22.0	6.1	9.0	100
	ANDEAN (5)	14.8	0.7	77.3	2.8	0.2	4.2	100
	Caricom (15)	47.0	5.5	26.6	7.3	4.0	9.7	100
	CACM (5)	22.9	0.1	69.5	4.1	1.5	1.9	100
	Mexico	87.9	2.2	3.4	3.6	1.7	1.1	100
	Other LAC (3)	31.6	1.2	56.9	4.0	2.3	4.0	100
	LAC excl. Mexico (32 countries)	19.7	0.8	47.4	18.8	5.2	8.1	100
	Latin America and the Caribbean	66.2	1.8	17.4	8.4	2.8	3.3	100

Source: Authors' calculations based on UN (2011), United Nations COMTRADE database.

Within the region EG trade is dominated by commerce between members of the Mercosur bloc, particularly Brazil and Argentina (see Table 7). This follows the pattern seen above where trade is strongest within relatively integrated trading blocs (European Union, Asia Pacific, NAFTA). This reflects the combined effects of greater integration of manufacturing sector production chains and reduced tariff and non-tariff barriers in these blocs.

TABLE 7
LATIN AMERICA AND THE CARIBBEAN INTRA-REGIONAL TRADE IN ENVIRONMENTAL GOODS
IN 2009, "FRIENDS 153" LIST

(In percentages of the region's total trade in EG)

		Importer							Latin America and the Caribbean
		Mercosur (4)	ANDEAN (5)	Caricom (15)	CACM (5)	Mexico	Other LAC (4)	LAC 32 (ex-Mexico)	
Exporter	Mercosur (4)	29.9	17.8	0.4	2.0	8.3	7.2	57.2	65.5
	ANDEAN (5)	0.5	6.9	0.3	0.8	0.4	1.1	9.6	10.0
	Caricom (15)	0.0	0.1	0.3	0.0	0.0	0.0	0.5	0.5
	CACM (5)	0.0	0.1	0.1	3.7	0.2	0.6	4.6	4.7
	Mexico	3.3	3.9	0.5	2.9	---	2.8	13.4	13.4
	Other LAC (4)	1.2	3.1	0.2	0.7	0.5	0.3	5.4	5.8
	LAC 32 (ex-Mexico)	31.6	27.9	1.3	7.1	9.4	9.2	77.2	86.6
	Latin America and the Caribbean	34.9	31.9	1.9	10.0	9.4	12.0	90.6	100

Source: Authors' calculations based on UN (2011), United Nations COMTRADE database.

While intra-regional and intra-sub-regional trade is relatively strong for the region's exports, the greatest opportunities for greater exports of EG and for more competitive imports are from inter-regional trade. LAC sells a very small portion of its EG exports to Asia, which is the largest consumer of extra-regional EG products. The largest manufacturers of EG in the region, except for Mexico, maintain a

trade relationship with Asia that is still highly asymmetrical: large exports of primary commodities and large imports of manufactured products. It is clear that the region needs to expand its export base towards higher value added products and gain access to Asia production chains. The rise of Asia, and China in specific, as a manufacturing hub for environmental technologies, and the continued strength of the industrialized economies creates a significant opportunity for the region's manufacturers to make inroads into higher value-added production chains.

Developing countries are well positioned to gain from liberalization of EGs. "Liberalisation could allow some developing countries to significantly expand their production and export of such dynamic environmental goods and thus promote increased industrial diversification of their economies. For many others, trade liberalisation of environmentally preferable industrial and consumer goods may provide immediate gains needed to support rural economies and facilitate the integration of their small and medium sized enterprises into global supply chains" (Hamwey, 2005). In fact, a recent analysis of the "Friends 153" list points to the relative importance of some developing countries in the global trade of many EG categories (Jha, 2008; UNCTAD, 2010a, p. 180).

BOX 1 DIFFICULTIES IN MEASURING ENVIRONMENTAL GOODS

The mapping of EG into the Harmonized System is not trivial since the classification at its most detailed level (six digits) often doesn't provide enough detail to differentiate products that are specifically used in environmentally friendly processes and those that are not. Examples include solar panels, which are not distinguished from light emitting diodes (LEDs) under the HS codes, and clean coal technologies. In addition, most of the technologies identified in the above mentioned lists have alternative uses that are not related to climate mitigation or adaptation. Without a clear link to climate change, liberalization of these technologies is of particular concern to smaller countries that depend on international trade for a significant portion of its tax revenue.

This lack of detail is at the root of some of the obstacles to progress in negotiations, but is by no means the only contentious issue. Others include: a) the total environmental impact of the products, including their lifecycle, relative to alternatives; b) how to consider and promote evolving technology and methods; c) how changes affect the competitiveness of domestic industries; d) addressing nontariff barriers; e) differentiated treatment for developing countries; and f) agricultural environmental issues.

Source: Author based on World Bank (2007), "Warming up to trade? Harnessing international trade to support climate change objectives," The World Bank, June, p. 71.

The index of revealed comparative advantage, which shows the relative importance of a group of products in the country's exports shows that Latin America and the Caribbean exports of goods and services are generally not an important part of their basket of exports. This is in part due to the region's relative specialization in basic products (in the case of South America) and maquila-based manufactures. Excluding non-manufactured products from the calculation shows an improvement in the index for all but three of the countries analyzed. None of the countries, however, shows a relative advantage in exports of EG products. Instead, a few (Argentina, Brazil, Ecuador, Venezuela, Mexico, Nicaragua and Barbados) show some moderately dynamic participation of environmental goods in their basket of manufactured exports.

**TABLE 8
LATIN AMERICA AND THE CARIBBEAN: REVEALED COMPARATIVE ADVANTAGE
OF ENVIRONMENTAL GOODS' EXPORTS TO THE WORLD IN 2009, "FRIENDS 153" LIST**

Country	Index, relative to:	
	Total exports	Manufactured exports
South America		
Argentina	-0.51	-0.17
Bolivia (Plurinational State of)	-1.00	-0.97
Brazil	-0.30	-0.01
Chile	-0.86	-0.36

(continues)

Table 8 (conclusion)

Country		Index, relative to:	
		Total exports	Manufactured exports
South America	Colombia	-0.79	-0.54
	Ecuador	-0.74	0.09
	Paraguay	-0.91	-0.55
	Peru	-0.88	-0.48
	Uruguay	-0.73	-0.40
	Venezuela (Rep. Bol. of)	-0.96	-0.31
Central America	Costa Rica	-0.67	-0.54
	El Salvador	-0.80	-0.80
	Guatemala	-0.55	-0.36
	Guyana	-0.92	-0.37
	Honduras	-0.92	-0.84
	Mexico	0.07	0.04
	Nicaragua	-0.73	0.09
	Panama	-0.80	-0.84
Caribbean	Bahamas	-0.40	-0.36
	Barbados	-0.13	-0.10
	Belize		
	Dominica	-0.70	-0.56
	Dominican Rep.	-0.43	-0.43
	Jamaica	-0.87	-0.65
	Saint Vincent and the Grenadines	-0.70	-0.45
	Trinidad and Tobago	-0.87	-0.59

Source: Authors' calculations based on UN (2011), United Nations COMTRADE database.

Note: An index of less than -0.33 represents a disadvantage. An index of more than +0.33 represents an advantage. An index between -0.33 and +0.33 represents a moderately dynamic participation in the export basket, and is marked in green shading.

A. Creating the new “Silicon Valley” of environmental technology

A number of countries are positioning themselves to become technological leaders in environmentally friendly products and services. In Europe, government initiatives have resulted in rapid growth of important sectors such as solar energy. Asian countries are aggressively expanding their competitive position in renewable energy technologies, and China is emerging as the world's leading manufacturer in this industry, particularly in the case of solar and wind power components.

In the last few years, the government of Spain began a campaign to replace its coal economy with a solar energy industry. The government paid the highest tariffs for solar power in the world, which led to a boom. As a result, in 2008 half of all new solar power capacity in the world was installed in Spain and the country became the second largest producer of solar energy (Rosenthal, 2010). The program reached its 2010 target of 400 megawatts three years early. In 2009, however, it was clear that the generous subsidies were promoting inefficient plants that could not compete without the preferential rate. As the program was cut back, the solar industry in Spain suffered a retrenchment where only the most robust companies survived, though better able to compete at the global level.

The Chinese government is also investing heavily in developing its domestic market for the cleaner technologies, recognizing the need to reduce its carbon emissions (Schmit, 2009). According to

the US Department of Energy, China is investing about \$9 billion a month on clean energy. It is also investing \$88 billion by 2020 to build transmission lines capable of transmitting power from its huge wind and solar farms to its cities (Chu, 2009). The country's goal is to have renewable energy supply 15% its total energy needs by 2020.

The aggressiveness of China's policy on promoting this industry — unhindered by the diffuse network of energy utilities and complex regulatory barriers that exist in the US and elsewhere — is attracting foreign investment in the form of manufacturers and research activity. In 2009, the largest producers of solar panel manufacturing equipment, US-based Applied Materials, opened the world's largest solar research facility in China. The result is that Chinese solar companies now manufacture two thirds of the world's total global solar cell production (\$39 billion). (Daily, Steitz and Walet, 2011)

China's rise is leading to some frictions in trade relations with some industrialized countries. China is currently considering plans to spend US\$1.5 trillion over five years in support to strategic industries, including renewable energy (Daily, Steitz and Walet, 2011). Competitors such as Germany and the United States are reacting. In the former's case, the government is negotiating with China through the European Union, but has not ruled out a WTO challenge. In the case of the United States, the administration is considering opening a WTO complaint over China's support of its solar manufactures following complaints by labor unions.

With the rapid pace of green technology adoption, the results of these discussions will likely have a significant effect for producers around the world. In 2010, Germany purchased over 50% of total global production of solar panels, installing 8,000 megawatts of solar capacity during the year. Incentives for the installation of renewable energy projects in the United States and in Europe do not discriminate based on the supplier of renewable technology. In Germany, the reduction of some subsidies for the industry has hurt some local producers who compete directly with China.⁹

Manufacturing capacity for wind turbines, another key renewable technology, is also growing much faster in China than in other parts of the world, thanks in part to foreign investment. The largest wind-turbine manufacturer, Vestas, started investing in manufacturing plants in China and in the United States in 2005. Since then, many new competitors have started operations in China, in contrast to very few in the United States. Overall, China is well poised to attract an important portion of global investment renewable energy. Total investment in wind turbines and solar panels through 2030 is expected to reach \$2.1 trillion and \$1.5 trillion, respectively (Chu, 2009).

The result of such heavy investment in manufacturing and research in China will likely be strong exports of these products to countries with competing industries. In 2010, a Chinese energy conglomerate and American investors and developers announced a \$1.5 billion wind farm in Texas using wind turbines manufactured in China. The announcement drew criticism of alleged Chinese subsidies and because the project can benefit from Federal stimulus funds but have a disproportionate benefit to the manufacturer in China (Zeller Jr., 2010). Despite agreements to purchase components for the turbines from domestic sources, there is pressure to protect and promote the domestic industry.

The rise of China as an export platform for renewable energy and other environmental goods is leading to positive and negative reactions in the United States and in other countries. Recognizing the need to take action, President Obama's energy and environmental policies are designed to promote investment in environmental technologies and to boost the country's competitiveness in this field. The recent stimulus package includes \$80 billion in funds to develop of electric vehicle battery technologies,¹⁰ increase the use of renewable energy, and promote energy efficiency and smarter energy grids.

However, investment in the United States is being limited by uncertainty in the legislative process. Negotiations on clean energy and climate change legislation has been protracted, leading the private sector to wait until there is a better indication what will make economic sense in the coming

⁹ For example, a solar park built near Berlin in 2009 used imported Chinese solar components which had a lower cost than locally available options.

¹⁰ 99% of batteries for America's hybrid cars are currently manufactured in Japan.

decades. A number of investment projects are on hold, according to (Tankersley, 2010), further undermining the competitive position of the US energy industry.

In Latin America, wind power capacity is growing as interest and investment increases. In 2008, installed capacity was 709 megawatts in the continent and reached 1,000 megawatts in 2009, a 30% increase (LAWEA, 2010). Approved expansion projects could increase this five-fold over the next decade (see Table 8).

TABLE 9
LATIN AMERICA AND THE CARIBBEAN: INSTALLED CAPACITY
AND CURRENT PROJECTS FOR WIND POWER GENERATION, 2008

Country	Number of wind farms	Capacity (mw)	Share of total capacity (%)	Number of projects	Projected capacity (mw)	Local manufacturers?
Argentina	11	29.0	0.11	7	827.9	yes
Brazil	33	414.8	0.40	90	3140.0	yes
Chile	2	20.0	0.20	4	164.0	no
Colombia	1	19.5	0.10	2	27.5	no
Costa Rica	4	70.6	2.86	4	199.5	no
Cuba	3	7.2	0.05	1		no
Ecuador	1	2.4	0.06	2	25.0	no
Mexico	3	85.2	0.17	3	356.9	yes
Nicaragua	1	40.0	4.53	3	215.0	no
Panama	0	0.0	--	1		no
Uruguay	2	20.5	0.82	0	0.0	yes
Venezuela	0	0.0	--	5	172.3	yes
TOTAL	61	709.2	0.32	122	5128.1	

Source: Author based on LAWEA (2010), LAWEA Yearbook 2009-2010, Latin America Wind Energy Association, April.

In many countries, the development and expansion of wind power generation capacity also has important linkages to other manufacturing and services industries and the supply chain of wind-power related technologies in many countries is also benefiting from the growth in this sector. New manufacturing plants have opened to produce towers and wind turbines with a mix of imported and proprietary technologies. The goal is to gradually increase the capacity of the region's manufacturers to produce and supply equipment and services in this industry.

The competitiveness of the export sectors in Latin America and the Caribbean will suffer if the region doesn't do enough to keep pace with environmental efforts in Asia and other regions. In Asia, many countries have policies and targets in place to expand the production and use of clean energy in support of their goals to reduce pollution, increase energy security, generate employment, and increase productivity and competitiveness (World Bank and AusAid, 2010, p. 86). China has the most world's most aggressive emissions reduction target, hoping to reduce energy intensity in the five-year period ending in 2010 by 20 percent. This already follows a 30 percent reduction in energy intensity between 1995 and 2004. The expected reduction in carbon emissions of their 2010 target is five times larger than the European Union's Kyoto commitment of 300 million tons. China also hopes to increase the share of renewable energy sources in its energy production from 8 percent to 15 percent by 2020.

In many recent and planned renewable energy investment plans in the region, imported components from China are competing with local suppliers. The significant investments in China and its rise in position in key markets are evident. As a result of gaining technological know-how in 1992 by buying technology and signing licensing agreements and joint ventures, China can now build advanced power plants locally at

very competitive prices (World Bank and AusAid, 2010). The ability to build advanced plants at a cost similar to traditional power plants enables the quick spread of technology across the Chinese economy. The potential for the renewable energy projects to create jobs is significant: in 2006 the renewable energy industry created 2.3 million direct or indirect jobs worldwide (EESI, 2008).

China is also leveraging its manufacturing capacity to gain a lead in the production of key components in renewable energy technologies. A summary of recent news regarding China and the US' greentech investments shows the rapid pace of investment and growth of Chinese manufacturing capacity in solar, wind, distribution and other sectors (Fehrenbacher, 2011). China has received large investments by General Electric on clean energy initiatives, the development of a "smart grid" of electrical transmission, and others.

The economic crisis is also leading to a realignment of production of solar power components, benefitting China's lower manufacturing costs. China is the main destination of investments by large solar manufacturers around the world that are looking to expand their production capacity and lower costs. Chinese developers of solar technologies are increasingly signing research partnerships with leading companies. The government policy to promote renewable energy has largely focused on increasing the capacity of manufacturers, instead of subsidizing the purchase and use of the technology. Currently, only about 5% of its total production is used domestically (Bradsher, 2011).

China is also pursuing stronger links with other countries in the Asia Pacific region. Its remarkable growth in the midst of a very complex international environment, and strengthened ties with other Asian economies, are relevant to understanding the challenges for Latin America and the Caribbean. The entry in force on January 1, 2010 of the FTA between China and ASEAN, which groups 1.9 billion people and 4.5 trillion dollars in trade, is especially relevant. The agreement, which eliminates tariffs for the bulk of trade between China and the 10 ASEAN economies, is a major threat to the competitiveness of a number of Latin American manufactured exports to China that compete against ASEAN suppliers.

IV. Opportunities for Latin America and the Caribbean

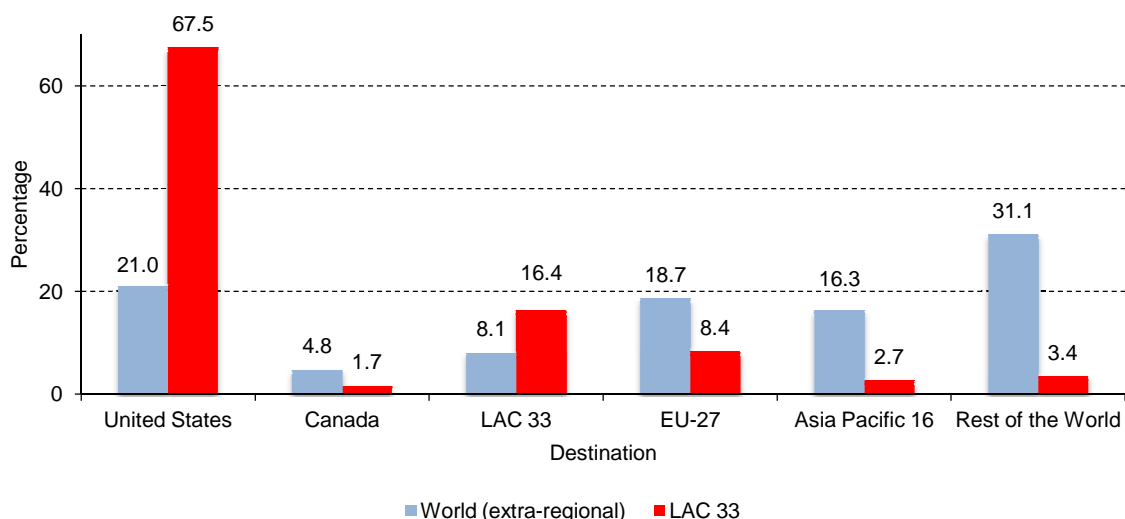
The example of Spain and the rapid growth of the industry in China demonstrate the power of governments to promote key industries and technologies, but is also an example of the need for incentives that lead to competitiveness and sustainability. Latin America and the Caribbean are well poised to become competitive in renewable energy technologies and services, but must recognize that the race requires long-term strategies. Green technologies have a higher cost and require subsidies and incentives for investment, research and development. However, the balance between short term growth and long term sustainability and competitiveness. To this end, policy design requires a careful study of the recent failures and successes, as well as a dialogue for cooperation and integration in the region.

The final shape of a global agreement on climate change is difficult to guess, as is its interaction with WTO rules. Nonetheless, the world seems to accept that significant action is warranted, and some countries are taking unilateral action in this regard (ECLAC, 2009, pp. 36–39). The current uncertainty over the direction of climate change legislation and related multilateral agreements — including at the WTO — has created a vacuum in which firms are trying to gain strategic advantages. Given the seemingly inevitable rise of environmentally friendly industries, this regulatory vacuum is a tremendous source of opportunities and the firms to gain most will be those that are able to implement medium and long-term international positioning strategies. There is some evidence that companies are attempting to position themselves to take advantage of expected economic opportunities by forming strategic partnerships and investing in production capacity, something of a “green rush”.

Latin America and the Caribbean countries are falling behind the rest of the world in manufacturing value added, natural resources, and services (particularly modern services). “Efforts are needed to deepen the export industry by diversifying, incorporating more knowledge and reorienting towards fast-growing products and services” (ECLAC, 2009, p. 11). However, the rapid increase in global demand for environmental goods and services, the rapid growth of manufacturing activity and the quickening pace of research and development of environmental products and technologies, are opening the door for Latin America and the Caribbean to enter into new production chains, leveraging their existing manufacturing capacity to provide high value-added components and other inputs and increasing the value-added of its export sector.

Latin America and the Caribbean exports of environmental goods to some key destinations are underperforming relative to the rest of the world, indicating a significant opportunity for the region. LAC exports to the European Union and to Asia-Pacific countries are proportionally much less than the rest of the world. Even excluding intra-regional trade, Latin American and Caribbean exports are underperforming in the EU and in Asia-Pacific. Asia-Pacific imports 23% of global EG trade and 16.3% of global trade from outside its region (Figure 2). At the same time, Latin America and the Caribbean only sells 2.7% of its total EG exports to Asia. This is in part due to the heavy weight of the United States in the region’s export basket, particularly due to Mexico, and also due to the intra-Mercosur trade. Growth in global demand for Environmental Goods and Services and the ensuing investment in manufacturing capacity in the EU and in Asia underlines both the opportunities for new markets for the region’s EG exports, but also the risks that current advantages will be threatened by more efficient producers in other regions.

FIGURE 2
WORLD AND LATIN AMERICA AND THE CARIBBEAN: EXTRA-REGIONAL EXPORTS
OF ENVIRONMENTAL GOODS TO SELECTED DESTINATIONS IN 2008, “FRIENDS 153” LIST
(Percentage of Total Extra-Regional EG Exports)



Source: Author, based on United Nations (2011), UN COMTRADE Database.

Note: Export data excludes intra-regional exports. For example, exports by EU countries to the EU region are not included in the world total.

Growth in global demand for Environmental Goods and Services and the ensuing investment in manufacturing capacity in the EU and in Asia underscores both the opportunities for new markets for the region’s EG exports, but also the risks that current advantages will be threatened by more efficient producers in other regions.

A greater degree of regional integration will broaden national markets and production scales, helping to promote trade in services and intraregional investments. Greater integration also helps small and medium enterprises (SMEs), which tend to export more within the region, and stimulates diversification of production, regional value chains, and a learning platform for competitiveness (ECLAC, 2009, p. 81). The integration of production in Asia, centered on China, is an example to be studied for possibilities of participating in the value chains. Greater investment between Latin America and the Caribbean and Asia, forming business partnerships would be useful for the region (ECLAC, 2009, p. 98). The region can benefit from:

1. Applying the lessons of the United States, Europe, and Asia and integrate production structures in regional or sub-regional value chains;
2. Increasing its competitiveness by strengthening and expanding its existing integration schemes;
3. Redoubling its efforts to participate in existing and new value chains around the world.

A. Existing barriers on trade of Environmental Goods

1. Applied tariffs

The main destinations for the region's exports of EGS products apply relatively low tariffs, though with some important exceptions (see Table 8). China, for example, applies effective tariff rates up to 9.1% (as is the case of exports from El Salvador to this market). On average, China applies a 4.8% tariff on EGS products from Latin America and the Caribbean. For Mercosur members, China's effective tariffs range from 4.0% to 5.9% while the region's largest EGS producer and exporter, Mexico, faces a 4.3% applied tariff on its EGS products. Taiwan applies similar tariffs on EGS exports from the region, while other large Asian markets allow tariff-free access for the region's EGS products.

High-income economies have relatively low levels of protection against exports of environmental goods from Latin America and the Caribbean countries, with some exceptions. Existing preferential agreements with the region ensures that the average tariffs for exports of environmental goods entering into high income countries is close to zero. Canada, however, applies some moderate tariffs on exports from selected countries (see Table 9). Notably, China applies an average of 4.8% tariff on its imports of environmental goods from the region, and applies a rate of 5.9% on Brazilian EG exports, 4.3% on Mexico, and 6.3% on Colombia. The higher tariffs faced by the region's producers and exporters of environmental goods represent a clear opportunity for gains from liberalization in Asian markets, particularly in China, where tariffs are higher than in other industrialized and emerging economies.

Applied tariff data also shows a clear pattern of intra-regional and intra-sub-regional preferences, as expected. Subregional trading blocs have been successful in maintaining low tariff rates for EGS among its members (see Table 10). This helps explain the pattern of intra-regional trade seen in the table below, dominated by intra-subregional trade. This also identifies the largest barriers for intra-industrial trade within the region and where the potential for large gains exist.

TABLE 10
TARIFFS APPLIED ON EXPORTS OF ENVIRONMENTAL GOODS FROM LATIN AMERICA
AND THE CARIBBEAN IN 2007, "FRIENDS 153" LIST
(In percentages)

Reporter	Partner																																		
	MERCOSUR				ANDEAN					CARICOM										CACM				Latin America and the Caribbean											
	Argentina	Brazil	Paraguay	Uruguay	Bolivia (Plurinational State of)	Colombia	Ecuador	Peru	Venezuela (Bolivarian Republic of)	Antigua and Barbuda	Bahamas, The	Barbados	Belize	Dominica	Grenada	Guyana	Haiti	Jamaica	Saint Kitts and Nevis	St. Lucia	St. Vincent and the Grenadines	Suriname	Trinidad and Tobago	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Chile	Cuba	Dominican Republic	Mexico	Panama	Latin America and the Caribbean	
Latin America and the Caribbean	0.7	2.0	0.0	0.6	1.1	1.2	1.8	2.5	2.8	4.1	13.3	2.6	6.0	3.7	0.9	8.8	1.3	7.7	14.3	0.3	0.0	0.6	3.9	1.7	0.0	0.9	1.0	1.4	1.2	4.2	5.7	5.4	9.2	2.2	
China	4.1	5.9	4.0	4.7		6.3	3.8	3.6	4.7					3.3	4.7	0.0	4.9	4.6	0.0				8.0	1.7	9.1	7.8	5.0	5.1	0.2	6.5	3.2	4.3	6.3	4.8	
Hong Kong, China	0.0	0.0		0.0		0.0		0.0	0.0															0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Japan	0.0	0.0		0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0					0.0				0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Singapore	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0							0.0					0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Taiwan, China	4.2	2.8	3.6	3.3		3.0	2.4	1.1	2.7		3.6		4.4	1.9				0.0	1.4				0.0	0.1	3.1	1.0	0.0	0.8	2.5		3.7	1.7	0.3	1.9	
United States	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Canada	0.3	0.3	5.0	2.3	0.1	1.6	1.9	1.9	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	2.4	0.1	6.5	0.0	0.2	1.8	0.0	0.7	0.0	
European Union	0.0	0.1	0.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All high-income	0.4	0.2	0.3	0.0	0.0	0.1	0.3	0.6	0.1	0.9	0.1	0.0	0.0	0.8	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.3	0.3	0.1	0.1	0.0	0.0	0.0	
All countries	1.0	1.4	0.1	0.7	0.4	1.0	1.8	2.1	1.4	0.8	1.8	0.2	2.0	2.7	0.8	1.1	0.1	1.8	0.0	0.1	0.6	0.6	2.4	0.9	0.1	0.9	0.9	1.2	1.0	3.8	0.7	0.3	7.5	0.6	

Source: Authors' calculations based on UNCTAD (2010b) "Trade Analysis and Information System," database.
 Note: Reporter tariffs on its imports from Partner.

TABLE 11
LATIN AMERICA AND THE CARIBBEAN INTRA-REGIONAL TARIFFS IN EGS TRADE
CHARGED BY REPORTING COUNTRY ON IMPORTS
FROM PARTNER COUNTRY IN 2007, "FRIENDS 153" LIST

		Partner																									
		MERCOSUR				ANDEAN					CARICOM						CACM										
Reporter		Argentina	Brazil	Paraguay	Uruguay	Bolivia (Plurinational State of)	Colombia	Ecuador	Peru	Venezuela (Bolivarian Republic of)	Antigua and Barbuda	Belize	Grenada	Guyana	Haiti	St. Kitts and Nevis	Trinidad and Tobago	Costa Rica	El Salvador	Guatemala	Honduras	Mexico	Chile	Cuba	Dominican Republic	Panama	
MERCOSUR	Argentina	0.0	0.0	0.0	0.0	0.0	1.9	0.0	2.8	3.9	10.8		15.9			14.0		14.9	9.4	10.0		0.8	0.2	0.2	4.5	17.2	
	Brazil	0.0	0.0	0.0	0.0	0.0	2.9	0.0	3.3	0.7							11.3	14.4	16.2	10.5		8.3	0.0	12.2	12.9	10.7	
	Paraguay	0.0	0.0	0.0	0.0	11.8	4.6		0.6									3.2				3.0	1.9			10.2	
	Uruguay	0.0	0.0	0.0		0.0	1.1	2.1	7.7	0.3		10.7						14.3	1.1	6.7		0.0	0.3		5.3	2.1	
	Bolivia (Plurinational State of)	0.6	1.0	0.0	0.1		0.0	0.0	0.0	0.0		7.5					9.0	3.4		5.0	1.7	0.0	8.7	0.2	7.8	2.7	
	Colombia	4.6	2.5		1.6	0.0		0.0	0.0	0.0	7.5	15.0		7.2		15.0	0.8	11.2	6.1	10.0		0.0	0.0		9.0	10.1	
ANDEAN	Ecuador	2.4	1.0	1.3	3.6	0.0	0.0		0.0	0.0		0.0					13.8	14.4	7.0	7.0	8.2	9.5	0.0	5.3	13.9	5.1	
	Peru	0.7	0.5	0.0	0.0	0.0	0.0	0.0									0.0	0.2	0.0	0.0		0.9	0.3		7.2		
	Venezuela (Bolivarian Republic of)	4.4	4.5	5.4	5.4	0.0	0.0	0.0	0.0		7.8	7.3			9.7		5.1	15.1	9.9	9.0	5.3	14.3	0.0	4.3	10.1	13.2	
CARICOM	Antigua and Barbuda	6.4	19.1			17.5	20.0	20.0	19.5				0.0	0.0	0.0	0.0	6.1		13.3	20.0		19.2			7.2	17.6	
	Belize	5.8	5.7			6.3	18.3		20.0								0.0	12.6	5.2	6.9	7.6	9.8				9.8	
	Grenada	5.0	12.1			14.8	19.5		10.0		0.0						0.0	20.8				17.3	20.0		19.4	21.1	
	Guyana	5.0	10.2		11.6	18.2	20.0	5.0	14.6		0.0						0.0		5.0	5.0		19.4	3.0			8.9	
	Haiti	0.4	0.4		0.0	0.0	0.0		5.0				10.0				0.0	0.0		0.0		0.0	3.0			8.7	
	St. Kitts and Nevis		5.9			19.8					0.0			0.0	0.0		0.0	25.0		0.0		23.6			11.0	18.7	
	Trinidad and Tobago	6.9	2.2		23.6	5.6	3.9	0.0	0.5			0.0	0.0	0.0				5.4	4.5	0.0	20.0	13.9	20.0		0.0	10.1	
	Costa Rica																										
	El Salvador	2.4	1.8	0.0	4.9	0.0	4.2	12.4	4.9	0.0					7.5		0.0	0.0		0.0	0.0	0.0	1.0	1.5	0.0	0.0	0.0
	Guatemala	1.8	0.8	0.0	2.4		4.2	11.8	4.2	4.3		0.7		0.0				0.0	0.0		0.0	0.0	0.8	4.9	0.0	0.0	1.5
CACM	Honduras	3.3	0.7		0.1	0.0	1.0	10.1	13.4	0.3	0.0	0.0						0.0	0.0	0.0		0.4	5.0	0.0	0.0	1.6	
	Mexico	0.3	6.3	4.4	0.0	0.0	0.0	4.2	6.9	6.1	8.1	9.3	4.7		9.0	4.7	7.0	0.0	0.0	1.5	0.0		0.0	13.7	4.6	4.9	
	Chile	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0		6.0					6.0	0.0	0.0	6.0	6.0	0.0			6.0	1.1	
	Cuba	3.4	0.5		9.1		5.8	3.8	10.5	10.2							12.8	12.3	10.0	13.5	0.0	11.4	9.4		10.5	10.4	
	Dominican Republic	6.9	8.4	3.0	18.8	3.0	10.2	16.6	12.4	3.3	1.1	0.0	0.0		0.0	0.0	0.0	0.1	0.0	0.0	0.0	13.6	4.6	8.5		0.0	
	Panama	10.4	4.9		14.1	2.1	8.4	8.3	6.1	6.7							7.4	4.9	0.0	5.4	2.1	4.0	0.3	6.7	2.6		

Source: Authors' calculations based on UNCTAD (2010b) "Trade Analysis and Information System," database.

Note: Reporter tariffs on its imports from Partner.

Intra-regional trade outside of sub-regional blocs is very protected. Brazil, for example, applies tariffs as high as 16.2% on imports from non-Mercosur members. The country applies an 8.3% tariff on imports from the region's largest exporter, Mexico. Chile, on the other hand, applies a zero-tariff on EGS products from most countries in the continent, including Brazil and Mexico. This likely represents the lack of competitiveness of Chilean industry in these products and its position as a consumer of manufactured goods.

The region also has significant barriers to its imports of EGS products from the rest of the world. Table 11 shows the significant protections in place against imports from Asia and High Income countries, which are the main manufacturers of environmental goods. Brazil, for example, applies a 14% tariff on EG imports from China, and 13% tariff on EG imports from all high-income countries. On average it applies a 12.2% tariff on all its imports of environmental goods, the highest in the region.

TABLE 12
LATIN AMERICA AND THE CARIBBEAN TARIFFS IN EGS TRADE
CHARGED BY REPORTING COUNTRY ON IMPORTS FROM PARTNER COUNTRY OR REGION
IN 2007, "FRIENDS 153" LIST

		Partner										
		Latin America and the Caribbean	China	Hong Kong, China	Japan	Singapore	Taiwan, China	United States	Canada	EU25 members	All high-income	All countries
MERCOSUR	Argentina	0.1	10.1	7.3	11.9	9.9	13.2	8.4	8.6	9.6	9.3	8.0
	Brazil	1.8	14.0	13.6	13.0	10.2	12.0	12.3	12.0	13.2	12.8	12.2
	Paraguay	0.1	8.8	7.5	5.7	5.7	6.8	4.2	3.1	4.8	4.9	3.1
	Uruguay	0.0	10.7	14.6	6.9	4.4	11.5	3.3	6.3	5.6	4.7	3.5
ANDEAN	Bolivia (Plurinational State of)	1.8	6.6	7.8	5.5	3.8	6.0	4.5	3.3	4.3	4.5	3.4
	Colombia	1.8	12.1	9.5	8.7	8.9	10.4	9.7	10.9	9.7	9.6	8.4
	Ecuador	1.4	7.5	7.7	2.9	5.2	6.7	5.5	4.6	5.8	5.4	4.8
	Peru	0.4	0.9	2.7	0.3	0.2		0.4	1.2	0.4	0.4	0.5
	Venezuela (Bolivarian Republic of)	5.5	13.3	13.4	10.2	12.0	10.9	10.4	11.2	11.3	10.7	9.9
CARICOM	Antigua and Barbuda	13.5	9.4	19.6	10.3	10.0	6.5	11.3	6.0	11.4	11.2	11.1
	Belize	9.6	7.2	15.3	6.7	5.0	12.7	8.4	8.1	5.7	8.2	8.4
	Grenada	8.6	13.9	19.1	7.1	5.0	6.1	9.2	10.0	8.3	8.9	8.6
	Guyana	11.5	5.8	14.9	9.0	6.0	5.1	6.5	5.1	5.8	6.4	6.3
	Haiti	4.1	0.5	0.0	0.0		0.1	0.4	1.4	0.2	0.4	1.0
	St. Kitts and Nevis	13.0	8.9	17.1	8.9		5.3	12.7	6.5	5.6	11.1	11.0
	Trinidad and Tobago	4.8	2.8	6.8	0.6	0.7	2.0	1.2	1.2	1.4	1.2	1.5
CACM	Costa Rica											
	El Salvador	1.0	4.3	1.1	0.2	0.1	1.6	1.1	1.5	2.6	1.5	1.5
	Guatemala	1.5	4.8	4.3	0.3	3.2	0.4	0.4	3.6	1.3	0.7	1.2
	Honduras	0.8	3.8	1.3	0.2	1.5	2.4	0.9	2.7	1.1	1.0	1.2
	Mexico	4.7	7.9	6.4	4.3	10.2	7.2	0.0	0.0	0.0	0.7	1.6
	Chile	0.0	1.3		0.0	0.0	6.0	0.0	0.0	0.0	0.1	0.5
	Cuba	8.6	10.9	10.4	9.5	8.9	10.2	9.6	10.0	10.1	10.1	9.8
	Dominican Republic	9.3	10.6	9.6	4.0	12.1		2.2	6.8	5.8	3.5	5.2
	Panama	5.1	4.1	6.3	8.9	0.7	0.3	4.9	3.6	3.3	4.4	4.6

Source: Authors' calculations based on UNCTAD (2010b) "Trade Analysis and Information System," database.
Note: Reporter tariffs on its imports from Partner.

The pattern of high protection in the region relative to the level of tariffs faced by the region's exports abroad represents a gain for the region's exporters and producers and reflects the region's lack of competitiveness against the world's largest manufacturers. Any liberalization of environmental goods, however, must take in consideration that Latin America and the Caribbean, and the developing economies in general, will lose competitiveness in the face of an accelerated liberalization schedule where larger established manufacturers, particularly in Asia would gain significant access.¹¹ There are, however, significant gains to be gained from liberalizing intra-regional trade beyond the existing trade

¹¹ China has gained significant manufacturing capacity and competitiveness due to its government development programs. See below.

blocs. This could help improve the region's intra-industrial trade and productive integration in these key industries. At the same time, liberalization in some key Asian markets, notably China and Hong Kong, SAR, would improve the ability of the region's exporters to compete.

In terms of environmental goals, however, the continued tariff protections against environmental goods in Latin America and the Caribbean are a significant cost barrier to the import of key technologies and products.

2. Subsidies and incentives

Latin America and the Caribbean exporters must also compete against many large manufacturing centers with established support policies for new green industries. Subsidies and incentives for domestic producers of environmental products and services ranges from operational support — such as subsidized loans, grants, export financing and guarantees, and reduced taxes — to investment incentives. These programs are aimed at promoting domestic competitiveness in key areas through the requirement of minimum amounts of domestic inputs, among others (Cosbey, 2011). Smaller countries are clearly at a disadvantage, which is the reason for the prohibitions under the WTO's Agreement on Subsidies and Countervailing Measures. However, environmental goals also justify policies to promote a greener economy that may not be initially sustainable for nascent industries with high research and development costs or other barriers to entry into the industry.

One example is the increased competitiveness of Chinese companies in wind and solar manufacturing, which is leading to increased calls for trade-restricting measures. In the United States, the victory of the Chinese-made turbines in the \$1.5 billion West Texas wind farm project has led to calls for federal stimulus funds to be blocked from financing projects that don't rely on US-made technology. This would follow the Chinese government's recently discontinued practice of subsidizing Chinese wind turbine manufacturers that agreed not to buy imported components (Bradsher, 2011).¹² As a result of these and other government policies, the United Steelworkers union filed a legal complaint in 2010 asking the federal government to investigate China's clean energy subsidies and other policies, and to study the possibility of a WTO complaint.

It is clear, however, that the current WTO rules do not provide for significant policy autonomy ("green policy space") for governments to use subsidies to promote renewable energy industries. This is in large part due to the uncertainty of the definition of subsidies in the Subsidies and Countervailing Measures agreement (SCM) and how it applies to some of the most common measures (tax incentives, quantitative and pricing requirements). As such, there is significant uncertainty for policy makers. A further analysis of justifications or exceptions that might protect "green policies" also finds that, while the current rules do not recognize the desirability of such policies, there is a growing debate over the applicability of the general exceptions of GATT Article XX (Rubini, 2011).

3. Non-Tariff Barriers (NTBs)

The greatest non-tariff barriers to the trade of environmental goods and services are the regulations on environmental standards, as well as the need for environmental certifications. The inability of exporters from developing countries to meet the high level of standards required for entry into the largest markets is an effective barrier to trade that protects producers in the destination market (Khatun, 2009, 2010). This is made worse by the lack of uniformity in environmental requirements and technical regulations in different destinations, which has an impact on the type of environmental goods that are used to meet environmental requirements in these countries.

As Cosbey (2011) notes, "non-tariff barriers such as subsidies to traditional energy sources, regulatory and legal barriers, lack of infrastructure, traditional investment risk and other factors figure much more prominently as obstacles to dissemination than do tariffs." It is clear that promoting a substantial increase in EGS trade will require more than trade policy remedies.

¹² China agreed in June to discontinue the subsidies, though after five years of government support, it now has the world's largest wind turbine manufacturing industry, with highly competitive domestic component producers.

V. Potential impact of liberalization for Latin America and the Caribbean

A number of studies have found that eliminating tariffs and nontariff barriers results in gains in trade volumes according to the prior level of protection. Working with its proposed list of 43 products, the World Bank finds that all barriers (tariff and nontariff) for imports of products in 18 high-GHG-emitting developing countries can lead to significant gains in trade (from 3.6 to 63.6 percent increase in volume) (World Bank, 2007). This increase is the result of the adoption of more advanced technology in domestic production processes and methods, which would help reduce the emissions in these industries and countries. In a separate study, the World Bank estimates that a complete elimination of tariffs and non-tariff barriers around the world would result in a 13.5% increase in total trade of clean coal, wind and solar power generation and efficient lighting technologies (World Bank, 2008). The benefits to least developed countries are also significant since developing countries themselves are buyers of environmental goods and services, and have high barriers to trade of these products. However, LDC's also might suffer from an erosion of their current preferences. On average, LDCs benefit from preferential duty treatment on approximately 84 percent of tariff lines (WTO, 2009a, 2009b). Since it is likely that many of the environmental goods that would be liberalized are already subject to some or many preferential programs offered to LDCs by developed countries, EG liberalization will accelerate the reduction of tariffs of these products and erode LDCs' preferences in those markets (Khatun, 2010).

For Latin America and the Caribbean, then the liberalization of goods and services should be considered in light of the region's own requirements for import and potential for export of EGS, and the objective

of poverty alleviation through greater labor income and a better distribution of income. These efforts must take into consideration the erosion of existing preferential access and the current non-tariff barriers. In order for liberalization of environmental goods and services to have a beneficial effect on environmental and economic conditions in Latin America and the Caribbean, a number of conditions must be present (Khatun, 2009). Among others:

1. There must be ample technical and financial assistance to ensure that exporters are able to meet the demand for the products in other markets, and that importers have sufficient financing and technical know-how to implement modern technology. This is especially important in light of the smaller size of the average manufacturing company in Latin America and the Caribbean compared to developed and Asian companies;
2. Aid for Trade initiatives must be coordinated to mobilize resources and projects that make use of these technologies and services;
3. Non-tariff barriers must be reduced and harmonized;
4. Access of Mode 3 and Mode 4 exports of services must be expanded in developed countries, particularly in the area of movement of physical persons. Imports of environmental services in Latin America and the Caribbean must consider the impact that foreign firms on sensitive sectors (e.g.: water and sanitation), ensuring proper regulation and standards.

It is clear that the region must establish a regional position on climate change to actively participate in ongoing negotiations, including:

- Post Kyoto: Define position on magnitude of reduction commitments; financial assistance and technology transfer needs
- WTO (Doha): Define position on environmental goods and services
- Avoid “green protectionism” in the industrialized economies

In addition, the region must attract more foreign direct investment and technological partnerships to stimulate innovation and the adaptation to a less carbon-intensive competitiveness in its exports. It must move towards an export structure that is less energy-intensive and with lower emissions of greenhouse gasses and leverage existing and potential competitive advantages in producing environmentally friendly products.

VI. Conclusion

This paper examined proposals to liberalize trade of Environmental Goods using positive lists of products and characterized the trade of these products in Latin America and the Caribbean. The objective is to help identify trends, risks and opportunities for exporters as well as for importers, in a context of increased global competition in manufactured products from Asia and China in particular.

Climate change is one of the most important challenges facing the international community and the multilateral negotiating mechanism. As a key forum of discussion, the WTO must complete the difficult job of harmonizing its traditional role as a promoter of greater trade with the global need to address climate change. One piece of this puzzle is the need to improve the access to technologies and services that can be used to reduce humanity's impact on the climate. At the same time, these "environmental goods and services" are also a new opportunity for developing economies to gain new markets with more value added. The challenge is how to liberalize these EGS while avoiding harm to existing preferences available to developing countries.

From the point of view of environmental goals, greater trade of goods and services that are in themselves more climate friendly, or that are used in the production of climate friendly products can help accelerate the adoption of greener technologies and processes around the world. This would promote less harmful production methods by reducing the relative costs of better technologies. This approach also has the benefit of being more tractable, though less effective, than broad multilateral negotiations which attempt to set national emissions reduction targets. This more narrow approach is arguably easier to negotiate and implement in the Doha round, particularly as it is in fact liberalization and not new restrictions on trade.

In Latin America and the Caribbean, implementing policies aimed at both lowering trade barriers to environmental goods and services and “greening” the region’s export basket will result in gains both for the environment and for productive and export diversification. This challenge is especially important in light of the increasing share of raw materials in the region’s exports (especially those of South America), in a context of high and persistent demand for these products from China and the rest of Asia.

There is support for this approach at the WTO, who recognizes that incentives for Environmental Goods and Services (EGS) are an immediate contribution that countries can make to effect climate change. Moreover, liberalizing Environmental Goods and Services could present some countries in Latin America and the Caribbean with the opportunity to capitalize on existing competitive advantages by opening new markets. Reducing tariffs for these products would also result in lower input costs for climate friendly technologies and improve the ability of the region to use these technologies in its production process.

The rapid increase in global demand for environmental goods and services, the rapid growth of manufacturing activity and the quickening pace of research and development of environmental products and technologies, are opening the door for Latin America and the Caribbean to enter into new production chains, leveraging their existing manufacturing capacity to provide high value-added components and other inputs and increasing the value-added of its export sector. This would help address the region’s need for greater diversity of its exports and export markets, moving towards more value-added products and services and reorienting industrial production towards fast-growing sectors.

However, the goal of broadening the use of more advanced technology needs to be balanced against the needs of developing economies and the principle of differentiated responsibilities. Eroding preferences for certain products exported by developing economies, while accelerating the adoption of these technologies in these economies, would also undermine the little competitiveness that these countries have due to preferential access. In addition, there is the clear need for technical and financial assistance measures—possibly through the Integrated Framework or the Aid for Trade mechanisms—to help in the transition and reduce the short term effects of liberalization. Programs should help with standards and certification requirements with the objective of helping producers and exporters of climate friendly goods and technologies. Programs should also target small and medium enterprises (SMEs) to facilitate access to these technologies and services, beyond what pure liberalization would promote.

Regardless of the shape of an eventual agreement, a number of private sector actors are already positioning themselves as leaders in research, development and manufacturing of key technologies, products and services. The lack of an international regulatory framework for these products is a tremendous source of opportunity. Already a number of strategic partnerships in key environmental technology sectors exist, and the industry is looking for how best to expand its production capacity.

Some countries in Latin America and the Caribbean are already leaders in global markets of environmental goods and services and are well positioned to expand their positions. Mexico is the leading exporter of technologies used in solar water heaters. Bolivia and Chile are home to the world’s largest reserves of lithium, a key ingredient in advanced battery technologies that are coveted by the auto industry for development of more fuel-efficient cars. Brazil is a global leader in the production and use of cleaner burning bio fuels, though the growth of this industry is hampered by limited access to key international markets. It is clear that reduced barriers to trade and investment in “green” products and technologies are an important opportunity for the region to expand exports, diversify production and adopt more efficient methods of production. It is also clear that both domestic and foreign direct investment is needed to develop and expand production of these key technologies.

The rise of the solar and wind energy industries in Spain, China and other countries is evidence of the key role governments can play in promoting industries and technologies, but also the need for greater competitiveness and sustainability. Latin America and the Caribbean are well poised to increase their competitiveness in renewable energy technologies and services, but must recognize that this requires long-term strategies. Investments in green technologies have a higher initial cost than those in traditional fossil energies and thus their development will often require incentives for investment, research and development. To this end, policy design requires a careful study of recent failures and successes.

Strengthening regional integration efforts also offers the opportunity to ease the transition to a green economy within the region. Greater integration broadens national markets and production scales and helps to promote trade in services and intraregional investments. It also helps SMEs and stimulates productive diversification by supporting exports with higher value added and manufacturing content. Regional integration can also encourage the formation of regional value chains and constitutes a learning platform that can lead to improved competitiveness at the worldwide level. Moreover, countries in the region could coordinate at the regional or sub-regional levels their national efforts to promote less carbon-intensive production patterns, including by pooling resources devoted to scientific research.

The issue of how to define environmental goods and services and how to promote their use in production processes is complex given the existing preferential access by some developing countries and the significant differences in manufacturing capacity that threaten domestic industries of key technologies. However, the gains of greater use of environmentally-friendly technologies by producers and buyers of these technologies are clear. For Latin America and the Caribbean, there are opportunities available to improve its export structure and domestic production methods. However, these opportunities also come with great risks, particularly in light of the great manufacturing power of Asia. Governments must, however, promote the upgrading of manufactures in the region and provide extensive support for nascent producers to improve their competitiveness.

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