Trade Preferences for Environmentally Friendly Goods and Services

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ICTSD welcomes feedback on this document. These can be forwarded to Joachim Monkelbaan, jmonkelbaan@ictsd.ch

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LIST OF ABBREVIATIONS AND ACRONYMS

ACP	African, Caribbean and Pacific Group of States
AGOA	African Growth and Opportunity Act
APEC	Asia-Pacific Economic Cooperation
CO_2	Carbon Dioxide
CGS	Climate-friendly Goods and Services
CTESS	Special Session of the Committee on Trade and Environment (WTO)
EBA	'Everthing but Arms' (EU development initiative)
EC	European Communities
EIF	Enhanced intergrated framework
EGS	Environmental Goods and Services
EPA	Economic Partnership Agreement
EPA	Environmental Project Approach
EPP	Environmentally Preferable Product
EST	Environmentally sound technology
EU	European Union
EUROSTAT	European Statistical Office
EQSGS	Environmental Quality Support Goals
GATT	General Agreement on Tariffs and Trade
GATS	General Agreement on Trade in Services
GETE	Group of Experts on Trade and Environment
GHG	Greenhouse Gas
GSP	Generalized System of Preferences
ITC	International Trade Centre
LCA	Life-cycle assessment
LDCs	Least-developed countries
MEA	Multilateral Environmental Agreement
MFN	Most-favoured nation treatment (WTO principle)
NPR-PPM	Non-product related processes and production method
OECD	Organisation for Economic Cooperation and Development
PPM	Processes and production method
TBT	Technical Barrier to Trade
UNCTAD	United Nations Conference on Trade and Development
UNFCCC	United Nations Framework Convention on Climate Change
WTO	World Trade Organization

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INTRODUCTION

International trade in environmental goods and services (EGS) may contribute to the achievement of environmental, economic and developmental benefits and to the transition towards a "green economy". The international community has been exploring several strategies to promote sustainable development through enhanced trade in EGS. The WTO negotiations on EGS seek to reduce or eliminate tariff and non-tariff barriers to trade in EGS. Beyond the WTO, the Johannesburg Plan of Implementation calls for initiatives to support the creation and expansion of markets for environmentally friendly goods and services.[1] One key question is how to maximise the sustainable benefits of trade liberalization and market creation/ expansion of EGS for developing countries. This paper seeks to explore the possible role of trade preferences for EGS in promoting the transition towards a "green economy", focusing on potential beneficial effects for developing countries.

WTO members have been considering options for taking developing country trade interests into account by seeking to identify products that are of export interest to developing countries. In this context, this paper builds in part on a consideration of relevant analysis and discussions in the context of the WTO negotiations on EGS. In addition, the paper explores options for trade preferences for a wider range of products, in particular environmentally preferable products, including in sectors that have received little or no attention in the context of the WTO negotiations on EGS such as agriculture and forestry.

The Doha Ministerial Declaration in paragraph 31 (iii) provides the mandate for WTO negotiations on environmental goods and services liberalization by way of "the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services (EGS)". Implicitly this mandate also covers climate-related goods and services (CGS), the faster liberalization of which could be a contribution of the WTO to the fight against climate change.[2]

The rationale behind trade liberalization for most environmental goods and services is to ease the dissemination of and access to related goods and services in global markets, and to lower their costs for domestic producers and consumers. In addition, improved market access for environmentally-preferable products (EPPs) may provide trading opportunities for producers and exporters from developing countries and can play an important role in enhancing environmental quality and supporting the transition to a green, low-carbon economy.

In addition to the trade opportunities that may arise from the WTO negotiations on EGS, unilateral trade preferences for EPPs may provide beneficiary developing countries with improved market access to developed country markets, resulting in potential sustainable development gains. Indeed, trade preferences may complement trade liberalization efforts to be achieved by reducing tariffs and non-tariff barriers on an MFN basis. Unilateral trade preferences can be granted typically towards developing countries, with the aim of contributing to economic and social development in developing countries

The purpose of this paper is to explore options for providing trade preferences for EGS/CGS and how, if applicable, they should be designed to become a driver for development. After having presented the state of play on definition and classification of EGS and CGS in Chapter 1, Chapter 2 discusses the development related impacts of trade preferences for such goods and services. The compatibility of trade preferences for EGS/ CGS with WTO law will be analysed in Chapter 3 and potential impacts of such preferences on emissions levels in Chapter 4. Finally, Chapter 5 elaborates on possible strategies to use trade preferences as a driver for development. Finally, the conclusion offers recommendations for future policies.

1. DEFINITION AND CLASSIFICATION OF EGS

1.1 Definition of EGS

Environmental goods and services have become subject to special attention as sectors with potential win-win outcomes for trade and the environment. Climate-friendly goods, technologies and related services can be a meaningful component of climate change mitigation strategies. Such positive outcomes for economic development and environmental protection could be achieved through trade preferences for or liberalization of such products and services. However, it has proven to be difficult to arrive at a definition for environmentally friendly goods and services due to diverging perceptions on their scope as well as uncertainties about the dispersion of economic and environmental benefits arising from eased market access for EGS which has led to a divide between developed and developing countries on this issue.

Lack of agreement on how to define and categorize environmental and climate-friendly goods and services is one of the main barriers to progress in negotiations on liberalization of trade of such products and services in the WTO context. In fact, Members have abandoned efforts to agree on a precise definition and instead are invited to identify products of their interests.

The OECD has defined the environmental goods and services industry as: "activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil as well as problems related to waste, noise and ecosystems"[3]. This includes cleaner technologies, products and services that reduce environmental risk and minimize pollution and resource use[4]. 'Cleaner technologies and products' includes any activity that continually improves, reduces or eliminates the environmental impact of technologies, processes or products, e.g. cleaner or resource efficient technology or products such as those that reduce energy consumption[5]. The EGS industry increasingly includes goods associated with the generation of renewable energy (RE) and the "low-carbon" economy. Climate-friendly technologies refer to those goods and services for which the production or utilization reduces climate risks to a greater extent than alternative technologies for producing the same product (or alternative products that serve the same purpose). Thus, the term climate-friendly technologies includes those aimed at improving energy efficiency or increasing energy generation from new and renewable sources and goods[6].

Before addressing classification challenges and EGS/ CGS categorization approaches, a definition of the "EGS industry", which according to European Union estimates generates 54 billion Euros in economic activity per year and employs more than 2 million people[7], is a useful starting point.

Environmental goods and services can be classified under the three broad headings pollution management, cleaner technologies and products, and resource management. In the framework of the WTO, according to the report of the "Group of Experts on Trade and Environment" (GETE) the following six broad categories under which EGS can be classified have been submitted: air pollution control, renewable energy, waste management and water treatment, environmental technologies, carbon capture and storage, and others[8].

1.2 Categorization and Classification Aspects of EGS

Environmentally preferable products (EPPs)

Two broad categories of EGs have featured in the WTO discussions so far: traditional environmental goods, with the main purpose of addressing or remedying an environmental problem (e.g., carbon capture and storage technologies); and environmentally preferable products (EPPs), which include any product with certain environmental benefits arising either during the production, use or disposal stage relative to a substitute or "like" product.

The very concept of EPPs, i.e. the differentiation of products with less environmental impact during their life-cycle compared to their conventional counterparts, often implies the consideration of processes and production methods (PPMs). Non-product related processes and production methods (NPR-PPMs) are defined as processes and production methods that do not affect the characteristics of the final product put on the market[9]. Examples are the consideration of sustainability criteria, carbon footprints of products and GHG life-cycle assessment.

The concept of "environmentally preferable products" (EPPs) was developed by UNCTAD, but so far there is no agreement on a definition of such products which is universally accepted. It is complicated to establish EPP status since it is difficult to demonstrate "undisputed scientific proof of a product's environmental friendliness" despite the use of life cycle assessment (LCA) tools. UNCTAD has arrived at the definition of EPPs as "Products which cause significantly less environmental harm at some stage of their life cycle (production/ processing, consumption, waste disposal) than alternative products that serve the same purpose, or products the production and sale of which contribute significantly to the preservation of the environment".[10]

EPPs generally favour developing countries' interests as they hold important export potential for those products in addition to potentially significant sustainable development benefits in their production and provision.

Examples of sectors of environmentally preferable products can be found in the following sectors:

- Sustainable tourism
- Sustainable (organic) agriculture (e.g. sustainable coffee)
- Sustainable forestry (sustainable forest management, many developing countries also have experience in ecosystems restoration and reforestation)
- Sustainable fisheries

Examples of EPPs[11] include goods that are superior to petroleum based products (e.g. jute and bio-fuels), produced in an environmentally friendly way (e.g. organic coffee, cocoa, tea, chemical free cotton and tropical timber from sustainable forests, sustainable agriculture), or goods that contribute to the preservation of the environment (e.g. bio-pesticides). Recycling, re-use, biotechnology and energy technologies have extended the range of EPPs to include among others energy-efficient lighting fixtures, washing machines, televisions and audio equipment, low-toxicity or non-toxic paints, construction materials such as flooring made from recycled plastic, biodegradable material, zero-emission and hybrid technology automobiles, methane and other bio-fuels derived from industrial or agricultural waste. Identifying EPPs would in most cases require (third-party) certification or eco-labels (e.g. organic agriculture labels or voluntary labels such as FSC[12] in sustainable forestry). Thus standards and certification requirements (e.g. in the area of sustainable agriculture) are of particular concern for developing countries, as they especially affect EPPs[13]. Standards and the need to comply with them can be substantial non-tariff barriers to trade, especially for small producers from developing countries that seek access for their products developed country markets. Standard harmonization in conjunction with technical support and capacity building can help to prevent (sustainability) standards from becoming a protectionist tool[14].

EGS classification approaches in the WTO

The issue of classification of environmental goods is important as it will set clear parameters on the types of goods that are actually liberalised. There are different approaches towards identification of goods that WTO members have proposed over the past few years for multilateral liberalization of trade in environmental goods.

Firstly, suggestions have been made on how to define a list of environment-friendly products; the lists best supported by industrialized

countries are the OECD and APEC lists. The proposed list of the so-called "Friends of Environmental Goods" group - i.e. Canada, EU, Japan, Republic of Korea, New Zealand, Norway, Switzerland, Taiwan and the US – has a wide-ranging coverage containing *153* products with the aim of securing a zero tariff for these climate-friendly goods by 2013. A proposed *EPP list* based on a list provided by UNCTAD (1995) was put forward by developing countries.[15] China[16] has called for a "common-list" including goods of export interest to both developed and developing countries in addition to a "development list" or S&D list which would include those goods from the common list eligible for lesser reduction commitments. Amongst others Japan[17], Qatar[18] and Taiwan have submitted proposals on specific products. Qatar has proposed efficient, lower carbon pollution emitting fuels (natural gas to liquid fuels) and related technologies. Taiwan's submission focuses on pollution control equipment.

Secondly, India has advocated the "Environmental project approach" (EPA), whereby each WTO member would designate a national authority to select environmental projects based upon criteria developed by the Special Session of the Committee on Trade and Environment. Environmental goods and services related to these projects would be liberalized during the implementation of specific projects; domestic implementation would be subject to WTO dispute settlement.

Thirdly, the "Request-offer approach" (initially proposed by Brazil[19] and representing the normal negotiation procedure under the WTO) relates to the form of the negotiation process, i.e. bilateral requests and offers on products of countries' interest with subsequent multi-lateralization of concessions and tariff cuts deemed appropriate equally to all WTO members on a most-favoured-nation (MFN)[20] basis.

Fourthly, the "Integrated approach" (proposed by Argentina) aims at bridging the gap between the list and project approaches by combining respective elements. Categories of environmental projects to be identified by the CTESS will include a list of goods applicable to national projects that would be eligible for preferential access during the project period[21]. The list incorporates the concept of a "living list" as it is subject to amendment through periodic negotiations[22].

Fifthly, the "hybrid approach" brought forward by Singapore, Australia, Hong Kong, China and Norway suggests having a core list of single-use environmental goods, complemented by tariff-reduction commitments on a self-selected list of environmental goods and a request-and-offer procedure to negotiate further commitments[23]. Mexico suggests a similar procedure except for the core list mentioned above.

Treatment of tariff and non-tariff barriers in the WTO

On treatment, although the treatment modalities proposed depend on the final structure considered by Members of the WTO, all proposals for options include a reduction of tariffs to zero for some environmental products or a 50 per cent cut after formula application and elimination of tariffs by certain set periods of time. WTO Members have noted the existence of non-tariff barriers (NTBs) in certain EGS sectors and have general ideas on how NTBs can be reduced, for instance by increasing transparency. Some general ideas for an outcome on NTBs were proposed, including in relation to transparency.[24]

As regards special and differential treatment for developing countries, lesser reductions, implementation delays and other forms of flexibilities were discussed. Product exemptions as well as the liberalization by developing country Members of a lesser number of tariff lines have also been envisaged.[25] For least-developed country Members and small and vulnerable economies, additional flexibilities could be envisaged.[26] [27]

1.3 Definition and Classification of EGS From a Development Perspective

There is a divide between developed and developing countries with regard to the list coverage. Conventional "list approaches", i.e. OECD and APEC lists, generally speaking favour developed countries more as they open markets for a large amount of products and technologies which are readily available in those countries for export to developing countries. The US, Canada and the EU support a wide classification of environmental goods and services which they perceive as beneficial. Many developing countries have expressed concerns about using a list of environmental goods that would result in expedited liberalization, noting that a number of products on such a list are primarily of export interest to industrialized countries, thus compromising the economic and social development dimension (despite positive environmental effects of such imports). Thus many developing countries prefer a defensive approach, only liberalizing a limited list of environmental goods with a clear environmental end-use or 'single end-use goods'. It is not clear if this in their best interest as especially many LDCs do not export finished environmental goods, but more components and parts environmental goods.

Besides, an analysis of the Friends' 153 EGs list indicates that only a handful of developing countries are among the top 10 importers and exporters in various categories of EGs relevant to climate change mitigation. Based on these findings it is suggested that these countries could usefully engage in a request-offer approach to ensure trade gains[28]. In this context also Brazil has argued that the request-offer approach follows along the lines of previous GATT/ WTO negotiations and takes into account developing countries' interests more adequately than the common list put forward by the EU-US submission.

The remaining approaches (i.e. EPP list, project approach, integrated approach) would generally serve developing countries' interests more as they either limit the amount of liberalized goods or give those countries more influence in the selection of goods. Lowering or eliminating tariffs for such products which, because of their nature or method of production, contribute to sustainable development and ecology, mainly benefits developing countries[29].

In summary, then, the prospects for win-win achievements - both in the developed/ developing countries relationship as well as between environmental benefits and economic & social development - depend on determining a more precise definition of environmental goods and services which will ensure the environmental credentials of the goods and services sectors included in the negotiations, and facilitate the identification of barriers to trade in these sectors.

1.4 Environmental Services: Definition and Classification

Environmental goods are typically complementary to environmental services (i.e. they are integral or incidental part of the delivery of environmental services). There is typically a close link between environmental goods and services which makes distinction and categorization difficult, especially in the areas of waste management, sustainable forestry, fisheries and agriculture. For example, technology, designing and engineering of waste treatment system fall under environmental services, but the provision of these environmental services is often integrated with the provision of the associated equipment. And building a wind farm requires engineering, construction and maintenance services. This has triggered submissions by the EU[30], Canada[31], Cuba[32] and India[33] suggesting parallel liberalization of environmental goods and services.

Compared to environmental goods the definition of environmental services is reasonably well advanced. The OECD/ Eurostat definition includes services provided to "measure, prevent, minimize or correct environmental damage to air, water, soil and problems relating to waste, noise and ecosystems"[34].

A main distinction can be made between the following core categories of environmental services:

- environmental infrastructure services (e.g. related to water and waste management)
- non-infrastructure, professional environmental services (e.g. site clean-up and remediation, cleaning of exhaust gases, noise abatement, and nature and landscape protection)
- and related services with an environmental component (e.g. engineering services)

Environmental services play an important role in the ongoing negotiations of specific commitments on services in general (Article XIX of the GATS). Although negotiations in the context of paragraph 31 (iii) of the Doha Ministerial Declaration are supposed to consider both environmental goods and services, they have centred on environmental goods mainly. Approaches to environmental services differ from environmental goods since opening of markets for such services has to be undertaken by incorporating environmental services in schedules of commitments. Generally, services are *classified* in the Services Sectoral Classification List (W/120) which is to a large extent based on the United Nations Provisional Central Product Classification (CPC).[35]

However, there is a lack of final agreement on the *classification* of environmental services and the existing classification is limited to end-of pipe services and does neither cover pollution prevention nor sustainable resource management. An EU proposal suggests updating and extending the W/120 based on the OECD/ Eurostat definition of environmental services to include the entire water cycle and the protection and preservation of landscape, ecosystems and biodiversity (the inclusion of water for human use and wastewater is the most controversial point of this proposal).

Some developing countries see opportunities for market access in certain services, e.g. Colombia argues for the development of a model list that would include certain services, in particular implementation of environmental auditing and management systems, evaluation and mitigation of environmental impacts, and advice on the design and implementation of clean technologies[36].

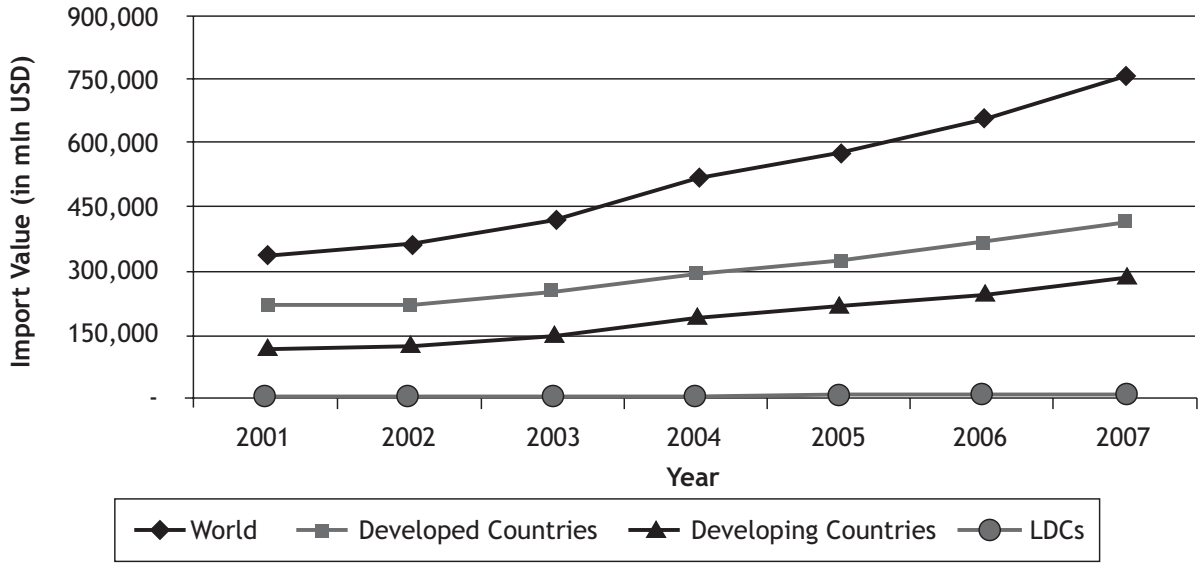
For environmental services, trade opportunities exist especially in service mode 4 (movement of natural persons) by which technical know-how (e.g. for the maintenance of renewable energy installations) can be dispersed to countries with lower levels of expertise. The growing need for commitments in mode 4 will bring to the fore issues relating to recognition, qualifications, licensing procedures and international standards. It would be useful to have a compilation of existing qualification and certification requirements that affect market access for service providers from developing countries. It would also be important to facilitate the participation of developing countries in agreements on mutual recognition of qualifications.

2. DEVELOPMENT-RELATED IMPACTS OF TRADE PREFERENCES FOR EGS

2.1 Developing Countries' Interests in EGs

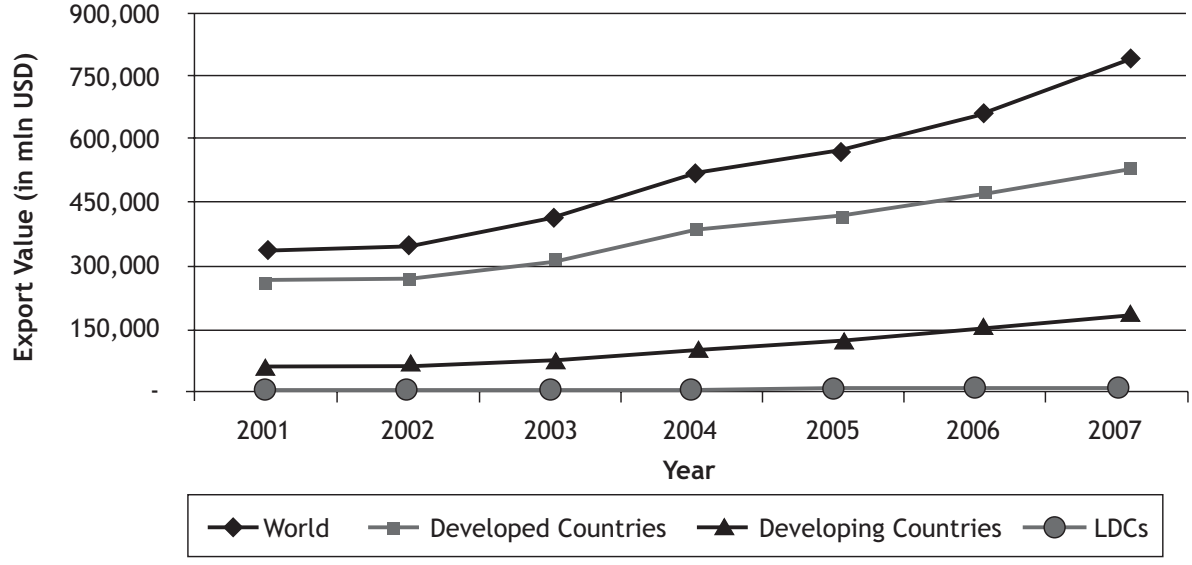
This section provides an overview of current environmental goods (EGs) exports and imports of the group of developing countries, least-developed countries (LDCs) and ACP countries, i.e. countries of the Group of African, Caribbean and Pacific Group of States (currently 79 countries), respectively. Figures 1 to 4 – which are based on the 153 EG product list - show that environmental goods exports have been rising in both developed and developing countries in recent years, albeit being at a higher level in developed countries. Environmental goods imports have also been significantly increased, however more rapid and at larger scale in developed countries compared to developing countries. As per total share in EG trade, developing countries have a larger share in imports than in exports of such goods. In both categories, LDCs hardly play a role.

Figure 1: Growth of environmental goods export, 2001-2007



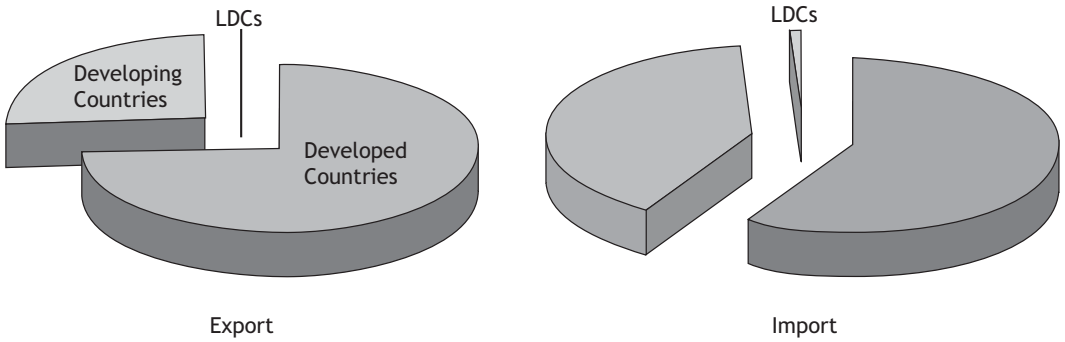
Source: UNDP (2010)

Figure 2: Growth of environmental goods import, 2001-2007



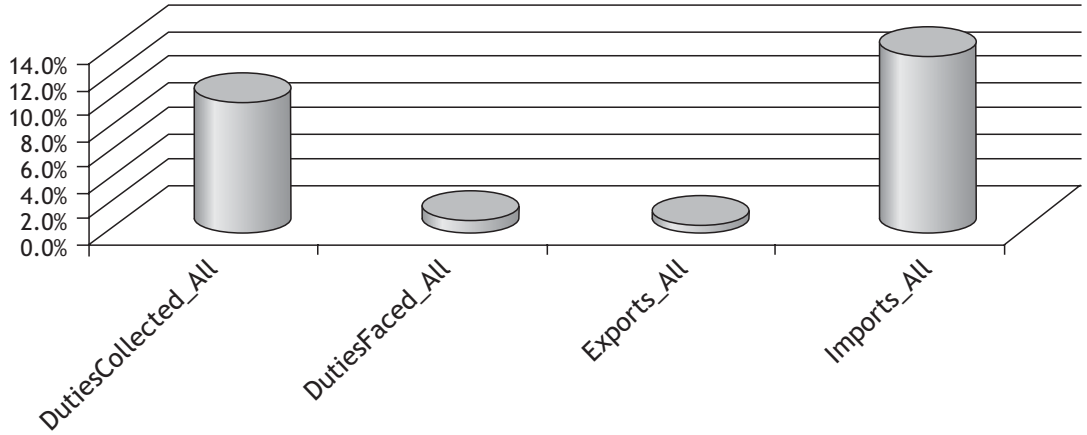
Source: UNDP (2010)

Figure 3. Share of environmental goods trade in 2007



Source: Compiled by the author based on ITC Trade Map data.

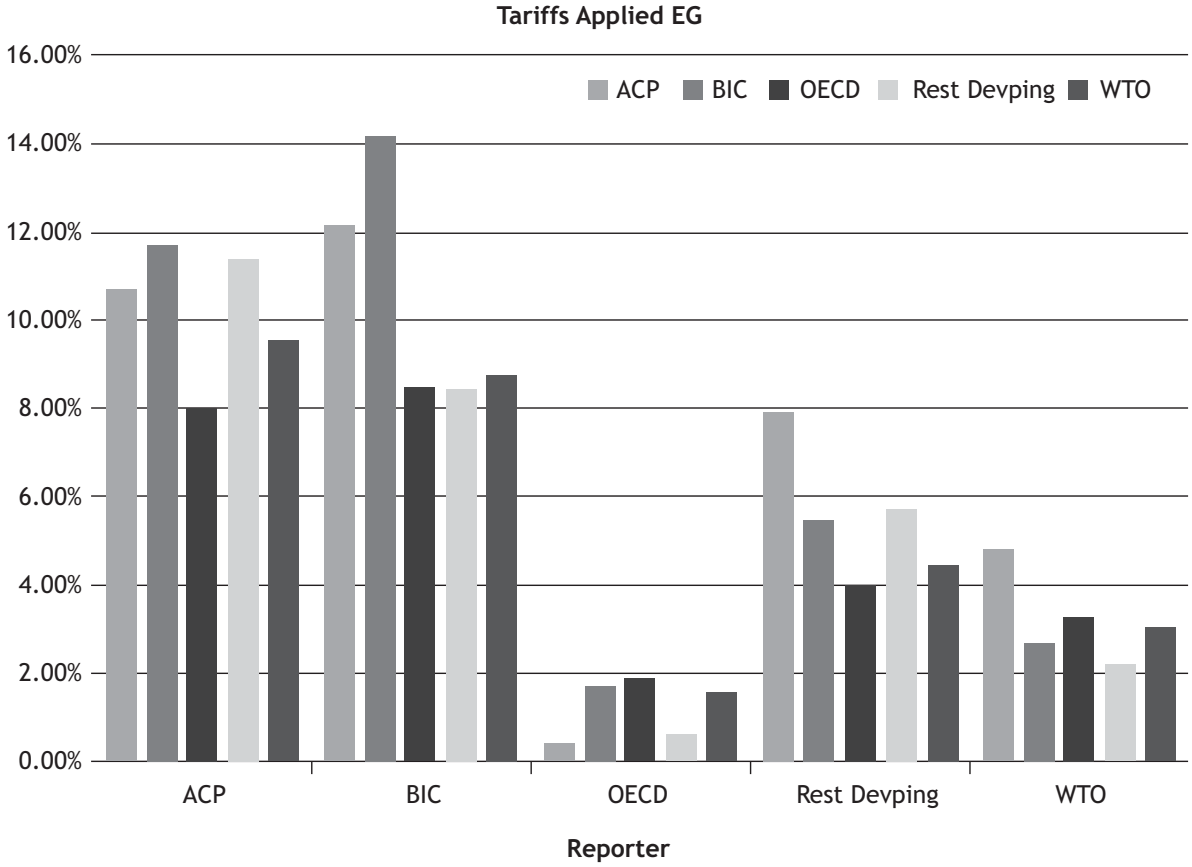
Figure 4: Role of Environmental Goods (long list) for ACP countries compared to total Trade



Source: ICTSD

Figure 4 above shows that the goods on the list with 153 environmental goods (i.e. the "Friends of Environmental Goods" list discussed above on page 10/11) represent a very small share of total ACP countries' exports but a larger share of their total imports. Keep in mind that environmental goods imports and exports of ACP countries represent a much larger share of their manufactured goods trade (non-primary goods nor oil).

Figure 5: Average Applied Tariffs in different groups of countries, by Importer and Trade Partner



Source: ICTSD (forthcoming)

In general developing countries are net importers of these products and their applied tariffs are higher than those in the developed countries (see Figure 5 above). ACP countries apply a relatively high level of tariffs, which is with an average at 9.7% about 5 times the OECD average. The tariff level in ACP countries is similar to BIC (Brazil, India, China) countries, but higher than other developing countries.

EGs from ACP countries on average face low tariffs in OECD markets, similar to EG exports from other developing countries (BIC) due to preferential access.

2.2 EU Trade and Development Cooperation: Evolution, Status Quo and Future Prospects

The Generalized System of Preferences evolved from discussions at the first United Nations Conference on Trade and Development (UNCTAD) in 1964 on how to grant preferential treatment to products originating in developing countries and is based on a resolution in this regard. A ten-year waiver from the most-favoured nation obligation of Article I:1 GATT was granted in 1971 to facilitate the GSP and later permanently authorized by a 1979 decision of the GATT Contracting Parties known as the 'Enabling Clause' in order to ensure that non-reciprocal trade preferences would not violate WTO law. There are currently 13 GSP schemes notified to the UNCTAD secretariat.

The EU's Generalized System of Preferences (GSP)[37], established in 1971, grants duty reduction on tariffs to 176 developing countries, excluding those developing countries that are both "high-income" and diversified in their exports. The current GSP Regulation distinguishes between three "arrangements": a standard GSP, GSP+ and the *"Everything but Arms" - Initiative* (EBA).

Standard GSP and GSP+

The 'standard GSP' provides for duty reductions applying to 87 per cent of dutiable tariff lines, i.e. a theoretical 9 per cent of all imports from developing countries into the EU[38].

The 'Everything but arms' (EBA) programme is part of the EU's GSP. EBA is an initiative of the European Union under which all imports to the EU from the Least Developed Countries are duty free and quota free, with the exception of armaments.

GSP+, a special incentive arrangement for non-trade reasons, such as *sustainable development* and good governance, is conditioned on which additional preferences can be obtained (i.e. duty free access for developing countries complying with social or environmental standards). A pre-condition for the applicability of GSP+ is the 'vulnerability criterion' according to which benefiting countries must be considered 'vulnerable' in terms of its size or the limited diversification in its exports. One aspect of this program, a 'drugs regime', was subject to challenge about its WTO law compatibility in the EC-Tariff Preferences case, which clarified the boundaries of the GSP+ scheme. The measure at dispute was the provision of duty-free market access to a closed list of 12 countries deemed to be in need for special assistance to combat drug production and trafficking. India claimed that the EC GSP Drug Arrangement violated the MFN clause and would not be justified under the "Enabling Clause". The Appellate Body found that this particular arrangement violated the WTO Enabling Clause since the fact that it operated through a closed list that precluded an assessment of the different situations of the potential beneficiaries.

However, as far as the assessment of the legality of other GSP schemes, including special incentives, is concerned, in its further-going elaborations the Appellate Body made clear that the term 'non-discriminatory' required merely the same treatment of beneficiary countries in the same situations, and not, as the panel had held, the same treatment of all beneficiary countries under the condition that there is sufficient likelihood that the identified needs are addressed by the trade preference.

Economic Partnership Agreements

Economic Partnership Agreements (EPAs) are a scheme to create a free trade area (FTA) between the European Union and the African, Caribbean and Pacific Group of States (ACP) countries. They are a response to continuing criticism that the non-reciprocal and discriminating preferential trade agreements previously offered by the EU to ACP countries were incompatible with WTO rules. All Economic Partnership Agreements have their origins in the trade chapter of the Cotonou Agreement, a comprehensive partnership agreement between developing countries and the EU that since 2000 is the framework for the EU's relations with the ACP-countries. EPAs are aimed at promoting sustainable development and growth, poverty reduction, better governance and the gradual integration of ACP countries into the world economy. Environmental provisions in the existing EPAs range from comprehensive ones involving a chapter on environmental issues, to minimal ones limited to exception clauses, to the general trade provisions of the agreement[39]. The objective of sustainable development can be found in most EPAs, often by recalling Article 3 of the Cotonou Agreement. References to environment and sustainable development in the Cotonou Agreement (including Article 49 on Trade and Environment) are so to say the minimum standards that will be applied in almost any EPA.

More specifically, included in the scope of environmental issues under the Cariforum-EPA (C-EPA) are: environmental technologies, renewable and energy-efficient goods and services and eco-labelled goods[40]. This non-exhaustive list implies that the scope of environmental goods and services under the C-EPA is confined to industrial products, as in the WTO. However, the reference to "eco-labelled goods" may allow consideration of non-industrial products of export interest to developing countries. The preface to the

provision (Art. 183 (5)) specifies that trade will be facilitated in *"goods and services which the Parties consider to be beneficial to the environment"*. This provides additional scope to ensure that the environmental goods and services trade comes from both Parties in the C-EPA[41]. Article 117 explicitly mentions standards for sustainable tourism.

All the EPAs contain a general exception clause exempting measures to protect or preserve human, plant and animal health from general trade obligation, repeating, explicitly referring to or incorporating the language of Article XX GATT.

GSP Reform

The current Review of the GSP system aims at establishing a revised scheme, which is better focused on the promotion of core principles of sustainable development and good governance as well as targeting support on countries most in need, to enter into force in January 2014. The already generous product coverage - of around 90% for the general GSP – is not subject to change. The strengthening of the sustainable development impact is meant to be achieved by including the UNFCCC in the list of MEAs to be ratified and implemented in conjunction with reinforced monitoring procedures. The latter is intended to be realized by reducing the number of 'beneficiaries' of the GSP scheme so as to exclude high or upper middle income economies (according to the World Bank list of economies/ ranked in these categories for the past three years) – according to data available today including Russia, Kuwait, Saudi Arabia, Qatar – in addition to countries which already enjoy another (free) trade arrangement with the EU providing substantially equivalent coverage as compared to the GSP. Other emerging economies, i.e. China and Brazil, in addition to Thailand, Ecuador, Jordan and Tunisia, all of which have been accorded 'high or upper middle income status' more recently, could be among the countries subject to future preference loss.

Critics, however, stress that using GDP as a method of ranking, which the World Bank list does, would exclude resource-rich countries from the new scheme, despite high levels of poverty in those countries[42]. This criticism can be countered by the argument that sensitivity and competitiveness of specific products are additional criteria when it comes to determining which countries to exclude from the EU's GSP.

In contrast, GSP+ will become more easily accessible due to more relaxed vulnerability criteria.

The duty-free, quota-free access for LDC products to the European market under the EBA scheme will remain unchanged for all products (including environmentally-friendly products). The same is true for the more favourable GSP Rules of Origin. Nevertheless, the envisaged significant reduction of the number of GSP beneficiaries (from 176 developing countries to approximately 80 lower and lower-middle income countries) will reduce competitive pressure and make the preferences for LDCs more targeted and meaningful.

Multilateral vs. Unilateral Liberalization: Reality Check

The modalities, rationale and scope of multilateral MFN-based trade liberalization measures are quite different from the *unilateral* granting of trade preferences. The main rationale for providing improved market access for most environmental goods is achieving easier and less costly access to goods that may be used for environmental purposes (In this case, there would be no case for granting only preferential rather than MFN-based tariff concessions). In the absence of progress on the multilateral track, there may however be a case for unilateral trade preferences. The main purpose of providing improved market access unilaterally would then normally be to provide trading opportunities for producers/ exporters of EPPs in developing countries (with the associated developmental and environmental benefits).

According to a study by the Institute of Development Studies, which compared trade preferences schemes operating in Canada, the EU, Japan and the US, EU preferences have had a significant positive impact on the relatively small number of African states that are able to export preferred products. Effective preferences were mainly concentrated on a range of agricultural products (sugar, fresh and prepared fruit and vegetables, fresh and preserved meat and fish) and a single manufactured good (clothing)[43].

The USA's African Growth and Opportunity Act (AGOA) has boosted clothing exports[44], mainly due to generous rules of origin. More than half of the gains found for preferences in the past came not from tariff preferences, but from the benefits received from special regimes for specific products, such as sugar, or from exemption from controls on textiles and clothing . It is important to keep in mind that supply capacity constraints and non-tariff barriers remain the most important obstacles to exports of developing countries and more difficult to resolve than the actual tariffs.

Thus, design and specific features of trade preference programs are a key factor for determining their *effectiveness and degree of impact* on economic and social development of target countries. Main aspects are the extent to which preferences:

(a) Target developing countries' **productive capacity** (and consequently **export capacity** and export interests)

(b) Are **not overly restricted** (i.e. accessible to developing countries)

(c) Are extended for a sufficiently **long period of time**

(d) Have sufficiently flexible and **manageable rules of origin**.[46]

These aspects will be further elaborated in this Chapter.

2.3 Developing Countries' Exports Interests in Environmental Goods[47]

GSP recipients

Overall, developing countries are net importers of environmental products. Developing countries as a group are *net exporters* for only 14 of 182 environmental goods on the OECD and APEC lists, e.g. clean fuels (ethanol), chemicals, articles of cast iron, some energy-efficient goods such as fluorescent lamps, space heating and soil heating apparatus, thermometers, pyrometers, and artisanal manufactures such as hand brooms. Nevertheless, some developing countries have developed noteworthy export potential: China is now the biggest exporter of renewable energy equipment and has increased its share in world exports of photovoltaic devices from 1% to 40% within the last decade.[48]

There is also potential for some developing countries, in particular for countries at higher stages of development than LDCs and for emerging economies, in small but dynamic markets for goods and services used to address specific environmental problems, such as goods and services for pollution management and to a lesser extent resource management[49]. For instance, Mexico is globally competitive in equipment for monitoring air quality and atmospheric emissions and in services to optimize energy use in industrial processes. Mexico also is a significant supplier to the global market of energy-efficient consumer goods, including florescent lamps and multi-layered insulating glass windows. Thus, lowering tariff and non-tariff (e.g. certification requirements) barriers related to such products can foster economic progress in developing countries.

Tariff preferences for goods and services related to renewable energy sources can support the export capacities of many developing countries as well as contribute to their rural and social development – e.g. this is the case for *bio-fuels*. Resources and capacity for bio-fuel production are distributed widely

across developing countries and require less sophisticated technologies than for the production of other renewables. Developing countries thus have a huge export potential in bio-fuels[50]. However, developing countries need to find a way to balance export interests and their own environmental sustainability and food security. Labelling of sustainable bio-fuel products offers a viable approach to bring about such a balance, but on the other hand labelling and certification also implies potential barriers and difficulties especially with regard to EPPs.

Moreover, under the current WTO regime, there is a structural bias against some important bio-fuel products of developing countries[51]: the EU tariffs on biodiesel are around 6.5 per cent, but tariffs on ethanol range between 40 and 100 per cent. These differential tariff rates exist because biodiesel is regarded as an industrial product and thus subject to lower tariff rates whereas ethanol is considered as an agricultural product and therefore subject to higher rates under the WTO Agreement on Agriculture. A more uniform treatment of such products resulting in lower tariffs would particularly benefit developing countries that produce biofuels, such as Brazil.

A country study by the OECD points out the following "environmental goods" of export interest to developing countries: organic agriculture (Chile), efficient wood stoves (Kenya), and wild game harvested from sustainably run ranches (Kenya). Targeting of such niche markets has been highly successful[52].

GSP + and EBA recipient countries

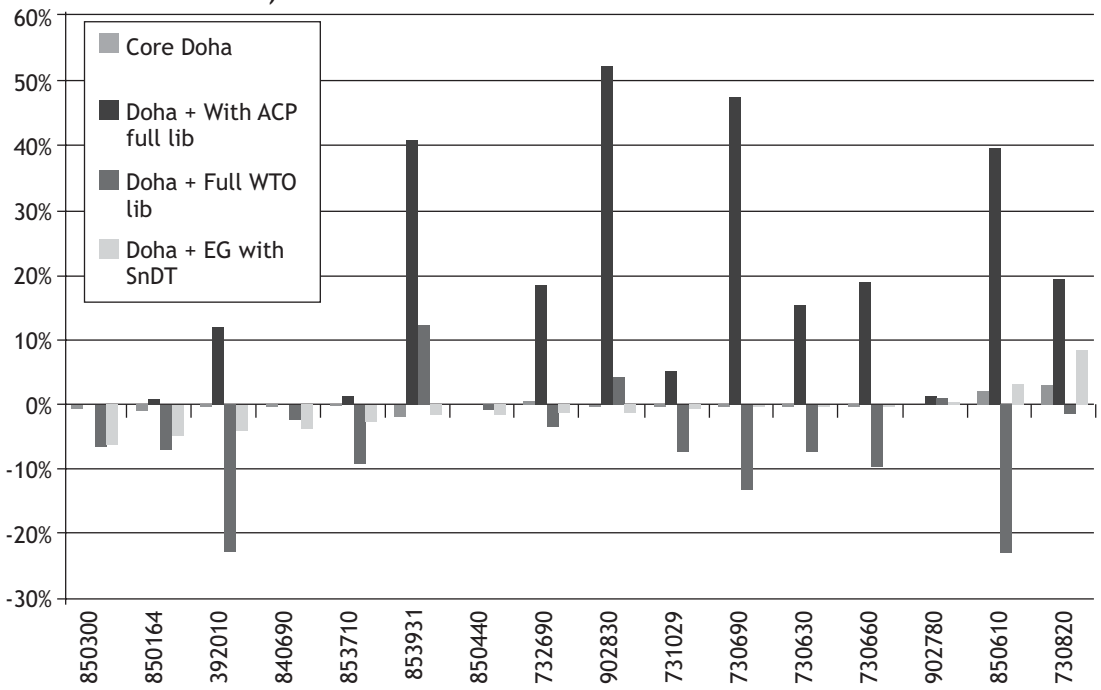
EPPs deserve further consideration not only because extra market access for such products may provide an incentive for more sustainable forms of production and consumption but also because certain countries may have a competitive advantage in the production of environmental goods such as organic foods.

There exist significant export opportunities for developing countries in a large number of **low-tech EGs** (e.g. energy-efficient lights, simple solar energy installations such as water boilers) in the core list of products of export interest to developing countries developed in a study by UNCTAD (2005)[53]. Trade preferences for environmental goods and services in the area of **renewable energy** can support the development of *renewable energy sectors* also in developing countries at lower stages of development or with non-existing productive capacity, as trade preferences would serve as an incentive to promote the establishment of the renewable energy sector.

Trade preferences for both EPPs and low-tech EGs could open export opportunities for small and vulnerable economies. The impact on LDC's would however be limited since they already benefit from duty-free, quota-free access. Granting EBA access to all ACP states, in contrast, could create additional trade advantages for countries of that group and enhance exports in this area.

Figure 6 below shows the potential for different scenarios of increased exports of EGs from a) liberalization of a limited number of goods discussed in the Doha Round ('core Doha'), b) Doha Round and additional full liberalization with ACP countries, c) full Doha and other WTO-covered trade liberalization and d) Doha liberalization that take special and differential treatment (SnDT) into account. According to this, ACP countries would benefit most from liberalization in other ACP countries. There is potential for increased exports especially for electricity meters (HS 902830), other tubes, pipes, hollow profiles of iron or steel, open seam (HS 730690), fluorescent lamps, hot cathode (HS 853931) and primary cells, primary batteries, manganese dioxide (HS 850610).

Figure 6: Potential for increased exports by products, compared to the baseline (description of HS codes see below[54])



Other/ Special preferential regimes

As table 1 below shows, jute and other textile based products are among the most important export products from LDCs. Special preferential schemes, such as the U.S.'s African Growth and Opportunity Act (AGOA) targeted at certain products of specific countries, e.g. textiles and clothing from Lesotho, with generous rules of origin have been successful in boosting specific industrial sectors and their integration into global supply chains.

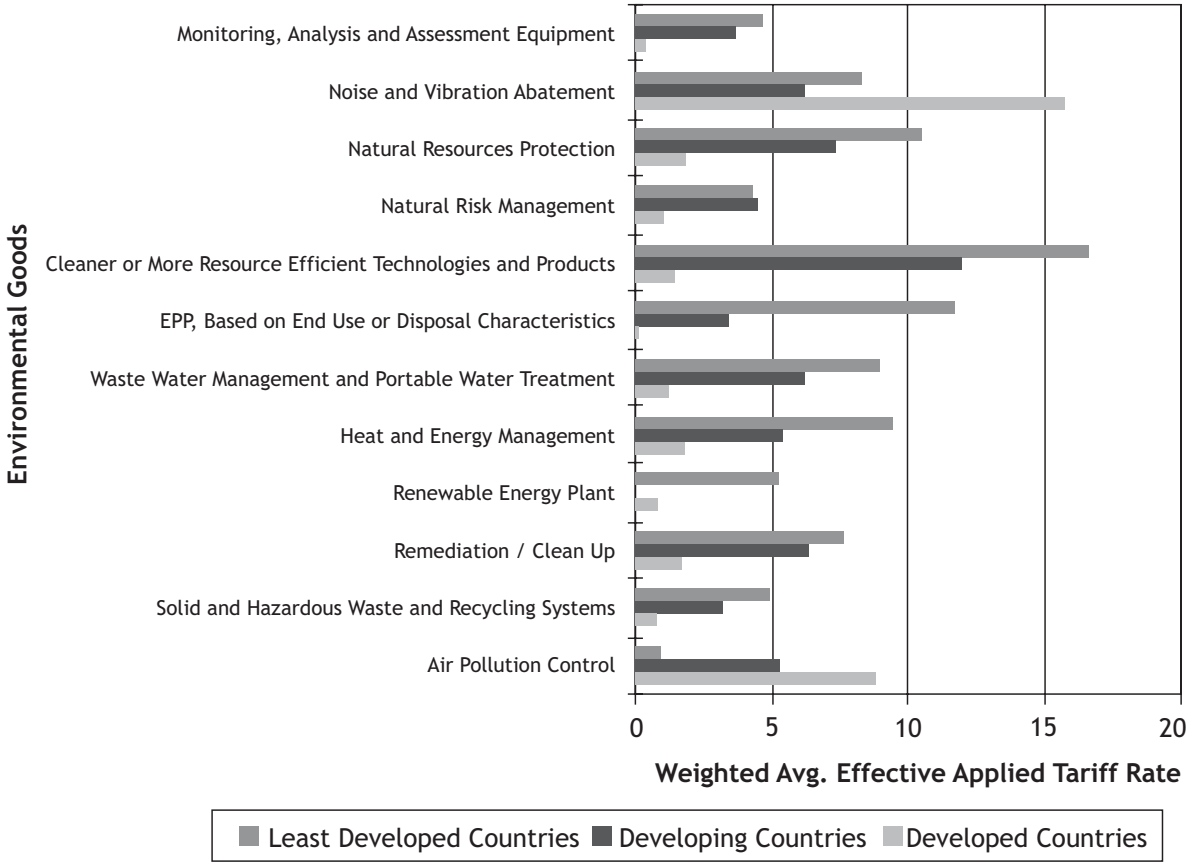
Table 1: Top ten export product from LDCs, 2007

HS Code	Product Description	Export (min USD)	Share (%) in Total LDCs'EG Exports
530310	Jute & other textile bast fibres, raw or retted	192.2	30.5
630510	Sacks & bags, for package of goods, of jute or of other textile bast fibres	93,6	14,8
890790	Buoys, beacons, coffer-dams, pontoons & other floating structures	39.1	6.2
560710	Twine, cordage, ropes & cables, of jute or other textile bast fibres	28.4	4.5
730660	Tubes, pipe & hollow profiles, welded, of non-circular cross section	22.8	3.6
730630	Tubes, pipe & hollow profiles, iron or welded, of non-circular cross section	14.4	2.3
901590	Part & accessories for use with the apparatus of heading No.90.15	12.8	2.0
900190	Prisms, mirrors & other optical elements of any material, unmounted	12.2	1.9
847989	Machines & mechanical appliances having individual functions	11.8	1.9
840682	Turbines, output, 40 MW	11.6	1.8
	Total	438.8	69.5

2.4 Tariff Levels for Environmental Goods

Although tariffs are *generally low* for most environmental goods (in EU/ OECD countries), there is room for further tariff reduction for the import of environmental goods from developing countries, e.g. for the product types Noise and Vibration Abatement, Air Pollution Control, Natural Resource Protection, Heat and Energy Management as well as Cleaner and more Resource Efficient Technologies and Products (see figure 8 below). This could enable developing countries to export their (mostly low-tech) clean technologies and products and enhance their ability to participate in global supply chains or trade in general. This is best done by MFN-based tariff reductions, as being addressed in the WTO negotiations. The question would then be whether individual members would want to implement deeper cuts on a preferential basis, beyond the WTO negotiations.

Figure 7: Weighted average effective applied tariff rate for some types of environmental goods (broad categories based on the '153 list'), 2008



Source: UNDP (2010)

In most developing countries tariffs on environmental goods are relatively high, with the bound tariffs ranging from 20 to 40 per cent, and applied rates mostly from 10-20 per cent (see figure 5 above); in some cases the rates are considerably higher. High tariffs are imposed especially by emerging markets such as China –tariffs for some energy-efficient products are at 35% there[55] - leaving room for significant reductions in those countries and opportunities for South-South trade (in particular between developing countries in Asia/ see Table 2 below). The tables 4 - 6 in the Annex show the tariffs on top exports of LDCs.

Table 2 : EG trade (US$ mln) across regions and their shares (%)

		Export			Import		
		2001	2007	Growth* (%)	2001	2007	Growth* (%)
Global	Total Global EG Trade	323041.99	783206.37	14.76	333793.60	753796.24	13.58
All LDCs	Total LDCs' EG Trade	208/11	631.10	18.49	1612.26	6180.66	22.40
	Share (%) in Global EG Trade	0.06	0.08		0.48	0.82	
Asian LDCs	Asian LDCs' EG Trade	141.36	427.99	18.46	492.16	1660.59	20.27
	Share (%) in Global EG Trade	0.04	0.05		0.15	0.22	
	Share (%) in LDCs' EG Trade	67.93	67.82		30.53	26.87	
African LDCs	African LDCs' EG Trade	63.38	202.15	19.33	1096.91	4488.28	23.48
	Share (%) in Global EG Trade	0.02	0.03		0.33	0.59	
	Share (%) in LDCs'EG Trade	30.46	32.03		68.04	72.62	
Latin American LDCs	Latin American LDCs' EG Trade**	1.91	0.95	-11.64	13.68	31.79	14.05
	Share (%) in Global EG Trade	insignificant	insignificant		insignificant	insignificant	
	Shar (%) in LDCs'EG Trade	0.92	0.15		0.85	0.51	

**Exponential growth.*
***Haiti is only LDC in Latin America.*

2.5 Access to and Utilization of Trade Preferences

Making trade preferences dependent on environmental/ climate-friendliness criteria of goods – depending on the definition and listing of such products – must avoid creating unnecessary obstacles, because if standards/ requirements are set too high they cannot be met by many developing countries. Thus the effect of trade preferences for EGS depends on the level of standards/ eligibility criteria which have to be fulfilled in order to be granted such preferences: if the cost and effort for developing countries to produce goods which actually fall under the preferences is too high compared to the advantage from the preference, they might want to shift exports to less demanding markets or export at MFN-tariffs. This would not further add to the economic or long-term technological development of that country/ countries nor to the envisaged positive effect on GHG emission reductions. Ultimately this would significantly diminish the effect of the preferences.

Preference utilization is a factor that determines the ultimate effects of trade preferences for EGS/ CGS. The case of Mexico exemplifies that the overall sustainable development gains of a broader EGS definition seem quite clear; however, there are challenges when it comes to turning such impact potential into actual gains since preference utilization is still far from realizing its potential. Besides, effective trade preferences are often very *unevenly distributed* between states depending on their export baskets and initial supply capacity[56]: there is, for instance, a clear concentration of preferred exports in most North and Southern African States on a range of items, whereas Central and West Africa have the lowest utilization rates[57]. Utilization rates are presumably more evenly distributed between developing countries and usage concentration could be less of a problem with regard to trade preferences for EPPs since they cover a wide range of e.g. sustainable agriculture or forestry products for which the majority of developing countries has distinct export opportunities.

In 2006, the average utilization of GSP preferences was only 49 per cent, and for EBA preferences for least developed countries it was as low as 22 per cent[58]. A utilization rate of 49% means that only 4.4 per cent of imports to developed countries from developing countries actually benefited from this arrangement[59]. This substantial under-utilization is mainly due to *complex rules of origin*[60]: from a procedural perspective applying for preferences is rather burdensome, which includes tracing the origin of inputs, so that exporters may prefer to export at most-favoured-nation rate. An economist has calculated that, on average, exporters only apply for preferences under the Cotonou Agreement when these are at least 4 per cent less than the normal most-favoured-nation rate[61]. On substance, rules of origin that are intolerant of inputs can limit the scope of the preferential treatment that is nominally granted under the preferential arrangement. For example, a rule of origin requiring that inputs originate in the same country as the final product effectively precludes preferences for products depending on imported inputs[62].

Under-utilization could be addressed by more relaxed rules of origin and standard harmonization in conjunction with meaningful capacity-building to ease procedural burdens.

If non-product related PPMs (e.g. carbon footprints) are taken into consideration for purpose of categorization, this *might* be of immediate disadvantage for developing countries in sectors in which they have higher carbon intensities than developed countries.

The picture is different in the agricultural sector where carbon intensities except for most emerging economies are significantly higher than in developed countries. Besides, from a material and energy intensity perspective it has to be noted that the big emerging economies are among the least resource efficient[63]. The latter concerns, however, only apply to a transition period and to energy-intensive production areas respectively. Since most EPPs can be found in the *sustainable product categories* (e.g. sustainable agriculture, forestry, organic coffee etc.), the very concept of which involves less energy/ material input e.g. compared to conventional agriculture and energy-intensive fertilizer usage, the general finding that EPPs are favourable for developing countries is not put into question.

2.6 Challenges of Trade Preferences for Developing Countries

Because of eligibility requirements that countries must accept from the preference giver, and the fact that they also can be unilaterally cut off, there are *opportunity costs to preferences*[64] since developing countries will have to adjust their industrial structure and policy according to the preferences offered. These are long-term processes which crucially rely on preference programs running over a long time period.

There are also other costs associated with tariff preferences, e.g. extensive administrative procedures and complex rules of origin, which often diminish their use.

While preferences may lead to important gains in production and growth in some countries, a

critical question is whether they help a country exploit a *comparative advantage* in trade or artificially induce investment in industries that otherwise would be uncompetitive in the global market place. Some evidence points to support for comparative advantage in many cases where preferences build on an existing or nascent industry, allowing firms to gain a foothold in the international market place. Besides, even if the exporter were to adapt the production process throughout the targeted (environmental) sector, the regulatory situation would remarkably differ from the rest of the economy. This may greatly distort relative prices and wages domestically.

"Preference erosion" is another risk of the trade preference approach. This means that the preference margin generated through the preferential scheme is reduced by subsequent liberalizations on a multilateral basis.

In 2007, many other developed countries than the EU, such as Australia, Canada, Japan, New Zealand and Norway also provided total or nearly total duty-free status to LDC exports both in terms of tariff lines and import value. It has been observed that in selected importing developed country markets on average, LDCs benefit from preferential duty-free treatment on 91 per cent of the dutiable MFN tariff lines. The coverage of preferential duty-free access is 100% or close to it for non-agricultural raw materials (principally minerals and fuels). Over 91 per cent of manufactured products exported (tariff lines with imports) benefit from duty-free treatment, while this percentage rises to 93 per cent in the case of agriculture. Two-thirds of the major items Africa exports to Canada face zero MFN tariffs and 69% of EU imports from Africa (by value) in 2000 were in items facing zero MFN duties[65].

This means that developing countries, LDCs in particular, would generally have little to gain from additional market access at the global level. It should be recognised though that LDCs cannot fully realize preferential market access due to various non-tariff measures (document WT/COMTD/LDC/W/39) including stringent rules of origin and lack of supply side capacity in LDCs.

For countries which successfully use preferences, gains would be diminished as a result of WTO negotiations on tariff reductions and various sectoral reform policies by developed countries under WTO obligations[66]. This erosion exposes countries whose exports rely on this advantage to fierce competition from more cost-efficient suppliers. Some studies have estimated the extent of preference erosion due to negotiations on non-agricultural market access. Some estimates show a welfare (real income) loss of hundreds of millions of euro's for African LDCs from preference erosion in the EU (including in agriculture)[67]. Losses in terms of income transfers to producers in preference-dependent economies are estimated to be more than one billion euros. Producers will require 14 to 20 years to adjust[68].

It should however be taken into account that preference margins are set to disappear in any case and the margins are already low. For instance, the preference margin between Lesotho and the EU is not the difference between the MFN rate (e.g. 10%) and duty-free preference, but between duty-free and the preferential rate that a competitor with an FTA pays (e.g. Korea who pays 8%). Therefore, the preference margin for Lesotho is in fact only 2% (10-8). This makes a multilateral approach an attractive option which would also be conducive to South-South market access because there are no rules of origin in MFN trade so that all economies could be addressed.

It is likely that many of the EGs will fall under various preferential programmes offered to LDCs. Therefore, if these products are listed as EGs, tariffs placed on them will be reduced at a faster pace, which will erode LDC's preferences in those markets and reduce their competitiveness. Even though LDCs are not required to make any tariff reduction commitment in the Doha Round, the outcome of tariff reductions by other countries will have implications for LDCs which could sometimes be disadvantageous for them.

In addition to the various limitations arising from trade preferences as such, there are also limitations arising from the various national

schemes – e.g. all African countries are eligible for the Generalized System of Preferences (GSP), but all of those south of the Sahara (except South Africa) also benefit from the Cotonou Agreement and, in the case of the least developed countries (LDCs), the 'Everything but Arms' regime, in addition to the USA's GSP scheme etc. These give rise to additional costs associated with administration of preference schemes which cannot be neglected.

3. WTO LAW AND COMPATIBILITY WITH TRADE PREFERENCES FOR EGS

3.1 WTO Law Compatibility of NPR-PPMs (Carbon Footprint/Life-Cycle Considerations)

Trade preferences for EGS/ CGS – often in the form of preferential custom duties – are typically made contingent on sustainability criteria. These criteria encompass climate change mitigation effort or environmental friendliness requirement such as carbon footprint or product life-cycle analyses (LCAs). As such, they fall into the category of non-product-related process and production methods (NPR-PPMs), measures concerning which are subject to highly controversy and debates[69], particularly in the context of the WTO law consistency.

Measures differentiating EGS/CGS based on their NPR-PPMs could be considered WTO inconsistent. For instance, tariff reduction granted for products with lower carbon footprints could constitute a discrimination against the identical or like products with higher carbon footprints. This is arguably a violation of the most favoured nation treatment (MFN) obligation.

Article I:1 GATT prohibits discrimination between like products originating in, or destined for, different countries. Article I:1 covers not only *de jure* but also *de facto* discrimination. This means that the article applies not only to 'origin-based' measures, but also to measures which, on their face, appear 'origin-neutral' but are *in fact* discriminatory[70]. The latter could be of relevance for measures directed at climate change mitigation which are applicable to all countries but might, in fact, impose heavier burdens on countries with higher emissions. Under the WTO jurisprudence, for a violation under the MFN obligation to be established of this Article, a three-tier test must be passed: (1) the measure at issue confers an "advantage" of the type covered by Article I:1, (2) the products concerned are "like products" and (3) the advantage is not granted "immediately and unconditionally" to all like products concerned.[71]

While trade preferences in the form of tariff reductions obviously meet the first criterion, it is more complicated to establish the satisfaction of the other two criteria. In the case of measures based on carbon footprint of products, it is not clear whether NPR-PPMs can be used to determine likeness. In other words, are products with different GHG emissions in their life-cycle, i.e. different carbon footprints, **"like products"** under Article I:1 GATT?

The WTO has examined two disputes[72] involving NPR-PPMs under Article I:1 GATT, both concerning automobiles. In *Indonesia-Autos* and *Canada-Autos*, the complaint was that preferential import duty regimes were conditional on the amount of the local value-added (labor and parts) in the final products. Concerned products in both cases were considered as "like products" regardless of differences in the use of labor or components during the production process. This may imply that NPR-PPM should not be considered in the likeness determination. Nevertheless, it is noteworthy that the Appellate Body in EC-Asbestos appeared to recognize the relevance of this factor via considering other criteria i.e. effects on health and consumer preference, taking prominence in a likeness analysis. Although this approach was given in the likeness context of Article III, it may still have relevant implications for examining the issue under Article I and thus, open the door for consideration of effects on the environment as the relevant background for EGS/CGS measures. However, it is important to note that there has been no case on climate change related PPMs yet, but expert discussion on this unresolved issue has emerged considerably.

Debates are also raised over the interpretation of "unconditionally". An increasing number of scholars taking a flexible approach to this term argue that product differentiation based

on sustainability criteria might not constitute a violation of the MFN principle. This is backed up by the Appellate Body ruling in *Canada-Autos* and the panel finding in the latest case *Columbia-Ports of Entry* which *explicitly authorize conditioned advantages*, so long as they do not discriminate based on origin. However, it is noted that by now we have a split situation where other adopted reports[73] took literal approach towards conditionality and precluded any conditioned tariff advantages. Even though there is no precedence system in the WTO framework, it is noteworthy that those reports favouring the flexible interpretations provided more profound and lengthier discussions of the meaning of Article I:1 GATT, which might be an indication of a future trend in WTO rulings. In line with such a possibility, Van den Bossche[74] has previously considered the feasibility of (bio-fuel) sustainability standards, noting that "under the more flexible test of *Canada-Autos*, the preferential tariff treatment for biomass produced consistently with LCA sustainability requirements constitutes a violation of Article I:1 of the GATT *only if this condition discriminates with respect to the origin of the products*. Establishing whether such discrimination exists requires a difficult and fact-intensive investigation". While it is possible that a Member could create a set of LCA criteria that discriminates on the basis of origin, LCA criteria do not necessitate such discrimination as they simply seek to aggregate the amount of GHG emissions produced in (ethanol) processing and there are a number of available methods for reducing GHG emissions. Tariff advantages contingent on GHG LCAs would expedite the process of changing production patterns towards more sustainable methods.

For the time being, the situation remains unclear and one could argue that a NPR-PPM related measure discriminates against products produced in conventional ways and consequently violates Article I:1 GATT. Thus, the question arises whether the (potential) violation of the MFN principle analyzed above could be justified. Possible grounds for justification are the environmental exceptions of Article XX (b) and (g) GATT. The interpretation of Article XX in US-Shrimp could make Article this article a more appropriate place to decide the complex issues at stake in the trade and environment debate than the criteria of Article I:1 GATT.

Mainly relevant is Article XX (g) GATT, which covers measures *relating* to the conservation of exhaustible natural resources. Global climate could be viewed as an exhaustible natural resources following the evolutionary interpretation of this concept in *US-Gasoline*. As climate change has a global effect, there should be a sufficient jurisdictional nexus between WTO members and the global climate[75]. Therefore, the preservation of global climate could be considered analogous to the preservation of migratory sea turtle – a measure targeting NPR-PPMs found to meet requirements of paragraph (g) in *US-Shrimp*.

Measures addressing environmental concerns may also fall into the scope of Article XX (b) GATT, which covers measures *necessary* to protect human, animal or plant life or health[76]. Ensuring human health and protecting animal and plant life are duties of states towards their citizens, entirely within each Member's jurisdiction[77]. While climate change is a global issue, it can also affect domestic issues such as human health[78]. Therefore, the preservation of global climate is justifiable under Article XX (b) GATT once it is proven to "make a material contribution to the achievement of" protecting human and animal health or plant life"[79].

The chapeau of Article XX requires that the measure is not applied in a manner to create an arbitrary or unjustifiable discrimination between countries where the same conditions prevail or a disguised restriction on international trade. The nature and quality of discrimination under the chapeau is different from the discrimination in the treatment of products which was already found to be inconsistent with one of the substantive obligations of the GATT[80]. Rather, it rests on the application manner of the "discriminatory" measure that seeks justification. Hence, once the measure meets the specific justification, any disfavored ruling on the application manner only implies a

remedy of that manner instead of the removal of the measure[81]. The Chapeau is considered "an expression of the principle of good faith"[82] and has many implications in the context of global environment problems. Accordingly, attempts - prior to the adoption of the unilateral measure - to engage in negotiation with exporting members or consider the specific conditions prevailing in any exporting Members or the effectiveness of measures adopted by these members to achieve the objectives that justification-invoking member pursue are recognized examples of good faith.[83] This appears to be in line with the principle of "common but differentiated responsibilities" under the UNFCCC recognizing the need to take into account the different circumstances, particularly each country's contribution to the evolution of environmental issues and its ability to prevent, reduce and control the threat.

Moreover, compatibility with the Agreement on Technical Barriers to Trade (TBT Agreement)[84] and its applicability to NPR-PPMs has to be taken into account. In case a WTO Member alleges a violation of both the TBT Agreement and GATT 1994, violation of the former is examined first[85]. Trade liberalization/ trade preferences should be designed so that exports of EGS to developed countries are not affected by technical barriers to trade. This includes mandatory technical regulations as well as voluntary standards. Lack of uniform environmental requirements in different national markets has been a significant NTB. The way that standards are designed can either strengthen or limit the possibility of them becoming technical barriers to trade. Further barriers to trade in environmental goods may be created where specific (patented or patentable) technical knowledge is adopted as a standard for an industry, either through government regulation or standards.

It is, however, questionable whether the TBT Agreement applies to NPR-PPMs. The TBT Agreement applies to regulations which meet the definition of "technical regulation" in Annex 1.1[86], i.e. documents which apply to an identifiable product or group of products, laying down product characteristics or their related processes and production method and the compliance with which is mandatory[87]. Annex 1.1 also applies to documents that "deal exclusively with ... labelling requirements as they apply to a product, process or production method". Consequently, PPM labels are seemingly covered by the TBT Agreement[88]. Nevertheless, it seems that this is not the case if the only characteristic that the regulation lays down is not "related" to the products themselves[89]. The definition of a technical regulation in Annex 1.1 would imply that the TBT Agreement neither applies to *nor regulates NPR-PPMs and hence, cannot prohibit their use*[90]. A counter-argument would be that the prohibition of discrimination between like products in TBT Agreement Article 2.1 means that the TBT does regulate NPR-PPMs. However, the term "like products" in the TBT Agreement should be more narrowly construed than in GATT Articles I and III if GATT Article XX does not apply to the TBT Agreement[91] so that NPR-PPMs as such might not be taken into account in determining likeness.

Whether a potential violation of the TBT Agreement could be justified under Article XX GATT is uncertain and subject to discussion. An argument made in this context is that it is unlikely that GATT Article XX could be invoked to justify a violation of the TBT Agreement since the text of the TBT Agreement already incorporates languages from paragraph (b) and the chapeau of Article XX.

The TBT Agreement's definition of a covered "standard" would appear to exclude NPR-PPMs. In sum, consideration of NPR-PPMs seems not to violate the TBT Agreement but clarification by case law is needed. WTO Members have indicated that they are not ready to consider PPMs in the TBT framework, partly because this could give legitimacy to perceived extra-jurisdictional application of domestic laws. Similar to the position taken by some Members on the concept of "like products" in the GATT context, that debate mainly focused on the implications of distinguishing similar goods on the basis of their PPMs which some fear may create barriers to trade.

3.2 WTO Law Compatibility of Environmental/Climate Change Conditionality in Trade Preference Systems (Especially GSP)

The "Enabling clause" allows derogations to the MFN treatment in favour of developing countries (e.g. non-reciprocal tariff preferences for EGS/CGS). In *EC-Tariff Preferences*[92], the WTO Appellate Body ruled that the Clause allows developed countries to offer different treatment to developing countries in a GSP program, but only if identical treatment is available to all similarly situated GSP beneficiaries. In this ruling, the Appellate Body sets out various requirements for *GSP conditionality* derived from the provision of the Enabling Clause.

The Enabling Clause provides that differential and more favourable treatment must be designed and allocated on the basis of an "objective standard" of the *"development, financial and trade needs"* of developing countries[93]. It went on to suggest that "broad-based recognition of a particular need, set out in the WTO Agreement or in multilateral instruments adopted by international organizations, could serve as such a standard"[94].

The Enabling Clause also requires that a "sufficient nexus" exist between the preferential treatment provided and the likelihood of alleviating the relevant need. In the context of a GSP scheme, the Appellate Body noted that "the particular need at issue must, by its nature, be such that it can be effectively addressed through tariff preferences"[95]. The words "by its nature", suggest that what is required here is a rational connection rather than any empirical proof of effectiveness[96].

Moreover, any preferential tariff treatment must be made available to "all GSP beneficiaries that have the "development, financial and trade needs" to which the treatment in question is intended to respond"[97]. This effectively requires that preferential treatment must be made available to all developing countries that have the relevant needs. Besides, there must be a mechanism that provides objective criteria to identify the beneficiaries of the preferential treatment as well as allowing for the modification of the list of these beneficiaries[98].

Climate change mitigation – as a key element of sustainable development - could be promoted in a GSP scheme by conditioning preferential treatments on ratification and implementation of the UNFCCC. These treatments may encompass various types of preferences, taking into account of the level of GHG emission in the beneficiaries. Tariff preferences can be meaningful to smaller developing countries where level of GHG emission is not as high as in the group of BRICs. Other preferences such as financial and technical assistance or concessional technology transfer would be more attractive to the latter to buyout the cost of implementing the UNFCCC.

How does the environmental-GSP scheme as such fit in the legal WTO framework? First, it is arguable that maintaining environmental sustainability – as one of the UN Millennium Development Goals - in itself is a "development need" of all countries including the developing and the UNFCCC could be used as the required "objective standard" to establish the existence of the need[99]. With regard to the question whether there is a "sufficient nexus" between providing tariff preferences (and financial and technical assistance) contingent on the ratification and implementation of the UNFCCC and the likelihood of alleviating the relevant development needs, it could be argued that there is a cost involved in ratifying and implementing the UNFCCC and granting tariff preferences would improve the economic development of developing countries by enabling them to adopt measures to address climate change. Provided that tariff preferences on environmental or low-carbon goods are made available to all developing countries, they are unlikely to be found a breach of the requirements of the Enabling Clause[100].

3.3 GATS Perspective

Like in the case of trade in goods, the determination of whether two services or service

suppliers with different carbon footprints are “like” is crucial. The degrees of technical sophistication in the environmental service sector make this a delicate and complex issue.

The GATS in its totality does not apply to services supplied in the exercise of governmental authority that are not provided on a commercial basis or in competition with other service suppliers, which is often the case of environmental service sector. Article XIV GATS (in particular Article XIV (b)) general exceptions, similar to Article XX GATT, are relevant here. Negotiations to broaden the Article XIV exception to cover more general environmental concerns (e.g. loss of biodiversity), where appropriate, may be affected by, or hinge on, resolution of the same issue in the negotiations in the CTE on Article XX GATT.

4. POTENTIAL IMPACT OF TRADE PREFERENCES FOR EGS ON THE LEVEL OF EMISSIONS

4.1 General Considerations

A central question that arises is whether and how trade policies can be productively used to reduce emissions, whether or not they are effective or whether other instruments are more appropriate to use in achieving internalization of environmental objectives. If trade policy interventions – such as trade preferences for climate-related goods - are largely focused on changing the *composition of trade*, then this would seem to be a second or third order effect on emissions relative to the bigger effect of economic growth on climate change[101].

In the "classic" – two-way - liberalization constellation developed countries profit from increased exports, developing countries from respective clean product and technology imports, triggering positive environmental effects in those countries. Trade preferences for climate-related goods are supposed to increase exports of related products from developing countries and at the same time to contribute to their dissemination in targeted developing countries due to building-up or strengthening local environmental industries as well as cost and efficiency gains arising from economies of scale. Both aspects (domestic effects and effects abroad) have potential positive effects on global emissions reductions. Although a likely long-term decline of GHG emissions is commonly anticipated[102], it is not easy to quantify the precise magnitude and possible impacts of tariff removal for climate-related goods, let alone the impact of trade preferences for a group of developing countries.

Figure 8: The contribution of renewable energy to global energy supply in WWF's '100% Renewable Energy by 2050' Scenario

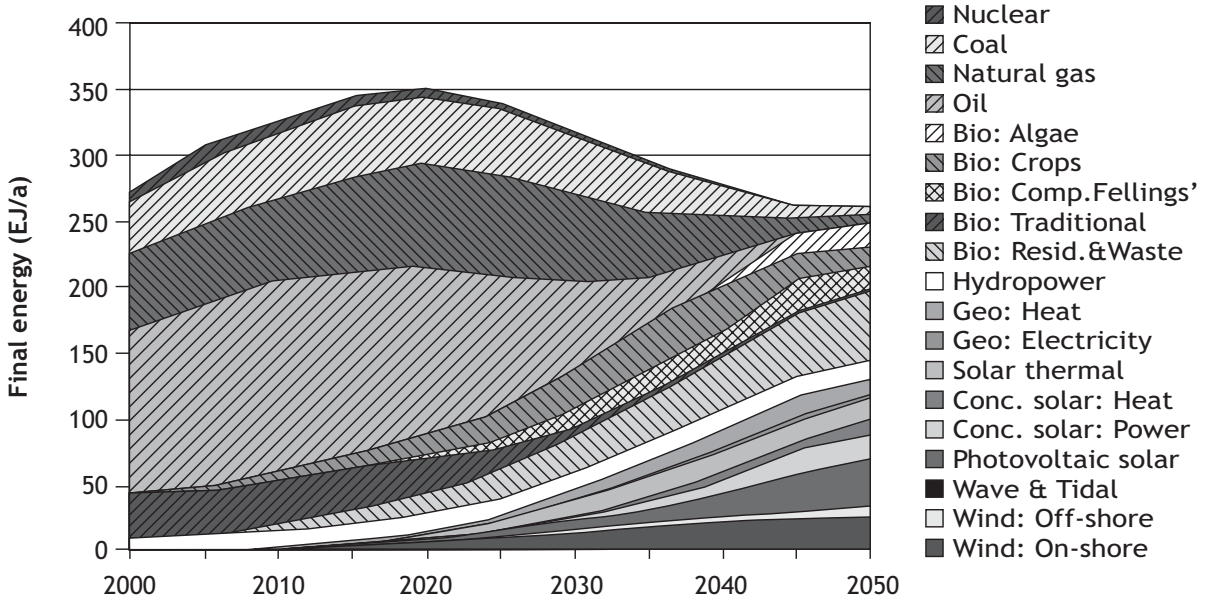


Figure 8 above illustrates the crucial role of renewable energy in a low emission, sustainable energy scenario. In order to additionally address the development dimension, a focus should be on low-tech solutions or components for related technologies.

Energy and material intensity in emerging and developing economies are often higher than in developed economies - e.g. China has one of the worst material productivities in Asia[103]. Consequently, enhancing manufacture of low-tech, low-cost products in such

countries could - at least in the *short-term* - raise emissions if not accompanied by clean-tech transfer, capacity-building measures and skills training. Thus, in a period of transition gains in developed countries by the use of such products could in the worst case be outweighed by production processes in developing countries, where energy and material efficiency are much lower.

4.2 Estimating the Contribution of Trade Liberalization to Reduced Emissions

The impact of trade liberalization only applies to that share of the costs that is tradable. For wind, the majority of capital costs relate to tradable equipment. Conversely, for large hydroelectricity schemes, civil works to construct the dam and reservoir dominate capital costs; these activities are generally not tradable.[104] These two examples set the extremes of the range. It is important to also take into account the share of goods used in renewable energy projects that are general components useable for many purposes as developing countries typically export components instead of finished products and component markets are larger than specialized equipment markets.

The maximum financial impact of trade liberalization is when:

1. the renewables cost is at the top of the range;

2. the share of capital within these costs is highest;

3. this capital equipment is all tradable; and

4. the tariff applied is highest.

The maximum impact will occur when each of these factors is at its maximum level. For example: the renewables cost is at €100/MWh, the share of capital within these costs is 80 per cent, 100 per cent of the capital equipment is tradable and the tariff applied is 25 per cent. Multiplying these factors gives €20/MWh (i.e. not applying a tariff) would reduce the costs of generation by €20/MWh (2.0 cents/kWh). This is below the typical, current feed-in tariff and is equivalent to a €50/tCO carbon price if renewables replace a natural gas-fired plant.[105]

A more realistic assessment of the impact of tariff removal is to assume a renewable cost of €80/MWh, a 60 per cent share of capital, 75 per cent of equipment being tradable and a 5 per cent tariff. Again multiplying these factors, the impact of removing the tariff in this case would be just €1.8/MWh, less than 5 per cent of the wholesale electricity price and less than 5 per cent of the typical current premium from feed-in tariffs (i.e. the cost reduction required to make renewables financially competitive with fossil fuel-fired generation). A first order estimate is that tariff removal would be responsible for a similar share of potential GHG emission reductions from renewables.

Renewables could reduce GHG emissions by between 1.0 and 7.7 GtCO/year by 2030.[106] Hydro power is a major part of these projected reductions (accounting for 13 per cent of renewables in world primary energy demand in 2030 under the IEA's 550 PPM scenario, and 16 per cent under the 450 PPM scenario). Hydro-electricity schemes larger than "mini" in size (those greater than 1 MW) are not included in the Friends of the EGS list of 153 environmental goods. Furthermore, the majority of capital costs of large hydro plants are from civil works and are thus not traded. Deducting all hydro from the total GHG emissions from renewables covered under the list of 153, one arrives at total emission cuts of between 0.9 and 6.5 GtCO/year.

If tariff removal were responsible for up to 5 per cent of GHG savings of 0.9–6.5 GtCO, savings could be in the range 45–325 MtCO/year. This is 0.1–0.9 per cent of projected "reference" case GHG emissions from fossil fuel combustion worldwide in 2030.[107] As developing countries represent around 25% of all environmental goods exports, these numbers need to be divided by four to estimate their increased trade's impact on emissions. LDC's increased exports would even represent an almost negligible fraction of that impact on emissions.

Are these results representative? The given range of estimates is not overly significant as it is almost certainly overstated because these calculations assume that tariffs will be eliminated on *all* the goods necessary for uptake in the covered renewables technologies (solar, wind, etc,), uptake of low-carbon technologies will depend on other policies and measures being in place. In other words, tariff liberalization may need to be accompanied by flanking measures that address other obstacles to dissemination (such as NTBs and barriers to investment) if it is to have a significant impact.

In another study, the World Bank applied a partial equilibrium model to a database of import elasticities of demand to price changes caused by the removal of tariff and non-tariff barriers.[108] Within the context of the current global trade regime, results from the study are that trade volumes of wind power equipment in the 18 highest GHG-emitting developing countries would increase by 12.6 per cent if tariffs were eliminated and by 22.6 per cent if tariffs and non-tariff barriers were eliminated. For the low carbon technologies considered, trade volume increases are 7.2 per cent (for removal of only tariff barriers) and 13.5 per cent (for removal of both tariff and non-tariff barriers).

The World Bank concluded that there was "considerable increase in the volume of clean energy technologies traded" and that "the impact of trade liberalization could be reasonably substantial". The study does not attempt to calculate the impact on GHG emissions from these trade volume increases. It should be considered though that the majority of trade in environmental goods such as wind power takes place among developed countries and the use of import elasticities of demand assumes that past response to price differences will continue into the future.

On average, the current incentive required to make renewables cost-effective is in considerable excess of what could be achieved by tariff removal alone. From this simple analysis, it can be concluded that tariff removal alone would not result in a significant increase in renewable uptake and thus would not result in a significant reduction in GHG emissions.

Tariff removal could still make a difference to emissions in two cases:

1. if it were part of a package of measures, for instance it is combined with a feed-in tariff
2. if the cost of renewable electricity declines relative to the cost of fossil-fuel generation.

In either case, the impact due to tariff removal alone would be a relatively low share of the total impact. Calculating the exact impact would require a power system planning model and a range of assumptions covering both the short- and long-term, but a very rough calculation is useful as a heuristic.

4.3 Services

The interface between domestic regulation and trade liberalization in environmental services has generated considerable public debate. The size of the potential environmental gains from environmental services liberalization and preferences will depend to a significant extent on complementary domestic market reforms, which strengthen the economic environment for private investment and involvement, and support market competition[109].

Appropriate institutional and policy frame-works that take into account potential economic, environmental and social impacts of liberalization are necessary precursors to good policies, but capacity building is often needed to support the establishment of such institutions. Experience in both developed and developing countries demonstrates the risk of regulatory failure, resulting from regulatory capture or lack of regulatory capacity.

5. POSSIBLE STRATEGIES TO USE TRADE PREFERENCES FOR EGS AS A DRIVER FOR DEVELOPMENT

5.1 Suggestions for Strategies

This section attempts to draw lessons from trade preferences in general for preferences for EGs.

It follows from the analysis in Chapter 2 above that there is little scope for achieving results from trade preferences alone, but rather a more comprehensive approach and wider strategy with a focus beyond GSP is needed, including technical assistance, capacity building, special and differential treatment, creating markets as well as support innovation and absorptive capacity for technology.

Consequently, trade preference programs should be aimed at *export diversification*, because trade preference programs are unlikely to help poor countries in the long-term unless there is some *transformation in their export structure* away from primary goods (i.e. from low-tech components to more advanced environmental technologies), which helps developing countries to foster self-sustained economic development.

Moreover, strategies need to avoid 'country usage concentration', i.e. often preference usage is highly concentrated in only a few countries and benefits unevenly spread[110] (although trade preferences are targeted towards developing countries). This raises distributional questions with regard to developing countries with less economic capability or rather least developed countries (for the latter group however in practice special arrangements apply such as the EBA and GSP initiatives).

Addressing export diversification and avoiding country usage concentration is a special challenge since many developing countries either have no sufficiently developed environmental industries/ sectors or are very specialized on a particular product, e.g. bio-fuels (Brazil). Another case in point is Chile: of the USD 438 million worth of EGS the country exported in 2001, some 85% of the export value was accounted for just one product, namely methanol.

Promotion of "technological equivalence" in some select sectors in developing countries, i.e. supporting developing countries to approximate their technological level to developed countries, could be a way of tackling the PPM issue. Transfer and effective use of ESTs could also be of particular importance in addressing urban pollution, enhancing energy and material efficiency, complying with environmental requirements in export markets, particularly those relating to management of hazardous metals and chemicals and related traceability requirements[111].

Clean technology is a concept of relative environmental performance. The problem of constant change in state-of-the-art technologies could be overcome either by setting up a proper review mechanism or by introducing entire plants or technologies/ technology systems in the list. The latter are devoid of the problems associated with multiple use and relativism in time (e.g. recycling plants, plants for waste management, sulphuric acid recovery plants, plants for cogeneration of heat and power; an example for such technology systems would be oil recovery systems).

Cottier[112] suggests the inclusion of specific provisions on technology transfer to assist developing countries in improving domestic capacity, as well as technical assistance to help in strengthening their regulatory capacity in a potential Environmental Goods and Services or Sustainable Energy Agreement. Since technology transfer is crucial in the context of climate change, such an agreement could provide a technology transfer obligation for developed countries to be written in some kind of scheduling commitment including a special funding mechanism for this purpose. Such a commitment would also apply to China, which controls 40% of the PV market, because

this would also be applicable to other sectors such as energy-efficiency technology as well as wind power and without such an obligation the major emitter China would never be on board.

Alternatively, harmonization of standards could be a more suitable approach towards the same end since it not only encourages development of energy efficiency as well as renewable energy policy frameworks and market transformation in developing countries, but would also be more timely achievable[113].

EGS related development strategies also have to take into account that the improvement of sustainability and welfare of the exporting economy as a whole cannot always be taken for granted; it rather might even deteriorate. For instance, this can occur in case preferential programs encourage developing countries to develop industry sectors in which they would otherwise not be able to compete, diverting a country's public and private investment for other uses. To address this and serve the best interests of developing countries there is a need to pursue a holistic approach that also considers other efforts (e.g. capacity building, technology transfer/ cooperation and financial mechanisms such as aid for trade) rather than adopting an exclusive focus on tariff reductions or elimination. Such an approach would also enable them to access both climate-friendly goods and technologies at an affordable price as well as developed countries' markets and significantly enhance the likelihood of a breakthrough in reaching an EGS deal under the WTO.

Trade preferences for EPPs will have little or no impact unless supply constraints in preference-receiving countries are simultaneously addressed. For example, it is virtually impracticable to provide tariff preferences for energy-efficient products or products from organic agriculture without strengthening the supply side, although useful work could be done to promote international cooperation on issues such as standards and certification. Besides, LDCs already enjoy almost complete duty-free access and with regard to non-tariff barriers it is not always clear what preferential treatment for LDCs would involve, since it is not possible to establish lower product-related standards for products coming from such countries which later may not find a place in the market.

Quotas for certified PPMs

Mandatory quotas for goods produced according to certain sustainable PPMs – similar to certified bio-fuel quotas applied in Germany, amongst others, could be an innovative instrument to promote trade in EGS. Sustainability criteria would need to be certified; environmentally-friendly products without such certification would not meet the quota.

Such an approach could for example be applicable to animal feed by way of governments imposing an e.g. 10-to-20 percent mandatory quota for certified sustainable feedstuff. Traders selling animal feed would have to meet that quota, otherwise they would face a penalty, like the penalty for gasoline sellers failing to meet the bio-fuels quota. Finally, sustainability certification required for a certain quota of animal feed sold in a certain jurisdiction (e.g. the EU) could be a stepping-stone for establishing generally higher agricultural standards.

The mandate would leave open which crop can be used, have flexible/ non-prescriptive rules of origin and would be flexible in terms of which certification system is used. It would be non-discriminatory and compatible with WTO law since it does neither distinguish between domestic and foreign producers nor introduce new tariffs or other protectionist measures.

Developing country producers would benefit from the enhanced trading opportunities for sustainably produced goods.

Although considerable latitude is permitted under the WTO exceptional clauses and this could be used in a variety of ways including quotas for certified PPMs, over-reliance on certification in addition to the imprecision of life-cycle analysis and the even larger uncertainty surrounding estimates of emissions

associated with indirect land-use change are significant constraints of this approach and make it a secondary choice compared to better regulation. Other major shortcomings of certification schemes are their inability to control the level of demand to sustainable levels or to solve indirect issues such as rising commodity prices or displacement. For instance, a new plantation could be certified as "sustainable" but if it has simply pushed other farming activities into sensitive areas then this makes a mockery of any certification scheme. This is a major failing that is unlikely to ever be solved by certification schemes. Certification also involves costs and developing countries are often not involved in the standard development process to the extent needed.

Besides, it has to be taken into account that while bio-diesel is classified as an industrial rather than an agricultural good, animal feed is classified as an agricultural good.

Nevertheless, this interesting idea deserves further research.

5.2 Implications of the Different Strategies

In order to adapt the OECD classification in a way that EGS of export interest to developing countries, (mainly EPPs) can be added to the list, the definitions of ***some*** categories need to be modified (see Box 1 below). In particular a shift is needed from the OECD categories that primarily comprise *inputs* into activities (e.g. sustainable agriculture and tourism) by *outputs* deriving from such activities (products under broader definition could include e.g. organic fruit or fish caught through sustainable practices; sustainable biodiversity and landscape, sustainable tourism (including the provision of different tourism infrastructure and services following environmental and sustainable development criteria).

Box 1: Amendment Proposals to the OECD/Eurostat Classification to Facilitate a Broad Definition of EGS

A. POLLUTION MANAGEMENT GROUP
- *Environmental equipment and specific materials*
- *Environmental services*

B. CLEANER TECHNOLOGIES AND PRODUCTS GROUP

C. RESOURCE MANAGEMENT GROUP
- *Indoor air pollution control*
- *Potable water treatment and distribution*
- *Water supply and sustainable water management*
- *Recycled material*
- *Renewable energy*
- *Heat/energy saving and management*
- *Sustainable agriculture and fisheries*

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

- *Sustainable forestry*

  This category includes any activity that produces equipment, technology, or specific materials, designs, constructs or installs, manages or provides other services for programmes and projects for reforestation and forest management on a long term sustainable basis. It also includes wood species extracted using sustainable management practices from virgin or forested and reforested plantations, for marketing purposes as wood by-products or raw materials.
- *Sustainable biodiversity and landscape* This category includes all biological materials (excluding wood products) extracted in a sustainable manner from natural ecosystems for human use including individual members of species, resins rubber, latex, chicle, ornamental plants, wildlife (products and live animals), and raw materials like bamboo, natural fibres, rattan and bromeliads.23

  It also includes the provision of services for the conservation and sustainable management of biological diversity and landscape and the management and surveillance of parks and natural protected areas.
- *Natural risk management*
- *Sustainable tourism and eco-tourism*

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

Source: E. Lendo, "Defining Environmental Goods and Services: A Case Study of Mexico", ICTSD, page 17.

As the case of Mexico shows, such modification would significantly enhance the potential for positive impacts on the economic and social dimensions of sustainable development[114].

For some EPPs, including those based on PPM-related criteria, developing countries could seek to improve market access by addressing issues such as harmonization of divergent technical regulations and standards, certification and conformity assessment procedures under the Agreement on Technical Barriers to Trade, which covers organic agriculture, for example. Agricultural EPPs could be included in the negotiations via the WTO Committee on Agriculture. Developing countries could also find it useful to explore creating markets in EPPs through trade facilitation and promotion measures[115].

However, it has to be taken into account that creating cross-overs with areas where significant obstacles to exports from developing countries exist, e.g. sustainable agriculture (organic foods is a category of sustainable agriculture with well-defined international standards; textiles may be another area, especially products made using natural chemicals and dyes) could create more problems than solutions overall due to complexities of negotiations in these areas.

Sustainability standards are increasingly important to trade in bio-fuels. The adoption of varying standards, which render compliance burdensome for prospective suppliers, needs to be avoided[116].

A multilateral approach to trade liberalization is suitable to cope with such complexities as it

organizes negotiations based on specific target areas and goals. Negotiations under this approach do not relate to specific environmental projects in countries, but address an overall regulatory goal, and apply to all relevant products, including dual use, on the basis of MFN. They would cover tariffs, making use of listings e.g. of EPPs or technological products based on APEC and OECD lists, non-tariff measures and services and technical cooperation, as well as linkages to other regulatory areas, including intellectual property rights (IPRs) to the extent that they are relevant for the chosen field[117]. Negotiations could for instance include the following fields: targeted reduction of GHGs, promotion of renewable energies and fuel efficiency (possibly limited to transportation) and the promotion of extensively produced agricultural goods (organic foodstuffs)[118].

In order to provide gains for all countries – each with a unique production and export profile – the scope and spectrum of environmental goods targeted for such liberalization must be wide and selective. It must be wide in order to include goods of export interest to a varied set of developing countries, and it must also be selective in order to equip developing countries which may need longer phase-in periods for liberalization with the ability to protect their sensitive sectors, at least for a certain period of time, while liberalizing others in which they have clear import interests. At the global level, such a selective liberalization (e.g. reflected in the "project-based approach", "request-offer approach" and "integrated approach") may be more economically efficient than a common list approach because of its ability to exploit countries' diverse production and export specializations.

Besides, incorporation of low-tech goods or components into in the list of EGs that will be liberalized could enhance developing countries' ability to become part of global low-carbon supply chains. Limiting WTO product coverage to end-of-pipe technologies and large-scale engineering projects would send a further signal that developing countries have no comparative advantage in any environmental market.

By focusing on key environmental priorities (e.g. protection of biodiversity, redressing habitat loss), particularly in areas where they have comparative advantage, some developing countries may be able to leverage trading opportunities that deliver win-win outcomes in environment and development.

As for environmental services, concerns have been raised by developing countries that the consequence of liberalization in environmental services in particular may mean that the competitive advantage developed by OECD firms would overwhelm infant industries in developing countries' service sectors.

6. CONCLUSION

It seems reasonable to conclude that trade policies can only play a *complementary role* within the much wider array of climate change mitigation efforts that we need.

Altogether, there is reason to doubt whether unilateral trade preferences are an optimal tool to promote development objectives and environmental goals because of the challenges connected with them (described in Chapter 2), a major shortcoming being the low utilization rate of preferences. With regard to LDCs there is no scope to increase trade preferences because they already benefit from duty-free, quota-free access. Generally, non-LDC's would benefit most from trade preferences. However, potential gains are only somewhat higher for GSP+ receiving small and vulnerable economies and preference margins are still too little to trigger considerable results. Since the scope for increasing trade preferences is low with regard to both groups, improving rules of origin in conjunction with promoting preference utilization is key.

Export interests of LDCs as well as small and vulnerable economies can best be addressed by focusing on EPPs and low-tech EGs. The latter are also of importance for developing countries at higher level of developing or emerging economies, however, these countries also have significant export opportunities in more specialized but dynamic markets for goods and services used to address specific environmental problems, more technological advanced renewable energy components, energy-efficient consumer goods and bio-fuels. The group of emerging economies could benefit most from trade preferences due to their more advanced productive capacities; however, the EU intends to exclude those countries from future preference schemes. It follows from the elaborations above, that - from a development perspective - it makes little sense to provide tariff preferences (as opposed to MFN-based tariff liberalization) for environmental goods that are not EPPs.

The still high tariffs for EGS in South-South trade and associated potentially high preference margins, make trade preferences/ tariff reductions in conjunction with improving productive capacities a promising tool in the South-South context.

Trade preferences for EGS/CGS on the basis of environmental criteria are often characterized as NPR-PPM measures. They could be challenged under a number of provisions of the WTO Agreement, particularly the GATT 1994, GATS and TBT Agreement. Although criteria to establish violation of those Agreements have been comprehensively developed under the WTO jurisprudence, ambiguity still exists regarding the consistency of NPR-PPM measures. In particular, it is unclear to what extent NPR-PPMs are relevant to the determination of "like products", "like services" or "like service suppliers", and whether or not NPR-PPM measures are covered and regulated by the TBT Agreement. And if a NPR-PPM measure would be found to be inconsistent with the TBT Agreement, the question is whether justification could be found under the GATT. Such ambiguity renders any concrete conclusion on the WTO compatibility of NPR-PPMs impossible. However, it is noteworthy that environmental exceptions under Article XX (b) and (g) could be resorted as a "safety net" for potential discriminatory NPR-PPM measure so long as it is designed and applied in manner consistent with the environmental objectives.

Discriminatory trade preferences could be allowed under the GSP system where developed countries can offer different treatment to developing countries as a response to the "development, financial and trade needs" of the latter. Accordingly, preferential treatment for environmental purposes should be made contingent upon the implementation of international environmental commitments such as the UNFCCC and applicable to goods and services from all qualified developing countries. In this context, different types of

preferential treatment as well as various sets of objective criteria are desirable to increase preference margins.

As far as impact of trade preferences on emissions is concerned, tariff reductions alone can only be responsible for a small reduction in the potential reductions from implementing the Friends of the EGS list of 153 environmental goods and trade policies can only play a complementary role within the much wider array of climate change mitigation efforts that we need.

As to possible strategies, the promotion of export diversification, avoidance of country usage concentration and promotion of technological equivalence should be top priorities. In order to implement these strategies *sectoral liberalization* in conjunction with development assistance could be more suitable than the trade preference approach because it would shift the focus from tariffs to the supply side, thus reflecting a truly holistic character.

A focus on effective Aid for Trade could tackle supply-side constraints with potential positive effects on exports. In particular, making use of the Enhanced Integrated Framework (EIF) – a major component of Aid for Trade in the WTO framework - could bring more sustainable results by way of promoting country ownership and incorporation of sustainable development objectives into national development strategies. Bringing down administrative costs related to trade preferences, targeted capacity building, technical assistance and broad promotion of technological equivalence are most likely to result in realizing the trade capacities of developing countries in environmental goods. Also, selective liberalization may be more efficient than a common list approach (from a developing country perspective).

ENDNOTES

1 According to the Johannesburg Plan of Implementation (paragraph 99) the international community should

> "Complement and support the Doha Ministerial Declaration and the Monterrey Consensus by undertaking further action at the national, regional and international levels, including through public/private partnerships, to enhance the benefits, in particular for developing countries as well as for countries with economies in transition, of trade liberalization, through, inter alia, actions at all levels to:
>
> (b) Support voluntary WTO-compatible market-based initiatives for the creation and expansion of domestic and international markets for environmentally friendly goods and services, including organic products, which maximize environmental and developmental benefits through, inter alia, capacity -building and technical assistance to developing countries";

2 P. Lamy, "A Consensual International Accord on Climate Change is Needed", Presented to the Temporary Committee on Climate Change, The European Parliament, Brussels, May 29th 2008, available at: http://www.wto.org/english/news_e/sppl_e/sppl91_e.htm

3 Environmental Goods and Services Industry Manual for the Collection and Analysis of Data, OECD/ Eurostat, 1999 [OECD Manual (1999)].

4 OECD Policy Brief, "Opening Markets for Environmental Goods and Services", September 2005, page 2.

5 B. Chaytor, "A Primer on Environmental Goods and Services: Definitional Challenges to the Negotiation of Further Liberalisation", page 9.

6 Z. ZhongXiang, "Liberalizing Climate-Friendly Goods and Technologies in the WTO: Product Coverage, Modalities, Challenges and the Way Forward", page 2.

7 Supra note 2, Carnegie Endowment, page 3.

8 ICTSD, Bridges Weekly Trade News Digest, Volume 15, No. 15, 27th April 2011, available at: http://ictsd.org/i/news/bridgesweekly/105070/

9 Van den Bossche, The Law and Policy of the World Trade Organisation, page 808.

10 M. Tothova, OECD Trade and Environment Working Paper No. 2005-06, "Liberalization of Trade in Environmentally Preferable Products", page 5.

11 A. Vikhlyaev, "Environmental goods and services: Defining negotiations or negotiating definitions?", page 4.

12 http://www.fsc.org/

13 T. Cottier, "Environmental goods and services: the Environmental Area Initiative approach and climate change", page 410.

14 For more information see Rod Janssen, "Harmonising Energy Efficiency Requirements – Building Foundations for Cooperative Action", ICTSD Environmental Goods and Services Series, Issue Paper no. 14, available at: http://ictsd.org/i/environment/84837/

15 Brazil. 2005. Environmental Goods for Development. Submission to the World Trade Organization, TN/TE/W/59, July 2005.

16 TN/TE/W/42.

17 TN/TE/W/15.

18 TN/TE/W/19.

19 UNCTAD's work on environmental goods and services: briefing note, Committee on Trade and Environment in Special Session, TN/TE/INF/7, 5 October 2004; Submission by Brazil, entitled: Environmental Goods for Development, which develops further some of the issues pointed out in TN/TE/W/59 of 7 July, 2005.

20 Under the WTO agreements, countries cannot normally discriminate between their trading partners. If they grant another WTO member a special favour (such as a lower customs duty rate for one of their products) then they have to do the same for all other WTO members.

21 Submission by Argentina, TN/TE/W/62, 14 October 2005.

22 Submission by Argentina and India, JOB (07)/77, 6 June 2007.

23 UNCTAD 2011, "WTO negotiations on environmental goods: Selected technical issues", page 13.

24 TN/TE/W/76 (Argentina and Brazil, 30 June 2010), Annex, para. 10.

25 JOB/TE/16 and Corr. 1 (Mexico, Chile, 11 March 2011), para. 12; TN/TE/W/42 (China, 6 July 2004), para. 6; TN/TE/W/76 (Argentina and Brazil, 30 June 2010), Annex, para. 7.

26 JOB/TE/18 (Small, Vulnerable Economies (SVEs), 1 April 2011), para. 5.

27 WTO, TN/TE/20, 21 April 2011, page 4, para 17.

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Table 3: Tariff rates on top ten EG exports by LDCs

HS Code	Product Description	All LDCs			All High Income Countries		
		MFN Bound Tariff Rates (Weighted Avg.)	MFN Applied Tariff Rates (Weighted Avg.)	Effectively Applied Tariff Rats (Weighted Avg.)	MFN Bound Tariff Rates (Weighted Avg.)	MFN Applied Tariff Rates (Weighted Avg.)	Effectively Applied Tariff Rats (Weighted Avg.)
530310	Jute & other textile bast fibres, raw or retted	43.55	0.83	0.83	0.01	0	0
630510	Sacks & bags, for package of goods, of jute or of other textile bast fibres	65.37	11.32	8.81	1.2	0.48	0.15
890790	Buoys, beacons, coffer-dams, pontoons & other floating structures	51.23	5.25	5.18	6.27	0.71	0.39
560710	Twine, cordage, ropes & cabls, of jute & other textile bast fibres	100	14.96	14.96	-	10	9.47
730660	Tubes, pipe & hollow profiles, welded, of non-circular cross section	99.09	9.48	8.81	-	12	0.64
730630	Tubes, pipe & hollow profiles, iron or, welded, of circular cross section	68.12	14.18	11.53	1.31	0.45	0.35
901590	Parts & accessories for use with the apparatus of heading No.90.15	59.75	3.56	3.51	7.79	1.53	1.08
900190	Prisms, mirrors other optical elements of any material, unmounted	69.57	8.14	7.78	1.96	0.61	0.36
847989	Machines & mechanical appliances having individual functions	59.73	4.18	3.9	2.35	1.23	0.81
840682	Turbines output, 40 MW	38.77	4.82	4.43	10.66	2.28	1.99

Source: UNDP (2010)

Table 4: Tariff rates on top ten EG exports by LDC's(based on '153 list')

HS Code	Product Description	All LDCs			All High Income Countries		
		MFN Bound Tariff Rates (Weighted Avg.)	MFN Applied Tariff Rates (Weighted Avg.)	Effectively Applied Tariff Rats (Weighted Avg.)	MFN Bound Tariff Rates (Weighted Avg.)	MFN Applied Tariff Rates (Weighted Avg.)	Effectively Applied Tariff Rats (Weighted Avg.)
730820	Tower & attice masts, iron or steel	62.09	7.67	4.3	1.58	0.4	0.27
847989	Machines & mechanical appliances having individual functions	59.73	4.18	3.9	2.35	1.23	0.81
840999	Parts for diesel & semi-diesel engines	38.16	9.77	7.68	3.76	1.16	0.71
848180	Taps, cocks, valves & similar appliances	55.11	5.73	5.07	7.11	2.67	1.96
732690	Articles, iron or steel	58.89	13.74	12.84	6.78	2.66	1.55
850300	Parts of electric motors, generating sets and rotary converters	29.05	5.12	4.27	4.71	1.71	1
847420	Crushing/grinding machines for earth/ stone/ores, minerals substances etc.	47.44	3.01	2.99	3.22	1.28	1
850440	Static converters	35.55	3.47	3.33	1.52	0.63	0.41
853710	Boards, panels, including numerical control panels, for a voltage ≤ 1000 V	55.8	6.44	5.77	4.61	2.26	0.99
730690	Tubes, pipe & hollow profiles, iron or steel, welded	73.59	14.94	8.11	10.73	1.61	0.49

Source: UNDP/ Fahmida Khatun, "Trade Negotiations on Environmental Goods and Services in the LDC Context", August 2010, page 40.

Table 5: Some important submissions/ contributions on EGS since Doha Ministerial

Submission	Proposals
Friends of EGs Canada, EU, Japan, Korea, New Zealand, Norway, Switzerland, Chinese Taipei, US JOB (07)/54; 27/04/2007; CTEESS	Proposed a 153 list of Environmental Goods in 12 broad categories including a category of Environmentally Preferred Products
India and Argentina JOB (07)/77; 6/6/2007	This outlines the process how goods and services imported in the context of a project would be used only for environmental and how key areas of concern for developing countries, such as transfer of technologies and NTBs, can be addressed.
New Zealand TN/ TE/W/49; 26/5/2005; CTESS	Formally proposed specific lists of products. Adopted a "list based" approach to liberalization by proposing lists of goods that use ones developed by APEC and OECD as a starting basis.
New Zealand TN/TE/ W/46; 10/2/2005	Used 'reference points' to OECD and APEC definitions as a justification for including any products in a list of environmental goods.
New Zealand TN/TE/ W/6; 6/6/2002; CTESS	Referred to previous work by APEC and OECD which are good starting points for discussion on the clarification of the concept of environmental goods and services.
United States TN/TE/ W/64; 20/02/2006	The document asks questions such as whether the products already in the environmental goods and services list have a clear and direct environmental benefit, if the product has dual/multiple end uses, and whether the product is sensitive or whether it otherwise raises concerns for delegations.
United States TN/TE/ W/52; 4/7/2005	Formally proposed specific lists of products. Adopted a "list based" approach to liberalization by proposing lasts of goods that use the ones developed by APEC and OECD as a starting basis.
United States TN/ TE/W/34; 19/6/2003; CTESS	Supported the APEC list as a starting point for discussions.
United States TN/TE/ W/8; 9/7/2002; CTESS	Negotiations on environmental goods, identified the issues to be considered in defining the scope of environmental goods subject to negotiations and the negotiating process.
Cuba TN/TE/W/69; 30/06/2006	Proposed low enough tariff on developed country markets and mutual recognition and financial and technological support to achieve entry in case of goods facing non-tariff barriers.
Cuba TN/TE/W/55; 5/7/2005	Stressed the importance of addressing NTMs such as certification and eco-labelling requirements. These may actually be much greater than tariffs and could include, among others, various kinds of sanitary standards, intellectual property licensing requirements, subsidies and labeling.
European Union TN/ TE/W/56; 5/7/2005	Formally proposed specific lists of products. Adopted a "list based" approach to liberalization by proposing lists of goods that use the ones developed by APEC and OECD as a starting basis.
Korea TN/TE/W/48; 18/2/2005	Formally proposed specific lists of products. Adopted a "list based" approach to liberalization by proposing lists of goods that use the ones developed by APEC and OECD as a starting basis.

Source: WTO.

Table 6: Gains from duty-free access of EGs from LDCs in high income countries (based on '153 list')

HS Code	Product Description	Effectively Applied Tariff Rates (Weighted Avg.)	Export (mln USD)	Value of Tariff (Forgone gains, mln USD)
530310	Jute & other textile bast fibres, raw or retted	0	192.2	0
630510	Sacks & bags, for package of goods, of jute or of other textile	0.15	93.6	0.14
890790	Buoys, beacons, coffer-dams, pontoons & other floating structures	0.39	39.1	0.15
560710	Twine, cordage, ropes & cables, of jute or other textile bast fibrs	9.47	28.4	2.69
730660	Tubes, pipe & hollow profiles, welded, of non-circular cross section	0.64	22.8	0.15
730630	Tubes, pipe & hollow profiles, iron or welded, of circular cross section	0.35	14.4	0.05
901590	Part & accessories for use with the apparatus of heading No.90.15	1.08	12.8	0.14
900190	Prisms, mirrors & other optical elements of any material, unmounted	0.36	12.2	0.04
847989	Machines & mechanical appliances having individual functions	0.81	11.8	0.10
840682	Turbines, output, 40 MW	1.99	11.6	0.23
	TOTAL		438.8	3.69

Source: UNDP/ Fahmida Khatun, "Trade Negotiations on Environmental Goods and Services in the LDC Context", August 2010, page 70.

Table 7: Gains from duty-free access of imported EGs to LDCs (based on '153 list')

HS Code	Product Description	Effectively Applied Tariff Rates (Weighted Avg.)	Export (mln USD)	Value of Tariff (Forgone gains, mln USD)
530310	Jute & other textile bast fibres, raw or retted	0	192.2	0
730820	Tower & lattice masts, iron or steel	4.3	281.1	12.09
847989	Machines & mechanical appliances having individual functions	3.9	274.5	10.71
840999	Parts for diesel & semi-diesel engines	7.68	261	20.04
848180	Taps, cocks, valves & similar appliances	5.07	215.5	10.93
732690	Articles, iron or steel	12.84	202.1	25.95
850300	Parts of electric motors, generating sets and rotary converters	4.27	179.9	7.68
847420	Crushing/grinding machines for earth/stone/ores, minerals substances etc.	2.99	179.8	5.38
850440	Static converters	3.33	158.4	5.27
853710	Boards, panels, including numerical control panels, for a voltage ≤ 1000 V	5.77	147.9	8.53
732690	Articles, iron or steel	8.11	142.4	11.55
	TOTAL		2042.4	118.13

Source: UNDP/ Fahmida Khatun, "Trade Negotiations on Environmental Goods and Services in the LDC Context", August 2010, page 73.

ABOUT THE GLOBAL PLATFORM ON CLIMATE CHANGE

ICTSD's Global Platform on Climate Change, Trade and Sustainable Energy (Global Platform) focuses on the linkages between climate change, sustainable energy, and trade policy.

The Global Platform mobilizes the technical and political expertise to address these interlocking issues to foster strong multilateral regimes on trade and climate change that effectively promote a transition to a low-carbon economy and a sustainable energy future.