

Liberalization of Climate-friendly Environmental Goods: Issues for Small Developing Countries

Liberalization of environmental goods that are climate-friendly could aid climate mitigation efforts by lowering costs of these goods by reducing or eliminating higher tariffs and non-tariff barriers (NTBs). But, as WTO negotiations to selectively accelerate liberalization of these goods, the exercise is fraught with a number of challenges, a major one being that there is no universally accepted definition of environmental goods that exist. A number of environmental goods both intrinsically as well as the way they are classified for customs purposes have 'dual' i.e. both environmental and non-environmental uses. Further, most of the major producers and exporters of these technologies and products are developed and the larger, middle-income developing countries. Therefore, unless products such as bio-fuels or lower-technology components are deemed to be 'environmental goods' many smaller income developing countries may see little export benefits from liberalization. On the other hand potential does exist for a number of smaller developing countries to specialize in parts and components lower down the value-chain of certain climate-friendly technologies and such opportunities need to be explored further. Another major conclusion of the research has been that supportive Government policies and public and private financing are a key market driver particularly in the area of renewable energy. Thus, for many smaller developing countries, bilateral and multilateral technical and financial assistance both as part of a trade-liberalization package (within or outside the WTO) as well as in other relevant forums such as the UNFCCC will be critical in enabling them to emerge as attractive markets for climate-friendly technologies as well as enable them to build and develop capacity at higher levels of the value chain.

Introduction

The Stern Review has highlighted the potential contribution trade liberalization in clean technologies could make to climate change mitigation. Such trade liberalization could contribute positively towards moving economies onto "low-carbon" trajectories to the extent that it drives diffusion and access to low-carbon and energy-efficient technologies as well as to renewable sources of energy.

Trade is an important channel for the diffusion of many climate mitigation technologies and goods. Few countries have the domestic capacities or know-how to produce all that they need. This is particularly true for many developing and least-developed countries,



although building domestic capacities may be their long-term goal, trade liberalization can provide rapid access to key technologies. Trade liberalization—whether locked in through negotiations at the WTO or elsewhere, or undertaken autonomously—can help lower the costs of environmental goods by allowing consumers (industries or households) to purchase them at world market prices.

A 2007 World Bank study, *International Trade and Climate Change*, points to the potential for liberalization in the area of low-carbon goods to lead to real increases in trade flows. According to Bank estimates, the removal of tariffs for four basic clean energy technologies (wind, solar, clean coal and efficient lighting) in 18 developing countries with high greenhouse gas emissions would result in trade gains of up to seven per cent. The removal of both tariffs and non-tariff barriers could boost trade by as much as 13 per cent. The net effect would, however, vary across technologies and across countries, depending on existing barriers and the import elasticities of demand.

Coupled with appropriate supportive measures, trade liberalization of climate technologies can also contribute towards fulfilling the technology transfer mandates contained within the UNFCCC. Similarly, trade liberalization can complement negotiations within the WTO Working Group on Trade and Transfer of Technology, which is mandated to “examine the relationship between trade and transfer of technology, and of any possible recommendations on steps that might be taken within the mandate of the WTO to increase flows of technology to developing countries.”

This information note will survey the key issues surrounding liberalized trade in climate-friendly goods. The focus will be on goods relevant to climate-mitigation rather than those relevant for adaptation. While it is well-known that for many developing countries, adaptation is a higher priority rather than undertaking mitigation measures, the fact is that adaptation goods and technologies are diverse and diffuse and often involve low-tech local solutions and materials. This also makes it much harder to pin them down in terms of their position within WTO and other trade liberalisation efforts.

The information note begins with an overview of progress to date in the WTO’s negotiations on environmental goods and services. It then asks what the limitations of the liberalization approach are especially for small and vulnerable economies

(SVEs) and Least-developed Countries (LDCs). If the final objective is contributing to climate change mitigation by increasing the dissemination of low-carbon goods and technologies (while also fostering an open multilateral system of trade), then are there other efforts that need to be considered as necessary or desirable complements to lowering tariff barriers? Clearly, trade barriers are only one of an array of factors from fiscal incentives, the nature of investment frameworks, availability of finance and intellectual property-rights-related costs that determine access to and affordability of climate mitigation technologies. This information note emphasizes that there is a need for complementary measures to accompany any liberalisation exercise for such goods that will make the outcome more meaningful in terms of sustainable development for developing and least-developed countries.

Key Issues

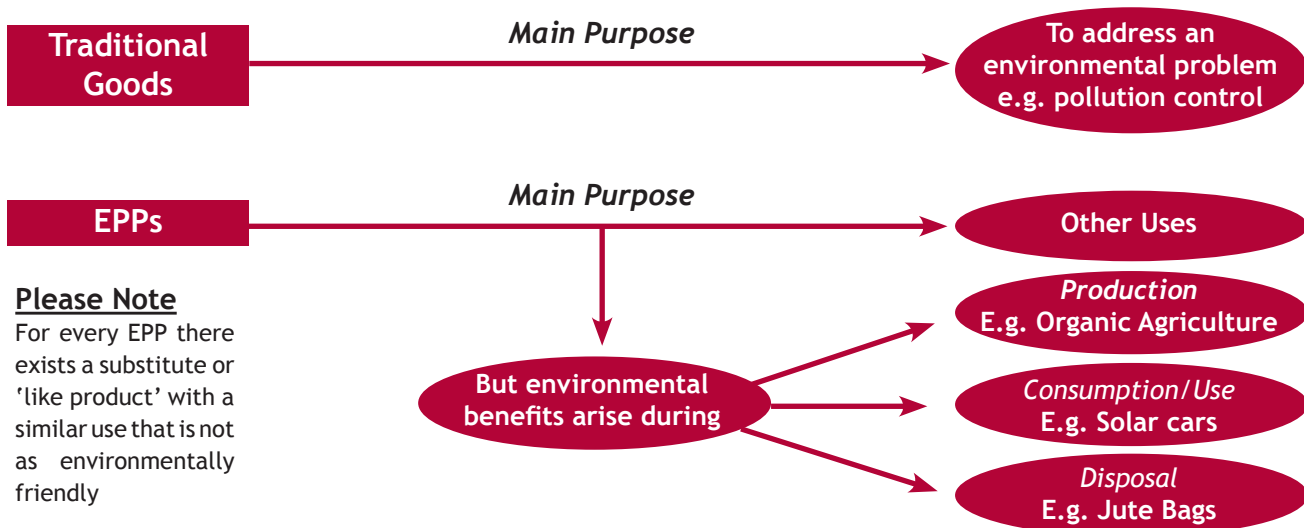
The Context of the Doha EGS Negotiations

Paragraph 31(iii) of the Doha mandate, agreed by all WTO Members in 2001, calls for a reduction or, as appropriate, elimination of tariffs and non-tariff barriers on environmental goods and services. This mandate offers a good opportunity to put climate-friendly goods and services on a fast track to liberalization, although, as the negotiations to date have shown, this is not a simple proposition.

In principle, countries can derive the benefits of wider access to EGS by undertaking liberalization autonomously. However, trade negotiations in the WTO are expected to result in binding, predictable market access, as well as greater market expansion due to the scale of participation. In regional trade agreements, where the aim usually has been the liberalization of *all* goods and services, a separate, more ambitious EGS mandate has seldom been included.

Since the WTO is the only trade negotiating forum with a specific EGS mandate at present, this section will survey the key negotiating issues and challenges that have arisen in the WTO context, although more work is clearly needed to assess the prospects for pursuing opportunities within other fora, such as regional and bilateral trade agreements. The focus will be on goods, as negotiations have been more active in this area—although climate-related services also are key from a mitigation perspective.

Figure 1: Traditional Goods vs EPPs



Please Note

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

Source: Claro et al., 2007.

Issues of product coverage: What to liberalize?

Defining and classifying climate-friendly goods.

The lack of a universally accepted definition of environmental goods has slowed down agreement on product coverage in negotiations on environmental goods. 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. Figure 1 below provides some examples of products from both categories.

Introducing an additional layer of complexity, products can be environmentally preferable, either due to improvements in embedded technology (e.g., more energy-efficient variants of the same good, such as a car) or as compared to a different product (such as solar cookers versus wood-burning stoves).

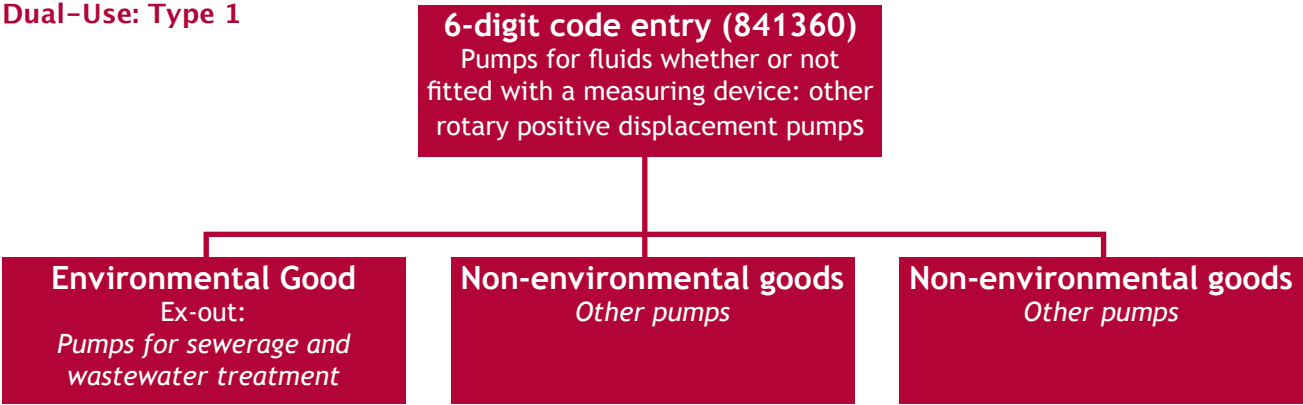
In terms of classification, categories and sub-categories of goods are assigned a code within the Harmonized Commodity Description and Coding System (HS), allowing countries to track trade volumes and tariff levels. The more digits are included in a code, the more specific the description of the

good is. At the WTO, countries have HS numbers for products only up to the six-digit level. Beyond that, as product descriptions get more specific, different members use different codes and descriptions. This makes it difficult to clearly identify EGs, including climate mitigation goods, at the six-digit level. They are often lumped together with other goods that are unrelated to the environment or climate mitigation. For example one list of proposed products contains HS-8413.81: "pumps for liquids, whether or not fitted with a measuring device; other pumps". Such pumps are often used by wind turbines for energy storage. But at the six-digit level of generality it is impossible to separate those pumps used in this manner from pumps used in any number of other applications. While it is possible to identify and liberalize specific goods using "ex-outs" beyond the HS-6 digit level, Members need to agree on product codes, or at least product descriptions in the area of climate mitigation, which can be a time-consuming process.

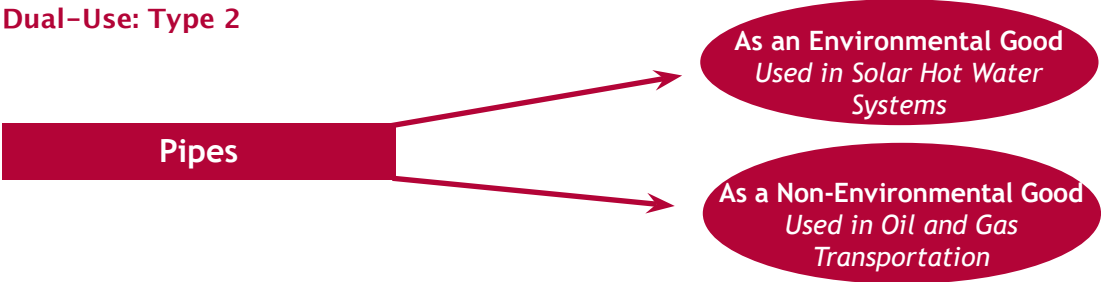
"Processes and production methods (PPMs)," *relativity and evolving technology.* Most WTO Members have not accorded "environmental goods" status to otherwise "like" products that have been produced using methods friendlier to the environment. This is due to the difficulty of distinguishing such products within the HS system and challenges of harmonizing standards and labelling, as well as to systemic concerns with regard to other non-product-related standards making their way into the WTO system as a basis for differentiated treatment. Even for products where the environmental benefits do not depend on

Figure 2: Types of Dual-Use Products

Dual-Use: Type 1



Dual-Use: Type 2



PPMs, many are only relatively eco-friendly. Hybrid cars, which can be compared to electric cars, provide one example. Moreover, technological change could make existing “relatively friendly” EGs obsolete tomorrow. How should trade negotiations respond to these challenges? Once lowered and bound, tariffs cannot be raised again for obsolete products. At the very least, newer products that emerge should automatically benefit from trade benefits accorded to the obsolete one. If relatively clean goods are accorded preferences, should we distinguish based on national-level baselines, or some internationally set baseline? Predominant methods of production differ dramatically across countries. Some experts, including Mytelka (2007), argue that only truly “clean” technologies should benefit from EG liberalization—as opposed to “relatively cleaner” products, but then we are left with the challenge of defining truly clean—particularly challenging as one takes a longer-term perspective.

The dual-use problem. The dual use problem is one of most important challenges facing EG negotiators. It arises from the fact that most product categories proposed by WTO Members as EGs for rapid liberalization include, at the HS-6 digit level, other products that also have non-environmental uses.

In other cases, a specific *ex-out* product, such as a pipe, may intrinsically be dual-use and used for environmental and non-environmental purposes. Pipes, for instance, are used as components of sewage treatment plants as well as for transporting oil and gas. The two types of dual-use products in terms are illustrated below.

Most developing countries are hesitant to liberalize bound tariffs on dual-use products such as valves and pumps due to concerns about the impact of such overarching liberalization on their established domestic industries. Proponents of these liberalization efforts argue that the environmental benefits would be limited if liberalization was confined only to a handful of products used solely for environmental purposes. For a number of developing and least-developed countries in particular, the tariff revenue gains from many of these products may be important and this needs to be taken into account.

The distribution question. A big challenge for the EG negotiations is to include products of export interest to developing countries. The perception so far has been that EGs—being capital- and technology-intensive—are of export interest only to developed countries and a few middle-income

developing economies. Others, such as Hamwey (2005), see significant export opportunities for developing countries in a large number of lower-tech environmental goods, such as parts and components. Such products could also possibly include components used in the manufacture of larger climate-friendly technologies. For instance though the volume is extremely miniscule compared with larger developed and developing countries, smaller developing countries such as Bangladesh, Kenya, Barbados, Ethiopia, Guatemala, Pakistan, Mozambique, Mauritius, Trinidad and Tobago, Zambia, Ghana, Senegal to name a few are exporters of products such as ball-bearings which are an important component of wind-turbines. However, such lower tech components also happen to be the “dual-use” products with which most developing countries have concerns.

Undoubtedly, many developing countries such as China and India have emerged as leading producers in clean energy sectors such as wind and solar energy, and Brazil is a world leader in biofuel manufacturing equipment. According to the World Bank (2007), exports of clean energy products such as efficient lighting are growing rapidly from many developing countries. Analysis by Jha (2008) reveals that emerging economies such as China and Mexico were among the top 10 exporters in various categories of EGs relevant to climate change mitigation discussed in the WTO. However this does not imply that smaller developing countries cannot develop their own solar energy or wind energy industries. There may also exist opportunities for trade for surplus production between smaller developing countries, for instance between small island developing countries that are remote from major production centres and transport routes. This could not only represent an opportunity for South-South trade but also enable these countries to switch from costly fossil-fuel imports to their own domestically generated sources of renewable energy using these goods and technologies. For instance, Barbados already uses solar water heaters manufactured indigenously and Barbados is the largest supplier of these units to other Caribbean islands. A Barbadian manufacturer has even set up a factory in Nigeria (Thompson, L. 2008). Greater use of energy-efficient products such as light bulbs can also help in energy conservation efforts within LDCs and SIDs.

Interest in the inclusion of agricultural products early on in the negotiations from Kenya, Ghana, Mauritius and other African countries and later on by Latin

American countries, particularly ethanol by Brazil, has met with some degree of resistance by traditional developed-country EG proponents. With regard to least-developed countries, it is clear that possibilities of including products of export interest to them may largely be confined to environmentally preferable products (EPPs). However, few products, if any, may be explicitly linked to climate change mitigation objectives, except indirectly, for instance, EPPs harvested or gathered sustainably from rainforests. In any case these may bring up PPMs again or total export volumes of such products may not be significant in terms of generating significant revenue.

Issues of modalities: How to liberalize?

Approaches to liberalization. In addition to issues of product coverage, the question of how to approach the liberalization exercise has been another big stumbling block to progress in the Doha Round negotiations on EGS. For many developing countries, this issue needs to be resolved before the talks can progress to product coverage. Fundamentally, many developing countries are unwilling to commit to bound liberalization on lists that comprise mostly dual-use products. Some have therefore proposed their own alternative approaches to liberalization.

The *List Approach* is favoured by the so called “Friends of Environmental Goods,” comprising Canada, the European Union, Japan, Korea, New Zealand, Norway, Chinese Taipei, Switzerland and the United States. The approach essentially consists of identifying and submitting lists of what members regard as environmental goods of interest for accelerated and permanent liberalization by reducing or eliminating bound tariffs. India’s *Project Approach* proposes liberalizing any good or service intended for a specific environmental project as approved by a Designated National Authority for CDM project activities and based on criteria developed by the WTO’s Committee on Trade and Environment. Such liberalization would be temporary, lasting for the duration of the project, and domestic implementation of the criteria would be subject to WTO Dispute Settlement. The *Integrated Approach* proposed by Argentina resembles the project approach but with further identification of goods used in the various approved projects. Both approaches were driven by concerns of ensuring “environmental end-use” of products that are mainly dual-use. A

third approach—the *Request Offer Approach*—has been proposed by Brazil whereby countries would request specific liberalization commitments from each other on products of interest to them and extend tariff cuts they deem appropriate equally to all WTO members. Some Members have informally proposed combining various approaches, depending on whether the good in question was single or dual-use. At the time of writing, there appears to be no resolution on which approach or combination of approaches to follow.

The World Bank report (2007) has proposed accelerated liberalization of products, technologies and services used in CDM projects. According to the report, such liberalization could reduce equipment costs and contribute to lowering transaction costs for potential investors as long as they were complemented by certain measures, such as supportive local regulatory measures.

Technology transfer and special treatment of developing countries. During the course of negotiations, many countries, including China, have stressed the need to facilitate technology transfer. Canada, among others, has stressed technology transfer as occurring through aid, private investment, technical assistance, partnerships between research organizations and small companies, and trade in environmental technologies themselves. Others, such as Cuba, prefer a differentiated treatment for developing countries, including transfer of technologies on favourable and preferential terms with related know-how and necessary training. Lack of adequate attention to technology transfer remains one of the main complaints with regard to the “list” approach. No WTO Member has, however, proposed a practical way to operationalize technology transfer through WTO EGS negotiations.

Other cross-cutting issues: that have been raised during EG discussions include the need to identify and deal with non-tariff measures and ensure special and differential treatment (S&DT) for developing countries. Various S&DT proposals—such as multiple product lists with different rates of tariff reduction, sensitive product exemptions and longer implementation periods—have been made by various WTO Members.

Climate-relevant proposals: From a climate mitigation perspective, the EG negotiations have seen proposals from Qatar, the “Friends,” and, more recently, from the United States and EU, which have included “climate-friendly” goods. Early on in the negotiations,

Qatar proposed liberalizing natural gas fired generation systems and advanced gas generation systems, citing a reference to its benefits under the UNFCCC. Qatar also referred to the IPCC Assessment Reports, which recommended increased use of natural gas over other fossil fuels as a way to reduce greenhouse gas emissions.

The “Friends” proposed a list of 153 products, which included categories such as renewable energy products, solid waste management, and heat and energy management products. On 30 November 2007, the United States and EU proposed accelerated liberalization of goods and services relevant to climate change mitigation, including zero tariffs by 2013 for 43 products that were identified by the World Bank from the “Friends” 153 list as being relevant to climate change mitigation. There were to be longer phase-in periods for liberalization by developing countries and participation was made optional for least developed countries. The list of 43 goods included a wide variety of products such as solar collectors and system controllers, wind-turbine parts and components, stoves, grates and cookers and hydrogen fuel cells. The list was supposed to be a starting point for discussions rather than an exhaustive one. The United States and EU further suggested the negotiation of an innovative Environmental Goods and Services Agreement modelled on the existing WTO Information Technology Agreement (ITA) that would include other, non-climate related EGs as well. Relevant climate mitigation services such as engineering, maintenance and technical testing were also covered.

Despite the United States pointing out that it was a net importer of these 43 goods and that developing countries such as China, Mexico, Malaysia, Chinese Taipei and Indonesia were among the top exporters, many developing countries questioned the “development dimension” of the proposed list. Brazil criticized the exclusion of ethanol from the list. Many developing countries were concerned that the “climate goods” list, as with most other environmental goods proposed in the WTO, included dual-use products.

Beyond liberalization

This information note has identified some of the key issues and challenges pertaining to environmental goods negotiations that also affect liberalization efforts for climate mitigation goods. At this stage it is useful to ask whether EG liberalization can

address climate mitigation efforts in a broader sustainable development context. The answer appears to be that trade liberalization by itself may not be sufficient or only have a miniscule impact. A whole host of complementary measures—regulatory, capacity building, financial and technology-related—will be required. In this regard, analysis of the Friends’ 153 EG list by Jha (2008) is revealing. Jha clearly shows that demand for these products may be determined by factors other than tariffs such as gross domestic product (GDP), foreign direct investment, enforcement of environmental regulations (shown by environmental performance indices) and the number of bilaterally funded “environmental” projects. For instance, many African countries already have very low tariffs on many environmental goods, but little or no imports because their GDPs are constrained and they have other import priorities. Trade liberalization with a lack of purchasing power will certainly not help. In addition, according to Jha (2008), technical assistance or tied aid projects also appear to be directed to those countries which have the relevant purchasing power. This gap in EG imports in a large number of developing countries also points to the need for technical assistance projects in developing countries, especially in Africa. Bilateral and multilateral donor assistance in this regard has focused especially on the relatively high income developing countries, notably China, the Republic of Korea, Brazil or Mexico.

Further, while categories within the ‘153’ list that are relevant to climate change mitigation, such as renewable energy and heat and energy management appear sensitive to tariffs, long-term dynamic comparative advantage (until 2015) in these products lie with developed countries (for renewable energy) and with middle-income developing countries (for heat and energy management products). It is thus important to ensure that benefits from trade liberalization also accrue to the poorer developing countries that may either lack resources to import such products or the capacity to produce, operate and deploy them.

Intellectual property rights may also act as a barrier to access, particularly in emerging climate technologies. Trade liberalization alone may not result in “take-off” of a technology in developing countries if costs are kept high due to high licensing fees or royalty payments. For a more in-depth discussion on this set of issues, see the background paper in

this series, *Climate Change, Technology Transfer and Intellectual Property Rights*.

From a long-term perspective, it will also be essential to help developing countries build up their own productive and technological capacities in this area. A forthcoming study by Veena Jha (2009) on market drivers, trade flows and trade-barriers in renewable energy goods reveals that access to finance including venture capital and supportive policies by the government such as renewable energy regulations, feed-in tariffs and concessionary loans are all important drivers for market creation in renewable energy. While a number of developed countries and major developing ones such as China and South Korea are providing such support including through green fiscal stimulus packages addressing the ongoing economic crisis, smaller developing countries may not be able to draw on domestic financial resources to enable such market creation in renewable energy. This therefore strengthens the case for bilateral and multilateral support for these developing countries, including as part of a package within the UNFCCC. The World Bank report calls for smarter trade as an adjunct to freer trade, and proposes bundling trade liberalization with a package of technical and financial assistance. The question of how to operationalize this understanding is pursued in the concluding section that follows.

Additional Opportunities for Liberalization of Low-Carbon Goods

With regard to trade liberalization, it is by no means certain that the Doha Round of negotiations will achieve what may be a desired level of trade liberalization with appropriate provisions that respond to the totality of developed and developing country interests. This is due to the complex political economy dynamics that will influence an eventual outcome, including progress in critical areas of the Doha negotiations, such as agricultural and industrial market access, concerns about impacts of liberalization on domestic industries and tariff revenues, as well as the inclusion (or lack thereof) of products of developing country export interests—including agricultural products.

This raises the issue of alternatives where liberalization initiatives for climate mitigation goods and services may be pursued. Within the WTO,

Members might wish to consider initiatives similar to the ITA, which was open to voluntary participation—but concessions were extended on a most favoured nation basis to all WTO Members. The agreement could come into effect when a certain number of Members, constituting a minimum percentage of trade in these products and services, joined. Such an agreement could lie within the WTO Framework and could be tied to the timeline for conclusion of Doha Round talks. Another option is a plurilateral agreement similar to the WTO Government Procurement Agreement, which members could opt to join or to stay outside of. The trade concessions would extend only to participating Members. Such an agreement could also eventually be made multilateral (with benefits extending to the entire membership) once a minimum number of countries, constituting a certain percentage of trade in these products and services, joined.

Both options would, however, still need to deal with the challenges that apply to the Doha EGS negotiations—particularly in terms of product classification. Another

possibility would be to pursue liberalization of “climate mitigation” goods and services through regional trading agreements or bilateral free trade agreements. In such cases there usually is no need for a separate EGS mandate, as the objective is to liberalize “substantially all trade”—although it may be possible to single out certain EGS for earlier liberalization. Because of the greater ambition of liberalization in regional trading agreements, dual-use of environmental goods may be less of a concern as compared to the situation in WTO EGS negotiations.

Whatever the forum for liberalization, it will be important to include it within a broader package consisting of complementary initiatives such as special and differential treatment and technical and financial assistance. Only then will liberalisation efforts on environmental goods gain credence with most smaller developing countries. The impact of trade liberalization for climate change mitigation efforts, as with most other sustainable development objectives, will be only be as effective as the broader enabling framework within which it is put into play.

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