



ARE THERE DOWNSIDES TO A GREEN ECONOMY?

*The Trade, Investment
and Competitiveness Implications of
Unilateral Green Economic Pursuit*



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1. INTRODUCTION

The United Nations Environment Programme (UNEP) launched an initiative in late 2008 – the Green Economy Initiative (GEI) – the timing of which proved propitious. Focused on providing guidance for governments in redesigning their economies toward economic and environmental health, the GEI quickly found an audience in governments that were in the uncomfortable position of having to spend heavily, and were looking for strategic ways in which to do so.

In the wake of the international financial crisis, most major economies have undertaken programmes of spending and support to bolster their economies and lay the foundations for a sustained recovery. In line with repeated commitments to sustainable development at the international level, and along the lines of policy advice from UNEP and others,¹ significant portions of many of these programmes have invested in sectors and initiatives with payoffs in both the economic and environmental spheres.

Other initiatives address similar issues. The United Nations Economic and Social Commission for Asia and the Pacific Green Growth Programme, for example, was launched in 2005 at the fifth Ministerial Conference on Environment and Development in Asia and the Pacific, and has been working on capacity building and deepening understanding since then.² Likewise, the Organization for Economic Cooperation and Development (OECD) Green Growth Strategy is working to help guide OECD efforts and learn lessons from the spending that followed the financial crisis.³

To date, most of the efforts of UNEP's Green Economy Initiative have been focused on policy analysis, advice and partnerships with developing countries. Regional initiatives on pathways to a green economy have begun in East Asia and parts of the Middle East. UNEP is collaborating on green economy work with over a dozen countries in Africa, East Asia, the Middle East and Latin America.

These sorts of initiatives have been well received, and “the green economy in the context of poverty alleviation and sustainable development” was one of the two key themes addressed in the 2012 United Nations Conference on Sustainable Development (UNCSD). But there has also been some concern about the concept of the green economy, particularly as it might be pursued unilaterally by developed countries and some more advanced developing countries. At the first pre-

paratory committee for the UNCSD in May 2010, there was cautious praise for the idea of a green economy and its potential contribution to sustainable development.⁴ But several countries also expressed concerns about the relationship between the pursuit of a green economy and trade and investment. They cautioned that the green economy as a paradigm should not provide cover for protectionism that in the end works against sustainable development and harms the poor and marginalized.

One underlying concern will certainly have been the potential competitiveness impacts of significant amounts of stimulus spending, much of it focused on investments associated with environmental improvement or protection. China has led the way with over \$200 billion, or over 34 per cent of its stimulus spending, devoted to green transportation, smart grids, low-carbon vehicles, advanced waste and water infrastructure and so on.⁵ The United States of America package contained over \$100 billion in green investment plans.⁶ In terms of percentage of spending, more than 80 per cent of the Republic of Korea's stimulus plan was earmarked for green investment, and the European Union's share was 64 per cent.⁷ From a global perspective it is excellent news that so much of the investment to date has been focused on green economy initiatives. From a national perspective, however, particularly for those countries whose treasuries are unable to match those sorts of outlays, there are concerns about how all this plays out.

But the concerns were broader than simply focusing on the way in which infrastructure spending was being handled. In essence, there were three related but separate concerns:

Protectionism disguised as green economy: The concept of a green economy, and international approval of it as an objective of national policy, might provide cover for protectionist measures or restrictions on international trade that are green in name only.

Structural change: The pursuit of a green economy will mean economic restructuring. Demand for environmentally damaging goods should drop and demand for environmentally preferable goods should increase. While there may be some overall balance to this picture, not all countries will feel balanced impacts. There is concern that some countries will suffer worsening terms of trade under a green economy.

Conditionality: International and bilateral efforts to support the transition to a green economy in devel-

oping countries might involve objectionable sorts of conditionality – a phenomenon with which developing countries are familiar in the context of traditional official development assistance (ODA).

This brief paper is an initial attempt to assess the basis for some of these concerns. It focuses on initiatives that might be taken by countries unilaterally, either as part of a unilateral drive to a green economy or as part of domestic legislation to fulfil international commitments to a green economy. The unilateral focus deserves some explanation, given the international cooperative nature of the push by the United Nations for a green economy. It makes sense for several reasons. First, if countries are concerned about negative trade and investment impacts, the natural focus is on unilateral, not multilateral initiatives, since these have a stronger tendency to serve narrow national interest. Second, these sorts of measures are already happening in many countries – they are not a hypothetical consideration. And third, if there is to eventually be some sort of international agreement on appropriate conduct in pursuit of a green economy, at least part

of that agreement will be on what countries can do unilaterally.

This paper lays out a full range of possible domestic measures that countries might take, and highlights those with potential trade and investment impacts, asking which ones have the potential to alter the terms of international competition. It considers both measures that could be deliberately used as instruments of protectionism, and instruments that may lead to structural change (but does not consider any instruments that may be used with conditionality, these being mostly international in character). For each such instrument or set of instruments, the paper asks what types of measures have been seen to date, or are likely to be seen. It considers what sort of impacts these measures might have on trade, investment and the terms of competition, with a particular concern for the welfare of developing and least developed countries. The paper concludes by offering some observations drawn from the preceding analysis, and some policy recommendations to help achieve the best of the green economy's potential while avoiding the potential pitfalls.

2. ASSESSING THE POTENTIAL MEASURES

There is a wide range of measures that governments might employ in pursuit of a green economy. Table 1, adapted from a table in the UNEP Green Economy Report,⁸ surveys many of them, but this is necessarily an incomplete picture. And it is important to note that most of the measures described there have many different variations – that the design of the measure makes a significant difference.

Table 1 contains a number of measures which are arguably unimportant to the theme of this paper, since they have insignificant effects on trade, investment and the terms of competition. But some of them (denoted by shading) do have particular relevance, and they will be discussed in the remainder of this section. The aim is to predict in each case what forms the measures might take, and assess the significance of their potential impact.

Private sector measures, such as eco-labels, are not considered here unless governments are somehow involved in their implementation, though they may have important impacts on developing-country exporters. This is because by definition these cannot be part of any government-led push to a green economy. Neither are government measures that have trade impacts but are solely geared at some sort of global environmental protection, and devoid of any green economy motives. For example, a country might ban the import of an endangered species for which there was no domestic competitor product. This would be a purely environmental measure, and thus would not be considered as one of the means by which to foster a green economy.

The analysis below sometimes touches on the World Trade Organization (WTO) legality of certain measures, but this is not a central focus. Where it does so, it is usually to show that there are remedies available to prevent the worst forms of abuse, or that there is international consensus that some types of policies are unacceptable.

2.1. Subsidy reform

Subsidy reform involves reduction or elimination of subsidies that have perverse economic (and often environmental) outcomes. A number of analyses have put the value of such subsidies at significant levels

globally, though the picture varies greatly from country to country, sector to sector.⁹ Perverse subsidies are common in the areas of agriculture, energy, fisheries, forests, manufacturing and water.

Removing such subsidies frees up potentially significant levels of public finance for other (green) policy priorities. For example, fossil fuel and electricity subsidies in 2008 were estimated at over 20 per cent of Indonesia's national budget – more than \$20 billion.¹⁰ It may also reduce unsustainable activities and consumption, depending on the sector. WTO talks aimed at reducing fisheries subsidies are as much about natural resource conservation as they are about trade-distorting activity.¹¹

For traded commodities such as agriculture, energy products, fish and fish products, forest products and manufactured goods, any subsidies will negatively impact unsubsidized foreign competitors, and so subsidy reform in those cases removes distortions from the conditions of competition. The same holds, but to potentially a lesser degree of significance depending on subsidy design, for subsidies to inputs for traded goods such as energy and water. In the end, this instrument promises a positive potential impact on trade and conditions of competition, since it removes distortions in the market.

One potential negative impact of subsidy reform is on trade in general, since subsidies to fossil fuels currently help make transport relatively cheap. Accurately priced transport fuels would reduce trade across the board, but in particular would strike hard at air-freighted goods and heavy goods transported long distances. It would also reduce demand for air travel tourism to distant destinations.

2.2. Environmentally related taxation, other tax instruments, fees and charges

In general, environmentally related taxation and levies aim to internalize external costs, and thereby to dampen activity in sectors that work against the goals of the green economy. Where applied to domestic sectors in a non-discriminatory fashion these sorts of levies may affect trade, since they affect domestic demand for the products covered and their alternatives. But it does not generally reflect protectionism. In fact, such taxes, fees and charges will tend to raise the prices of domestically produced goods relative to those produced elsewhere.

Table 1. Measures to achieve a green economy (adapted from UNEP, 2011)⁸

Route to a green economy	Rationale	Measures	Sectors where these measures might be particularly important
Institutional			
A network of laws, norms and organizations that encourage long-term and efficient management and use of resources	The right combination of laws, incentives, agreements and understandings can encourage the rational exploitation of finite resources and the sustainable exploitation of renewable resources preserving the economic value of natural resources and the markets that rely on them. When they encourage efficiency, they can reduce the burden of economic activity on natural resources. National and international organizations can be instrumental in the management of these laws and norms.	Strategic, integrated planning, e.g. baskets of complimentary policies; consideration of policy effects cross sectorally and at local, provincial, national and international levels	Agriculture, Buildings, Cities, Energy, Fisheries, Forests, Manufacturing, Transport, Waste, Water
		Reform of property right law	Agriculture, Fisheries, Water
		Reform of ecosystem access right law	Agriculture
		Use of rules and regulations, standards or prohibitions, e.g. vehicle engine efficiency standards, outlawing bottom-trawling	Agriculture, Buildings, Cities, Energy, Fisheries, Forests, Manufacturing, Transport, Waste
		Use of negotiated and voluntary agreements	Buildings, Cities, Forests, Waste
		International cooperation, agreements, laws and organizations	Fisheries, Waste
Laws and norms that encourage the transfer of technologies	Access to technology that can be instrumental to the improved management of resources, preserving their economic value and the markets that rely on them. It can also create new economic opportunities	Redesign of intellectual property rights	Agriculture, Energy, Transport
		Removal of trade barriers to green goods and services	Agriculture, Energy, Transport, Water
Improved administrative and technical capacity in government and other organizations	In some cases, governments may need to enlarge their administrative and technical capacities as a pre-requisite to enacting policies that stimulate investment in green economic activity.	Investments in technical and administrative capabilities	Energy, Fisheries, Manufacturing, Transport, Waste
		International cooperation, e.g. Bali Strategic Plan, international financial institutions, etc.	Fisheries, Transport, Waste, Water
Improved transparency and accountability	Transparency and accountability are pillars of good governance. They allow for monitoring and evaluation of policies intended to stimulate green investment, and in this way can help ensure that policies are achieving their objectives, and in an efficient way	Monitoring and evaluation as a component of other policies	All
		Transparency to makes info. about decision-making and spending available in a user-friendly way	Cities, Forests, Transport
		Accountability mechanisms as a component of policies, e.g. critical reviews, performance targets	All
Effective enforcement of laws	Unless laws can be adequately enforced, they may partially or fully fail to alter investment flows toward green activity	Create adequate enforcement incentives, e.g. adequately priced fines for non-compliance etc.	Cities, Manufacturing, Waste
		Develop government capacity to enforce	Fisheries, Manufacturing

Economic			
Support for green sectors	In some sectors, direct support or specific infrastructure may be required to effect immediate change (especially where there is a lengthy capital stock turnover) or to support infant green industries	Increased funding for the innovation chain, e.g. research, development, deployment, information sharing	Agriculture, Cities, Energy, Waste
		Investment incentive: low interest loans, feed-in tariffs, exemption from certain regulation, etc.	Agriculture, Buildings, Cities, Energy, Fisheries, Forests, Manufacturing, Transport, Waste
		Sustainable public procurement, including green infrastructure spending	Buildings, Energy, Waste
		Conditioned support: contingent on use of local goods, technology transfer, etc.	Energy, Manufacturing, Waste
Public support for green sectors is clear, predictable and stable	Investors may be cautious of industries that rely on policy support. Investment can increase if support of green-sectors is predictable clear and has long-term stability	Investment grade policy design, e.g. long-term guarantees, predictable changes, gradually phased out support etc.	Energy, Transport
Prices that reflect true costs of goods and services	When the price of an unsustainable good or service does not reflect its true societal cost, it is more likely to lead to over-exploitation of natural resources, inefficiency and waste. Prices that reflect true costs can make green opportunities more attractive	Reform of harmful subsidies	Agriculture, Energy, Fisheries, Forests, Manufacturing, Water
		Environmentally-related taxation, other tax instruments, certificate trading markets, fees and charges	Agriculture, Buildings, Cities, Energy, Fisheries, Forests, Manufacturing, Transport, Waste, Water
Information-based			
Increased data and analysis about ecological conditions	Policy must be informed by accurate information, and in many cases data collection must be instituted, improved or increased in order to establish local best practice.	Development and use of accurate indicators of progress	Agriculture, Fisheries, Transport, Waste
Increased awareness about sustainability challenges	Increased awareness of sustainability challenges will increase popular demand for green goods and services and policies that support them	Educational initiatives, e.g. a government 'vision' for the green economy, information campaigns, material in state education	Agriculture, Buildings, Fisheries, Forests, Transport, Waste
Increased information about life-cycle costs of goods and services	Increased information about life-cycle costs of goods and services helps consumers choose which products they would prefer to buy and can increase the market share of green goods and services	Label and certification schemes, green audits, or legal requirements for disclosure (also covered above under regulations, standards and prohibitions)	Agriculture, Buildings, Forests, Manufacturing, Waste
A workforce equipped with the skills needed to take advantage of green opportunities	As many of the innovations in the green sectors require particular skills and knowledge, the workforce will need to adapt to take advantage of new opportunities	Retraining and support schemes for workers using new techniques or changing employment to new sectors	Agriculture, Fisheries, Manufacturing, Waste
		Support to encourage the take-up of codified and tacit knowledge about technology	Energy, Transport
		Local national regional and international knowledge-sharing and skills workshops	Agriculture, Waste,

This is not always clear cut, however. In a 1994 General Agreement on Tariffs and Trade (GATT) dispute the European Union, for example, argued that the United States “gas-guzzler” tax was constructed in such a way as to unduly penalize its automobile exports, since it fell disproportionately hard on large luxury imports such as Rolls Royce that were unable to mitigate the impacts through fleet averaging.¹² The merits of that case aside (the tax was upheld as GATT legal), the point is that with protectionist intent there may be scope for design of tax-related instruments that have discriminatory final effects (even if they are not discriminatory on face value). But examples of this sort of policy are not plentiful, and WTO disciplines are clearly enunciated in GATT Article III.

Taxes applied to international transportation services, or applied at the border, offer a different context than those applied as part of domestic regulations. Levies on transport services, for example those related to carbon emitted in transport to market, will be inherently punishing for traded goods vis-à-vis locally produced goods. The United Nations Framework Convention on Climate Change (UNFCCC) is currently considering whether to introduce air and sea transport levies as a way to include those sectors in the global climate regime, and one of the key negotiating issues is how to build special and differential treatment into such a scheme so that small and vulnerable economies are not harmed. Small island States dependent on tourism trade, for example, would face potential reduced demand from an undifferentiated scheme, and depending on the scheme design those exporters relying on air freight might face significant impacts.

Another type of tax or charge related to imported goods is border carbon adjustment, or a levy at the border that tries to level the playing field between regulated domestically produced goods and foreign goods that are less stringently regulated.¹³ Such schemes have never been put into practice, but they have been proposed in United States legislation (and will very likely feature in any future United States climate regime) and by some European States.¹⁴ The regimes proposed to date would cover only a small clutch of energy-intensive trade-exposed commodities: iron and steel, aluminium, cement, pulp and paper, and certain chemicals. With such schemes the devil is entirely in the details. If the regime were designed such that it did not alter the conditions of competition, imposing on foreign producers exactly the equivalent of regulatory burden imposed on domestic

producers (accounting for whatever regulatory burden had already been borne in the country of export), then it could at least be argued that the regime was non-discriminatory (and potentially more likely to be accepted as WTO legal). Even in this scenario, however, there would be impacts that punished high-intensity producers and rewarded clean producers.

But the administrative and methodological difficulties involved in constructing such an ideal scheme are daunting,¹⁵ and the schemes that have been proposed to date take significant pragmatic shortcuts. None of them, for example, take into account the regulatory burden imposed in the State of export, beyond demanding compliance with international agreements on climate change, or exempting sectors that equal or beat sectoral greenhouse gas (GHG) intensity in the country of export. In other words, States that are not part of an international agreement, but which have imposed significant regulatory costs on their exporters as part of a domestic climate regime, will face the same border charges as those that have taken no domestic action whatsoever. So one risk is that such schemes will be constructed in ways that reduce the administrative burden of implementation, but thereby discriminate against foreign producers.

Another risk is that, even if market share is unchanged, the result may be unfair. If, for example, a country takes action to address climate change through one sector (for example, avoiding deforestation) and thereby achieves its “fair” share of economy-wide mitigation, but takes no action in another sector (for example, steel), then to impose a levy on steel exports from that country would amount to an unreasonable demand. Furthermore, if there is agreement at the multilateral level for an approach to climate action that involves common but differentiated responsibility, then maintaining the same conditions of competition may in fact violate that principle. That is, one could interpret that principle to imply that developed-country sectors should actually cede some market share to developing-country sectors, though it has never been explicitly expressed in those terms.

The bottom line seems to be that domestic regulatory tax instruments are probably not a significant concern, but instruments applied to international transport, or applied at the border, have the potential to negatively impact trade and the conditions of competition for developing country exporters, or to unfairly penalize them. The solution is clearly careful regime design, ideally based on internationally agreed principles. Of

course, multilateral agreement targeting the environmental issue at stake (for example, on the post-Kyoto climate agreement) would greatly lessen the need for unilateral use of such policies.

2.3. Use of regulations, standards or prohibitions

There is a rich body of law in many countries that dictates how production should be carried out such that environmental objectives are respected. It covers a variety of sectors: agriculture, buildings, cities, energy, fisheries, forests, manufacturing, transport and waste, among others. It comes in a variety of forms: rules and regulations (mandatory standards propounded by governments), standards both mandatory and voluntary, and prohibitions on certain practices, or on trade in certain products. By far the majority of these rules apply only to domestic production and therefore have little impact in terms of trade and the conditions of competition. If anything, such rules, to the extent they impose a cost on domestic production, make foreign production that much more competitive. But such costs are typically very low as a percentage of total production costs, and so impacts are correspondingly small.

The regulations, standards and prohibitions that are potentially of concern are those that apply to imports. From a sectoral perspective this immediately rules out such non-trade sectors as buildings and cities. Such measures might be applied as part of a package of domestic regulation, in an effort to ensure that domestic regulatory regimes are not circumvented by imports (the Montreal Protocol does this with imports of ozone-depleting substances). Alternatively, they might be applied to imports in an effort to apply the same standard of production to imports as to domestic goods (leakage concerns), or they might be attempts to impose extrajurisdictional rules to protect some global environmental commons in sectors that have no domestic production component. (This last type of law is not related to any drive to create a green economy, but would be purely environmental measures and thus, as noted above, they are not considered here.)

Concerns over such measures are not new; there has been a rich history of debate over the practice of discrimination among goods based on production and processing methods (PPMs).¹⁶ The question to be addressed here is whether, if these sorts of measures are used in pursuit of green economy, they will alter the

terms of international competition. That is, can they be used as protectionist instruments?

A sectoral analysis can give solid grounding to the discussion. As noted above, buildings and cities are not traded, and therefore not part of the analysis, but in all the other sectors noted above imports might well be targeted with measures of the type considered here.

In the agriculture sector, and particularly in the agri-foods sector, there are a number of rules that dictate the method of production and processing at the domestic level. Some also extend to the international level, imposing standards on imports. Most of these are related to sanitary and phytosanitary concerns, however, and are not particularly relevant for the green economy discussion. There are few environmental requirements to such processes, either at the domestic or international levels, the most prevalent being non-mandatory organic standards implemented by standard-setting bodies and defined by governments (though governments often do not engage in such definition and leave the matter up to the standard-setting bodies). While cost of certification is a widespread concern in this area, particularly for small and medium-sized developing-country enterprises, the concerns are not usually couched in terms of protectionist intent. The standards are not applied by governments in any case, meaning they could not be considered part of any government-led push to green the economy. Where governmental agreement is necessary to recognize foreign certifications and regimes as equivalent to domestic regimes, there is certainly scope for concern, as these sorts of intergovernmental efforts at mutual recognition are typically difficult.

The energy sector occupies a central place in the pursuit of a green economy, energy being at once a critical foundation of development and a central part of efforts to address environmental problems such as climate change and air quality. As such, most countries' energy sectors are heavily regulated with respect to environmental performance. Few of these sorts of regulations apply to trade in energy or energy products, however. There are a few notable exceptions. In the State of California and the Province of British Columbia there are now low-carbon fuel standards – requirements that imported fuels be produced with a maximum level of CO₂ emissions intensity. Furthermore, both jurisdictions have GHG emissions standards for imported electricity and both have implemented tough controls on domestic production and are concerned about leakage from imports. In both cases, the fo-

cus seems to be legitimately to protect the integrity of domestic regulations vis-à-vis neighbouring States, rather than to favour domestic producers.

Another exception is the potential use of border carbon adjustment. This was discussed above as a tax measure, but it could also be employed as a regulatory measure, for example if importers were forced to buy into domestic cap and trade schemes. In fact, all existing proposals consider border carbon adjustment (BCA) in this context. The issues involved with BCA as a regulatory measure do not differ significantly from those discussed above.

In the fisheries sector the bulk of measures addressing production methods are again targeted at domestic producers, mandating methods and timing of harvest for specific species, allocating permits and quotas for harvest, and so on. Where there may be concerns is with measures that impose PPM-based standards on imports. Countries might, for example, ban the import of fish caught using certain types of driftnets, as a complement to domestic measures that banned their use. The question in such a case would be whether the measure was legitimately aimed at environmental protection, or whether it also had the goal of making domestic producers more competitive.

The landmark dispute in this area was the WTO United States “shrimp-turtle” case, in which the United States banned imports of shrimp caught by methods that harmed endangered turtles. That case laid down several useful conditions on the types of measures that could be used to regulate imports in this way, if those measures were to be seen as legitimate environmental measures devoid of any hidden protectionist agenda:¹⁷

- Measures should be preceded by efforts at international agreement to address the environmental problem in question;
- Measures should not specify specific technologies, but should only specify outcomes to be achieved in ways that may vary from country to country;
- Measures should take into account the efforts of individual producers, rather than assign some sort of default production method to a country or sector as a whole.

The take-home message seems to be that there is scope for BCA measures to be designed with protectionist intent, but that the distortions this would create can be avoided by proper design. While the ideal design in any context would be a matter of debate, most

would agree that respect for the sort of principles listed above would constitute improvement.

In the forestry sector there are typically many domestic rules aimed at ensuring that production and processing methods respect environment objectives, including controls on harvest rates and locations, controls on the use of certain chemicals in processing and controls on the handling of production waste. The only measures of concern are, again, those that are related to imports. Some such measures indeed exist today, and include laws prohibiting the import of timber that has been illegally harvested (for example, the United States Lacey Amendment and the European Union Forest Law Enforcement Governance and Trade Action Plan). These will also tend to involve requirements for traceability as part of the regime. But for the most part such laws fall into the category of trade measures aimed at products for which there are few domestic competitors – tropical hardwoods in particular. As such they are not really part of a drive for a green economy as much as they are a drive for global protection of biodiversity.

The only other type of forestry measures aimed at imports are voluntary standards certifying sustainable harvest (for example, Forest Stewardship Council certification). These are sometimes used by retailers as specifications that sellers must meet as a condition of sale. They are propounded by private standard-setting bodies as opposed to governments. Unless such standards actually feature as part of mandatory government-led requirements (for example, as part of government procurement specifications) they cannot be seen as part of a government-led drive for a green economy.

In the manufacturing sector most countries have laws with respect to production and processing methods, including emission standards and restrictions on the use of particularly harmful substances. Very few rules apply to the PPMs of imports in this sector, but product standards abound. One example is energy efficiency standards, which can apply to manufactured consumer goods such as automobiles and large household appliances. These are typically set up in such a way as to apply equally to imports and domestically produced goods, but can still have impacts on exporters, who must meet the standards or lose market access. There are no international standards for energy efficiency in manufactured goods, and having many different (and changing) standards in different markets is a costly proposition for exporters.

There may also be trade implications to specified technologies – prohibitions of certain types of environmentally damaging manufactured products, or new technology standards. The European Union and North American bans on incandescent light bulbs, for example, have meant a disruption of traditional trade patterns in these products. In this particular case, however, it has also meant expanded new markets for export of the alternative technologies. China produces 80 per cent of the world's compact fluorescent bulbs – the leading alternative lighting product. That said, there is clearly potential for technology standards to be used in a manner that benefits primarily domestic producers.

Standards are not the only concerns in this sector. Countries might also implement regulatory requirements for take-back and recycling of goods that contain hazardous component materials. An example is the European Union Waste Electrical and Electronic Equipment Directive, which mandates that sellers of such electrical/electronic material in the European Union establish a system to collect and dispose of their products at end of life.¹⁸ Such regimes have the potential, if not designed carefully, to disadvantage foreign producers with small market share, since the fixed costs of such a regime would be spread over a much smaller total sales base.

In the area of transport, most rules will cover domestic services, specifying fuel standards, for example, and vehicle emissions standards. Any rules governing international transport will obviously affect international trade. Proposals for international tax instruments were discussed above. There are also domestic regulatory instruments aimed at preventing pollution from international shipping, although they are few and far between. Annex VI of the International Maritime Organization (IMO) International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78 (MARPOL 1973 as modified by the protocol of 1978) allows States to apply to establish emission control areas (ECAs) within their territorial waters, meaning, for example, maximum sulphur emissions of about one third those established under normal MARPOL rules. The entire territorial waters of the United States and Canada are approved ECAs, as are the North Sea and the Baltic Sea. There are similar regulations in place for ships at berth in European Community ports.

These regulations will clearly increase the cost of shipping to regulated economies. But, by the same token, they will also increase the costs of exports from those

economies. As such, these rules as adopted would certainly alter trade patterns, but there seems to be no clear-cut pattern of detriment to non-regulating States.

In the waste sector most countries have stringent domestic regulations as to the handling and transport of certain types of waste. Trade-related regulations in this sector cover the import and export of hazardous waste. Bans on the import of hazardous waste are not a major concern and, depending on the context, may be taken in accordance with the rights and obligations countries have under the Basel Convention.¹⁹ Bans on the export of hazardous waste have been enacted by a number of countries, including all European Union member States. These may be problematic if they deprive the destination countries of a source of raw materials for manufacturing or processing. The key (unresolved) issue here is how to differentiate hazardous waste from scrap for recycling, since States that ban exports may end up benefiting from a lower-priced flow of feedstock.

2.4. Removal of trade barriers to green goods and services

Countries may seek to increase their imports of green goods and services by lowering barriers to their trade. There are talks ongoing under the Doha Round of WTO negotiations with a mandate to lower or remove such barriers, but any country could do so unilaterally if it so chose. The justification would be to foster greener patterns of production by lowering their costs relative to conventional goods and services. The likely trade impacts from such a move would be positive for foreign producers, making any environmental goods and services exports more viable in the implementing country.

2.5. Increased funding for the innovation chain

Many governments choose to pursue a green economy with financial support that fosters increased innovation in clean technologies. There are various types of forms for this sort of support, spanning the length of the innovation chain:

- Support for research and development: joint R&D, funding for R&D;
- Support for commercialization: low-interest loans, loan guarantees;
- Support in the form of demonstration projects: proj-

ect financing, low-interest loans/loan guarantees.

Support for deployment and dissemination of commercial technologies – the final segment in the innovation chain – usually takes forms other than funding: technology standards, feed-in tariffs, investment incentives, and the like. These policy tools are dealt with elsewhere in this analysis.

Funding for the innovation chain will not have any immediate direct effect on trade patterns and conditions of competition, but the long-term indirect effects are precisely the purpose of this sort of support. The ultimate aim is to foster domestic competitiveness in particular sectors of the new economy. As such, innovation funding if it is successful may be one of the most significant policy instruments in terms of potential impact.

That said, it is more or less recognized that support for innovation is within the bounds of acceptable sovereign practice. This kind of support is widely spread across developed and developing economies. There may indeed be detrimental impacts for those smaller economies (developed and developing) that do not have the requisite resources to engage in this kind of costly support. In the climate change arena there have been calls for the fruits of all publicly supported research to become public domain, given the urgency of the challenge at hand and the need for all countries to quickly move toward technological transformation. But even if such proposals are not heeded, there are arguably spin-off benefits of publicly supported research for other countries. New technology, even if only available on commercial terms that benefit the home State, increases potential global welfare.

Support for mature industries, however, may raise more acute trade and competitiveness issues. The United States recently objected that the European Community and some member States were providing WTO-illegal support to Airbus, the major aircraft manufacturer.²⁰ One component of that support was for research and technological development, where the United States successfully argued that support caused adverse effects for its own manufacturing giant, Boeing. Arguably, such a case would have been much harder to establish in the context of support for a new technology not yet on the market. But as green technology companies mature, as have many companies in the wind sector for example, support to innovation in those sectors may give rise to more trade frictions. The panel decision in the “EC – Aircraft”

dispute gives some reassurance that this sort of support is governed by clear rules.

Support offered to aid in the commercialization of a technology, or in the form of demonstration projects, is almost by definition offered to technologies that are not yet on the market, where trade impacts will be felt only well into the future. In that sense they are similar to support for R&D to non-mature sectors; they may eventually have trade impacts, but not in the medium term. Also as for R&D support, the use of this type of support is commonplace.

2.6. Investment incentives

Governments may, as part of a drive for a green economy, grant financial support to attract green investment to a particular location. Often this sort of support will be part of a larger strategy to build up economies of scale and competitiveness in a particular sector. But it may also be simply a question of increasing local economic activity, and doing so in a sector that furthers environmental objectives. Common sectors for such support include the energy sector, where cutting edge renewable technology is courted (both in terms of investment in new capacity and in production facilities), and high-tech consumer goods such as electric automobiles.

Investment incentives are not a new phenomenon and have been a feature of the economic terrain for a century or more. They are granted by governments at all levels, from the municipal to the federal, though they tend to concentrate more at local levels of government. They can consist of cash grants, research and development funding, low interest loans, loan guarantees, land grants, tax breaks, agreements to purchase outputs at a preferential price, and other forms of support.

Data is sketchy on the extent of such measures, as there are no requirements for consistent reporting, but one study put the level of support for the United States alone in 2002 at \$40 billion–\$50 billion.²¹ Those figures are for all investment incentives, as opposed to those uniquely extended to green industries, but they give some idea of the extent to which these sorts of measures are common practice. The same study noted that while most countries employed investment incentives, their use was considerably heavier in the OECD countries.

Clearly such measures, if successful, can help to establish viable industries in sectors that are key to

building a green economy. It is possible that such support would result in more green production than would otherwise be possible.²² But they also, by definition, distort investment decisions. In the longer term they may affect the competitiveness of national sectors if economies of scale can be reached, and/or agglomeration effects result in a critical mass of related sectoral investment. The jurisdictions at the losing end of the competition for this sort of investment will tend to be those small and/or poor economies without the financial means to triumph in a battle of spending.

Most of the investment incentives described above can be employed as instruments of competition between jurisdictions in attracting investment, but agreements to purchase outputs at a preferential price may be the exception, depending on the specifics of the regime. A common form of this type of support is feed-in tariffs that guarantee preferential prices to electricity produced from renewable sources. In this case, since electricity is not easily traded internationally, the proponent would not be shopping around for a location from which to serve a global market.²³ Attracting such investment to a country in need of new generating capacity is thus not a zero sum game from a global perspective. In fact, by contributing to economies of scale, it may generate spin-off benefits for other countries interested in pursuing the same path.

It is worth noting that some types of investment incentives may be contrary to WTO rules on subsidies. In a landmark case currently before the WTO, already cited in 2.5, the European Union has complained that United States state-level investment incentives to aircraft manufacturer Boeing breach certain obligations in the Agreement on Subsidies and Countervailing Measures.²⁴ The preceding case by the United States against European Union support for Airbus successfully argued that a number of types of state aid (so-called launch aid) contravened WTO rules, but that decision was premised on the specific form of the aid involved (below-market rates, long term, success dependent, unsecured, back loaded, and the like), and was explicitly not a ruling against all forms of investment incentives.²⁵ The bottom line is that such incentives, whether WTO inconsistent or not, will always affect investment decisions and, in most cases, will thereby rob other jurisdictions of the opportunity to exploit their comparative advantage.

2.7. Conditioned support

Domestic support for green sectors, whether in the form of investment incentives or other measures discussed above, is sometimes conditioned on requirements designed to foster “green infant” industries. This meshes the economic and environmental objectives that so strongly characterize the green economy. The most common sort of condition for support is that there be some domestic sourcing of materials or labour, but there may also be demands for export performance, or for technology transfer. Support measures with these sorts of conditions might include:

- Feed-in tariffs or preferential grid access granted to renewable energy power producers – these can be conditioned on local content in the technologies used, joint ownership of any investment, and/or transfer of proprietary technology;
- Investment incentives to green manufacturing – such measures can be conditioned on sourcing local inputs, use of local labour, joint ownership, and/or technology transfer;
- Export credit instruments granted to green exporters, investors (export credit, various types of insurance) – measures are by definition conditioned on the export of goods or on outward investment.

Requirements for domestic content of domestic sourcing are usually spelled out in terms of percentage; for example, the condition might be that 50 per cent of all components of a wind farm be domestically manufactured in order to qualify for a feed-in tariff. (In the case of traded electricity, the condition might be that no foreign-generated electricity can qualify for feed-in tariffs.) Clearly, such measures distort investment location decisions and patterns of international trade. In fact that is their primary aim.

Proponents of these sorts of measures often argue that the underlying incentives are costly, and the only way to get payback (and, in some cases, to get political agreement to the green incentives) is through the prospect of new green jobs created by the imposed conditions. But the WTO Agreement on Trade-related Investment Measures prohibits conditions based on local content or export performance if meeting those conditions is necessary to obtain some benefit.²⁶ This prohibition would not apply to export credit instruments, and does not cover joint venture or technology transfer requirements. The General Agreement on Trade in Services (GATS) would prohibit all such measures in sectors where countries had made commitments to pre-establishment national treatment under

mode 3 (commercial presence).

There are many more programmes using conditional support than there are WTO disputes founded on them, in part precisely because they are so widely used that few countries have a clean enough record to feel comfortable challenging others. But it is important to note as a point of principle that the international community has decided that such conditions are inappropriate.

2.8. Sustainable public procurement

Government spending is a powerful force in many economies. Public procurement is estimated at 16 per cent of the European Union's gross national product (GDP), and an earlier survey of OECD governments found a corresponding average figure of 20 per cent.²⁷ But these figures also include government salaries; purchases alone are much lower, typically from 5–9 per cent of GDP.

This is still a significant enough force in most economies that governments have tried to spur green economic activity through their purchasing decisions, and also to lead by example. Green government procurement can involve requirements for a certain percentage of recycled content, or for products (such as fleet automobiles) with a certain level of energy efficiency. It can also involve preferences for suppliers that exceed industry baseline standards in some way (for example, preference for suppliers that attain voluntary guidelines for pollution). Feed-in tariffs, examined above, may be a form of green government procurement, depending on the structure of the energy sector.²⁸

Another major form of government procurement is infrastructure spending. Government outlays on greening national infrastructure have featured heavily in the

national stimulus packages introduced by many governments in the wake of the financial crisis. Such support might be directed toward rail systems for public transit, modernization of existing transit facilities, or smart grids that are capable of handling the particular demands of renewables such as solar and wind. This sort of spending has spin-off benefits for other countries if it creates markets for their green products and services, and if it pushes the technology envelope toward lower costs and wider working knowledge of new technologies.

That sort of upside holds true for green government procurement in general, since government purchases can help to generate economies of scale for new technologies, and can help in further deployment and dissemination through a demonstration effect. It should be noted, however, that green government procurement is often accompanied by the sort of conditions discussed above, and particularly by requirement for domestic content or sourcing. This sort of conditioning risks losing the direct benefits for exporters of green goods and services, but may still retain the indirect spin-off benefits associated with greater diffusion and deployment.

Government procurement is not covered by the WTO prohibitions found in the Trade-related Investment Measures Agreement and the GATS, but rather by the separate WTO Agreement on Government Procurement (AGP). The AGP has strong provisions on national treatment and non-discrimination that would make local content conditioning hard to defend, though there are exceptions to the rules for such things as protection of human, plant or animal life or health. Most local conditioning of green procurement would probably fail to qualify for the environmental exceptions, however, being an attempt to insert commercial co-benefits into environmental measures.

3. CONCLUSIONS

The first thing to note about the range of measures available to governments in pursuit of a green economy is how few of them actually have trade and competitiveness impacts. The clear majority of measures is domestically focused and does not significantly impact imports or exports.

It is also worth noting that some of those measures that are trade relevant may actually have positive impacts for foreign exporters. Subsidy reform and strong environmental taxes probably raise the cost of domestic goods relative to foreign goods. Liberalization of trade in environmental goods and new technology specifications may open up new markets for foreign exporters. And green infrastructure spending may create both new markets and lower the costs of technology for all, as economies of scale are reached.

Other measures have potentially troubling aspects, but are not inherently negative. The final impact of this class of measures depends strongly on the design of the measures involved. Environmental taxes, for example, can be constructed in such a way that they are non-discriminatory and yet still punish foreign producers, though few examples of this exist. Take-back regulations can be similarly punishing or not, depending on the design of the regime. Border carbon adjustment has many variations that make it more or less problematic.

There are, however, still some measures that governments might take that have troubling impacts on trade or investment flows, and on terms of competition. Many of those surveyed above are actually covered by WTO disciplines: environmental taxes, PPM-based standards or prohibitions, R&D support, and support conditioned on local sourcing, for example, have all been the subject of WTO disputes, several of which are ongoing.

The problem with many of these measures is that while there is WTO law that covers them, it's not clear ex ante what the law says. There is, for example, wide disagreement in the legal community on whether BCA could be implemented in accordance with WTO obligations. For such questions, we could simply wait for clarity from a WTO dispute settlement process, but that is a poor solution for several reasons. First, it gives policy makers no certainty about what they can and cannot do. Second, it unwisely burdens the WTO dispute settlement mechanism

with issues that are caustic to the regime, since they do not involve arbitration over rules that reflect agreed principles, but rather stem from fundamental disagreements. It therefore threatens to undermine the multilateral system of trade. Far better would be to conclude some other agreement outside of the WTO that would identify best practice in the application of BCA, or of environmental taxes, of take-back regulations or of green subsidies. First best, of course, would be to look for such agreement within the WTO, but given the stress the unfinished Doha Round is exerting on the membership that might not be an option in the near term.

Only a few measures are left that are both problematic and might not be amenable to such agreement on first principles. International transport taxes as contemplated under the UNFCCC are in this category, and here the UNFCCC negotiations are working hard to ensure that the final result respects the principle of common but differentiated responsibility. Energy efficiency standards are another measure with potential problems but no obvious solution. Many competing standards can raise costs for exporters, and an international harmonization of standards would be a solid step toward green economies, but there is no obvious forum for such harmonization.

It is interesting to note that while the trade and competitiveness debates have traditionally opposed developed and developing countries, a large number of the issues discussed here do not fit that mould. For example, Canada is being challenged by Japan (now joined by the United States and the European Union) on the conditioning of provincial-level feed-in tariffs. The Government of the United States is being petitioned to take China to WTO dispute settlement for its support of clean energy sectors. The low-carbon fuel standard being used in North America is being used on fellow North American states and provinces. Investment incentives pit OECD countries and regions against one another. In part this reflects the fact that the developed–developing distinction needs more nuance in a changing world. But it is also a sign that the traditional split is not a defining framework in this discussion. Developed and developing economies alike are using the measures discussed here, and both feel the impacts. That said, developing and least developed countries are clearly more vulnerable as a group, saddled as they are with a lack of export diversity and a relative lack of resources to adapt to the changing demands of a greening global market.

If we expect the class of measures surveyed here to be a growing group, and we fear that tensions will continue to mount over their use, we might advocate some sort of international agreement in the WTO after the end of the Doha Round. There is rich precedent for agreements that go into greater specifics than existing rules, simply because the need is obvious. The Agreement on Sanitary and Phytosanitary Measures is one such, giving greater clarity to the scope for action allowed by GATT Article XX(b) in the context of agricultural trade. Alternatively, along the lines suggested above, we might look for agreement outside of the WTO context on what measures will be acceptable in the pursuit of a green economy, but it is not clear what

the forum might be.

At the end of the day, there are some grounds for developing country concern about the green economy's implications for trade, investment and the conditions of competition. But, put in the perspective of the whole green economy effort, the few measures that are problematic seem to be the exception rather than the rule. There is a clear need to delve deeper into those types of measures that may need special attention from the international community if we are to get the greatest potential from the international drive for green economy.

Notes

- 1 Barbier E (2010). *A Global Green New Deal: Rethinking the Economic Recovery*. UNEP/Cambridge University Press. Cambridge.
 - 2 See www.greengrowth.org.
 - 3 See www.oecd.org/document/10/0,3343,en_2649_37465_44076170_1_1_1_1,00.html.
 - 4 Spence C and Vavilov A (2010). "Summary of the first prepcom for the UN Conference on Sustainable Development: 17-19 May 2010." *Earth Negotiations Bulletin*. 27(1). 21 May 2010. Available at: www.iisd.ca/download/pdf/enb2701e.pdf.
 - 5 Robins N, Clover R and Singh C (2009). *Building a Green Recovery*. HSBC. London.
 - 6 Ibid.
 - 7 Ibid.
 - 8 UNEP (2011). *Enabling conditions. The Green Economy Report*. Available at: www.unep.org/greeneconomy/Portals/88/documents/ger/14.0_EnablingConditions.pdf.
 - 9 For an excellent overview of perverse subsidies and the analytical work that covers them, see the Global Subsidies Initiative at: www.globalsubsidies.org.
 - 10 International Energy Agency (2008). *Energy Policy Review of Indonesia*. IEA. Paris. Available at www.iea.org/publications/freepublications/publication/Indonesia2008.pdf.
 - 11 The Hong Kong (China) ministerial declaration that gave those talks its mandate declared that the negotiating group should focus on "fisheries subsidies that contribute to overcapacity and over-fishing". The first of these may be a trade issue, but the second is an environmental issue. WTO, 2005, Doha Work Programme: Draft Ministerial Declaration, WT/MIN(05)/W/3/Rev.2, 18 December, Annex D, paragraph 9.
 - 12 WTO (1994). *United States – Taxes on Automobiles*. GATT Doc. DS31/R, 11 October 1994.
 - 13 For an overview of these instruments see: Wooders P, Cosbey A and Stephenson J (2009). *Border carbon adjustment and free allowances: Responding to competitiveness and leakage concerns*. Background paper (SG/SD/RT(2009)8) to the OECD Roundtable on Sustainable Development, 23 July 2009, Singapore.
 - 14 In the United States, the so-called Waxman-Markey bill (American Clean Energy and Security Act – H.R. 2454) passed the House of Representatives in 2009 containing provision for such measures. The Senate version – the so-called Kerry-Lieberman bill (American Power Act), failed to pass but also contained them. The French Government has also formally proposed what it calls a "carbon inclusion mechanism", with the support of Italy.
 - 15 Cosbey A (2009). *Border carbon adjustment: Questions and answers (but more of the former)*. Background paper produced for the Geneva Trade and Development Forum/International Institute for Sustainable Development round table discussion, *Toward International Agreement on Border Measures for Climate Change*, 12 November 2009, Geneva.
 - 16 See, for example: Potts J (2008). *The Legality of PPMs under the GATT: Challenges and Opportunities for Sustainable Trade Policy*. International Institute for Sustainable Development. Winnipeg; Charnovitz S (2002). The law of environmental "PPMs" in the WTO: Debunking the myth of Illegality. *27 Yale Journal of International Law*. 59.
 - 17 Note that these conditions were not framed as general requirements for the use of unilateral extrajudicial measures, but were entirely case specific. That said, they have some relevance in considering what measures would be considered acceptable by future panels.
 - 18 EC Directive 2002/96/EC.
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- 19 The legal treaty name is the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal. An example of an import ban that is consistent with the Basel Convention is the pan-African prohibition on the import of hazardous waste: the Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa.
 - 20 WTO (2010). European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft (DS 316). Panel report. 30 June 2010. The European Union in turn brought a complaint against United States support for Boeing – a dispute which is still ongoing.
 - 21 Thomas K P (2007). *Investment Incentives: Growing Use, Uncertain Benefits, Uneven Controls*. The Global Subsidies Initiative of the IISD. Geneva.
 - 22 This is not clear cut, however. Investment incentives could conceivably just serve to offset the inefficiencies inherent in a particular production location, in which case the support would not lower the firm's costs.
 - 23 There are, of course, opportunities to trade electricity across borders. In the end, though, the actual generation of electricity is not job-creating on the same scale that manufacturing is, and incentives such as feed-in tariffs really are more about environmental performance than they are about fostering economic activity.
 - 24 United States – Measures Affecting Trade in Large Civil Aircraft – second complaint (DS 353).
 - 25 WTO (2010). European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft (DS 316). Panel report. 30 June 2010.
 - 26 Article 2: National Treatment and Quantitative Restrictions.
 - 27 Communication from the Commission (COM) 2008. Public Procurement for a Better Environment: Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions. Marron D (2003). Greener public purchasing as an environmental policy instrument. *OECD Journal on Budgeting*. 3(4): 71–106.
 - 28 This is at base a question of who is actually buying the electricity: the government or some non-governmental entity?
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