

## Climate change mitigation policies in the Asia-Pacific: A concern for trade policymakers?

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### Introduction

The Asian and Pacific region has led the twenty-first century surge in economic growth that is powering the global economy while lifting millions of people out of extreme poverty. The economic momentum has primarily been driven by ever-increasing exports and has thus led to a sharp expansion of (fossil fuel-intensive) production and cargo transportation. The downside is that this growth has also resulted in a considerable surge of greenhouse gas (GHG) emissions, which are likely to accelerate climate change and its potentially tremendous impacts (e.g., rising sea levels, glacial melt, tropical cyclones, changes in monsoon patterns, floods and droughts). Developing countries in Asia and the Pacific are expected to be the hardest hit by these changes, inter alia, due to their limited environmental carrying capacity and large coastal populations.

Thus there is a pressing need to improve the environmental sustainability of trade-led growth strategies in the region. The objective of "greening trade" and the related implementation of climate change policies are complicated by, for example, competitiveness concerns and "carbon leakage", which make it difficult to find an effective post-Kyoto Agreement. Therefore, governments in developed and developing countries are called on to design nation-specific policy frameworks (so-called nationally appropriate mitigation actions [NAMAs])<sup>1</sup> that are supportive of trade and the climate. Stated differently, the realization of well-designed unilateral climate change initiatives (particularly those with the objective of clean technology transfer and diffusion) could help countries to develop new trade opportunities.

The aim of this policy brief is twofold. First, it provides an overview of national climate change policies that are implemented or planned in selected Asian and Pacific

<sup>1</sup> NAMAs are voluntary emission reduction measures undertaken by developing countries and reported by national governments to the UNFCCC. NAMAs, which can cover any policy that works towards reducing greenhouse gas emissions, are expected to be the main medium for mitigation action in developing countries under a future climate agreement. They can be policies, programmes or projects implemented at the national, regional or local level. NAMAs ensure that mitigation actions undertaken at the national level are recognized internationally, and will bolster the demand for climate smart goods and services.

countries. Two groups of policies are defined (table 1): (a) tax-like policies (including carbon taxes at-the-source, emission trading systems and renewable portfolio standards); and (b) subsidy-like policies (including "green" financing, feed-in-tariffs, and "green" public procurement). The effectiveness of the policy examples given below, with regard to climate change mitigation and trade enhancement, is not studied and should be the subject of future work.<sup>2</sup>

Second, the policy brief highlights for both policy groups (described above) the extent to which trade policymakers should be concerned, and the possible and appropriate policy reactions. The brief also questions whether these climate change policies can potentially result in enhanced trade in particular markets and products. Thus, challenges and opportunities for trade policymakers are also laid out.

**Table 1. Two groups of climate change policies**

Tax-like policies	Subsidy-like policies
Carbon taxes at-the-source	Soft loan scheme and "green" bond
Emission trading system	Feed-in-tariff
Renewable portfolio standard	"Green" public procurement

### 1. Tax-like climate change policies

Climate change, respectively the emission of GHGs, is a negative externality. To correct for this externality, the environmental costs can be internalized by setting a price (or tax) on GHG emissions such as, for example, carbon dioxide (CO<sub>2</sub>).

One approach is a **carbon tax at-the-source**, which corresponds to the price on the release of CO<sub>2</sub> gases into

<sup>2</sup> The policies listed in table 1 are viewed as the most promising national measures for mitigating climate change. Other policies (such as tax exemptions for "green" projects/investment, or energy efficiency labelling) could also be considered.

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the atmosphere. The tax base of a carbon tax at-the-source is the combustion-related CO<sub>2</sub> emissions of fossil fuels. Specifically, the tax is set according to the carbon content of various fossil fuels – higher for coal and oil, and relatively lower for natural gas. Carbon taxes are often set in order to influence taxpayers' behaviour in achieving a given environmental objective (i.e., the emission reduction target). For example, India recently imposed a carbon tax of Rs 50 (US\$ 1.00) per ton of CO<sub>2</sub> on both domestically mined and imported coal. Revenue generated by the tax goes into the clean energy fund, which invests in entrepreneurial ventures and research in the field of clean energy technologies (Ministry of Environment and Forest, 2010). China is planning to impose a carbon tax in 2012. The tax is likely to be set between CNY 10 (or US\$ 1.46) and CNY 70 (or US\$ 10.25) per ton. The Government plans to use the tax revenue to provide subsidies for environmental industries and enterprises (Rongxiang, 2010).

An alternative to the carbon tax is the **emission trading scheme** (ETS). Governments fix a cap on total emissions<sup>3</sup> that can be emitted annually and translate this cap into allowances for emitting GHGs. (For example, one allowance is the permission to emit one ton of CO<sub>2</sub>.) In addition, a market system in which these allowances can be auctioned and/or traded (at a price set by the market) is put in place. If all allowances are auctioned, i.e., no free allowances are provided, the market price should reflect the marginal cost of emission reductions and thus encourage emitters to reach a specified emission reduction target. In practice, however, allowances have often been distributed free, mainly in order to address competitiveness concerns of energy-intensive industries. New Zealand, for example, expanded its mandatory ETS in 2010 and will cover all sectors and all GHGs by 2015. The scheme includes free allowances and trading of allowances, depending on industries and firms (Government of New Zealand and Climate Change Information 2010). China announced in July 2010 that it would start a domestic carbon trading programme during its twelfth Five-Year Plan (2011-2015) in order to meet its 2020 carbon intensity target (Jing, 2010). Similarly, India has announced its intention to begin an ETS in the future (Chan 2009).

The environmental effectiveness of carbon taxes and emission trading schemes depends on the design of the respective systems and policies.<sup>4</sup> For example, if the carbon taxes are set at a level that does not induce producers to adjust their carbon emissions, it will not be effective. Or, if producers are given free allowance of emissions in an ETS, this may introduce windfall gains, or incentives to reduce emissions may not be provided. In addition, the environmental effectiveness of both schemes (taxes and auctioned ETS) depends on the use of the raised revenue. It can either be included in the general government budget or re-distributed to: (a) finance, for example, environmental projects (known

as "earmarking"); (b) compensate those industries most affected by these policies; or (c) reduce the burden imposed by other taxes.

A less publicly-debated, but widely-used tax-like policy is the **renewable portfolio standard** (RPS). An RPS is a regulation set by a Government that directs utility companies to purchase or produce a set percentage of their energy from renewable sources. The benefits of an RPS are increased innovation, improved efficiency and a greater demand for renewable energy technologies, both domestically and from abroad. An RPS does not work as a tax on carbon, but still acts as a tax-like climate change policy, as it increases energy prices (at least in the short term) for all energy consumers. A number of countries in Asia and the Pacific are pursuing RPS policies, including China, Japan, Thailand and Viet Nam.

### Concerns and opportunities for trade policymakers

An internationally-agreed carbon price does not exist and the above-described emission reduction policies are either not applied in all countries or they differ in their design. Thus, these policies affect the (relative) costs and prices of goods, and give rise to concerns about international competitiveness and "carbon leakage". In current multilateral negotiations as well as in national political processes (particularly in developed countries) these concerns have come to the forefront of climate change debates. According to the limited number of existing studies, the competitiveness and "carbon leakage" effects are small or non-existent (see, for example, Kee, Ma and Mani, 2010, and Mattoo and others, 2009). Therefore (as shown below), additional proposed policies for counteracting the competitiveness and/or "carbon leakage" problems are likely to distort trade.

To reduce the cost of compliance for affected sectors (i.e., carbon-intensive sectors) and the effect of "carbon leakage", various instruments such as free allowances, tax exemptions and redistribution mechanisms have been used or proposed. However, as argued above, such adjustments are likely to decrease the environmental effectiveness of the mitigation policies as well as potentially overcompensate the disadvantages of these industries – i.e., these industries may ultimately face a competitive advantage rather than disadvantage (Kee, Ma and Mani, 2010).

Other mechanisms are trade measures at-the-border for also imposing carbon costs on importers. It is sometimes argued that these trade policies will also increase incentives for other countries to reduce their GHG emissions. In particular, border tax adjustments to carbon taxes at-the-source can be viewed as a means of implementing the "destination principle" under which goods are taxed in the country of consumption. Hence, a border tax is imposed on imported products, and domestic taxes (here, carbon taxes at-the-source) are refunded when products are exported. It should be noted that the effect of such policies on exports by trading partners depends on whether they are based on the carbon content of imports or the carbon content in

<sup>3</sup> This cap is generally set at lower levels than past emissions in order to achieve emission reduction targets.

<sup>4</sup> The empirical analysis for the effectiveness of the ETS in the European Union, for example, is at an early stage. There is some evidence that no impact on emission reductions was recorded in the pilot phase (Wooders, Reinaud and Cosby, 2009).

domestic production. Both approaches would address the competitiveness issue, but the former would have more serious implications for trading partners (Mattoo and others, 2009).

In sum, trade policymakers should not be particularly worried about the existence or planned imposition of domestic tax-like climate-change policies because (a) the negative effects on competitiveness are found to be minor; and (b) measures that are used to counter-balance these effects often more than compensate the disadvantages incurred. Moreover, these additional measures may have serious implications for trading partners, which could potentially give rise to new trade friction. Therefore, trade policymakers should carefully monitor the design processes of tax-like climate-change policies. If the collected revenue from these policies is used, for example, for investment in climate-smart technologies, new export markets can be explored.

## 2. Subsidy-like climate change policies

Subsidy-like policies can be viewed similarly as any climate change mitigation policy that reduces costs of consuming or supports investment in renewable energies and climate-smart technologies.<sup>5</sup> Examples include **soft loan schemes** that offer flexible or lenient terms of repayment with interest below market rates, and **“green” bonds** that are exempted from taxes and generally issued by domestically qualified organizations. “Green” bonds offer the investor the opportunity to participate in the financing of projects that help mitigate GHG emissions or adapt to the effects of climate change. Japan provides, for example, low interest loans for manufacturers, building owners and other business operators, based on the Energy Conservation and Recycling Assistance Law. The law is designed to support business operators who are voluntarily implementing “green” projects (Energy Conservation Centre of Japan, 2010). Thailand’s National Energy Conservation Programme, funded by a fossil fuel tax, provides financial incentives for projects related to energy efficiency, renewable energy, research and development, and public awareness (Organisation for Economic Co-operation and Development/International Energy Agency, 2010). In New Zealand, a Marine Energy Deployment Fund has been set up to bring forward the development of marine energy, and offers grants for the potential development of new technologies to mitigate climate change and its effects on marine life (International Energy Agency, 2007). More recently, China has devoted unprecedented resources to developing renewable energy sources such as solar power and wind turbines (Aggarwal and Evenett, 2010).

A more specific measure in the group of subsidy-like policies is a **feed-in-tariff** (FIT). FITs incentivize renewable energy production by requiring utilities to purchase and feed-in to the grid any surplus electricity generated from renewable sources by individuals, companies or organizations. FIT legislation around the world has been an impetus for successfully increasing global investment in,

and deployment of, renewable energy technologies. In 2009, China introduced a FIT for offshore wind, setting the buying price at a premium compared with electricity generation from coal. In addition, more than 45 countries have adopted FITs, including Australia, India, the Republic of Korea and Thailand in the Asia-Pacific region (REN21, 2009).

Finally, **“green” public procurement** (GPP) can be viewed as subsidy-like, not because direct financial incentives are provided as for a normal subsidy, but because governments give preference to the acquisition of climate-smart goods and services, thereby bringing environmental concerns into the tendering process. This is a powerful instrument that can be used by public authorities to reduce their GHG emissions and advance their climate change objectives. Government consumption represents up to 25 per cent of GDP in many countries of the region. A number of countries have adopted or planned GPP legislation. For example, Japan enacted the Green Procurement Law in May 2000 to promote the public purchasing of equipment with lower environmental impacts (Harada, 2006). Other examples can be found in China, Indonesia, the Republic of Korea and Thailand.

## Concerns and opportunities for trade policymakers

Subsidy-like policies as described in this section should – from the perspective of trade policymakers – be regarded as unique opportunities for specializing in climate-smart technologies, which will then open new and ever-increasing export markets. Therefore, national trade policy communities should promote these policies and work closely with their climate change communities in setting and improving the regulatory environment for exporting climate-smart goods and services. In addition, trade policymakers should set all necessary conditions for a surge in import and investment (including foreign) of “green” technologies. This will accelerate adaptation by domestic industries to the competitiveness of today’s global economic environment.

Concerns are related to the design of these policies, as “green” subsidies are likely to give preference to local producers and thereby discriminate against foreign commercial interests (Aggarwal and Evenett, 2010). This will lead to new trade friction and could potentially result in retaliatory action. Trade policymakers should therefore advocate for a “liberal” implementation of subsidy-like policies.

## 3. Conclusion and lessons for trade policymakers

Given that the climate change debate will maintain its momentum during at least the next decade, plus the fact that climate change and its impacts will particularly affect the Asian and Pacific region, it is clear that countries in this region need to campaign for the implementation of policies conducive to a low-carbon development path. Countries that do not mitigate their GHG emissions, particularly those created by production-related activities, may soon find themselves at a competitive disadvantage; as a result, their exports are likely to be seriously harmed.

<sup>5</sup> The definition of climate-smart technologies and the analysis of trade patterns of these technologies is the subject of ESCAP’s forthcoming Asia-Pacific Trade and Investment Report 2010.

Table 2. Six key lessons for trade policymakers

1. Competitiveness and "carbon leakage" effects of tax-like climate change policies are minor.
2. Measures that counterbalance these effects (e.g., tax exemptions for emission-intensive industries, or border-tax-adjustments) are likely to overcompensate the disadvantages incurred, and/or to have serious implications for trading partners, thus potentially giving rise to new trade friction.
3. Similarly, "green" subsidies often give preference to domestic producers. This discriminates against foreign commercial interests and leads to trade friction and retaliatory action.
4. Trade policymakers should therefore pursue a "liberal" stance and not consider new discriminatory measures that potentially will have harming effects on domestic and foreign exporters.
5. Trade policymakers should focus on design-specific aspects of climate change policies and advocate for raised revenue to be invested in the production of climate-smart technologies, as this could be crucial to exploring new and fast-growing export markets.
6. In addition, trade policymakers should make sure that the regulatory and technical requirements for exporting/importing as well as investment in "green" technologies are further improved. This goes along with other initiatives to liberalize and facilitate trade in goods and services.

The key lessons for trade policymakers are listed in table 2. In sum, all the above-described policies (tax-like and subsidy-like) can contribute to low-carbon and trade-enhancing development. It is crucial that countries in the Asian and Pacific region (as well as worldwide) work together and implement these policies without introducing new discrimination against trading partners. Whether one or the other policy is more effective goes beyond the scope of this policy brief and should be the subject of future research.

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