

Climate Change and Trade on the Road to Copenhagen

Summary for Policymakers

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The global effort to address climate change will require a fundamental transformation of our economies and the ways we use energy. The current phase of negotiations under the UN Framework Convention on Climate Change (UNFCCC) is set to lay the groundwork for the necessary policy reform, and will require concerted and cooperative efforts by individual countries, the business sector and civil society. Innovation - both with regard to the technologies of the future and the regulatory frameworks used to usher them in at the scale needed - will be key to success.

In this context, and as negotiations accelerate in the lead-up to the Copenhagen meeting in December 2009 and beyond, trade-related issues have emerged as elements of the discussions and trade-offs. Many believe that the design of an effective climate change regime will imperatively include the use of trade policy tools. What specific tools constitute first best options, whether these tools need to be incorporated into a global climate change regime and if so, how best to go about it, are questions that the relevant policy communities need to navigate. They also need to consider whether there are other ways in which trade policy and existing regimes can be made supportive of climate change mitigation and adaptation efforts. In addition, some of the issues within the future climate regime will have direct repercussions in the trade realm, and need to be well understood and prepared for. In order to contribute to the challenge, this paper provides information on the most salient and pressing policy linkages. It addresses issues in the climate-trade interface that are relatively well known and emerging areas that need to be further researched.

The paper starts by focusing on competitiveness issues, which are at the centre of the current climate change and trade discussion. Countries are concerned that by taking on climate change commitments, they will put their industries - at least the energy and carbon-intensive ones - at a disadvantage on the international marketplace. The paper discusses the environmental, social and economic aspects of this debate. It then touches on proposed responses, such as erecting 'carbon barriers' against imports or the crafting of international sectoral agreements.



Section 2 of the paper provides information on the concept of 'embodied' carbon in trade. This refers to carbon emissions related to the production of a good, which are accounted for in the country of manufacture, not consumption, in national carbon inventories under the UNFCCC. The paper then discusses carbon labelling, a concept and practice at an early phase of development that could provide consumers with information on carbon emissions through the full lifecycle of traded products. The paper notes most relevant challenges for policy makers and focuses in particular on developing countries experience with regard to labelling and other so called 'non-tariff barriers' affecting their exports.

Rapid global diffusion of clean technologies will be key to climate change mitigation. Section 3 discusses trade-related issues in this area: first, the potential for bringing down tariffs on environmental goods and services in the current WTO Doha Round; and second, the role of trade and trade rules with regard to technology transfer more generally. It focuses on intellectual property issues for low-carbon and mitigation technologies, a matter that is already emerging as a political bone of contention.

Section 4 of the paper very briefly discusses energy and trade, given the cross-cutting nature of this topic.

Section 5 focuses on the complex and multifaceted linkages between trade and land use, land-use change and forestry (LULUCF). The section includes a brief summary of some of the issues underlying the biofuels controversy. This defiant area will require further exploration.

The nuts and bolts of trade - the physical transport of goods around the world by water, land, and air - has until recently been off the radar screen of most climate policymakers. Section 6 of the paper provides an overview of current discussions in this area and their likely indirect implications for trade and climate mitigation.

Finally, section 7 provides an exploratory overview of the linkages between climate change adaptation and trade. More work is needed to shed light and explore possible needs for policy intervention in this area.

1. Competitiveness in a carbon-constrained world

International competitiveness and trade have always been a consideration underlying multilateral

negotiations to address climate change. Only recently has the debate become open and politicised, however. Topics such as the potential relocation of carbon-intensive industries and carbon leakage, carbon barriers at the border, carbon embodied in traded consumer goods, as well as the climate change impacts of transporting agricultural and industrial products around the globe have landed in the already overflowing briefcases of climate change negotiators.

It is clear that climate change mitigation comes at a cost. What exactly the cost is, and how it will be distributed within countries and sectors under different policy scenarios is less clear. The international distribution of that cost is, of course, at the centre of the climate change negotiations. Complicating the matter is the economic integration of countries in an open global economy, including through supply chains that are increasingly spread across countries.

Leakage and competitiveness - economic, social and environmental dimensions

Countries set to take on stringent mitigation obligations worry that this may affect the international competitiveness of their energy- and carbon-intensive industries. Although concerns include loss of competitive advantages both in domestic and international markets, the debate mostly centres on the economic and social implications of the real or perceived relocation of industries to countries without such obligations. In addition, such relocation may lead to higher overall carbon emissions from the same production of the same volume of goods in countries with less efficient processes. This would be the environmental angle of carbon leakage: the same amount of production, increased amounts of related pollution.

While the picture is not yet clear-cut, the issues have become highly political. Some dispute that significant carbon leakage is taking place, pointing, among others, to the fact that developed countries still are producing most of their energy-intensive steel and cement products domestically. Some economists argue that trade leads to greater production efficiencies, including lower overall greenhouse gas emissions.

Can border adjustments be justified?

While firms in carbon-constrained economies already are responding by turning to increasingly specialised high-value products in sectors such as steel, they

are also among the main demandeurs for legislation instituting carbon-related “competitiveness provisions” in the form of mandatory carbon offsetting allowances on imports, or border tax adjustments.

Draft legislation in the US contains provisions for carbon barriers targeting China and other emerging economies currently not obliged to make emissions reductions. In Europe, border measures were left out of draft climate and energy legislation - at least for the moment. They are very much part of the debate, and the European Parliament has been calling for border measures against climate ‘free riders,’ mainly the US, for several years.

Such border measures are highly controversial, as they are seen as ‘sticks’ rather than ‘carrots’ to encourage an inclusive approach to deal with the problem. Their legality under the WTO is anything but straightforward.

What role for sectoral agreements?

In this context, there is renewed interest in global sectoral agreements - covering energy-intensive and heavily trade-exposed industries such as steel, aluminium, pulp and paper, cement and agro-chemicals - since these potentially could help address some of the international competitiveness issues. Under an approach proposed by Japan in the G-8 context, energy-intensive sectors would be set benchmarks related to best available technologies, taking on climate change commitments that would be added up at the national level. For developing countries, these commitments would be of a voluntary nature.

Sectoral agreements offer no clear-cut solutions, however. Developing countries have cautioned that these might open the back door to new standards and obligations, which would hinder or complicate developing country industrial development and exports.

Indeed, referring to the principle of “common but differentiated responsibilities,” developing countries have said that competitiveness issues with a potential to affect their development prospects have no legal ground in the UNFCCC context.

2. Embodied carbon in trade - from politics to labelling and new carbon inventories?

There is now firm evidence of the atmosphere’s limited capacity to absorb certain types of the gases generated by anthropogenic activity. Such activity

has traditionally failed to account for the use of the atmosphere or inputs that affect it. If policy is to deal with climate change effectively, internalisation of such costs is an imperative. In this context estimating and addressing carbon emissions related to internationally traded goods becomes a priority area of attention. Indeed, defining responsibility for action with respect to their mitigation is anything but straightforward: should emissions be accounted for only at the source of production, or rather following the full life cycle of goods or services, with emissions attributed at points of production, transportation, consumption and disposal? If so, the question arises as to how to distribute the attribution of emissions to countries involved in today’s complex geography of international production and trade networks and flows.

Several recent studies show that around one quarter of Chinese carbon emissions can be directly attributed to the production of goods that are exported - many to consumers in developed countries that no longer are engaged in such manufacture.

Therefore, in this specific case, consumer countries have been accused of ‘carbon laundering’ their economies by outsourcing polluting industries to producing countries. Critics stress the need for consumer countries, particularly developed countries, to take strong first steps to tackle climate change in order to address their responsibilities both with regard to their historic emissions and their current emissions, taking into account the embodied carbon in their imports. Some producing and exporting countries have, in fact, hinted at the need to redefine emissions reduction responsibilities since part of their emissions are directly related to consumption in other, mostly developed countries.

Carbon accounting and labelling

Carbon inventories are centred on the nation state, and carried out by states. Perhaps one day each traded good will be accompanied by its own carbon passport, allowing the transfer of carbon responsibilities across borders. However, initial life cycle analyses of traded goods from a carbon perspective have demonstrated just how complex this process would be - and how costly.

Some embryonic carbon labelling schemes based on life cycle analysis have been set up by the private sector, covering just a few products. These have mainly been agricultural goods, since they tend to be less processed than industrial goods and thus simpler to

analyse. In addition, some global companies have started using carbon foot-printing to identify carbon hotspots in their supply chains and target these for mitigation action.

The role of voluntary carbon labelling schemes is likely to grow in the future, providing consumers with the option of decreasing their personal carbon footprints. There are, however, risks associated with such schemes if they are not well designed. The first experiment with a crude form of labelling - airplane stickers in supermarkets to indicate fresh produce that had been air-freighted - ended up hurting some of the poorest and most vulnerable countries. These developing countries had managed to capture high-value niche markets in developed countries by air-freighting fresh produce during the northern winter. The stickers singled out just one part of the carbon footprint, namely transport, ignoring other parts of the process. Overall, the exporters operating in warmer climates often produced products with lower carbon emissions as compared to their counterparts in developed countries, which produce out-of-season vegetables in a highly mechanised fashion in greenhouses using large amounts of carbon-intensive fertilizer input. Under a differently designed scheme, the small developing-country producers may have been the ones to benefit.

Labelling schemes and standards as potential non-tariff barriers

Carbon labelling schemes thus provide opportunities as well as challenges for developing countries. Any future carbon schemes would need to balance the need for accurate and useful data with the need to be simple, transparent, and involve sufficiently low transaction costs to include small countries and players.

Among developing countries there is widespread suspicion regarding private sector labelling schemes in particular, as they feel they are not represented and their voice is not heard in their development. While such private sector schemes can hurt their export interest, the countries have little room to manoeuvre given that the international trade rules governing standards and technical regulations, namely the WTO Agreement on Technical Barriers to Trade, essentially binds Member countries, not private organisations.

This discussion also applies to trade-related aspects of the more established labelling schemes focusing on energy efficiency, as well as voluntary or mandatory standards in this area. These schemes provide

opportunities for positive product differentiation and market opportunities. On the other hand, many producers are concerned that labelling and standards become barriers to market access. They see the rise in such 'non-tariff barriers' as potential obstacles to market entry and as a vehicle for green protectionism.

3. Technology - opportunities and constraints

Rapid diffusion of clean technologies will be key to climate change mitigation. For the unprecedented diffusion of technology required to take place, all avenues will be need to be used, and the most efficient mover of goods and technologies around the globe is trade.

Liberalising environmental goods and services

Developed country producers and exporters have proposed, at the WTO, to single out environmentally friendly technologies, and among these, climate friendly technologies, and ask countries to bring down tariff barriers to aid their diffusion. Many developing countries are, however, reluctant to make such blanket commitments under the current Doha trade round, which is undertaken as a single package across all sectors, and of which climate friendly goods would make up just one small piece. These countries are concerned that they might, unintentionally, end up liberalising far more goods than just those with an environmental end use. They are also concerned about competition for their own small and medium-sized enterprises (SMEs) or possible future companies producing the same goods. However, the picture is rapidly changing, with the emerging economies growing most quickly in this area and becoming the new producers and exporters on the clean technology market.

Technology transfer

Development and transfer of technology has emerged as a basic building block in the crafting of a post-2012 global regime on climate change. A range of technologies needed for mitigation and adaptation to climate change have already been identified. These include technologies needed for observation and monitoring of climate change, technologies for mitigation (e.g. energy efficient and renewable energy technologies, energy efficiency transportation technology; energy and material saving building and



construction technologies, low-emission technologies for agriculture and animal husbandry etc.) and technologies for adaptation (e.g. water-saving, water capture and water reuse technologies, agricultural biotechnology, disease and pest control technology, flood, drought, sea level rise, agricultural disasters, and desertification control technologies).

Several barriers to access to these technologies have been identified. Legal and policy measures have an important role in the transfer of technology, even as technology is largely transferred by the private sector. Trade liberalisation, per se, is an insufficient driver for the diffusion of the knowledge and technologies that will be required, especially in developing countries, to mitigate and adapt to climate change. A range of economic and trade-related instruments provide opportunities for multilateral action to promote climate-relevant innovation and technology transfer, providing an 'enabling environment'.

Intellectual property and innovation

In the climate change negotiations, intellectual property issues have become a bone of contention. Intellectual property rights have long been a tool to promote innovation and the dissemination of new ideas and inventions. Nevertheless, in some cases the excessive scope or level of protection of intellectual property rights in fact provides a disincentive for further research and development, as well as an obstacle to access to the

protected knowledge by the broader public. Therefore, a balance will need to be achieved between patents and access to climate-related technologies.

Intellectual property is not necessarily the bottleneck for the present generation of technologies. This may change as new technologies are developed, and a better understanding is also needed on a sector by sector and technology by technology basis. Under the Montreal Protocol, the technology funds included money to pay for the necessary licensing fees.

There are suggestions that countries should be able to issue compulsory licenses for climate change technologies - meaning they would be able to unilaterally make decisions to allow their companies to copy technologies without following normal procedures for patented goods. The intellectual property discussion can also be used as a stalling tactic within the negotiations by countries that do not wish to see a successful outcome.

The issue is of particular relevance to some of the most technologically advanced developed countries, which are seeking to re-engineer their economies into the low-carbon era, putting most of their R&D into eco-innovation. They are hoping to increasingly base their economies on these sectors, having already made the move from natural resource intensive sectors and industries into services and cutting edge technologies.

There is also increasing realisation that - both within and beyond the intellectual property system - existing innovation structures and activities can and should be enhanced. Initiatives include an international "distributed innovation" model and strategy for climate technology. Prizes to promote innovation in clean technologies are also being explored.

4. Energy at the centre of the knot

Climate change policy aims to set countries onto a path towards an efficient, low-carbon energy future. Energy efficiency is one of the most cost-effective areas of intervention to address energy use. Clean energy and new and renewable forms of energy are costly. No new source of energy has ever been developed without significant government support; the same will be true for new and renewable forms of energy. Technology transfer and diffusion will also require policy intervention. Meanwhile, existing subsidies supporting fossil fuels still need to be phased out, in accordance with the Kyoto Protocol objective of progressive reduction or phasing out of market imperfections and subsidies in all greenhouse gas emitting sectors. Current WTO rules set out the parameters for subsidies that affect trade, as well as for standards and labelling. Some have called for efforts at the WTO to phase out harmful energy subsidies, along the lines of the current negotiations targeting subsidies in the fisheries sector that lead to overexploitation of fish stocks globally.

In order to develop a comprehensive and coherent strategy at the interface between trade and energy - spanning trade in energy itself, in energy-related technologies, energy subsidies, standards, labelling, technology transfer and innovation - the crafting of policies or even a new legal instrument may be necessary. The negotiations towards a post-2012 climate regime and beyond could provide an avenue for such efforts. Following a successful outcome, the results might need to be accommodated for within the WTO and regional trade agreements.

5. Carbon, land-use, land-use change and trade

Agriculture and forestry cumulatively account for over 30 percent of global carbon emissions. Global agricultural trade and rules governing this trade affect carbon management globally, as changes in land use patterns have major impacts on the carbon balance.

If land is converted from forest to agricultural land, carbon is released. Deforestation contributes approximately 18 percent of global carbon emissions.

Agriculture also binds carbon in crops and soil, and certain practices do more than others to sequester carbon. For achieving long-term climate objectives, the Intergovernmental Panel on Climate Change (IPCC) reports indicate that agricultural mitigation options are found to be more cost competitive compared to non-agricultural options.

Agriculture trade in a changing climate

Global shifts in cropping patterns are expected to result from the eventual Doha agreement that will bring down tariffs, phase out export subsidies, and reform and decrease internal agricultural support programmes. The overhaul of agricultural subsidies provides an opportunity to promote genuinely sustainable agricultural production and practices.

While there are few agricultural subsidy programmes focusing on carbon sequestration specifically, these may become more prominent in the future. Current subsidy reform, with the emphasis shifting towards decoupled payments and extensification, may also naturally lead developed countries towards practices that support carbon sequestration.

Policy-makers also need to provide adequate attention to the needs of smallholder farmers and rural communities, especially in the developing world. In addition to the evident imperative to ensure the food security of these poor communities, which may be among the most vulnerable to the negative effects of climate change, governments also need to take into account the fact that these producers may also hold some of the keys to a solution.

Not only do small farmers frequently practice more sustainable traditional agricultural practices such as crop rotation and mixed cropping, leaving land lying fallow, and the use of low levels of artificial chemical inputs such as fertilisers, they are often also the custodians of agricultural biodiversity, selecting and sharing seeds of plant varieties that are particularly well suited to local conditions. In the context of a changing global climate, this storehouse of biodiversity could be critical in developing the varieties that are needed to adapt to a changing world environment. Global trade negotiations will need to integrate this as a major background factor.



Global forest trade

Forests and wood products have the potential to act as major carbon sinks. There are many ways of mitigating climate change using forestry and wood products. One way is to undertake activities that reduce greenhouse gas emission from forests, such as reducing illegal logging or increasing the efficiency of timber-harvesting practices. Another area of focus involves activities that help maintain the ability of forests to store carbon, such as low impact logging and creating long-term strategies for the use of forests and forest products. A third area of focus is activities that expand the capacity of forests to store carbon, such as afforestation and agroforestry.

Market-based tools to promote trade in forest products from sustainably managed forests are one option, such as certification of forest management and labelling of forest products. To support these efforts, countries need to ensure that the outcomes of discussions on eco-labelling at the WTO cater to the certification of sustainably harvested timber and non-timber forest products.

More also needs to be done to improve market access for sustainable forest products, especially with regard to non-tariff barriers and unilateral measures. Such considerations can shape the negotiations on market access for non-agricultural products at the WTO, as well as ongoing negotiations on the elimination of tariff and non-tariff barriers for environmental goods and services.

Biofuels - the agriculture, energy, climate and trade controversy

Under a best-case scenario, biofuels offer countries the potential to reduce greenhouse gas emissions, while increasing energy security and reducing local air pollution. Biofuels offer new opportunities in the agriculture sector, generating new employment and creating novel end-markets for agriculture products.

The IPCC recognises potential climate change benefits of biofuels, in particular biofuels produced in tropical countries. However, as has recently become very clear, large scale production of biofuels can also affect global food prices and the greenhouse gas benefits are not straight forward, especially when indirect land use effects are taken into account. There are also challenges when the production of raw materials is taken over by agro-business rather than local farmers, stymieing rural development. Some observers report human rights and labour rights abuses in relation to biofuels production, and concerns have been raised with regard to loss of biodiversity and environmental damage.

One way to deal with these problems is by setting sustainability criteria for biofuels. The validity of sustainability and certification schemes under WTO rules has yet to be determined and remains a contentious issue, however.

The most efficient production of biofuels is in developing countries, while the greatest demand is

in developed countries. Trade is a natural outcome of such imbalances. Yet trade between efficient producers and countries with the greatest demand is limited by various tariff and non-tariff barriers. By reducing or eliminating subsidies and tariffs on agriculture products, international trade in biofuels may be facilitated. The most developed forms of liquid biofuels - bioethanol and biodiesel - are part of the Doha round of negotiations and will be affected respectively by the outcomes of the talks on agriculture and industrial products. The inclusion of biofuels in an accelerated liberalisation package of environmental goods and services has been proposed by certain WTO Members.

6. Transporting goods around the globe - the nuts and bolts of trade

During every moment of the day, ships, trucks, trains and planes are criss-crossing the globe to transport goods from their point of production to their point of consumption. The international transport sectors are of a particular nature, as reducing their greenhouse gas emissions does not fall directly within the jurisdiction of any country. Traditionally, the emissions have been out of sight and out of mind, and so regulation in this area has been lagging behind. In the climate change negotiations the issue of bunker fuels has been held in abeyance for years, and was only recently put back on the active agenda.

While the significant carbon footprint of air-freight has been well known for some time, shipping has recently also come into the spotlight. Recent studies by the International Maritime Organisation (IMO) show that shipping contributes much more carbon dioxide than previously thought. The worldwide fleet of 90,000 ships transports 90 percent of the world's goods. Shipping has grown by three percent annually on average over the last three decades, and shipping emissions are projected to grow by more than 70 percent by 2020, as global trade expands. The IMO is now preparing strategies to act on the issue, to be presented at the Copenhagen meeting in December 2009.

The regulation of emissions from international transportation would potentially mean raising costs for moving goods and people around the globe, with

implications for international trade. Certain service sectors such as tourism are likely to be particularly affected by new emissions cuts in the international transport sector. Remote small countries would also carry a disproportionate burden. While the WTO is not a forum that can intervene in this policy area at the interface and climate change and trade, the trade implications will be followed with interest.

7. Adaptation and trade - what room to manoeuvre?

As countries focus on addressing their adaptation needs, trade remains largely uncharted territory. Sectors such as agriculture that provide the greatest trade potential for many developing countries will be most affected by climate change, and therefore the most in need of adaptation. The IPCC forecasts that by 2020, rain-fed agricultural production in several African countries will decline by 50 percent. On the other hand, in temperate regions, production may increase due to warmer weather, allowing the generation of a surplus. Such changes are likely to affect patterns of international trade, with gains in some places and losses in other, making adaptation efforts even more urgent, as many poor countries depend on export revenues from agriculture. Access to adaptation technology will be one of the areas that trade will have an impact on.

Countries need resources to strengthen their resilience and to adapt to climate change. There is a strong push for adaptation funding from the main polluters to developing countries suffering the consequences of climate change. Trade-led economic growth can also help increase the resilience of communities, and as the world moves the 'Aid for Trade' agenda forward, adaptation needs should be taken into consideration.

In supporting adaptation efforts, governments are likely to focus on providing financial aid to encourage crop diversification, increase productivity and strengthen agricultural markets. How such support mechanisms affect domestic and global production, and ultimately trade in agriculture may raise critical trade concerns that are yet to be fully understood.

Overall, more work is needed to explore the complex linkages between climate adaptation and trade.

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The International Centre for Trade and Sustainable Development (www.ictsd.org) is an independent non-profit and non-governmental organization based in Geneva. Established in 1996, ICTSD's mission is to advance the goal of sustainable development by empowering stakeholders to influence trade policy-making through information, networking, dialogue, well-targeted research and capacity-building.