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# BIORES

Analysis and news on trade and environment

VOLUME 6, ISSUE 4 - DECEMBER 2012



## The APEC game changer

ENVIRONMENTAL GOODS AND SERVICES

Will the APEC EGS list help combat climate change?

NATURAL RESOURCES

Managing natural resources with trade tools

CLIMATE CHANGE

UNFCCC COP 18: South Africa's take on "response measures"



International Centre for Trade  
and Sustainable Development

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## BRIDGES TRADE BIoRES

The leading authority on news and analysis emerging from the trade and environment nexus.

PUBLISHED BY

**ICTSD**

**International Centre for Trade and Sustainable Development**

Geneva, Switzerland

[www.ictsd.org](http://www.ictsd.org)

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## ENVIRONMENTAL GOODS AND SERVICES

- 4 **APEC's environmental goods initiative: How climate-friendly is it?**  
*Mahesh Sugathan and Thomas L. Brewer*

## NATURAL RESOURCES

- 9 **Cutting to the core: Using trade tools for sustainable natural resources management**  
*Malena Sell*

## CLIMATE CHANGE

- 12 **Response Measures in the UNFCCC: A View from South Africa**  
*Brendan Vickers*

## SUSTAINABLE DEVELOPMENT

- 16 **Rio+20 and beyond: The future China wants**  
*Donald J. Lewis*

## SPECIAL MEETING REPORT

- 21 **UNFCCC Technology Executive Committee seeks more "clarity" on IPRs**

## NON-TARIFF BARRIERS

- 22 **Export Restrictions on Natural Resources: The Case of Indonesia and Vietnam**  
*Anna-Maria Fyfe*

## NATURAL RESOURCES

- 26 **How can trade benefit an increasingly water scarce world?**  
*Kate Ziemba*

## NATURAL RESOURCES

- 29 **How can African economies turn the resource curse into a blessing?**  
*Dan Haglund*

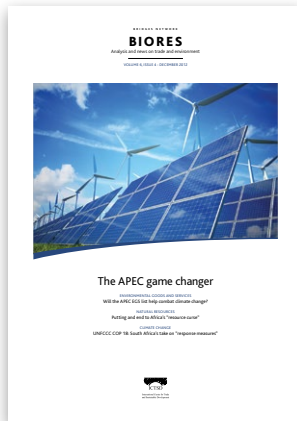
## CLIMATE CHANGE

- 32 **Climate change subsidies at the WTO: A few notes for law reform**  
*Luca Rubini*

- 36 **The newsroom**

- 38 **Publications and resources**

# The APEC game changer



*For those of us tracking trade and environment issues, the news that Asia-Pacific Economic Cooperation (APEC) countries were close to striking a deal on environmental goods was no surprise. Still, the final approval of 54 goods for trade liberalisation in September was hailed as a major breakthrough.*

*For one thing, the fact that the goods are all considered “environmental” in nature is remarkable. Indeed, while WTO member countries have been struggling for years to pin down exactly what is meant by an “environmental good,” APEC member countries forged ahead to seal the world’s first international deal on such goods.*

*It is not yet clear what effect, if any, the APEC deal will have on negotiations at the WTO. At an 18 November meeting of the WTO's Committee on Trade and Environment, Russia and Australia introduced the topic of the APEC agreement for discussion. Members were clearly divided on the issue.*

*While some said they thought the APEC deal presented an opportunity for making progress on environmental goods and services, others said they did not want it to influence talks at the WTO.*

*But despite what influence the APEC deal will have on global trade negotiations, what effect will the liberalisation of trade in the 54 goods have on the environment? ICTSD's Mahesh Sugathan and Thomas Brewer offer an extensive analysis of the goods list in this issue of BioRes Review. They explore the details of the list itself and analyse what impact the deal could have on scaling-up renewable energy opportunities and mitigating climate change.*

*With climate change on the radar of many at this time of year, this issue also features a submission by South Africa's Brendan Vickers, which identifies the ways in which trade is influencing negotiations at the UNFCCC, particularly with respect to "response measures" discussions.*

*Additionally, the issue features a series of articles on trade in natural resources, an issue that is increasingly a topic of discussion at the multilateral and regional levels. While many resources are coming under increasing pressure, a number of countries are using trade policies to manage supplies as well as imports and exports.*

*These core issues and several other trade and environment topics are explored in this last issue of 2012. Be sure to continue to follow our steady stream of news on our website and on our social networks.*

*The BioRes Team*

ENVIRONMENTAL GOODS AND SERVICES

# APEC's environmental goods initiative: How climate-friendly is it?

**Mahesh Sugathan and Thomas L. Brewer**

*The APEC agreement to liberalise trade in 54 environmental goods has drawn much attention from the trade and environment communities. This article looks at what the deal could mean for climate change.*

**O**n 9 September 2012, the leaders of the 21 Asia-Pacific Economic Cooperation (APEC) economies meeting in Vladivostok, Russia agreed to voluntarily liberalise tariffs on 54 environmental goods. Vladivostok Declaration signatories welcomed and endorsed the APEC list and committed to reduce applied tariff rates on the listed goods to five percent or less by the end of 2015.

The deal has been hailed by many observers as a political breakthrough in that it represents the first international agreement to liberalise trade on a set of goods that are considered "environmental." Indeed, World Trade Organization (WTO) members pursuing a Doha round mandate to liberalise environmental goods and services have struggled for much of the past decade to define what exactly constitutes an "environmental good."

The 54 sub-headings identified in the APEC list are subject to further refinement as so-called "ex-outs" (products that can be further subdivided because they serve two or more duties), based on national tariff classifications. The products will now need to be interpreted in the individual national tariff schedules of member countries as different APEC members may use different tariff codes and different product descriptions for the ex-outs.

While many of the products in the APEC list are crucial to addressing water and air quality issues, analysis of the details of these goods is not within the scope of this article, which is focused on climate change.

## **What categories and products matter for climate change mitigation?**

A comparison with the universe of 408 product sub-headings submitted by WTO members through both formal and informal submissions is revealing. Almost all of the 54 product groups or sub-headings in the APEC list are featured in submissions made during the course of negotiations on environmental goods at the WTO. Only two product subheadings – (1) optical devices, appliances and instruments and (2) their parts – appear to be new. It is interesting to note that these products include solar heliostats and their parts, which are used in the production of solar thermal power.

The number of products in the table listed below is preliminary and should not be considered definite, as each tariff line contains one or more sub-products that could be used for more than one environmental objective and there is certainly overlap.

It is significant that 19 products in the APEC list are associated with renewable energy generation as well as heat and energy management which is relevant to climate change mitigation. While no APEC member state has used carbon-capture categorisation for goods submitted to the APEC list, it is noteworthy that some 34 products on the APEC list have also been informally submitted by Saudi Arabia at the WTO under the category of "carbon-capture and storage technologies (CCS), gas flaring emission reduction (GFR) technologies, and efficient consumption of energy (EC) technologies."<sup>1</sup> It is not clear whether the specific APEC product descriptions correspond with the submission by Saudi Arabia, as the oil-producing country has not proposed any specific ex-outs. It may be the case that the Saudi WTO submission refers to different products under the same six-digit harmonised system (HS) subdivision, which is used to classify internationally traded goods.

Environmental Category	Number of Products (six-digit HS subdivision)
1. Environmentally Preferable Products	1
2. Air pollution Control	10
3. Management of Solid and Hazardous Waster	13
4. Water treatment and Waste-water Management	8
5. Renewable Energy	17
6. Heat and Energy Management	2
7. Clean-up or Remediation of Soil and Water	1
8. Natural Resources Protection	1
9. Environmental Monitoring, Analysis and Assessment Equipment	15

From a climate mitigation perspective it is interesting that natural gas turbines are present on the list. This raises the question as to whether natural gas-related technologies can be considered an "environmental good." While natural gas is clearly not free of emissions and often competes with renewable energy sources, it is also considered by many as a "bridge" technology that could help ease the transition towards more sustainable forms of energy. Indeed, substituting coal-fired power plants with natural-gas facilities using conventionally extracted gas could have a significant impact on emissions reductions. Shale gas extracted using fracking methods poses more complex issues about climate change mitigation.

Two intensively-traded products on the list that are potentially important for climate mitigation are wind turbines and photovoltaic (PV) solar cells and modules. Also included on the list are non-wind powered generators and alternating current (AC) generators (alternators), both of which can be combined with various renewable energy sources and also with fossil-fuel sources. This clearly illustrates the dilemma of including dual-use products on the list (i.e., products that have both environmental and non-environmental applications).

The dual-use problem has often prevented WTO members from coming to an agreement on what actually constitutes an environmental good and has led to a slowdown in negotiations. While dual-use products *could* have an environmental application, many are general industrial products where countries have sensitivities to opening up markets on environmental grounds. While the dual-use issue did not prevent APEC members from eventually reaching a deal, it likely constrained the final number of products that ultimately appeared on the list.

A number of proposed climate-related products – including thermostats, sugar-based ethanol, and compact fluorescent lamps (CFLs) – did not find their way onto the list. It could thus be argued that the list is still far from complete. Only 10 products from a list of 79 climate-friendly products identified by ICTSD,<sup>2</sup> the publisher of BioRes, and 10 products from the World Bank's list of 43 climate-friendly products<sup>3</sup> are included in the APEC list.

Another interesting issue related to the list is that in some cases, such as certain steam turbines, the final equipment is excluded but their parts are included. In other cases, such as wind-energy equipment, the main turbine and related parts are included but other important parts are excluded. The exclusion of certain parts on the list may be because of concerns with their non-environmental uses. For example, while ball bearings are a critical component in wind-power projects, only a very small part of the overall trade in ball bearings is driven by the deployment of wind technologies.

#### Asia-Pacific as an environmental goods trade hub

Trade in the specific products contained in the APEC list has been much more dynamic than manufactured products as a whole. Between 2002 and 2011, exports from APEC



## Top six APEC exporters

China  
United States  
Japan  
Korea  
Chinese Taipei  
Singapore  
Mexico

countries in the 54 listed product categories grew by 18.9 percent annually compared to just 10.5 percent for all manufactured products as a whole; meanwhile, imports on the list of 54 products grew by 16.1 percent compared to 12.1 percent for all manufactured goods.

The top five traded items in terms of value from the list are: other optical devices, appliances and instruments; PV cells and modules; other machines and mechanical appliances; automatic regulating or controlling instruments; and parts and accessories for optical devices, appliances and instruments. However, it should be noted that because trade flow data that are comparable across countries are only available for the main product category as a whole, it is difficult to estimate what proportion of total trade is made up by "environmental goods." Some exceptions to this include the category comprising wind-powered generating sets, solar panels, and LEDs.

The volume of trade for the 54 subcategories involved in the APEC region is significant, even if it makes up only a small portion of total APEC trade in manufactured goods. The top six APEC exporters – to the region as well as the rest of the world – in the 54 subdivisions are China (US\$86.7 billion in 2011), the US (US\$49.1 billion), Japan (US\$48.7 billion), Korea (US\$42.6 billion), Chinese Taipei (US\$27.41 billion), Singapore (US\$14.3 billion), and Mexico (US\$8 billion). The top six importers are China (US\$88.8 billion), the US (US\$48.9 billion), Korea (US\$17.6 billion), Hong Kong (US\$15.2 billion), Japan (US\$14.8 billion), and Mexico (US\$14.2 billion). Thus the top exporters and importers are nearly the same group of countries and, with the exception of the US and Mexico, all are in Asia. The numbers clearly demonstrate the relevance of Asia to trade in these products as well as its key role in shaping any similar agreement at the multilateral level. However, it should be borne in mind that the data also include trade in "non-environmental" goods that are captured under the 6-digit HS codes.

For most products on the APEC list, applied tariffs are already quite low, often below the 5 percent threshold identified in the Vladivostok Agreement or even at zero. However, in the case of wind-powered generators, several APEC economies (Brunei, China, Chinese Taipei, Chile, Indonesia, South Korea, Mexico, and Thailand) have tariffs greater than 5 percent – in the case of Brunei, Chinese Taipei, and Indonesia tariffs are 10 percent or higher. The vast majority of APEC tariffs for the 54 product sub-headings or categories are already at 5 percent or less and more than half are zero. The overall simple average of tariffs is only 2.6 percent. However, further tariffs reductions are still relevant in other cases. For example, according to the latest WTO tariff data, several APEC economies (Brunei, China, Chinese Taipei, Chile, Indonesia, and South Korea) have tariffs greater than 5 percent on wind-powered generators. China imposes tariffs of about 14 percent on auxiliary plants for use with boilers (HS 840420), and Indonesia, South Korea, the Philippines, and the US also have tariffs of over 5 percent for all national tariff lines under this position.<sup>4</sup> Some APEC economies apply relatively high tariffs to non-electric water heaters, including solar water heaters. For example, applied rates in China are 35 percent and rates for Mexico, Thailand and Vietnam are all set at 10 percent. Another example includes alternators and electric generating sets/rotary convertors where applied rates for Brunei are 20 percent.

Subheadings in APEC economies (excluding Russia) by maximum MFN applied tariffs	Number of		MFN applied rates, simple average		
	Sub-headings	Tariff lines	Average rates	Min rates	Max rates
Above 10%	110	419	10.9	5.9	15.9
Above 5% but below 10%	124	360	6.1	5.0	6.9
5% or less	842	1821	1.0	0.9	1.2
- of which duty-free	579	1146			
Total	1076	2600	2.6	1.9	3.3

Source: WTO, using Tariff download facility

## Top six APEC importers

China  
United States  
Korea  
Hong Kong  
Japan  
Mexico

Multiple national tariff lines often exist for various products under the 54 tariff positions and tariff cuts would be necessary only if an identified environmental good is imported with a rate that is over 5 percent. It would thus be necessary to consider national tariff schedules, taking into account any additional relevant product specifications stated in Annex C of the APEC declaration. Some member economies – including Australia, Hong Kong, Japan, Papua New Guinea, New Zealand, and Singapore – do not have a single tariff line of more than 5 percent and, as such, are already in compliance.

### Future implications and the road ahead

Unlike many other Regional Trade Agreements (RTAs), the benefits of the APEC outcome will also be extended to non-participating economies such as the EU, Brazil, India, and South Africa. This raised the question: Would it be better if these countries had also joined such an initiative? In many of these economies, applied tariffs on climate-friendly goods such as solar panels and wind-turbines are already at zero or only slightly above the 5 percent threshold. These countries are important markets or potential growth markets for APEC economies and, for products where applied tariffs are significantly higher than 5 percent, efforts to reduce those tariffs, either voluntarily or as part of a formal agreement, could also help lower domestic costs of environmental technologies.

The APEC outcome could also provide an important and positive “signalling” effect to the WTO as well as to other regional trade blocs that want to undertake similar initiatives. While some observers have been critical of the lack of enforceability of the APEC outcome, the voluntary, non-binding nature of APEC decisions could have been a factor in ensuring a successful environmental goods agreement and likely encouraged members to be bolder than they would have been at the WTO. Further, given the political weight behind any APEC ministerial decision, it seems unlikely that members would attempt to raise tariffs once lowered. That said, Annex C of the APEC declaration also recognises that the tariff reduction would take into account economies’ economic circumstances and be without prejudice to their positions in the WTO.

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*The APEC outcome could also provide an important and positive “signalling” effect to the WTO as well as to other regional trade blocs that want to undertake similar initiatives.*

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APEC’s total exports for products on the environmental goods list amounted to some US\$270 billion in 2010 – over 70 percent of world exports (excluding intra-EU trade). In the case that non-APEC members, such as the EU, also voluntarily lower their tariffs and extend benefits on a most favoured nation (MFN) basis, this would mean an even greater trade coverage of these products – over 85 percent of world imports. However, as stated earlier, the trade values data also include a number of “non-environmental” goods within the same tariff lines.

Voluntarily lowering actual applied tariffs by WTO members and maintaining these levels over a period of time would likely make these economies more comfortable with agreeing to legally-binding commitments at the WTO once the atmospherics for a multilateral trade deal improve.

For the various environmental goods ex-outs already listed within each of the 54 tariff subheadings, members planning to introduce tariff reductions may need to engage in technical work to clarify the application of the list to their respective national codes and product descriptions. This is to ensure there is a common understanding on what products precisely are being liberalised in the context of their national tariff schedules. In addition to tariffs, non-tariff barriers – such as local content requirements, subsidies, and

restrictive standards – could impede greater trade flows in these products. Government procurement practices could also restrict trade.

APEC's 2010 Honolulu declaration mandates member states to eliminate local content requirements that distort trade in environmental goods and services by the end of 2012 and refrain from adopting new ones included as part of domestic clean energy policy. It also asks APEC members to ensure consistency of all government procurement policies with the 1999 APEC Non-Binding Principles on Government Procurement. These are important non-tariff measures that often have a greater impact on trade than tariffs do. From a climate perspective, while trade in environmental services will also be important, they have thus far not been addressed.

Does the APEC agreement match up to what is feasible and desirable as a trade-policy deliverable for the environment, including climate change mitigation? Views on this may differ. Clearly there is much work still remaining both within and outside APEC, particularly on non-tariff measures, services, and rules. Given the reality of the negotiating climate, the APEC agreement was perhaps the best that could have been achieved under the circumstances.

There is no doubt however that the APEC outcome, as well as the process itself, has provided useful lessons and sets a positive and politically significant precedent for other possible environment-related trade initiatives, such as those on sustainable energy, at the regional as well as multilateral levels. It will also help policymakers in the course of time to better understand the impact and viability of such initiatives and perhaps go further in terms of ensuring that trade policy truly delivers on climate change mitigation.

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- ❶ See WTO Committee on Trade and Environment Special Session, Report by the Chairman, Ambassador Manuel A. J. Teehanke, to the Trade Negotiations Committee for the purpose of the TNC stocktaking exercise, TN/TE/19
  - ❷ See Annex A, page 82 in ICTSD; (2011); *Fostering Low Carbon Growth: The Case for a Sustainable Energy Trade Agreement*; accessible at <http://bit.ly/TRpQ2l>.
  - ❸ See p.130-132. World Bank (2007), *International Trade and Climate Change: Economic, Legal and Institutional Perspectives*, accessible at <http://bit.ly/SaHe3g>.
  - ❹ WTO tariff download facility



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NATURAL RESOURCES

# Cutting to the core: Using trade tools for sustainable natural resources management

Malena Sell

*Trade tools are often overlooked as a means to help manage resource sustainability. This article helps identify how trade policymakers can play a role in ensuring resource sustainability and managing environmental risks.*

Establishing a long-term approach to resource sustainability that is widely acceptable to a diverse group of actors will be a monumental task. One of the most difficult challenges is that resource sustainability debates tend to be compartmentalised according to sectors, often take place in a range of different forums, and involve a diverse group of actors.

Moreover, while countries have been increasingly likely to resort to using trade policy tools – such as export restrictions or standards and labels – to seek to manage sensitive natural resources supplies in recent years, comprehensive discussions have been broadly absent in trade policymaking circles. This is a missed opportunity for policymakers, as trade can cut to the core of current concerns regarding resources sustainability and environmental risks.

## Key resources: water, minerals, food, energy

Demand for food and other natural resources is being driven by continued global population growth, massive consumption rates in the developed world, and a rapidly growing middle class in emerging economies. While natural resource prices slowly declined over the course of the last century, the last ten years have seen a reversal of this trend, with price spikes and volatility becoming the new normal. With up to three billion more middle-class consumers projected to be added to emerging economy populations over the next two decades – compared to an estimated 1.8 billion today – demand for a range of goods from meat to cars is expected to surge.

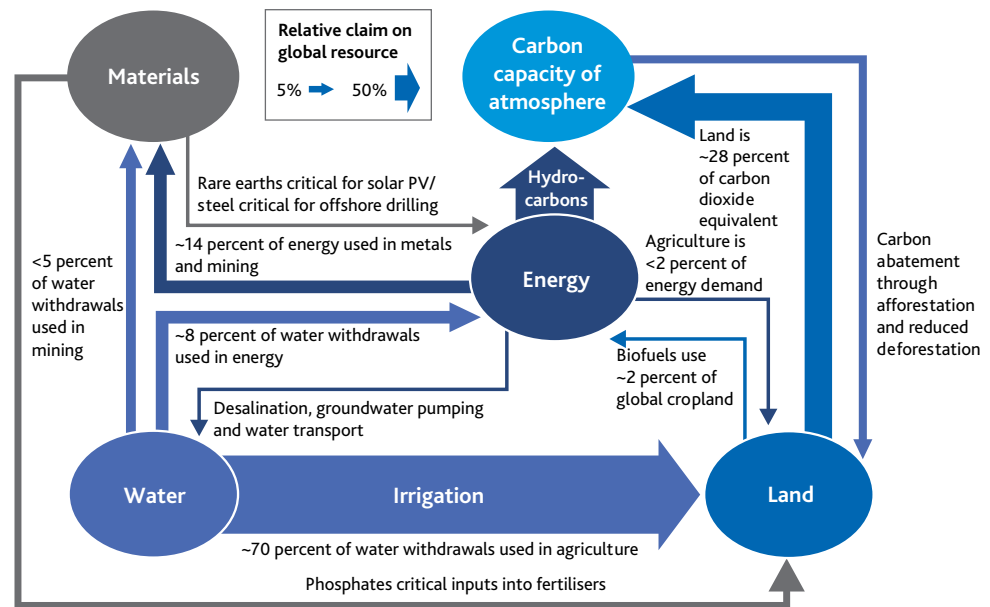
With natural resource supplies becoming increasingly difficult to source and the extraction process becoming more challenging and expensive, recent increases in global demand are placing pressure on the system. Adding to this complex picture is a noticeable change in supply chains, with an increasing share of resource-rich countries moving into the producing sector and the web of global value chains becoming ever more spread out and multifaceted. This will clearly impact future resource competition. In many cases, countries are also becoming more concerned over the negative environmental impacts, or externalities, associated with the actual resource extraction or exploitation, and taking stronger measures to address them. In addition, resources and resource prices are becoming more strongly interlinked (see figure 1).

## Consumption-based emissions and environmental impacts

Global production and consumption processes are associated with significant environmental externalities, ranging from carbon emissions to air and water pollution, to loss of natural habitats and biodiversity. However, these pressures are not equally experienced across countries, due to different profiles of productive sectors, wide variances in environmental regulatory frameworks, and differing levels of development. In addition, in a deeply integrated and globalised economy, environmental effects are often felt far from the point of consumption.

One way of making resource use and externalities more visible is through tools used to calculate embodied carbon, embedded or virtual water, and/or the ecological footprint associated with traded goods. These tools highlight problems that are not being captured by market prices, and thus are not influencing production and consumption choices. Some

**Figure 1:** The high degree of linkages among resources means strong demand for one can spread to others



Source: McKinsey analysis

of these tools can be used for public awareness raising or policy-making purposes. Others are most suited for use within companies, which can identify and address environmental "hotspots" or capture opportunities for improving resource efficiency across value chains.

These various foot-printing tools can all be applied at different levels, but are often applied at the aggregate level, and can be tailored to trade flows between countries. Sustainability standards and labels, for their part, focus more closely on specific products and often rely on consumer behaviour to affect change.

### Changing sustainability standards in a changing world

Sustainability standards and labels have grown tremendously in scope and coverage over the last two decades, becoming somewhat of an unwieldy jungle to navigate. Both public and private standards exist, and cover multiple concerns from environmental, to social, to fair trade. Meanwhile some standards focus very specifically on one issue, such as energy efficiency. The standards also differ based on how they are developed, from simple processes to complex and inclusive multi-stakeholder ones, such as the Round Table on Sustainable Palm Oil (RSPO).

Standards also vary from private sector-driven, company-specific sourcing requirements – such as the Nestle Responsible Sourcing Guidelines – to standards with a much broader target audience. Some of the broadest requirements are related to certified timber in the EU, where their chains of custody must be legal and documented from cradle to grave in order for them to be imported to the EU. This programme is part of a holistic package aimed at strengthening forest law and governance in the country of origin.

Depending on the level of adoption in a given country, labels on final products found on supermarket shelves are now familiar to many consumers. Here, choices in support of sustainability lie directly with the consumer. Government procurement of sustainable goods and services is another significant driver and market creator.

While every discussion around sustainability standards seems to echo the same call for greater streamlining and coordination, in practical terms the process appears to be heading in the opposite direction. A few years down the road, detailed and targeted sustainability specifications may be no different from any other technical or quality specification in the eyes of the procurer. In this context, traceability through the chain of custody will be challenging but most relevant in terms of robustness and credibility of any scheme. Failure

to comply is an ever-increasing risk – everywhere in the world, someone will be present with a mobile phone in their hand and access to social networks in real time.

While both standards and labels provide opportunities for positive product differentiation and access to rapidly growing markets, the fact that they may create market barriers is a well-known and well-articulated concern.

### **Pin-pointing the role of trade in sustainable consumption and production**

Standards, labels, and tools to understand the embodied resources in traded goods provide a partial solution to achieving sustainability and resource efficiency. What they fail to do is connect deeply into the wider debate on sustainable consumption and production. Over the past decades, production has to a large degree dematerialised in developed countries, and environmental externalities have decreased. However, with OECD countries accounting for 78 percent of global consumption in 2010 and the US alone accounting for 32 percent, consumption clearly has not, which suggests that some environmental externalities have been "outsourced."<sup>2</sup> If the world is to embark on a trajectory of sustainable natural resource management and minimise environmental risk, both the quality and quantity of consumption – and its distribution – will eventually have to be discussed in forums beyond those dedicated to environmental issues.

While the concept of sustainable consumption and production remains politically controversial and challenging to implement, it could gain new relevance if viewed through the lens of trade and trade policy. The carbon, water, and ecological footprints of our consumption is beginning to be better understood. However, until the trade angle is effectively accounted for, the analysis can only be partial. While there is growing public awareness and the private sector is increasingly responding to consider both consumption patterns and resource efficiency, there is no real debate in this area that would draw in and involve the trade community.

### **Elements for discussion**

Future trade patterns and countries' strategic positioning will be increasingly responding to scarcity and price volatility. Policies in support of sustainable management, production, consumption, and trade of natural resources could provide much-needed stability and predictability. In addition, consumption-based environmental externalities would merit more discussion from a trade angle. Indeed, how could trade policy be crafted to support a radical shift toward resource efficiency, including the technological innovation and scale-up necessary to support this shift? How could the power of sustainability standards and labelling be harnessed to ensure that the products – and their production processes – become mainstream rather than remain niche? How can they be set up so as to be inclusive, not exclusive?

While these disparate trade and environment elements are often discussed in different forums, the "new generation" of free trade agreements (FTAs) – which often include environment chapters and consultative processes – could help bring them together. They could provide a new model for innovative thinking, debate and piloting tools for addressing sustainable natural resources management and trade in tandem. Discussion could be held already at the negotiations phase on the quality and locus of growth that the FTAs are set to underpin and the associated environmental dimensions. In addition, public-private collaborative efforts across markets and value-chains, could serve to help facilitate higher resource productivity and sustainable consumption and production patterns.



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<sup>1</sup> McKinsey Global Institute (2011). Resource Revolution: Meeting the world's energy, materials, food, and water needs.

<sup>2</sup> Schaper, Marianne (Bridges Trade BioRes Review, Volume 6, Issue 3; July 2012). The consumption, production and trade nexus: A structural approach for Rio+20.

CLIMATE CHANGE

# Response Measures in the UNFCCC: A View from South Africa

Brendan Vickers

*A South African perspective on the role of trade in climate change UNFCCC negotiations as negotiators meet in Doha.*

One of the highly contested and controversial areas of the international climate change negotiations involves the economic and social consequences of response measures. In broad terms, "response measures" refers to the range of actions that developed country parties to the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol should undertake to reduce their greenhouse gas emissions.

However, when implementing their mitigation commitments, the UNFCCC enjoins developed countries to take into full consideration the specific needs and concerns of developing countries arising from the adverse effects of climate change and/or the impact of the implementation of response measures. The Kyoto Protocol furthermore states that parties should "strive to implement policies and measures...in such a way as to minimise adverse effects, including the adverse effects of climate change, effects on international trade, and social, environmental and economic impacts on other Parties, especially developing country Parties."

While these policy and regulatory measures may be necessary to combat climate change and advance the transition to a green economy, many developing countries (including South Africa) are concerned that their design and implementation could potentially create trade distortions or new forms of "green protectionism." This is most obvious in the case where response measures include emission trading schemes (ETS), border carbon adjustments (BCA), subsidies and non-tariff barriers, including public or private standards. With regard to the latter, many developing countries are concerned about the growing number of "voluntary" environmental labelling schemes that are being considered or piloted in several developed countries, despite the absence of robust and internationally agreed science and methodologies in this area.

Several of these "response measures" have been proposed by developed countries, while others are already in operation and impacting negatively on South Africa. For example, South African industry was very concerned about the cost-raising effect of the European Union's unilateral implementation of an ETS for aviation since 1 January 2012. We have therefore welcomed the European Commission's recent decision to temporarily suspend the ETS for one year for flights to and from non-European countries. As European importers seek to "green" their supply-chains, there are growing pressures on South African wine producers to export wine in bulk – as opposed to branded glass packaging – ostensibly on climate-related grounds. The latter is negatively impacting local packaging industries and jobs, and undermining a just transition to the green economy for South Africa's workforce, which already confronts some of the world's highest levels of unemployment.

There is also growing evidence that some environmental labelling schemes that are currently being trialled by developed countries could create obstacles to market access, especially for South African exporters who find it both technically difficult and costly to comply with a confusing range of private sector initiatives. To avoid the proliferation of climate measures impacting adversely on international production and trade, Article 3.5 of the UNFCCC states explicitly that: "Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade."

### **Shifting global competitiveness**

Notwithstanding this proscription, there are emerging signs of "green protectionism" in the world economy, reflecting the relative shift in global growth and competitiveness from North to South and West to East. The UNFCCC negotiations should be understood within this structural context.

While the "Great Recession" and ongoing Eurozone crisis have left most developed regions with high levels of debt and weakened competitiveness, the rising economies of the South have emerged stronger from the crisis with stable and sustainable debt levels, and increased competitive positions. As global competition intensifies, protectionist sentiment in major developed countries has become more evident across multiple multilateral engagements. In the WTO's Doha Round, for example, developed countries have demanded further market opening from advanced developing countries in the areas of industrial tariffs and services, whilst refusing to make reciprocal concessions in agriculture. Similar dynamics are at play in the climate change negotiations, where developed countries insist that emerging economies carry greater responsibilities for mitigating climate change. These demands have steadily eroded the developmental principles underpinning both the WTO and UNFCCC negotiations.

Within this context of shifting global competitiveness, there is the risk that response measures to mitigate climate change may be designed in a protectionist manner or implemented unilaterally by industrialised countries, thereby distorting international production and trade. Developing countries (and African countries specifically) may be adversely affected and trade constrained by these measures; unable to provide comparable support or subsidies to their industries; unable to meet new standards or introduce their own; and have little real access to technology and finance.

### **South Africa and response measures**

It is for these reasons that South Africa has participated actively and constructively in this specific negotiating pillar of the Bali Action Plan. As a heavily carbon-intensive economy – with 90 percent of electricity generated from coal – South Africa appears particularly vulnerable to response measures in the area of trade and trade-related policy.

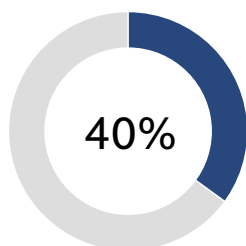
Already 40 percent of South Africa's greenhouse gas emissions are due to the export of carbon-intensive goods. This is significant for an economy like South Africa, where 60 percent of gross domestic product (GDP) is generated from international trade. Although no BCAs are currently in operation, scenarios for future regimes suggest that South Africa's heavily carbon-intensive exports may be taxed. The products most at risk are mining and beneficiated minerals (e.g., gold, iron, steel, platinum, and aluminium) and manufactured goods (e.g., paper and chemicals). A study by the International Centre for Trade and Sustainable Development (ICTSD) estimates that 28.1 percent of South Africa's exports to the EU may attract border taxes, which is significant since the EU represents approximately 30 percent of South Africa's overall trade.<sup>①</sup>

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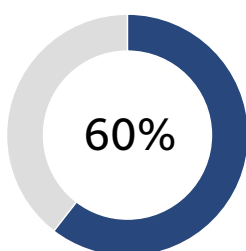
*Mining and minerals processing are capital-intensive industries that utilise considerable amounts of energy, and require heavy infrastructure investments.*

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The aspirations of smaller African countries to benefit more from the commodities cycle and improved terms of trade by refining, processing, and "beneficiating" their own minerals and commodities may also place the exports of these countries at the risk of future border taxation. Mining and minerals processing are capital-intensive industries that utilise considerable amounts of energy, and require heavy infrastructure investments. Even if the imposed carbon cost is low, the administrative costs may be very large and thus affect these countries' exports.



Percentage of South Africa's GHG emissions resulting from the export of carbon-intensive goods.



Percentage of South Africa's GDP generated by international trade.

Response measures are also linked to the discussions underway in the UNFCCC and other multilateral bodies regarding bunker fuels used in shipping and aviation. South Africa's distance from its major markets suggests that the country is again placed in a very precarious position. Relative to some of the country's competitors in the world market, nautical distance may increase the carbon footprint of South African exports of goods (e.g. raw materials) and services (e.g. long-haul tourism to South Africa and the Southern African region). ICTSD has estimated that South Africa is the second most vulnerable country, after Chile, on a "distance trade weighted" basis.<sup>2</sup> Since South Africa is a bulk commodity exporter, the cost of transport is much higher for raw materials as a percentage of the cost of the product than, for example, high-value electronics.

The majority of Africa's agricultural and horticultural exports are also destined for the more environmentally sensitive developed country consumer markets, which require long distance shipping or air freight. South Africa has therefore joined other African countries and international partners in opposing the EU's unilateral implementation of the ETS for aviation, given the cost-raising effect and economic impact on South Africa and the wider Southern African region (since many countries use South Africa as a regional gateway or hub). As noted earlier, the European commission recently announced the suspension for a year of the ETS as it affects non-European airlines, including African airlines.

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*The majority of Africa's agricultural and horticultural exports are also destined for the more environmentally sensitive developed country consumer markets, which require long distance shipping or air freight.*

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However, opportunities for South Africa may also arise from the transition to the green economy. Some of South Africa's biggest exports, such as catalytic convertors for vehicles, are driven by environmental standards in many developed countries. The South African Government is also using industrial policy and innovative public-private financing partnerships, such as the South African Renewables Initiative, to promote a green economy transition and develop green industries – specifically wind and solar, with strong local content to support the country's industrialisation. Consideration is also being given to a domestic carbon tax.

#### **Response measures from Durban to Doha**

Despite several negotiating deadlocks, from South Africa's perspective there has been substantial progress on response measures over the past two years. An important yet often overlooked achievement is that the response measures debate is no longer framed narrowly in terms of the concerns raised by countries dependent on the export and processing of fossil fuels. Indeed, there is now general recognition that response measures may impact on all developing countries and that these impacts may be positive or negative, depending on their design and implementation. South Africa therefore supported and welcomed the decision in Durban to establish the "Forum on the Impact of the Implementation of Response Measures." The forum held its first session at Bonn in May 2012, where it agreed on a work programme for the next two years. The second session of the forum will take place at the UNFCCC's Eighteenth Conference of the Parties (COP 18) in Doha, Qatar.

The establishment of this dedicated forum allows developed and developing countries to engage in an open, direct and exploratory dialogue and exchange of views on the actual and potential socioeconomic impact of envisaged climate measures. If approached in a constructive manner, this process can contribute toward building trust and confidence among the parties, promote transparency in climate policies and climate actions, and assist developed country policymakers to better evaluate the impact of their response



measures to combat climate change, especially on poorer and more vulnerable nations. Consideration should therefore be given to establishing the forum as a permanent body.

There is one unresolved matter that Doha will need to address, particularly in order to conclude the work of the Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA) under the Convention. This involves the treatment of "unilateral measures" to combat climate change. A Like-Minded Group that includes the Africa Group insists that in order to contribute towards the full, effective and enhanced implementation of the Convention, it is important that parties broaden the understanding of Article 3.5, namely: "Measures taken to combat climate change, including unilateral ones, should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade."

This ongoing debate on how to address unilateral measures will not be a new issue at Doha. India had previously proposed this matter as an agenda item for COP 17 in Durban. The importance of disciplining unilateral measures was also reaffirmed at the Rio+20 Summit earlier this year, where it was agreed that: "States are strongly urged to refrain from promulgating and applying any unilateral economic, financial or trade measures not in accordance with international law and the Charter of the United Nations that impede the full achievement of economic and social development, particularly in developing countries." However, other parties do not agree that there is a mandate to work specifically on unilateral measures. They insist that such discussions should be addressed properly under the forum, which is tasked with "consolidating" the response measures process.

There is some debate about what "consolidation" entails. Again, the Like-Minded Group has suggested that the forum, which has a limited life-span to COP 19 when its work will be reviewed with a view to extension or not, should deal with technical work, including information-sharing, modelling and studies. By contrast, the Convention should set the legal, normative and policy parameters governing response measures to combat climate change – beyond the limited life and existence of the forum. Hence, additional work is required here. It is unclear what the outcome on this matter will be in Doha. Nonetheless, South Africa and our Africa Group partners remain committed to participating constructively in these negotiations, given the importance to Africa of this particular pillar of the Bali Action Plan.

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① ICTSD, "EU Climate Policies and Developing Country Trade Vulnerability: An Overview of Carbon Leakage-Sensitive Trade Flows". [Issue Paper No. 19](#).

② Monkelbaan, Joachim, "Transport, Trade and Climate Change: Carbon Footprints, Fuel Subsidies and Market-based Measures". [ICTSD Working Paper, November 2011](#).



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SUSTAINABLE DEVELOPMENT

# Rio+20 and beyond: The future China wants

Donald J. Lewis

*The future of China's sustainable development in a post-Rio+20 world. A look at the green economy, innovation, and trade implications.*

China is currently in the midst of yet another historic revolution – a visionary, all-pervasive, “green” revolution. Over the past decade, China has moved rapidly to institute an ambitious, comprehensive, nationwide sustainable development strategy that is not only transforming the Chinese ecological landscape, but also triggering fundamental structural adjustments in the economy. China's current sustainability efforts, to a significant extent, track many of the sustainable development (SD) proposals, policies, and programmes advanced by the international and Asia Pacific communities dating back some two decades to the original Earth Summit in 1992 and most recently expanded upon at the United Nations Conference on Sustainable Development (UNCSD) Rio+20. Indeed, much of what was discussed and advocated at Rio+20 in terms of growing a greener economy is already a living, actionable reality in China. Across a range of SD areas, China is poised to become a green global leader.

## Transition to a green innovation development model

Historically, China has not shown strong interest in environmental issues. Throughout the 1980s and early 90s, as China embarked on wide-ranging economic reforms to create a “socialist market economy,” roughly along western lines, and massively industrialise the country, the Chinese leadership was concerned almost exclusively with standard Asian models of economic development and poverty alleviation and neglected the severe impacts such a development strategy wracked upon the natural environment as well as on the life, health, and well-being of Chinese citizens. Environmental law and policy took a distant backseat to the more urgent diktat of industrialisation, domestic economic reforms, and foreign trade and investment prerogatives. Environmental institutions, such as the antecedent National Environmental Protection Agency (NEPA) – now the Ministry of Environmental Protection (MEP) – operating at the sub-ministry level until 1998 and its local bureaus, were known to be weak actors in the Chinese administrative bureaucracy. However, sea changes in the Chinese leadership's approach to sustainable development and environmental protection began to appear in the mid-1990s and have dramatically accelerated in the first 12 years of the 21st century, with China's increasing participation in international organisations and treaty negotiations, particularly its ratification of the Kyoto Protocol in 2002 – albeit without firm commitments to reduce greenhouse gas (GHG) emissions – support for the Bali Action Plan 2007, and full engagement in ensuing United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) meetings in Cancun and Durban as well as other UN-sponsored environmental forums up to and including Rio+20. This increased international exposure and participation has altered China's developmental perspective, opening up new vistas for Chinese policymakers to evaluate the earth's environmental and resource exigencies, which have in turn contributed to a fundamental re-formulation of China's economic development model to comprehensively embrace sustainable development and the green economy.

The policy considerations underlying China's “ecologising of economic governance” have been manifold. Recognition by the Chinese leadership of the consequences of China's extensive carbon and other GHG emissions footprint and the detrimental implications for global climate change have demonstrated the fundamental unsustainability of the traditional western industrialization model in the 21st century for large developing countries seeking to modernise. This has directly led to China establishing public targets/commitments to reduce energy intensity and carbon, sulphur dioxide (SO<sub>2</sub>), and other

## US\$1.5 tn

Amount of government support provided by China for new green-focused, innovation-driven development over a five year period.

GHG emissions up through 2020. There has also been the stark realisation among the Chinese of the finite scarcity of the earth's natural resources, with the supply of fossil fuels and other strategic resources, including mineral wealth, insufficient over time to meet the development demands of all countries, particularly the voracious industrial appetite of the Chinese economy. This is what has been termed the resource revolution. Severe ecological degradation, engendered by largely unchecked intensive industrialisation under China's earlier development model, including nearly toxic levels of air, water, and soil pollution in certain parts of the country; population pressures and migration; unprecedented increases in urbanisation over the last decade; and vulnerable dependencies on foreign fossil-fuel supplies, particularly foreign oil imports, have all contributed to this fundamental paradigm shift in favour of growing a green economy in China. It is noteworthy that in adopting a sustainable economic development model, China, unlike many developing countries, has apparently rejected notions that economic competitiveness and sustainable development are somehow adversaries.

However, what is perhaps most distinctive about the new Chinese economic development model for a future-oriented green economy is the pairing of sustainable development with innovation and technological advancement of the Chinese economy. In terms of comprehensive, overall national planning, the 12th Five-Year Plan for National Economic and Social Development (12th FYP) (2011-15) covers both green economy and innovation programmes. However, below this macroeconomic threshold of national planning, there exist discrete, more detailed national plans, promulgated by the State Council or the National Development and Reform Commission (NDRC), including: The National Sustainable Economic Development Plan (2011-15, currently pending approval by the State Council); the Medium- and Long-Term Renewable Energy Development Plan (2005-2020); the Medium- and Long-Term Science and Technology Development Plan (2006-20); and the recently released 12th Five-Year Plan for the Development of China's Strategic Emerging Industries (2011-15), among others. Key ancillary enactments include the PRC Renewable Energy Law (2005, amended and effective 2010) and the State Council Decision on Accelerating the Fostering and Development of Strategic Emerging Industries (2010).

China's clearly articulated current development goals envisage technological innovation as the core of its national development strategy, accomplished in many cases through the realisation of green economy initiatives. In this regard, the Chinese leadership aims to vault the economy up the value chain, away from cheap labour-intensive production toward high value-added, technology-intensive goods and services, which are, at the same time, environmentally friendly. Technological leapfrogging is the means to this end, and this will often implicate the development of Chinese green industries as well as the eco-transformation of China's mega-cities.

This coupling of SD and innovation is most clearly evident in China's plans, policies, and regulations related to so-called indigenous innovation and the growth of China's "strategic emerging industries." In relation to China's strategic industries development, it is remarkable that most of the seven identified priority sectors, which are intended to raise substantially the technological level of the Chinese economy, are in fact "green" industries: energy efficiency and environmental protective industries; biotechnology; alternative energy industries (i.e., renewables); new materials; and clean-energy automotive industries.

Backing up this new green-focused, innovation-driven development model is the tremendous heft of unprecedented Chinese government support. For strategic industries development alone, the Chinese government at national and local levels is investing US\$1.5 trillion over a five-year period. Broad-based support for strategic industries and indigenous innovation is available in the form of grants, subsidies, promotion funds, venture capital support, soft loans, guarantees, and generous tax incentives. Separate additional substantial funding to Chinese industry includes science and technology research and development (R&D) allocations. China's gross expenditure on R&D in 2011 is estimated to have been US\$153 billion (in purchasing power parity terms), second only

## US\$468 bn

Amount invested by Beijing in green sectors under the 12th Five Year Plan.

## US\$211 bn

Amount spent by Beijing in green sectors under the 11th Five Year Plan.

to the United States. R&D spending as a proportion of gross domestic product (GDP) is targeted to increase from 1.75 percent in 2010 to 2.5 percent by 2015, among the highest for of all countries, according to the World Bank. Moreover, separate additional government funding and incentives are also available for specific categories of SD industries, such as renewables, as evidenced by government-mandated feed-in tariffs and the Golden Sun subsidy programme for photovoltaic (PV) solar installations. Under the 12th FYP, the Chinese government is investing US\$468 billion in green sectors compared with US\$211 billion in the previous five years, with a focus on three sectors: waste recycling and re-utilisation (i.e., circular economy); clean technologies; and renewable energy.

These staggering amounts of Chinese government funding and their attendant incentives, although primarily intended for Chinese domestic enterprises, may also be accessed by foreign investment enterprises (FIEs) operating in China and by foreign technology suppliers or investors involved in technology transfer and/or cooperation with Chinese entities, if certain qualifying criteria are satisfied. In this regard, it is clear that the Chinese government, recognising that many of the world's cutting-edge technologies are currently the intellectual property (IP) of western and Japanese companies, welcomes collaborative innovation and technology cooperation with a view to the development of its green and strategic industries and the nurturing of new, improved technologies in China. Several governments, including the US, are supportive of collaborative innovation between Chinese and foreign companies and have provided their own funding and/or other forms of government support to promote such technology cooperation. Inevitably, however, issues of sufficient levels of IP protection in China have continued to act as a significant brake on the exuberance of foreign technology suppliers contemplating participation in such lucrative collaborative innovation arrangements. To counter such reservations, the Chinese government has worked conscientiously to construct an IP protection regime that is compliant with the World Trade Organization, providing a range of safeguards, including civil and administrative remedies as well as criminal sanctions for IP infringements, related to patents, copyrights, software, trademarks, and, to a lesser extent, trade secrets. Other concerns of foreign suppliers of technology and investors have included equity caps on foreign ownership of green or strategic companies in China and, particularly, regulatory exhortations that foreign corporations transfer "core IP rights" in order to qualify for benefits associated with investment in Chinese strategic industry, indigenous innovation, and green energy projects.

### Rio+20 developments

The Rio+20 conference, which concluded on June 22 and involved the participation of more than 190 countries and governments, pursued a much-touted agenda that sought to focus global attention on the advent of the green economy and the need for institutional governance reform in support of sustainable development. Rio+20 achieved some progress in generating consensus on certain green economy issues and initiatives with a modicum of forward movement accomplished with respect to institutional reform, particularly an enhanced prospective role for the United Nations Environment Programme (UNEP).

Rio+20 results included: the official Rio+20 Outcome Document – a report entitled "The Future We Want" – and numerous policy recommendations emanating from the Corporate Sustainability Forum as well as a raft of voluntary commitments adopted by various interested stakeholder groups. "The Future We Want" reports that consensus was reached on further mainstreaming SD in development strategies and the operation of national economies, recognising that the achievement of comprehensive SD requires an integration of all three pillars: economic, social, and environmental.

The Outcome Document dedicates an entire chapter to addressing the challenges and opportunities presented by the green economy. The Outcome Document appropriately situates the green economy within the context of overall sustainable development and poverty eradication and further affirms that policies for the green economy should be guided by and in accordance with the Rio Principles, Agenda 21, and the Johannesburg

Plan of Implementation, while contributing to the achievement of relevant internationally agreed development goals, including the Millennium Development Goals (MDGs).

The UNCSD also affirmed that green economy policies should observe certain guiding principles. Among these, government green policies should be consistent with international law; respect each country's national sovereignty over its natural resources; and be supported by "enabling frameworks" and well-functioning institutions at all levels. They should also be inclusive with respect to all relevant stakeholders, including civil society. At the same time, the Rio+20 Outcome Document acknowledged that national governments have considerable independent policy space to craft their own green economy national development strategies.

Significantly, Rio+20 recognised the interlinkages between the green economy, technology advancement, and innovation. Paragraphs 269-71 of the Outcome Document specifically address technology transfer, innovation and IP rights in relation to green technologies for developing countries. Paragraph 269, in particular, recalls the "provisions on technology transfer, finance, access to information, and intellectual property rights as agreed in the Johannesburg Plan of Implementation," which refers to technology transfer of environmentally sound technologies (ESTs) to developing countries "on favorable terms, including on concessional and preferential terms, as mutually agreed."

The backdrop to the inclusion of these green technologies provisions in the Outcome Document was highly contentious and reflects a serious, ongoing divide between developing and developed countries. The US and other developed countries were resistant to references to "technology transfer" and "IP rights" in the Outcome Document, owing to concerns about potential compulsory licensing of IP rights and the imposition of technology transfer requirements by developing countries. Such reluctance was triggered in part by demands made by the G-77 and China in submissions to Rio+20 for a new "technology transfer mechanism" to promote SD in developing countries. This transfer mechanism and related measures were aimed at providing increased access to ESTs by means of a so-called balanced approach to IP rights, the use of TRIPS "flexibilities," and arrangements such as patent pools, among other modalities.

Notably, the UNCSD in the Outcome Document also lends support for "green domestic product" and "green accounting" initiatives. The Outcome Document requests the UN Statistical Commission to coordinate with other UN bodies, including UNEP and other organisations, to identify new approaches for measuring natural capital and progress in achieving a green economy that go beyond standard GDP indicators to include ecosystems, biodiversity, natural resource scarcity, pollution levels, and social exclusion factors. Moreover, Rio+20 adopted the voluntary 10-year Sustainable Consumption and Production Framework, covering a variety of sectors that range from tourism to government procurement, aimed at ramping-up public spending for goods and services that maximise environmental and social benefits. Perhaps the most laudatory achievement of Rio+20, in the view of Gro Harlem Brundtland and others, is the ground-breaking work on the setting of sustainable development goals (SDGs) – as supplements to the UN's more general MDGs, which expire in 2015. The formulation of SDGs has been delegated to a 30-member working group that will refine the themes and report back to the UN General Assembly next year.

### **Trade and sustainable development**

SD-related trade issues, considered as a subset of trade and the environment, have recently emerged on centre stage at both the national and multilateral levels, engendered in part by a number of high-profile WTO and US trade disputes, in which China and Chinese companies have been the principal respondents. These disputes, since 2009, have embraced a range of different Chinese products, including wind turbines, wind utility towers, solar cells, rare earths, and a host of raw materials. China's use of natural-resource export controls and renewable-energy subsidies have been subject to challenge by the US and others in the WTO, implicating the WTO Agreement on Subsidies and

Countervailing Measures (SCM) and several Articles of the General Agreement on Tariffs and Trade (GATT), with China defending on environmental grounds pursuant to GATT Article XX. At the national level in the US, Chinese wind power equipment and solar cells have been preliminarily targeted for the imposition of both anti-dumping duties (AD) and anti-subsidy countervailing duties (CVDs) by the US Department of Commerce, which may, if final determinations are forthcoming, effectively impede market access for some offending Chinese companies, particularly PV solar cell producers. China, in turn, has retaliated by filing a complaint against the US with the WTO Dispute Settlement Body, challenging the propriety of the US application of CVDs on some 22 products, including wind power equipment and solar cells, pursuant to GATT Article VI, the SCM Agreement and its CPA. Meanwhile, at the national level in China, the PRC Ministry of Commerce has launched its own AD/CVD investigation of imports of polysilicon (used in the production of solar cells in China) by US producers.

It can hardly be reassuring for China that its huge investments in the development of green technologies, in particular, have led to such an impasse. These results are also, to some extent, incongruous for the US, which strongly supports environmental protection, renewable energy development, global reduction of GHG emissions, and actions to ameliorate climate change. This would scarcely seem to be the future that China – or the US – wants. However, China is bound to appreciate that its state-driven subsidisation/investment programmes for green economic development, particularly when linked to a proactive export strategy, are vulnerable to challenge both nationally in other countries and at the multilateral level as constituting “unfair trade practices.”

China and the US are not alone in facing the quandary of reconciling the tensions that exist between sustainable development, on the one hand, and long-standing rules and principles of the world trading system, on the other. Several features of sustainability regimes raise amber or red-light signals under GATT-WTO rules, including: environmental/energy efficiency standards, eco-labelling/process and production methods (PPMs), and certifications; energy-related border tax adjustments; and green subsidies/domestic support programmes. ICTSD, among others, has been at the forefront in confronting such tensions and positing plausible solutions, including revisiting certain environmentally relevant GATT-WTO rules, in light of the need for urgent collective action to combat global climate change and promote green economies, especially among developing countries.

Moving forward from the 18th CCP Party Congress in November, the new Chinese leadership should be able to adroitly “cross the river by feeling for stones” through a proper blend of deepening market reforms, strengthened domestic institutional governance and inspired international engagement and collaboration at all levels.



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## Special meeting report

# UNFCCC TECHNOLOGY EXECUTIVE COMMITTEE SEEKS MORE "CLARITY" ON IPRS

*UNFCCC Technology Executive Committee (TEC) pulls intellectual property rights into climate discussions.*

The UN Framework Convention on Climate Change (UNFCCC) body charged with climate change technology policy decided to include intellectual property rights (IPRs) in its key messages to the Conference of the Parties (COP 18), at its meeting in September. This is the first formal mention of the controversial subject since the Technology Executive Committee's (TEC) inception even though IPRs have been recurrently raised in its discussions on the development and transfer of climate change technologies.

The TEC, along with the Climate Technology Centre and Network (CTCN), are the two components of the UNFCCC Technology Mechanism agreed upon at the 2010 Conference of the Parties (COP 16) in Cancun, Mexico. The Mechanism's main objective is to accelerate development and transfer of climate change technologies in support of climate mitigation and adaptation. The TEC is now faced with implementing its 2012-2013 work plan which was approved last February.

Though developing countries have often stressed the need for a better understanding on how IPRs impact technology transfer, many developed countries have argued that the UNFCCC is not the right forum to address these issues. Suggested alternatives include the World Trade Organization or the World Intellectual Property Organization. IPRs were conspicuously absent from the COP 16 Cancun and COP 17 Durban outcomes.

"IPRs were identified as an area for which more clarity would be needed on their role in the development and transfer of climate technologies, based upon evidence on a case-by-case basis," was one of the seven key messages to transmit to COP 18 under the heading of "enabling environments and barriers to technology development and transfer." Other messages addressed research, capacity-building, the need for integrative approaches, engaging the private sector, strengthening national innovation and the facilitation of private and public sector investment.

ICTSD, the publisher of BioRes, has been urging the TEC to discuss IPRs from an evidence-based perspective.

The TEC continued its debate on enabling environments and barriers to technology development and transfer, which first began its discussions at the last TEC meeting in May. Panellists voiced their opinions on how best to include IPRs into the climate change agenda, particularly in a way that supports developing countries.

Ana Pueyo Velasco, from the Institute of Development Studies at the University of Sussex, reportedly noted that UNFCCC instruments have not yet delivered sufficient technology transfer, due in part to a lack of structures in place to facilitate private investment and an overly-simplistic approach to complex developing countries.

The TEC also produced key messages for COP 18 under the topics of technology roadmaps and technology needs assessments, and will release a report of its activities for distribution at Doha. The next TEC meeting is tentatively scheduled for the spring of 2013 in Bonn.

UNFCCC negotiators will meet next in Doha, Qatar from 26 November to 7 December for COP 18.

## NON-TARIFF BARRIERS

# Export Restrictions on Natural Resources: The Case of Indonesia and Vietnam

Anna-Maria Fyfe

*Export restrictions are on the rise. Their strategic use is leading to changing regional or international market dynamics in some cases. Palm oil in Indonesia and timber in Vietnam provide illustrative examples.*

Export restrictions are not new to the global trade picture and policy toolbox. Yet, their notable rise over the past decade has pushed forward the need to enhance the current understanding of the use of export restrictions on natural resources. This article presents two Southeast Asian case studies: Indonesia's palm oil export tax regime, and Vietnam's export ban on raw timber. It aims to illustrate the varied policy rationales behind such restrictions and their far-reaching impacts.

### Export restrictions on the rise - for multiple reasons

A rapidly growing world population and expanding "global middle class" is driving demand for food and other natural resources, in a context where no one single country is completely self-sufficient. While, in the past, export restrictions sought to boost fiscal revenue, today's application of such restrictions take place for a variety of reasons. Some countries have imposed export restrictions to enhance food security. Restrictions have been used on a temporary basis in times of poor harvests or limited global supplies of key agricultural products such as wheat or rice. Countries have also applied export restrictions to encourage local industrial development and to attract investment in downstream industries, such as in the cases of timber and fisheries.

With increasing environmental awareness, export restrictions have been implemented with the aim of contributing toward environmental protection and natural resource conservation as well. Restrictions have played an important role in reducing environmental degradation in the mining of minerals, especially where a country's regulation or implementation capacity is weak, and has provided incentives for technological advances enabling efficient production.

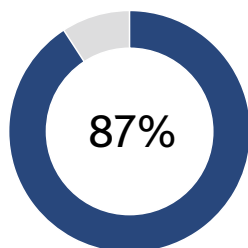
Export restrictions are being strategically applied by trading countries in key resource sectors. They are increasingly seen as a necessary and useful regulatory tool that supports resource management and the broader goals of sustainable development.

### Indonesia's palm oil export tax regime

Indonesia recently implemented a new export tax regime on palm oil, which is illustrative of the current use of export restrictions. Indonesia used to be mainly a supplier of unprocessed palm oil to global markets. The picture will most likely change in the near future, as its newly implemented regime aims at developing Indonesia's own downstream industry and thereby promoting exports of processed palm oil.

Palm oil is currently the world's most widely used edible oil product, and its consumption is growing rapidly. The oil is mainly used for the manufacturing of cooking oils, frying fats, margarines, as well as for a wide range of other food products. In 2009, India, China and the EU accounted for 52 percent of global imports of palm oil, importing 6.8, 6.6, 5.4 million tonnes of the product each.

Malaysia and Indonesia are the world's largest producers of palm oil, accounting for approximately 87 percent of global palm oil production in 2009. Recently, Indonesia surpassed Malaysia as the largest producer, with Indonesia producing 18.3 million tonnes, followed by Malaysia with 17.4 million tonnes. Both countries export the vast majority of



Percentage of global palm oil supplies produced by Malaysia and Indonesia

their palm oil output, contributing 91 percent of total world palm oil exports. Malaysia's exports are higher and have until now dominated the refined palm oil market. Its refined palm oil exports in 2010 accounted for 70 percent of its total exports; whereas Indonesia's processed palm oil exports represented 43 percent of its exports.

Both neighbouring countries have employed export restrictions on palm oil. In Malaysia, the duty on exported crude palm oil (CPO) has been in place since 1960 as a price control mechanism. However, a significant change took place in 1976 when an export duty was introduced on processed palm oil (PPO). The duty was lower for PPO than CPO, thereby encouraging the development of the downstream industry. This was further strengthened in 2001, when Malaysia completely eliminated export duties for PPO. Currently, the export tax levied on CPO in Malaysia falls in the range between 10-30 percent. Export restrictions have aided the development of Malaysia's refining industry, as its share of world processed palm oil increased from 2 percent to a high of 78 percent, standing now at around 50 percent.

Indonesia has likewise imposed export restrictions on palm oil, but for other distinct reasons. Palm oil is the raw material of the main cooking oil consumed by Indonesians. Therefore, during price spikes and periods of strong global demand, Jakarta has used export taxes to ensure sufficient domestic supply of cooking oil at moderate price levels. The mechanism benefited consumers by ensuring access to and controlling domestic CPO supply and the price of cooking oil.

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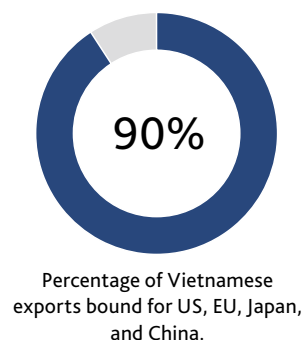
*During price spikes and periods of strong global demand, Jakarta has used export taxes to ensure sufficient domestic supply of cooking oil at moderate price levels.*

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However, recent developments have changed the landscape. On 15 August 2011, the Indonesian government revised its duty structure for palm oil. In response, a new export tax regime came into effect exactly a month later, substantially lowering export taxes for processed oil products, while raising them for crude. As a result, the export tax gap between the two products has widened, with the aim of encouraging the downstream industry.

Indonesia's new export tax regime has affected the regional dynamics of the palm oil market. Indonesia's new regime is now more closely aligned to Malaysia's structure, thereby affecting Malaysian refiners. This is further compounded by the fact that Kuala Lumpur has issued CPO duty-free quotas, reducing the availability of domestic crude for processing. Malaysia's rising imports of processed palm oil in February 2012 and rising share of CPO exports in general is an indication that Malaysian palm oil processors are losing their share of processed palm exports to Indonesia. It is important to note that Malaysia recently started importing CPO from Indonesia to supplement its stock for processing, but Indonesia's new regime will now draw more of its CPO to its own refineries, limiting supply to Malaysia. Indonesia's export tax reforms will certainly hurt the competitiveness of Malaysian downstream producers.

India is likewise reported to be affected by Indonesia's new export tax regime. India is the world's largest buyer of vegetable oils and the government faces pressure to make imports of refined palm oil costlier in order for Indonesia's new regime not to threaten Indian refiners. India currently buys about 6 million tonnes of crude palm oil every year from Indonesia for processing into cooking oil and other food products. India's refining industry could be severely hit if more refined palm oil were to be imported from Indonesia. Yet, India could also face a shortage of refined edible oils as Indonesia will most likely export



less crude as a result of its new export tax regime. Clearly, the regional implications of Indonesia's new export tax regime on palm oil are not negligible.

### **Vietnam's export ban on raw timber**

Vietnam, a prominent player in the timber industry in Southeast Asia, has likewise employed export restrictions, but with a different rationale. Vietnam's timber sector has undergone a huge transformation over the last decade. Its export regime may not have been the key factor within the overall policy-mix that has helped usher in reforestation and forest conservation, but it has been consistent with the goal of developing an export-led industry with higher value-addition and one that promotes better stewardship of its domestic forest resources.

Vietnam's furniture industry is booming. The country has emerged as a regional timber processing centre for Southeast Asia, second only to China as an exporter of wood products in the region. At the turn of the millennium, the wood processing industry became increasingly export orientated, with total export revenue from furniture exports reaching US\$3.4 billion in 2010. In 2009, there were approximately 3,400 wood processing enterprises operating in the country. The growth of Vietnam's wooden furniture sector has been encouraged by the government through a range of measures such as relaxing regulations to enable private ownership of companies and promoting the industry to overseas markets. Vietnam's main export markets – the US, EU, Japan, and China – account for about 90 percent of its total exports.

Vietnam has recently undergone a "forest transition," shifting from net deforestation to net reforestation in the 1990s. The country experienced widespread logging in the 1980s and early 1990s, which led to significant forest loss. In 1943 Vietnam contained 14.3 million hectares (ha) of forest cover, but had lost six million hectares of natural forests by 1995. However, over the past decade its forest cover has been on the rise, and by the end of 2009, Vietnam recorded 13.2 million ha of forests.

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*Vietnam's use of export restrictions have contributed toward, and been aligned with, forest conservation and the development of its downstream and wood processing industry.*

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This remarkable change in forest cover is a reflection of Vietnam's forest protection policies since the 1990s. In 1992, the government began imposing controls on the logging industry, greatly reducing logging quotas in natural forests. Moreover, in 1993 logging in Vietnam was banned in protected areas and reserves and on all natural forests in the country's northern provinces. In 1998, the ban on commercial logging in natural forests was extended to 58 percent of natural forests. Likewise, over the years, extraction quotas for large-diameter logs have been decreased considerably. As a result of these measures, logging is now restricted to production forests comprising both natural and plantation forests. More recently, Vietnam's Forest Development Strategy 2006-2020 aims to increase the forest cover to 47 percent by 2020, and ensure that at least 30 percent of production forests are certified as sustainably managed. In addition, Vietnam has been embarking on a REDD+ mechanism since 2009.

Export restrictions have been an element in Vietnam's efforts to conserve its forests. In 1992, in alignment with imposing logging controls, the government issued a ban on the export of raw cut and sawn wood. Export duties are also applied to natural resources such as forestry products.

Overall, these forest protection policies and regulations have shifted the source of wood used for Vietnam's wood production industry from natural forests toward plantations and

imports. Exports have also undergone a shift from raw towards value-added processed wood. Vietnam's use of export restrictions have contributed toward, and been aligned with, forest conservation and the development of its downstream and wood processing industry.

Likewise, Vietnam's policies have had regional implications. As the government tightened domestic logging policies, and the country simultaneously continued to develop its domestic timber processing sector, Vietnam has turned to imported raw timber as a major part of its wood supply. Approximately 70-80 percent of wood required for its industry is imported from abroad today. Of these imports, roughly half are from illegal sources. As such, Vietnam has emerged as a major destination for illegal timber, especially from its neighbouring countries Cambodia and, more recently, Laos. In fact, some have argued that Vietnam has protected its forests and developed its economy by "exporting" or "outsourcing" deforestation to its neighbouring countries.

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*Vietnam has emerged as a major destination for illegal timber, especially from its neighbouring countries.*

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#### **Concluding remarks**

These two illustrative examples provide some insight as to the reasons why export restrictions are employed by governments, and the resulting impacts – some unintended or unforeseen – they can entail. In both cases, export restrictions have been pursued to support sustainable development objectives. In the case of Indonesia, the new export tax regime aims to harness economic benefit from palm oil by promoting the development of its own downstream industry. Vietnam's export restrictions have likewise promoted its wood processing industry, but have also been aligned with the wider environmental goal of forest conservation. Similarly, in both cases, export restrictions intended at addressing domestic issues have resulted in noticeable regional trade implications. Indonesia's new regime has affected the regional palm oil market, having repercussions for both Malaysia and India. Likewise, Vietnam's "contradictory" policies of simultaneously protecting its natural forests and developing its wood processing industry, has resulted in its deforestation being "exported" due to mostly illegal timber imports from its neighbouring countries Cambodia and Laos (although both countries also ban the export of logs).

Indonesia and Vietnam have applied export restrictions on two key natural resources – palm oil and timber – geared towards exports. Yet, the context in which both countries resorted to restrictions and their actual form is different. This reinforces some ways in which export restrictions can be a multi-faceted and potentially powerful trade policy tool.



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NATURAL RESOURCES

# How can trade benefit an increasingly water scarce world?

Kate Ziemba

*The concept of virtual, or embedded, water provides a new lens for understanding the potential of trade to enhance water efficiency worldwide through trade. However, its application is far from straight forward, and questions remain as to the desirability of yet another sustainability label.*

As the breadbaskets of the United States and India faced widespread and severe drought last summer, rising food prices pushed water scarcity concerns into global discussions. The low cost and accessibility of fresh water in many developed countries has shrouded the reality that water scarcity affects one in three people on every continent of the globe. Climate change and variability as well as environmental degradation continue to exacerbate fresh water scarcity. This, in turn, impairs the ability of many countries, especially in the developing world, to provide sufficient food for their growing populations. In fact, China, India, Pakistan, and parts of the Middle East and North Africa either currently lack adequate water to maintain food production from irrigated land, or will soon do so.

With the global population projected to reach 9 billion by 2050, grain demand is expected to double. Heightened demand for grain and meat will increase global water requirements up to 40 percent above current accessible supply by 2030. Despite the linkage between water resources and food security, fresh water is currently not the subject of any multilateral environmental agreements (MEAs) nor other globally binding instruments or regimes. Given this gap, some academics have instead looked toward international trade policy-making for an appropriate forum to address water scarcity and efficiency. However, large, real volumes of fresh water are not commonly traded because its bulkiness makes storage and transport across far regions expensive.

Over 20 years ago, academics began discussing the nexus between water and trade in terms of virtual or embedded water (i.e., the amount of water used in the production of goods for export). As defined, virtual water is not a traded good. Rather, virtual water flows can be traced between countries through trade in products with varying levels of virtual water content. The amount of virtual water used may not be evident in a final product, but, through processes such as crop irrigation, may be substantial. Since 85 percent of global water usage is attributed to agriculture, research has focused on quantifying the flow of virtual water through agricultural trade.

## Virtual Water Theory

Most virtual water theory focuses on the virtual water hypothesis, which asserts that countries with large fresh water endowments would do well to export water-intensive products, such as cereal crops, to water-deficient countries. Deficient countries should, in turn, export goods not requiring much water in their production. This would, at least hypothetically, provide for higher overall levels of water efficiency from an international perspective, which could also spill over into greater food security. When countries are not endowed with enough local water resources to serve domestic purposes, it may be in their interest to trade in products with high virtual water content and relieve pressure on their domestic water supply.

Multiple examinations of trading patterns, however, have revealed that they mostly run counter to the virtual water hypothesis and are actually independent of water endowments, whether plentiful or scarce. Using Food and Agriculture Organization (FAO) and trade data on major crops, scholars found that the largest net virtual water exporters by volume are the US, Canada, Thailand, Argentina, and India, while the largest net



## Top five net virtual water exporters by volume

United States  
Canada  
Thailand  
Argentina  
India

## Top five net virtual water importers by volume

Japan  
the Netherlands  
Republic of Korea  
China  
Indonesia

importers are Japan, the Netherlands, Republic of Korea, China, and Indonesia. Counter-intuitively, countries like Tunisia, the Ivory Coast, and the United States export some of the largest volumes of virtual water per capita, yet possess some of the lowest per capita renewable water resources. On the other hand, Papua New Guinea, Norway and Peru possess substantial renewable water endowments but import rather than export virtual water.

Clearly, factors other than national water endowments are stronger drivers of international trade patterns. In his essay "Virtual Water: A Helpful Perspective, but not a Sufficient Policy Criterion," Dennis Wichelns points to relative land endowments and access to arable land as larger determinants of virtual water import and export patterns. This may explain why Papua New Guinea, Japan, and Indonesia, which have ample water resources but small endowments of arable land, are net importers of virtual water to support the demands of their populations. Within countries, historical, political, and economic factors shape opportunity costs of production and resulting virtual water flows. Centuries of politics have influenced the export of food grown in dry regions of India and China to areas with greater water resources. Nonetheless, trade in agricultural products, the most water intensive goods, reduces global water consumption by five percent, presenting an opportunity for increased water efficiency where trade is concerned.

### Ongoing work

More research on the virtual water perspective is needed before it can be effectively applied to trade policy discussions. Water endowments, availability, usage, and policy are extremely localised and complicated and depend on a number of variables. Considering water issues with the global perspective dictated by the virtual water hypothesis is useless unless they are contextualised for the region in which they occur. Specifically, the virtual water perspective is complicated by the types of water involved in production, the lack of full cost pricing, and negative environmental and social externalities.

Fresh water inputs to the production of a good can be described as green or blue, depending on their source. Green water is rainfall or soil moisture used directly by plants. Blue water encompasses all forms of surface water as well as groundwater. Since blue water is delivered for agricultural use, it can be used for other purposes, giving it a higher opportunity cost than green water. Extensive consumption of blue water is less sustainable over time as these sources face depletion. In the US, some groundwater aquifers face irreversible depletion as they are pumped in excess of recharge to irrigate approximately 20 percent of farmland. To preserve blue water resources, increased reliance on rainfall in crop irrigation will be essential, especially in virtual water importing countries that depend on blue water for their own crop production more than virtual water exporting countries.

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*In many countries, water is under-priced and heavily subsidised, obscuring the true cost of fresh water extraction and consumption.*

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In many countries, water is under-priced and heavily subsidised, obscuring the true cost of fresh water extraction and consumption. The amount and type of subsidisation differs from country to country and even from region to region and is made up mostly of irrigation subsidies to farmers. Irrigation subsidies mainly consist of government investment in the construction, operation, and maintenance of the large-scale capital infrastructure that extracts and transfers ground and surface water to fields. With water pricing well below market rates in the majority of countries, governments often face difficulty recovering the costs of supplying this water delivery infrastructure from end users.

The underpricing of water often leads to overconsumption, perverse investment choices and crop selection, distorted commodity markets, and pollution. Under the WTO, irrigation subsidies are considered to be at most "minimally trade distorting," falling

within the Green Box (Annex II) of the WTO Agreement on Agriculture. Therefore, they will not be subject to subsidy cuts, should the Doha Round negotiations pick up speed.

Government policies that dictate irrigation subsidies have a big impact on future water provisions and sustainability. While full-cost pricing would most likely be politically unpopular, so long as the subsidisation of water conceals its actual cost, trade will not lead to the optimal utilisation of fresh water resources.

### **Negative externalities**

Negative externalities associated with water use in the production of goods are usually borne by the exporting countries and are not included in the price paid by consumers in the importing countries. An optimal water price would internalise the negative environmental and social externalities associated with water use, extraction, depletion, and scarcity, especially in relation to agriculture, and ensure thorough evaluation of competing uses.

Some concerns have been raised that the import of water-intensive goods in water deficient areas may lead to increased water dependency, resulting in dependencies and inequities between nations. A country's external water footprint – the volume of water used in other countries to produce goods and services imported and consumed by its inhabitants – may be far larger than its internal water footprint – the volume of domestic water resources consumed by its own inhabitants. This could result in a situation in which inhabitants of an importing country may be consuming more of an exporting country's fresh water than its own inhabitants and could be a source of conflict, especially in times of scarcity.

### **The future: water footprint labels?**

Despite the simplification of a complex situation, the virtual water perspective is a useful communication tool. It increases transparency and allows for easy conceptualisation and comparison between goods. Businesses, NGOs, and international agencies have partnered on a number of initiatives aiming to communicate the virtual water content of consumer goods through water footprint labels, or use water footprints along the supply-chain to help identify opportunities for enhanced efficiency.

Water footprint labels can depict the amount of water consumed to produce the good or service, the amount and type of water pollution and other negative externalities caused by production, and the relative water scarcity of the area in which the product was produced. The issue of sustainability standards and labels – and whether these actually represent "green protectionism" – has long divided WTO members. While water footprinting initiatives have helped businesses improve water efficiency in their supply chains, consumers currently have not shown significant demand for responsible water usage, and it is unclear whether the promotion of another type of environmental product label would confuse consumers. However, such labels may become more common in the future.



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NATURAL RESOURCES

# How can African economies turn the resource curse into a blessing?

Dan Haglund

*Many less-developed countries are becoming increasingly dependent on mineral commodity exports. What are the critical steps that can be taken to ensure that the current commodity boom results in a resource blessing rather than a resource curse?*

According to a recently published study by consultancy Oxford Policy Management, the number of commodities-dependent countries with low and middle incomes has risen by more than 30 percent between 1996 and 2010 – up from 46 to 61 countries – leaving them vulnerable to the “resource curse.” Half of the countries identified as being at “high risk” are in Africa. Recognising that the effects of the “curse” are avoidable, this article identifies some of the challenges facing these countries, and attempt to show how they can be overcome by working with the private sector and donors to enhance the levels of development attributed to mining.

The arrival of mining multinationals often appears to be a golden opportunity for resource-rich developing countries. New mines bring new jobs, increased government revenue, a boost in income for local suppliers, and possibly even improvements in infrastructure. When the salaries of workers and suppliers are re-invested in the local economy, a multiplier effect provides benefits to a broader cross-section of society.

Yet history shows that extractive industries often fail to deliver sustainable growth. Instead, countries often experience appreciation of real exchange rates – rendering non-mineral exports less competitive, loss of skilled workers – who are drawn away from other manufacturing industries into the mining sector, and the jobs that do materialise are fewer than expected and less suited to local communities. Tax payments take a long time to materialise, the arrival of immigrants in search of jobs in mining communities puts pressures on public services, and the unpredictable nature of government revenues increases the risk of rent-seeking and corruption. Together these consequences are loosely referred to as the “resource curse.”

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*History shows that extractive industries often fail to deliver sustainable growth.*

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## Resource dependence

The challenges of managing resource wealth are significant. In 2010 some 95 countries gained more than a quarter of their tangible export revenues from minerals – including fuels. Around three quarters of these were low- or middle-income countries. The degree of mineral dependence has also increased. This trend is particularly evident amongst countries dependent on non-fuel minerals such as copper, gold, and iron ore: between 2005 and 2010, fourteen such countries increased their dependence ratio by at least 25 percentage points. In Burkina Faso, the mining sector accounted for just 2 percent of exports in 2005, but 41 percent five years later; in Somalia, over a third of export revenues are now generated by the mining industry, up from 5.4 percent in 2005.

Non-fuel mineral-dependent countries often exhibit lower economic development than other countries, including countries dependent on oil and other fuel minerals. The top-20 countries with the lowest GDP per capita include the Democratic Republic of Congo (DRC; US\$319), Sierra Leone (US\$808) and Mozambique (US\$885) – all with substantial mineral resources.

## African countries threatened by the resource curse

Burkina Faso  
DRC  
Ghana  
Mali  
Mauritania  
Tanzania  
Zambia

### Economic and institutional preparedness matters

The challenge is how to manage this resource wealth effectively. First, a stronger and more diversified economy helps to maximise the positive impacts of mining. Where overall economic development is lacking, governments may be inclined to spend revenues as they arrive, leaving less potential for linkages between foreign companies and local suppliers. Second, institutional development is needed to secure governments' ability to both collect revenues from mineral extraction and to spend them effectively on physical and social infrastructure.

The study shows that 12 countries – all highly dependent on mineral exports and with low economic and institutional development – are at particular risk of falling victim to the resource curse. Seven of these are in Africa: Burkina Faso, DRC, Ghana, Mali, Mauritania, Tanzania, and Zambia.

### Resisting the curse: a six step process

Much can be done to mitigate the risks and enhance the positive impacts of large-scale mining in African countries. First, governments must understand and manage the broader macroeconomic impacts. When revenues from extractive industries enter small, undiversified economies, the result is often price inflation – increasing input costs for local producers and undermining the competitiveness of export sectors (e.g. manufacturing and agriculture) that employ many more people than mining. Moreover, mining typically attracts skilled workers away from other exporting sectors. To avoid this “crowding out” effect, governments need to adopt an economic life-cycle approach for the extractive industries and invest in vocational capacity building to meet demand for skills.

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Mineral receipts should also be used to invest in productive assets. The lack of effective public finance management systems in poorer countries, coupled with enormous demands for increased government spending, can easily result in profligacy and pro-cyclical spending. To secure the broad benefits of mineral wealth, governments should invest mining returns in productive assets such as infrastructure and education, rather than recurrent expenses, including public sector salaries.

Mining should be integrated more closely with other economic activities. To the dismay of local communities, modern mining typically offers little direct employment. However, there may be significant opportunities in the mining supply chain for consumables and services. Locally owned and operated companies can meet some of this demand if supported by government – such as providing infrastructure and securing property rights – and foreign investors – supply chain development programmes, for example. The African Mining Vision formally launched by the African Union/UNECA in December 2011 embraces this approach.

Countries should also be sure that they understand the local economic and social impacts of a project. From inflation to immigration to pollution, the impacts of mining are often felt most in the local community – long *before* production begins, and even longer before tax revenues start flowing. It is essential to study the likely impacts of a new mine in order to help target activities and guard against a backlash. Baseline studies need to examine local political economy factors – as well as socio-economic indicators – and be monitored through biennial household surveys in neighbouring communities.

Expectations must also be managed through effective communication and consultation. The fundamental mismatch between local expectations and what a mine can actually deliver in terms of benefits is a driver of frequent social tensions around resource projects.

Companies need to manage expectations by establishing and sustaining dialogue with communities, and being frank about the number of jobs created and the skills they require. It is essential to recognise that benefits for the community will be more limited if – as in northern Tanzania – large-scale mining displaces pre-existing livelihoods of artisanal miners.

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*Greater accountability is needed at every stage of the value chain, from the awarding of licences and monitoring environmental impacts to revenue collection, spending, and closure.*

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Governments must also ensure that strong accountability mechanisms are in place. The large and erratic nature of fiscal receipts from mining makes them prone to rent-seeking and corruption. To tackle this, greater accountability is needed at every stage of the value chain, from the awarding of licences and monitoring environmental impacts to revenue collection, spending, and closure. The Extractive Industries Transparency Initiative (EITI) – an initiative aimed at increasing transparency around revenue payments in extractive industries – has enhanced accountability around revenue payments, but the multi-stakeholder approach has yet to be effectively applied in other areas. The critical insight is that policies are ineffective unless accompanied by careful attention to implementation throughout the extractive industries policy chain, including well-resourced and well-incentivised inspectors.

### **Conclusion**

Unlike their richer counterparts, low- and middle-income countries often lack the institutional arrangements to cope with the challenges of translating mineral wealth into human development. The resource curse is not a foregone conclusion for any of the mineral-dependent African countries, but it needs to be dealt with. None of the above steps are – in isolation – sufficient to mitigate the risks of the resource curse. Yet taken together they represent an overall framework for thinking about what different actors can do in order to nudge countries towards a sustainable path of mineral development.



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CLIMATE CHANGE

# Climate change subsidies at the WTO: A few notes for law reform

Luca Rubini

*The case and challenges for reforming the current subsidy disciplines at the WTO to make them more climate-friendly. It is, in essence, a question about the best possible governance for this type of support in the WTO.*

It is noted from many quarters that there are still various market obstacles for clean energy and that public support, often in the form of subsidisation, is needed. It is also agreed that support should be properly designed and, in particular, should be as targeted as possible – with preference given to activities rather than sectors – and as cost-effective as possible to the goals pursued. Therefore, many, if not all, countries do provide various forms of support to energy and clean energy (e.g. energy efficiency and renewable-energy subsidies and biofuel subsidies).

It is also clear that public support in this area is often determined by a mix of policy objectives that are not only environmental, but also social and economic – such as job creation and industry support – as well as related to energy security.

## **The current legal framework is not satisfactory**

The status of subsidies to address climate change is one of significant legal uncertainty and even conflict between legal requirements and policy prescriptions. For example, the status of tax incentives, regulatory measures (like feed-in tariffs or purchase mandates, such as renewable portfolio standards or blending requirements) and the free allocation of emissions allowances is still not clear.

Equally, the regulation of subsidies supporting production is dramatically inconsistent. For example, while production subsidies are substantially permitted, unless adverse effects are caused,<sup>1</sup> local-content subsidies – which may produce the same effects – are prohibited.<sup>2</sup> Furthermore, the best policy prescription that measures targeting market failures should differentiate and be as specific as possible may easily run counter to the requirement that support should be non-specific and should not cause adverse effects. Finally, there are currently no legal exceptions that would expressly shelter certain desirable climate-change subsidies.

The inadequacy of the legal framework produces in itself a constraint on policy space. This is not only bad for governments but also for businesses that need a clear and supportive normative environment.

The possibility that some issues may be clarified through litigation – through friendly interpretation of current rules and justifications (i.e., GATT Article XX) – does not improve the situation since disputes are subject to many vagaries and may offer, at best, a piecemeal and partial solution. The pressure put on panels and the appellate body should also not be underestimated. The analysis of the possible application of GATT Article XX to subsidies is the best example in point. If this application may be technically feasible and, to a large extent, even policy-wise desirable, it would certainly be politically troublesome and add undue pressure on the system.

To be sure, one important pragmatic argument has been put forward to dispel any sort of anxiety about the inadequacy of the legal framework. It is a fact that, until recently, energy subsidies in general – which include both subsidies to fossil fuels and to clean energy – have been laconically absent from the litigation record. Subsidisation of energy has been tolerated, the only exceptions largely being those cases where there are more



## Likely candidates for subsidy reform at the WTO

- support to renewable energy and energy efficiency
- biofuels
- subsidy aspects in cap-and-trade systems

obvious breaches of the “rules of the game,” such as export subsidies or support measures with local content requirements.

The unsatisfactory nature of the legal framework is not merely hypothetical. As the market for clean technology and energy is getting larger and competition fiercer, the stability of the “tacit agreement” not to challenge one another’s subsidies is put into question. The various trade disputes on support for renewable energy that have recently been filed at both the WTO and the national level are evidence of this. Rather than representing skirmishes to re-establish the rules of the game of energy support, they may well represent the beginning of a dangerous trend.

Against this scenario of inadequacy of the legal framework and increasing litigiousness, the case for negotiating new disciplines that clearly define what types of governmental interventions are legitimate and what are not becomes stronger.

The answer to the problem, therefore, is better regulation.

### Challenges for new rules for climate change subsidies

The case for better regulation leads us to consider two orders of issues, one concerning the type of subsidies that may be covered and one focusing on more systemic considerations that reform may involve. This is based on the premise that the effective overhaul of subsidy rules should focus on both the substantive and procedural/institutional aspects, due to their links.

For the sake of simplicity, I have identified 10 main issues and briefly outlined them below. Arguably, what is crucial in considering these issues are the factors/incentives that can make change happen –assuming this change is desirable – and the features that the resulting system should have. In a nutshell, the question is about the best possible governance for climate change subsidies in the WTO.

### Reform of subsidy rules

**CANDIDATES** – The first issue to address focuses on what subsidies the new disciplines should cover. Likely candidates include support to renewable energy and energy efficiency, biofuels, and subsidy aspects in cap-and-trade systems (e.g., the free allocation of emissions allowances). The justification may cover both energy and technology and may operate, although differently, at various levels – such as research and development (R&D), production, and distribution. The decision of which subsidies should be covered should be informed by the findings of economic analysis and by the policy goals recognised by the disciplines.

**LEGAL TECHNIQUE** – There are three main paths that could be followed to provide legal shelter to these subsidies:

- The actual definition of subsidy could be clarified, for example, by expressly stating that certain mechanisms – the purpose of which are to regulate the market, such as feed-in tariffs or mandatory purchase requirements – are excluded from the definition. Quite similarly, attempts could be made to clarify the law with respect to the determination of whether a tax incentive does amount to a subsidy and to the benefit determination.
- Legal exceptions expressly and clearly stating which subsidies should not be actionable could be (re-)introduced. The approach of the old rules on non-actionable subsidies – Agreement on Subsidies and Countervailing Measures (SCM) Articles 8-9 – could be followed, with the necessary adjustments. The European Union (EU) law on state aid (which is the only regulatory system that provides for exceptions for climate-change subsidies) could provide some inspiration. The key concern is how to combine policy space with the need to avoid abuse and to contain adverse effects without emptying the effectiveness of support. Alternatively, an approach similar to that of GATT Article XX – whereby the justification is granted through broad, general clauses subject to case-by-case interpretation – could be adopted.

- Members may decide to adopt a different approach. Not one whereby any subsidy satisfying certain conditions may be justified, but one under which a cumulative ceiling for certain measures of support is agreed by members. For example, a commitment approach like that of the Agreement on Agriculture. This list of options is certainly non-exclusive. Negotiators' imagination may come up with other alternatives.

**PLACE** – One question that should be solved is whether the suggested law reform should be limited to subsidy rules or whether the latter should only represent one – important but not exclusive – part of a broader effort to regulate trade, energy, and environmental issues. In the former case, amending the SCM Agreement and the Agreement on Agriculture should be enough. In the latter case, members may focus their effort in negotiating a broader Agreement on Sustainable Energy or an Agreement on Trade, Energy, and the Environment; in doing so, members may address the concerns of both developed and developing countries.

**TRANSPARENCY AS A CORNERSTONE OF THE SYSTEM** – The first important systemic change should put transparency – for the form/size, objective, and impact of subsidies – at its centre. Transparency is an important value for the governance of subsidies. Although transparency reduces the room for strategic action by countries – hence it runs counter the individualistic interest of members, which do not have an inherent incentive to be transparent – it is conducive to more compliance, mutual trust, and trust in the system; hence, it is beneficial for the system as a whole and, consequently, for the individual interests of the members. This is particularly true with respect to support measures, like subsidies, which are particularly likely to act as trade irritants.

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*Although transparency reduces the room for strategic action by countries...it is conducive to more compliance, mutual trust, and trust in the system.*

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Members should thus think hard about how transparency in this field can be improved. What incentives and changes can be introduced for members to duly notify their subsidies? These amendments should also address the difficulties members may face in their compliance with transparency obligations. One important element to focus on is the clarification of the definition of subsidy as well as the definition of a common template for notification and of common metrics (see below).

Finally, transparency goes hand in hand with the purpose for which the relevant information and data are made available. Members should clearly define this. Only through this important clarification (e.g., what are we providing information for? Who is going to use it and with what effect?), can crucial issues about the content of notifications be sorted out. For example, what about sensitive information, particularly the trade impact, whose notification may be perceived as self-incrimination? Do we have to provide this? Who is going to use it and in what way? Crucially, what kind of legal and other consequence may ultimately derive from our disclosure?

**COMMON TEMPLATE AND METRICS** – The use of a common template and common metrics – to define and measure subsidies in a uniform manner – is crucial when it comes to notifying subsidies and making sense of them; what is less clear is where these should be found. The answer to this question is clearly linked to cooperation with other organisations as discussed below.

**DISCUSSING SUBSIDIES** – Members should be clear about whether they consider it useful to discuss subsidies and their objectives. Would open and thorough discussions, for example, in the Committee on Subsidies, be desirable? Would they improve the understanding of other countries' measures? Would this possibly improve learning in the complex area of climate-change action?

**ASSESSING SUBSIDIES** – Another important question to answer is whether it would be desirable to provide for an assessment of subsidies, their objectives and their – trade and environmental – impact. If the answer is yes, the next issue is the determination of who should do this and how. Furthermore, what role should experts play in this assessment?

**THE ROLE OF THE WTO** – There are also important questions of institutional design and management. What role should the WTO and its existing bodies (e.g., Committee on Subsidies, Secretariat, Group of Experts, Trade Policy Review Mechanism) play with respect to the aforementioned issues? Can we envisage different responsibilities for existing bodies? Should we have new bodies?

**THE ROLE OF OTHER ORGANISATIONS** – Finally, the institutional question goes beyond the WTO. Since subsidies in general and clean energy subsidies, in particular, fall also within the responsibility of other international organisations, regional organisations, agencies, and non-governmental entities, how could we make the most of this availability of data and expertise to improve transparency? What is needed are practical suggestions for a useful inter-institutional framework of coordination.

### **Conclusive thoughts: cooperation between incentives and leadership**

The case for reforming the current WTO rules to make them more friendly to climate-change subsidies is clear. So are – at least some of – the challenges that law reform efforts should face. Imagination, good will, and a sense of responsibility will help.

The crucial issue is, however, the feasibility of any reform. What could put the issue of reform of subsidy rules on the negotiating agenda? What could make members willing to cooperate? What we need here are imaginative and at the same time practical ideas. To a large extent, good will and sense of responsibility may not be enough if any action of reform does not present the right incentives and benefits – be they economic, political, reputational, etc. – to catalyse members' consensus to push through a meaningful reform.

Finally, leadership should make itself evident. The US, where a freshly re-elected President Obama has four more years to leave a marker down in history in the fight of climate change, and the EU, which has always prided itself for being a front-runner in climate change action, should move first. But China should also join them. China is a key player in the "green economy" and a leader in the trade arena, as well as a major contributor and sufferer of climate-change effects. As such, it cannot but benefit from actively sponsoring in the WTO new rules conducive to more legal certainty with respect to the policy space members need to provide the necessary support to sustain this economy.

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❶ Article 5 of the SCM Agreement.

❷ Article 3 of the SCM Agreement.



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# The newsroom

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## APEC Environmental Goods List Spurs WTO Debate

The possible question of fast-tracking tariff cuts for environmental goods and services (EGS) continued to divide WTO members at a 13 November meeting of the organisation's Committee on Trade and Environment (CTE).

While some members strongly welcomed the announcement of the APEC deal, others expressed concern that the 21-member group could negatively influence discussions at the WTO.

APEC leaders meeting in September agreed on a list of 54 environmental goods to which applied tariffs rates would be cut to 5 percent or less by the end of 2015. While the commitments are non-binding, officials claimed this allowed negotiators to consider a wider range of products.

APEC leaders noted that, after more than 10 years, there has not been much progress on environmental goods liberalisation at the WTO.

## CBD Members Push to Operationalise Nagoya

Parties to the Convention on Biological Diversity (CBD) have advanced processes to help operationalise the ambitious Nagoya package they agreed to in 2010. Negotiations at the CBD's 11th Conference of the Parties (COP) stretched on late into the night of the final day in Hyderabad, India as delegates pushed to reach consensus. By the close of the 8-19 October meeting, the COP had adopted 33 decisions on a range of issues related to finance, budget, substance, and administration.

With little tangible progress on achieving the lofty goals set out in Nagoya, the CBD's Executive Secretary outlined the priorities of COP 11 as, "implementation, implementation, implementation."

Many observers said they did not expect substantial progress from the Hyderabad meeting, instead framing it as a transitional conference. Still, some members said they are concerned by the slow pace.

## EU Backtracks on Biofuel Proposal

Three years after the Renewable Energy Directive set a target for 10 percent of energy to be sourced from renewable resources, the EU has reworked its policy following criticism from environment and aid groups. New proposed legislation would ensure that no more than five percent of transport sector biofuels food-based.

While the new legislation is meant to address areas of concern, several critics argue that it fails to address emissions in production such as indirect land use change (ILUC). The proposal only requires reporting on indirect GHG emissions in biofuel production and not that they be calculated into GHG efficiency.

The biofuel industry criticised the new proposal, saying it would jeopardise investments, decrease jobs in rural areas, and stifle development in advanced biofuels. Industry representatives say the rule changes are leading to a lack of trust between the biofuels industry and policymakers.

## Brazil Looks to Double Fisheries Production

Brazil has launched a "Fish Harvest Plan," which aims to double its fish production to 2 million tonnes per year by 2014. The plan aims to help meet domestic demand and increase exports.

Brasilia says the US\$680 million investment will facilitate access to credit, provide technical assistance, and invest in research and development so that the industry can modernise and increase productivity and income of fishing families living in extreme poverty.

The Food and Agriculture Organization estimates that global demand for fish will increase by 100 million tonnes by 2030. Brazilian President Dilma Rousseff said the country's vast coastline, freshwater reserves, and inland sea are ideal for boosting its presence as a global hub fishing and aquaculture.

It is not immediately clear what environmental fallout the plan would have in the long term, if successful.

## EU, China Spar over Solar Subsidies

China on 5 November filed a WTO complaint over EU local content requirements under feed-in-tariffs (FITs) in the struggling solar sector. The surprise move followed just days after China launched anti-dumping and countervailing duty investigations domestically over EU exports of solar polysilicon components in the Chinese market.

Within a week of the 5 November complaint, Brussels announced its own countervailing investigation into Chinese solar products. Europe argues that Chinese solar manufacturers have access to government sponsored credit at below market rates, which can be written off if they cannot be paid back.

Brussels has already filed a related anti-dumping investigation in July. Both investigations were initiated after a complaint by the European ProSun coalition, a 25 member industry group led by Germany's Solarworld AG. Solarworld, through its US based arm, has also been behind a complaint that led the US to impose anti-subsidy and anti-dumping duties on Chinese solar imports.

For their part, the Chinese Ministry of Commerce claims that European feed in tariffs are putting their producers at a disadvantage, while European manufacturers benefit. This complaint mirrors a similar case in which the EU and Japan challenged a FIT program in the Canadian province of Ontario that also imposed local content requirements.

While the results of the case have not been officially released, three member dispute panel has reportedly ruled in favour of Japan and the EU, saying that the Canadian program violates the WTO's non-discrimination principle in both the General Agreement on Tariffs and Trade (GATT) and the Agreement on Trade-Related Investment Measures (TRIMS).

The investigations are coming at a time when the global price for solar panels has been on the decline. Some observers have said that the growth in Chinese solar panel production has triggered a 40 percent drop in global prices between 2006 and 2011. The EU is China's principle market for solar panels, constituting nearly 80 percent of sales which represents about €21 billion.

In order to boost its internal market, China has been improving conditions to connect photovoltaic technology into their own grid. Until now, China's solar sector has been primarily export-oriented.

## Post-2015 Development Goals Discussed at UN

As the 2015 deadline for the fulfilment of the UN Millennium Development Goals (MDGs) approaches, it has become clear that not all goals will be met. However, to build upon the progress already made, a post-2015 framework incorporating the "unfinished business" of the past 12 years is being developed. The new framework will incorporate the Sustainable Development Goals (SDGs) which emerged from the Rio+20 Conference outcome document, "The Future We Want."

UN Secretary-General Ban Ki-moon established a 26 member panel to trade ideas and solicit opinions for the completion of the development agenda. During the panel's first meeting, to increase transparency and inclusiveness, the UNDG secretariat held several national and thematic consultations with civil society, private sector representatives and global youth to determine the themes of the post-2015 agenda.

At the panel's second meeting it was decided to develop a framework to combat poverty and include environmental sustainability, while addressing the issues of human development, jobs, and marginalised populations.

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## Europe places hold on aviation emissions scheme

The European Commission has announced that it plans to temporarily "stop the clock" for one year on enforcing the inclusion of aviation into its Emissions Trading System (ETS) for flights to and from non-European countries. The proposed suspension – announced on 12 November by EU climate chief Connie Hedegaard – came just days after a meeting of the International Civil Aviation Organization (ICAO) that saw signs of movement toward a possible deal on global aviation emissions.

The inclusion of aviation into the EU ETS prompted pushback from several countries including the US, China, India and Russia. These countries view the suspension as a step in the right direction.

The EU has long been seeking a *global* aviation emissions deal but the slow pace prompted them to take unilateral action. The EU has warned however, that the aviation ETS will be enforced if the ICAO fails to deliver on a global deal.

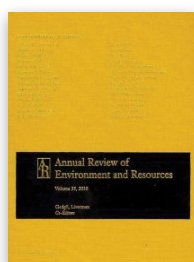
# Publications and resources



## **International Technology Diffusion in a Sustainable Energy Trade Agreement (SETA) – ICTSD – September 2012**

This research paper sets out to clarify the issues and options for a possible Sustainable Energy Trade Agreement (SETA) through several levels of analysis, ranging from products to industries to countries and the modes of technology transfers in international business. The paper places an emphasis on addressing all modes of technology transfer such as international direct investment, licensing, and trade in goods and services.

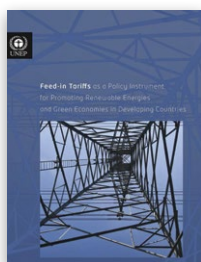
The full research paper can be found at <http://bit.ly/UcgzGG>.



## **Climate Change and Food Systems – Annual Review of Environment and Resources – November 2012**

This paper, written by Sonja J. Vermeulen, Bruce M. Campbell, and John S.I. Ingram, looks to provide an overview of the literature that exists between climate change and food systems. Recognising that about a third of greenhouse gas (GHG) emissions are due to the production and consumption of food, the review also seeks to highlight the impact on the climate from food distribution. The review then makes recommendations for the agriculture industry to reduce emissions.

The full review can be found at <http://bit.ly/QV8yqo>.



## **Feed-in Tariffs as a Policy Instrument for Promoting Renewable Energies and Green Economies in Developing Countries – UNEP – 2012**

This book addresses policies of global warming and is written by 40 specialists, many who participated as Brazilian negotiators at the Conferences of the Parties of the Climate Convention and are members of the Intergovernmental Panel on Climate Change (IPCC). It provides discussions on regulatory issues through national and international economic, institutional, sectoral, and social perspectives. Topics include, achievements of the second period for the Kyoto Protocol, REDD financing, and technology transfer.

The full book can be found at <http://bit.ly/NBSuEL>.



## **On Picking Winners: The Need for Targeted Support for Renewable Energy – Imperial College London and WWF – October 2012**

This report looks at several factors that have an impact on the renewable energy sector. These include the determination of an appropriate carbon price, investments, and the international politics of carbon taxes. The report concludes by arguing for targeted technology support to make renewable energy more conducive to investment, cheaper, and able to deliver a sustainable carbon price.

The full report can be found at <http://bit.ly/TuYdCe>.



## **Illegal Trade in Environmentally Sensitive Goods – OECD – October 2012**

This OECD publication uses evidence based on customs data and information from licensing schemes to document the scale of illegal trade, as well as the economic and environmental impacts of such trade. The report asserts that national and international policies have an important role to play in regulating and reducing illegal trade and highlights a range of measures that can be taken at both levels.

The full report can be accessed at <http://bit.ly/TC5Scb>.





### **Agriculture in the International Climate Negotiations - Supporting Sustainable Development or Just Dubious Emissions Reductions? – German Development Institute – 2012**

This briefing paper asserts that climate change will have increasingly negative impacts on agricultural activities through fluctuations – and in many world regions a permanent reduction – in crop yields. Addressing the relatively new topic of mitigation of emissions in agriculture, the paper stresses the need to establish a work programme that would mainly deal with mitigation, but also with other climate-related aspects of agriculture.

The full briefing paper can be found at <http://bit.ly/SOq4Yl>.



### **The Future We Want: The Legal Outcomes of Rio+20 – Centre for International Sustainable Development Law – 2012**

This short paper summarises some of the main legal areas of consensus outlined in the Rio+20 “The Future We Want” outcome document. It outlines the recommendations under the umbrella of sustainable development and the rule of law relating to a range of issues including sustainable development, climate change, and forest and oceans management. It also addresses renewing the political commitment for sustainable development and aims to emphasise some concrete measures through a framework for action and follow-up.

The full report can be accessed at <http://bit.ly/WinYBW>.



### **Securing the Future of Mangroves – United Nations University – 2012**

This policy brief addresses concerns regarding the clearing of mangroves to make way for other aquaculture and agricultural activities. The brief stresses the importance of the ecosystems that develop around mangroves, as well as the economic benefits that they provide. The authors explain why protecting mangroves would likely lead to greater economic growth over the current situation.

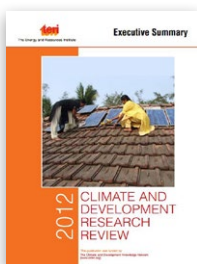
The full policy brief can be found at <http://bit.ly/Ucf1MX>.



### **A Guide for the Concerned: Guidance on the Elaboration and Implementation of Border Carbon Adjustment – ENTWINED – November 2012**

This guide, produced by a seven-person international expert drafting group, offers an in-depth look at a range of issues that policy-makers need to consider when building and implementing a border carbon adjustment regime. The authors assert that while the implementation of BCAs may appear straightforward, it is plagued by deeply complex problems in practice, including trade law considerations, methodological challenges, and consistency with principles such as common but differentiated responsibility.

The full guide can be accessed at <http://bit.ly/UUxLgC>.



### **Climate and Development Research Review – The Energy and Resources Institute – 2012**

This review aims to highlight where climate and development researchers are currently focusing their enquiry. The publication discusses four major themes: decision-making in the face of uncertainty, natural resource management in a changing climate, innovative finance for climate action and technology transfer, and division of effort for the low-carbon transition.

The full paper can be found at <http://bit.ly/SY4267>.

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ISSN 1996-9198

