

The relationship between trade and environment is quite complex, and it has been quite a controversial issue at global fora. The attempts to deal with the linkage between trade and climate change can be even more controversial. It is often argued that trade will promote more efficient allocation of resources. Efficient allocation of resources will ensure that resources are not unnecessarily wasted, which in turn will ensure less pollution. Another strand of the argument is that trade, by promoting rapid introduction or diffusion of modern technology, can also help check pollution.

It is also argued that trade can promote economic growth and development, which in the short run can create more pollution but with development there will be demand for better environment as well and, hence, pollution will come down. However, such an assumption about the relationship between trade and climate change or rather income and climate change may not be valid. When people demand better environment as a result of increased income, they might be quite comfortable if their immediate environment is kept clean even though it entails exporting the pollution to other countries or regions. Moreover, the full impacts of climate change can be felt only in the long run and the costs of climate change will be borne by the future generations. Thus, such an argument ignores both the spatial as well as the temporal dimensions of climate change.

Trade can also have an adverse impact on the climate, as movement of goods requires transportation, which is an energy intensive process that emits substantial greenhouse gases. The comparative advantage theory typically does not take into consideration the transport costs.

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But in practice, when economic agents make their decisions, they do take account of transportation costs. However, do they take into account the costs imposed on the environment or climate as a result of their actions? There is no reason that this should happen on its own unless trade policy factors this into account. However, it is better said than done as often goods even after long transportation can remain less carbon intensive compared to goods produced locally due to differences in technology used.

The most contested issue now is whether trade can or should be restricted on the basis of climate friendliness of the production process? There has been a demand that if developed countries have to take emission cuts, they must have some border tax adjustment mechanism for imports from countries that do not take emission reduction commitments. These measures may be targeted at the way products are produced rather than the inherent qualities of the products. The general approach under WTO rules has been to acknowledge that some degree of trade restriction may be necessary to achieve certain policy objectives as long as a number of carefully crafted conditions are respected. The issue is, however, far from being clear. Interestingly, neither the UNFCCC nor the Kyoto Protocol provides for specific trade measures.

Developing countries are not major contributors to the stock of greenhouse gases in the atmosphere. But, in many developing countries, a huge majority of people depends on the climate-sensitive sectors like agriculture and fisheries for their livelihoods. In seasonally dry and tropical regions, crop productivity is projected to decrease for even small local temperature increases (1–2 °C). For many countries, these sectors are also the source of their exports. Climate change is thus likely to adversely affect macroeconomic performance as well livelihood and food security in developing countries. Current discourse on trade and climate change gives more emphasis on the potential impact of trade on climate change but for a large number of developing countries the reverse question, that is, how climate change might impact trade is probably more important.

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International trade and climate change

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The American Clean Energy and Security Act of 2009 (ACESA), popularly known as the Waxman–Markey bill, was passed by the US House of Representatives earlier this year. The bill aims to ‘create clean energy jobs, achieve energy independence, reduce global warming pollution and transition to a clean energy economy’ in the United States of America. It envisages certain measures to restrict carbon dioxide emissions and requires the president to levy a charge on imports of carbon-intensive products from countries that do not adopt similar climate change measures. US importers would have to buy carbon ‘allowances’ for such products, purportedly for maintaining a level playing ground between domestic and overseas producers. The bill is directed particularly against emerging economies such as China, India, Brazil and South Africa. Similar calls for countervailing border levies have been sounded in the European Union, mostly stridently by President Sarkozy of France.

A considerable body of literature already exists on the question of whether such unilateral trade restrictive measures are compatible with the World Trade Organization (WTO) regime. There are advocates of both sides of the case; the mainstream view appears to be that compatibility is doubtful. In contrast, little attention has been paid in the literature to the question of the compatibility of the proposed unilateral trade restrictions with the universally accepted UN Framework Convention on Climate Change (UNFCCC), even though the answer to this question will be relevant in any future dispute settlement procedure in the WTO.

This note examines the question whether the proposed measures under the Waxman–Markey bill are consistent with the principles and provisions of the UNFCCC. It comes to the conclusion that proposals for unilateral measures to restrict imports from developing countries contravene the principles and provisions of the UNFCCC, in particular, Articles 3.1, 3.5, and 4.7 read with 4.2, 4.3 and 4.5.

UNFCCC and international trade

Article 3 of the Framework Convention on Climate Change lists the ‘principles’ on which the framework convention is based. Paragraph 1 enunciates the basic principle of ‘common but differentiated responsibilities’ underlying the Convention. It reads as follows.

‘The Parties should protect the climate system...on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.’

The Convention notes in the preamble that the ‘largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of global emissions originating in developing countries will grow to meet their social and development needs’. The excessively high atmospheric concentrations of greenhouse gases which have led to climate change have originated mainly in the developed countries. They are, therefore, primarily ‘responsible’ for causing climate change and must take corresponding mitigation actions. Moreover, the developed countries possess much greater financial and technological resources, or ‘capability’ for undertaking mitigation actions. Thus, the principle of common but differentiated responsibilities makes it clear that developing countries cannot be required to undertake similar mitigation measures as developed countries.

By failing to differentiate between developed and developing countries, the Waxman–Markey bill (and similar protectionist calls in the European Union) violates one of the basic principles of the UNFCCC.

Article 3, paragraph 5 of the Framework Convention deals specifically with trade and climate change.

‘The Parties should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and

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development in all Parties, particularly developing country Parties, thus enabling them better to address the problems of climate change. 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' [emphasis added].

The paragraph provides an interpretation of WTO regulations in the specific context of the global response to climate change. In this context, it emphasizes the need to avoid trade restrictive measures affecting developing countries, since such measures would undermine their ability to address the problems of climate change. The impacts of climate change will fall most heavily on developing countries since they lack the financial, technological and human resources necessary for adaptation. They must develop rapidly in order to build up their adaptive capacity and, thereby, address the problems of climate change in an effective manner. Unilateral trade restrictive measures against developing countries, including countervailing border measures, cannot be justified on grounds of combating climate change.

Article 4 lays down the differentiated commitments of the developed and developing country Parties, respectively. Paragraph 1 enumerates certain general obligations applicable to all Parties, including developing countries. All Parties are required to implement 'programmes containing measures to mitigate climate change' but there is no reference in this clause to quantified targets. Parties are required to implement these general commitments in accordance with the principle of common but differentiated responsibilities.

Furthermore, the Convention specifically reiterates Principle 11 of the Rio Declaration on Environment and Development, recognizing in its preamble that 'environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply, and that standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries'.

Thus, developing countries are not expected to implement the general commitments set out in paragraph 1 to the same extent as developed countries, nor are they required to adopt similar priorities, standards or management objectives – in a word, policies and measures.

Subsequent paragraphs introduce additional elements of differentiation between developed and

developing country Parties in respect of mitigation, as well as finance and technology. Thus, paragraph 2 lays down additional mitigation commitments applicable only to developed countries (Annex I Parties), in the form of quantified, time-bound emission stabilization and reduction targets. Developing countries are not expected to take similar measures. If a developed country decides to adopt certain regulations or controls with a view to implementing its mitigation commitments under the Convention, it has no right to insist that a developing country should also enforce similar regulations or controls. This would constitute a violation of the Convention. Yet, this is precisely the intention of the Waxman-Markey bill.

Paragraph 3 requires developed country parties listed in Annex II to provide 'new and additional' 'financial resources, including for the transfer of technology, needed by the developing country Parties that are covered by paragraph 1 of this Article...' Paragraph 5 requires the developed country Parties included in Annex II to 'take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country parties to enable them to implement the provisions of the Convention.' It will be seen that developing countries are not required to implement mitigation measures involving incremental costs, including those involved in technology transfer, unless these are fully covered through financial resources contributed by the developed countries listed in Annex II. Thus, these paragraphs introduce a further element of differentiation between developed and developing countries. Implementation of the common obligations set out in paragraph 1 is conditional, in the case of developing countries, to their receiving adequate support from developed countries to an extent covering 'agreed full incremental costs, including for the transfer of technology.'

This is spelt out in specific terms in paragraph 7, which reads as follows:

'The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country parties of their commitments under the Convention related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.'

ACESA and developing countries

The Act seeks to provide a so-called 'level playing field' for US companies and their competitors, thereby contradicting the principle of common but differentiated responsibility (CBDR) as elaborated in the UNFCCC. The Waxman-Markey bill, if implemented, would have the effect of compelling developing countries to implement measures that are not a requirement for them under the Convention, or else to bear financial consequences laid down by the bill. This would violate the provisions of Article 4, which exempts developing countries from uncompensated mitigation actions involving incremental costs.

The bill seeks to shift the financial burden of such costs, including costs involved in technology transfer, from the shoulders of the Annex II developed countries to those of developing countries, in contravention to the provisions of the Convention. The bill can be seen as an extra territorial attempt on the part of US to impose developed country standards and targets of emission reduction on developing countries in the garb of transition to a clean energy economy. This is clearly against the CBDR principles enunciated in the UNFCCC.

One of the primary concerns that are likely to take fore once the proposed law is enforced is with respect to the adverse impact on sustainable development of developing countries through imposing on them restrictions and conditions appropriate to other countries. While such restrictions, which can be seen as 'disguised protectionism' (Khor 2009) are against the multilateral trade regime, they also contravene the UNFCCC provisions.

Under the ACESA, a 'border adjustment programme' is proposed under which, all foreign manufacturers and importers would have to purchase and acquire pay special allowances to offset the carbon emitted during the manufacture of US-bound products. This would have a direct impact on the prices of goods imported and hence, sales. In addition to the border-offset programme, the bill provides for rebates for certain energy intensive companies to meet the additional costs incurred by them, as an effort towards ensuring domestic competitiveness. While the US companies get assistance to meet the cost of complying the new standards, developing countries with a market in US

will be forced to comply with stricter standards at their own cost. Therefore, the bill puts unreasonable pressure on developing countries at two levels, first, to adhere to emission reduction standards matching the Annex I obligations, and second, to bear the financial burden of meeting these requirements to avoid losing developed country markets. As mentioned earlier, Article 4.2 lays down mitigation commitments for Annex I Parties, over and above the general requirements for all other countries. The ACESA seeks to pass on the cost of these additional mitigation commitments to countries having no such obligation under the UNFCCC.

Conclusion

The UNFCCC seeks to protect the climate system on the basis of the principle of 'CBDR and respective capabilities' of Parties. Climate change is result of excessively high levels of greenhouse gas concentrations in the atmosphere; and since these have originated mostly in the industrialized countries, the developed countries are mainly responsible for causing climate change. The developed countries also possess much greater financial and technological resources for addressing climate change. The Convention, therefore, draws a clear distinction between the commitments of the developed and developing countries, respectively. Unilateral trade restrictive measures, purportedly aimed at protecting the climate system, would violate the principles and provisions of the Convention to the extent that they adversely affect developing countries.

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Export embodied energy and carbon dioxide transfer emissions: the case of China

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Introduction

China's international trade increased dramatically in recent years. The total value of trade (import and export) reached 2561 billion \$ in 2008, equal to 60% of the gross domestic product (GDP). With the development of economic globalization, international trade has expanded the frontiers of the country's economic activities. However, the growth of international trade does not necessarily mean that the effective utilization of natural resources and the improvement of environmental quality would be ensured. China's export has experienced strong growth and consumed a large quantity of energy resources in recent years. That is to say that China's annual total energy consumption has not only met domestic general demand, but also served the production of export goods to meet the consumption needs of foreign areas. Figure 1 shows the increasing trade and energy consumption in China in recent years.

The trend of the global response to climate change and mitigation of carbon emissions is receiving increasing attention. There is a growing concern

about the export embodied energy in China. Some important questions are—what is the proportion of energy used in the export production in China's total energy consumption? Whether there is a serious imbalance between the export goods embodied energy and import goods embodied energy? From a global response to climate change perspective, through the transfer of high energy-consuming industries and goods to developing countries, developed countries could reduce its domestic carbon dioxide (CO₂) emissions. How much 'transfer emission' has China received from the developed countries actually? It needs to do serious quantitative research on these issues, which can provide evidence for our exploring and understanding the relations of economic growth, trade, resources, environment, climate change, and so on.

Literature review

While energy security and climate change have been issues of concern for the international community, attention has been paid to import and export embodied energy and transfer emissions gradually. Since 1990, researches on this issue in China and abroad have become increasingly active. Wycokoff and Roop (1994) studied the import goods embodied energy in the six largest Organization for Economic Cooperation and Development (OECD) countries from 1984 to 1996. Using US input-output table in 1997, Bin Shui *et al.* (2006) examined the embodied energy and transfer of CO₂ emissions in US-China trade. It indicated that about 7%–14% of China's current CO₂ emissions were a result of producing exports for US consumers. Tyndall Centre for Climate Change Research found that net transfer of CO₂ emissions into China accounted for 23% of its total emissions in 2004. There are still a large number of analysis and researches on a certain country case, mainly including Machado (2000), applying an

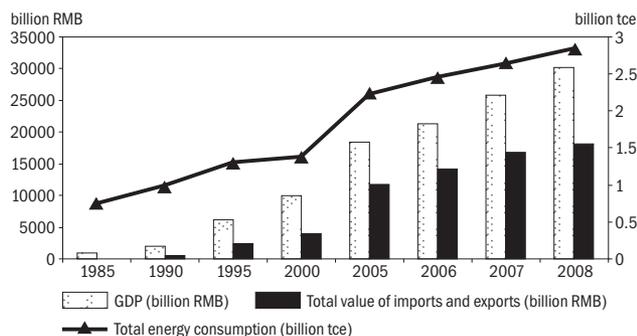


Figure 1 Recent trend in export, import, and energy consumption in China

Source China statistical abstract (2009)

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Input-Output (IO) model in hybrid units, evaluated the energy and carbon embodied in Brazilian foreign trade. Findings showed that the energy consumption and carbon intensity in all types of commodity were increasing in Brazil from 1985 to 1995. The import and export embodied energy and carbon emissions were also rising, offsetting import against export. Brazil was a net exporter of energy and carbon.

Applying the IO method, Kakali Mukhopadhyay (2006) estimated the trend of CO₂, sulphur dioxide, and nitrogen oxides embodied in import and export of Thailand in 1980, 1990, and 2000. Such studies were carried out for several other countries such as Norway (Straumann, 2003; Haukland, 2004), Finland (Siikavirt, 2007), Australia (Lenzen, 1998, 2001), and so on. In China, studies on this issue are still at an initial stage. Chen Xiangdong, Wang Na (2006) had made a good review of international trade impacts on energy and environment. Li Hong *et al* (2006) used the concept of ecological footprint and assessed the impacts of China's import and export embodied energy on ecological footprint. Using an IO model, Pan Jiahua *et al* (2007) calculated the embodied energy and emissions in China's import and export. Qi Ye (2008) accounted the embodied carbon in China's international trade. Based on China's non-competitive input-output table in 2005, Yao Yufang *et al* (2008) estimated the energy consumption of import and export, the results showing that net export energy was 297MTCE. There are large deviations in the results in the above studies, in which some improvements can be made in the data processing and analytical methods used. At the same time, some papers analyzed and discussed the existing research methods. Such as Peters and Hertwich (2004), Haukland (2004), Miller and Blair (1985), Round (2001), Lenzen *et al* (2004), and Ahmad and Wyckoff (2003).

Embodied energy

Embodied energy of a product is the total energy consumption in the whole process from the product's raw material production to processing, manufacture, transport, and so on. From the perspective of a product's life cycle, it includes all the energy consumed by the product. Export embodied energy accounts for the energy consumed by the exported goods in the process of manufacture and transport in the country or region of export. Import embodied energy refers to the energy consumption of import in foreign production, transport process, in order to meet domestic consumption or

investment for a country or a region. The difference between export embodied energy and import embodied energy of one country is its net export embodied energy.

China export and import status

In China's international trade, the proportion of processing trade accounts for more than a half. After being reprocessed and then re-exported, products in processing trade are not consumed in the country. So, embodied energy of processing trade products are excluded in import embodied energy. Similarly, embodied energy of those products in processing trade do not use China's domestic energy, thus, it is not counted in China's export embodied energy. While calculating embodied energy of processing trade products, it only includes the energy consumption in the reprocessing and transport process in China.

As for non-processing trade products of China's import, more than 3/4 of which goes into the intermediate production process. And as raw material, a part is used for export production and then re-exported. This part of import embodied energy, as raw materials, is similar to import processing trade. It is excluded while calculating export embodied energy or import embodied energy.

Transfer emissions

When the international community takes statistics for a country's CO₂ emissions, the total CO₂ emissions result from all energy consumption in a country are under consideration. Using domestic energy and inducing CO₂ emissions in domestic, finally exports have been consumed in importer countries. From the consumption side, it is a transfer of CO₂ emissions in all consumer goods from importer to exporter. Now, China has become the world's manufacturing base and lie in the mid or low-end in international industrial value chain. So, in China's CO₂ emissions of energy consumption, there is a big proportion due to transfer emissions from the developed countries. For example, as to a set of furniture purchased by an American consumer, its embodied energy not only involves the energy consumed by plates in Germany, the energy used by processing and assembly in China, but also the energy consumed by metal hands in Vietnam. The total of all that energy consumption is this furniture's embodied energy. The embodied energy should figure in the energy consumption in the assembly and transport process in China when China exports this furniture. As

far as Germany's plates and Vietnam's metal hands are concerned, they are products contained in processing trade. So, embodied energy out of them should not be calculated in China's import embodied energy or export embodied energy. Because all these goods will be finally consumed in the US, the embodied energy should be added into import embodied energy of the US. From the view of consumers, the US has transferred CO₂ emissions in the production process to China, Germany, and Vietnam. The CO₂ emissions, emitted from energy for producing China's export goods, are transferred from the US.

International trade trends

Currently, foreign research results on embodied energy and emissions of China's international trade are too high in general. The main causes are that the methodology is too simple, incomplete deduction of the embodied energy of processing trade when using IO tables, and ignorance of the features that processing trade accounting for a large number of our export. Since we are in the mid or low-end of the international trade, most of China's export products are industrial low-end products with low added value and high energy consumption. In terms of import, most products are in high or mid-grade with low energy consumption. So, the difference between export embodied energy and import embodied energy in China is much higher than that between export and import in money value. In 2005, the export of goods was 1.15 times higher than import. Export embodied energy was 1.79 times higher than import embodied energy. The status of a country in international trade industry chain is determined by its technical level and stage of development. Energy consumption per unit GDP in China was 3.8 times higher than in OECD countries in 2005. The fact is that to develop Chinese industrial structure to the high-end needs efforts for a certain period.

Balance trade and energy savings

Export is one of the 'three carriages' that stimulate economic growth. After deduction of its own value-added of processing products and intermediate inputs for domestic production in import products, the export value-added resulting from domestic production accounted for 22.4% of GDP in 2005. Export energy consumption per unit of value added was 1.16 tonne coal equivalent (TCE)/104 yuan, higher than the national GDP energy consumption intensity of 1.23 TCE/104 yuan, while it was lower than that of per domestic unit

industrial value added of 2.07 TCE/104 yuan. This indicates that export does not increase the weight of the energy consumption intensity in industrial sectors. But it has increased the weight of the industrial sector. Thereby, it increased the energy consumption intensity per GDP. The large number of Chinese manufacturing industry export is another reason of an increasing proportion of secondary sector in the country.

Because China is a net exporter of embodied energy and coal dominates the energy mix, the ratio of non-fossil energy, such as nuclear energy and renewable energy is low. CO₂ emissions factor per unit energy consumption is more than 30% higher than those of the developed countries. Therefore, the difference of energy consumption of CO₂ emissions between export and import is larger than the difference of embodied energy. In 2005, net export embodied energy accounted for 9.37% of domestic total energy consumption, and corresponding CO₂ emissions is 12.14% of the total emissions. In recent years, renewable energy and nuclear energy are developing rapidly in China. Energy structure is continuously optimized. CO₂ emission factor per unit energy consumption is also declining. In the future, along with the transformation of the development model and the optimization of industrial structure, and with the increase of energy efficiency and optimization of energy structure, China's net export embodied energy and CO₂ emissions will be gradually reduced.

Future challenges

According to the provisions of the Kyoto Protocol, developed countries have committed quantitative emission reduction obligation. Their high energy-consuming industries and products are being transferred to the developing countries. It would reduce their CO₂ emissions but increase energy resources consumption and domestic environment pollution in the developing countries. Developing countries have to bear the 'transfer emissions' from the developed countries. In essence, 'transfer emissions' is 'carbon leakage' from developed countries, so that developed countries could escape the emission reduction obligation. China is the world's major power of CO₂ emission and international trade. Nearly 15% of CO₂ emissions from energy consumption can be accounted for the transfer emissions from abroad mainly developed countries. Because of our country's placement in mid or low-end of international industrial chain, the ratio of products with high energy consumption and low added value is large in export. Net export embodied energy would

increase the energy and environmental burden on our country in international trade. Meanwhile, net export embodied CO₂ emissions would increase the pressure of our country's emission reduction. The other side is that developed countries have adopted carbon emissions trading and carbon tax policy in general. Facing this situation, they may implement some measures such as setting the product and environmental standards, carbon tax on import products, and so on. Then carry out the 'green trade barriers' or trade protection in new forms to protect competitiveness of local enterprises. This will be an enormous challenge for China's export. But at the same time, it is also an opportunity for China to change export and industrial structure and develop to the high end of the value chain.

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The interface between trade and climate change: key issues for least developed countries, small and vulnerable economies, and small island developing states

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The year 2009 may be an important milestone for establishing the foundations of an international agreement to respond to climate change. Indeed, the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties will meet in Copenhagen in December to finalize a deal. Consensus among countries and informed participation of developing countries will, thus, be crucial. Moreover, trade policy and, in particular, the ways in which it can be harnessed to support climate change mitigation and adaptation will play a central role in the negotiations.

Till now, the interests and concerns of developed and large emerging economies have received significant attention. However, the challenges faced by smaller developing countries, including least developed countries (LDCs), small and vulnerable economies (SVEs), and small island developing states (SIDS) have taken the backstage. These countries, nonetheless, are amongst the most vulnerable given their generally undiversified productive structures, mounting levels of poverty, and high exposure to external shocks.

Climate change is a global challenge with critical development implications. The Intergovernmental Panel on Climate Change (IPCC) in its *'Fourth Assessment Report'* projects that by 2020 between 75 and 250 million people in Africa, where most LDCs are located, will be exposed to increased water stress while in some countries yields from rainfed agriculture could be reduced by up to 50%. Moreover, in several parts of Asia freshwater availability, particularly in river basins, is expected to decrease.

Coastal areas with high population density will also be greatly affected by increased flooding from the sea and rivers. SIDS are expected to be most adversely affected by sea level rise, increasing inundation, erosion,

and storm surge, threatening important physical and productive infrastructure and critically compromising the livelihoods of these countries. Likewise, changes in precipitation patterns and the disappearance of glaciers are projected to significantly affect water availability for human consumption, agriculture, and energy generation in LDCs, SVEs, and SIDS.

Adapting to climate change poses important challenges. In Africa, the cost of adaptation would consume at least 5% to 10% of GDP by 2080, which could be 5% to 8% higher in arid and semi-arid areas. Most developing countries will face related economic and social costs in their adaptation efforts.

Trade and climate change challenges for LDCs, SVEs, and SIDS

LDCs, SVEs, and SIDS are highly vulnerable to the physical impacts of climate change. Moreover, their crucial economic sectors like fisheries, agriculture, and tourism will face important risks in the context of these impacts. Given these countries' high dependence on such sectors for economic growth, climate change poses serious challenges for the attainment of the Millennium Development Goals and other sustainable development objectives. Key trade and climate change challenges in LDCs, SVEs, and SIDS include issues such as economic resilience and adaptation to climate change, clean technology and intellectual property rights, fisheries, environmental goods, and sectoral approaches. These will be discussed in depth in this paper.

Trade and climate change adaptation

Adapting to climate change entails taking the right measures to reduce the negative effects of climate change (or exploit the positive ones) by making the appropriate

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adjustments and changes. The concept of adaptation is, thus, closely linked to the development of adaptive capacity, which refers to changes in processes, practices or structures to moderate or offset potential damages or to take advantage of opportunities associated with climate change (ICTSD 2009 a).

Relevant measures to create adaptive capacity in LDCs, SVEs, and SIDS would include fostering economic resilience through productive diversification, promoting appropriate natural resource management, accessing relevant technology, fostering disaster risk prevention and management, obtaining adequate information on climate risks and impacts, and mainstreaming climate change adaptation into economic; fiscal; and development policies. Given the climate change challenges of LDCs, SVEs, and SIDS, building domestic and regional economies that are resilient and diversified will be the key to reduce vulnerability to shocks in these countries.

Further trade liberalization would not always be the most adequate policy to build climate resilient economies. Indeed, LDCs, SVEs, and SIDS have generally highly opened economies dependent on international trade. This, however, has to a large extent also exposed them to fluctuating external shocks like commodity prices, financial crisis, and so on, which have enhanced their vulnerability. Moreover, further liberalization in the context of an unbalanced trading system (for example, the continued use of subsidies in developed countries, tariff escalation, non-tariff barriers (NIBs), and so on) may not necessarily translate into economic diversification but rather increase specialization and dependence on a few commodity exports.

A number of changes and adjustments will, thus, have to be made in the current trading system and national development planning in order to take the concerns and interests of LDCs, SVEs, and SIDS at their core. Some of those adjustments will require changes in existing international trade disciplines in order to strengthen policy flexibilities to facilitate access to climate-friendly technologies and services; foster low carbon and sustainable energy sources; operationalize innovative financing tools for climate change adaptation in light of UNFCCC provisions; allow for policy space in both trade and climate regimes, ensure that trade and climate provisions effectively promote economic diversification in LDCs, SVEs, and SIDS; and introduce climate and economic resilient policies into national development planning.

Moreover, trade-related infrastructure (such as ports, roads, storehouses, and so on) should be built or strengthened in ways that address both the supply-side needs and climate change adaptation objectives of LDCs, SVEs, and SIDS. Indeed, financing frameworks like aid for trade, the enhanced integrated framework, and climate change financing mechanisms could and should be used in a complementary and reinforcing manner.

Climate change technology and intellectual property

Development and the transfer of technology have emerged as fundamental elements for a post-2012 global regime on climate change. Technological solutions are imperative for meeting the challenges of climate change like reducing GHG (greenhouse gas) emissions, lowering the costs of mitigation, and fostering long-term adaptation to climate change. In the case of mitigation some of these technologies include energy-efficient and renewable energy technologies, energy-efficiency transportation technologies, energy and material-saving building and construction technologies, and low-GHG emission technologies for agriculture and animal husbandry.

In the case of adaptation key technologies include water saving, water capture, and water reuse technologies; agricultural biotechnology; disease and pest-control technology; and flood, drought, sea-level rise, agricultural disasters and desertification-control technologies. However, the potential transfer of these technologies face a number of economic, institutional, policy, and human capacity-related barriers, especially in LDCs, SVEs, and SIDS. Trade liberalization on its own is an insufficient driver for the diffusion of knowledge and technology. Instead, a legal and policy enabling environment may be more beneficial.

There is no single answer to technology transfer. The UNFCCC recognizes, however, that LDCs, SVEs, and SIDS have 'specific needs and special situations' regarding technology transfer. Given these countries' low levels of development and ineffective institutions, market-based technology transfer mechanisms, such as foreign direct investment or joint ventures without complementary development policies and capacity building, may thus be ineffective in addressing the climate change challenges they face.

The WTO Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS) establishes a number of flexibilities that could be instrumental

for LDCs, SVEs, and SIDS. Such flexibilities centre on exemptions to patentability, exceptions to patent rights, and compulsory licenses. Indeed, article 27.1 of the TRIPS Agreement requires WTO members to grant patents to all types of technological inventions. However, the agreement does not specify a scope for patentability criteria such as novelty, inventive step, and industrial applicability. Countries can, thus, define these based on national policy priorities. For LDCs, SVEs, and SIDS such flexibilities could be potentially beneficial for fostering reverse engineering processes and related developmental policy tools.

Moreover, the TRIPS Agreement provides for limited exceptions of preventing third parties from exploiting a patented product. What constitutes the special situations for granting these exceptions is not specified in the agreement. LDCs, SVEs, and SIDS could, thus, have leeway in allowing the use of a patented invention, under certain circumstances, without previous consent of the patent holder. In the context of climate change threats, exceptions to patent rights could play an important role in promoting access to or potential production of key environmental technologies.

Likewise, compulsory licenses are granted to allow the use of a patented product or process without the authorization of the rights bearer. Situations under which compulsory licenses are permitted depend on a series of conditions and procedural steps. However, the criteria used by countries are not specified. Once again, LDCs, SVEs, and SIDS could issue compulsory licenses to make imports or produce particular processes and/or mitigation and adaptation technologies in case of national emergencies arising from climate change.

Sectoral approaches to climate change mitigation

Sectoral approaches generally refer to transnational, across-the-board mitigation of energy-intensive industries. The debate on sectoral approaches emerges from international competitiveness concerns, and it regained strength through its inclusion in the 2007 Bali Action Plan. Although LDCs, SVEs, and SIDS do not need to commit to mandatory emissions reductions, given the principle of 'common but differentiated responsibilities', negotiations on sectoral approaches should properly reflect the interest and concerns of these countries. Indeed, LDCs, SVEs, and SIDS could tap into some of the potential benefits of sectoral approaches including the transfer of technology

and a more development oriented use of the Clean Development Mechanism (CDM).

Sectoral agreements could cover energy intensive and heavily trade-exposed industries such as steel, paper, aluminum, pulp, cement, and agrochemical. Three major proposals on sectoral approaches exist. The first consists of sector-wide or multi-sectoral agreements in which industry actors would play a key role in establishing standards. The second is the 'bottom-up' approach in which emission targets are set for individual sectors using the best available technologies and then added to complete a 'national' emissions target. Finally, the third approach focuses on a 'top-down' sectoral crediting model, which would offer incentives for emission cuts. Emission cuts achieved beyond voluntary targets would be eligible for sale as emission reduction credits to developed countries. Failure to meet the voluntary established level, however, would not generate any penalties.

LDCs, SVEs, and SIDS could seize gains in sectoral negotiations particularly as they refer to technology transfer and the CDM. In the case of the transfer of technology, sectoral approaches could become important enablers for the diffusion of energy-efficient technologies. Since sectoral agreements will be based on 'best practice' and best-available technologies, these would potentially foster the adoption of up-to-date technology in specific sectors. Moreover, since the carbon constraint on energy-intensive goods may render finished products from developed countries more expensive this could serve as an incentive for LDCs, SVEs, and SIDS to strengthen their domestic productive infrastructure, access the necessary technology for capacity building and technological catch up through sectoral approaches, and explore possible new competitive advantages.

In the case of CDM, sectoral approaches could contribute to making this tool work for development. Since the structure of the CDM is based on incentives, its current geographical distribution is highly unbalanced. In 2006, 411 (almost 36% out of 1145 projects) were hosted in India. Asia received 687 projects while Latin America hosted 415. However, sub-Saharan Africa hosted only 17 projects. Moreover, CDM projects have little transformative effects as they do not include a sustained mechanism to support low-income host countries, in particular, in formulating, enforcing, and monitoring development policies. Sectoral approaches, however, have the potential to facilitate the 'bundling' of

small-scale CDM activities under a single CDM project, which could link the local, regional, and national levels in LDCs, SVEs, and SIDS in a reinforcing manner.

Fisheries and climate change

Trade in fish and fishery products can play a key role in the development strategies of many developing countries. Indeed, for many LDCs, SVEs, and SIDS, the fisheries sector is a large source of employment and export revenue. Net fishery exports by developing countries grew from \$4.6 billion in 1984 to \$20.4 billion in 2004. Moreover, this sector is an important dietary input and a crucial element for local livelihood. More than 2.6 billion people depend on fisheries for at least 20% of their average per capita animal protein intake. Likewise, in 2004 fisheries provided a source of direct and indirect employment for 200 million people worldwide.

Overexploitation of fish stocks and climate change, however, represent two crucial threats to this important sector. Some of the potential impacts of climate change on fisheries will depend on the region, the species, and the stocks. They may also vary between negative and positive impacts. Nonetheless, some research stresses that climate change impacts will hit harder the coastal regions rather than species found in mid water or close to the surface and on temperate rather than tropical species (ICTSD 2009 b).

Climate change will, thus, increase uncertainties in the supply of fish from capture to culture. West and Central African countries are the most vulnerable to the likely impacts of climate change on fisheries given their limited adaptive capacities due to the small size of their economies with a low degree of diversification and low human development indicators. However, some mitigation and adaptation actions can be introduced, including re-building fish stocks and improving fisheries governance; expanding aquaculture along sustainable and equitable development paths with appropriate legal and regulatory frameworks; adopting measures to reduce the carbon footprint of the fisheries sector (for example, promoting fuel-efficient methods); creating alternative employment and livelihood opportunities; and fostering marketing and labelling of goods produced in energy-efficient ways (eco-labelling).

Moreover, trade policy could be instrumental to discipline distorting fisheries' subsidies in the WTO that lead to overfishing. Indeed, this could build

healthier marine stocks and, thus, be instrumental in fostering economic resilience and climate change adaptation in LDCs, SVEs, and SIDS. Likewise, trade policy could also play a key role in addressing NTBs (non-tariff barriers) that hinder developing countries' efforts to diversify their economies by adding value and accessing world markets. Some of these barriers include sanitary and phytosanitary measures, tariff escalation in developed countries (for example, in some cases, developing countries' exports face very high tariffs), countervailing measures, and rules of origin requirements. In order to build more resilient economies in LDCs, SVEs, and SIDS, in the context of climate change, such trade barriers need to be dealt with in an effective manner.

Environmental goods

In 2001, WTO members agreed on the reduction or, as appropriate, the elimination of tariffs and NTBs on environmental goods and services as part of the Doha Development Mandate. In some cases, the liberalization of environmental goods that are climate-friendly could support climate change mitigation efforts. Indeed, liberalization could lower the costs of these goods by reducing and/or eliminating NTBs. Negotiations at the WTO, however, face a number of challenges. One major challenge is the lack of a universally accepted definition of environmental goods. Thus, two broad categories have currently emerged in the context of these negotiations—traditional environmental goods addressed to remedying an environmental problem (for example, carbon capture and storage technologies) and EPPs (environmentally preferable products), which include any product with certain environmental benefits arising either during the production, use or disposal stage relative to a substitute or 'like' product.

Crucial issues emerge from the potential liberalization of environmental goods like the dual use problem and the PPMs (processes and production methods) issue. The former arises from the fact that most products proposed to liberalize as environmental goods include, at the HS (Harmonized and Commodity Description and Coding System) 6-digit level, other products that are also for non-environmental use. The PPMs problem, for its part, centres on the difficulty to distinguish 'environmental goods' from 'like' products that have been produced using methods that are friendlier to the environment. Moreover, even for products where the environmental

benefits do not depend on PPMs, many are only relatively eco-friendly. Hybrid cars for instance, which can be compared to electric cars, illustrate this.

Likewise, both China and India have emerged as leading producers of clean energy, namely wind and solar, while Brazil is a world leader of biofuel manufacturing equipment. According to Jha (2008), emerging economies like China and Mexico were among the top 10 exporters in several categories of environmental goods. This could translate into new South-South investment opportunities. Indeed, LDCs, SVEs, and SIDS could become producers of parts or processes required in the production of wind turbines or solar panels. This would not only foster South-South trade but also the shift in these countries from costly fossil-fuel imports to domestically generated sources of renewable energy. Barbados, for example, already uses domestically manufactured solar water heaters. Moreover, Barbados is the largest supplier of these units for other Caribbean islands. A Barbadian manufacturer has even set up a factory in Nigeria (Thompson 2008).

Conclusions

Trade and trade policies can play an important role in fostering economic resilience and climate change adaptation in LDCs, SVEs, and SIDS. However, distorting rules (for example, subsidies that promote natural resources' overuse and/or fossil fuel dependency) and NTBs (for example, sanitary and phytosanitary measures, tariff escalation, rules of origin), which still persist in the international trading system need to be addressed. Indeed, making the 'rules of the game' fairer is crucial to build a world trading system that effectively supports sustainable development.

In the context of a post-Kyoto agreement policy-makers and other key stakeholders around the world should, thus, ensure that trade becomes part of the solution to climate change challenges and not a 'stumbling' block. Moreover, both trade and climate change regimes need to adequately reflect the interests and concerns of LDCs, SVEs, and SIDS. Only by including and properly delivering on issues concerning these countries would the trade and climate change regimes be able to both promote a better link to the world economy and a strengthened capacity to deal with climate change challenges in LDCs, SVEs, and SIDS.

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Book Review

Anandajit Goswami*

Warming up to trade? Harnessing international trade to support climate change objectives
Washington DC: World Bank, Economic and Sector Work, Environment Department, Sustainable Development Network. Pp. 123

Trade and climate change is increasingly becoming an important subject of research. With this backdrop, this report brings forward some interesting, and widely discussed issues on trade and climate change. Regulatory measures like the Renewable Energy Directive of the European Union (EU), labelling, and energy conservation law for usage of clean and efficient energy in end-use sectors like power generation, buildings are mentioned in the report. Countries like Finland, Denmark, Estonia, New Zealand, Norway, Slovenia, Portugal, and Switzerland have implemented domestic carbon taxes to discourage carbon-intensive production of various products.

Parallel to the EU Emission Trading System (ETS) measures, the Japanese voluntary trading system also has a target of reducing emissions through voluntary emission trading. A rise in carbon tax could raise the cost of factor inputs and could affect the profits earned by the company. In this way measures to address climate change through carbon tax could affect the competitiveness of companies if the increase in cost is not passed onto the consumers through a rise in final price of the product. However, the profits might not still fall if the good on which carbon tax is imposed does not have any substitutes. If the buyers of the good buy the good for a long time, a fall in profitability through cost increase might be overcome by raising the volume of production. In addition to carbon tax, border taxes are also proposed to be imposed on imported products to restrict trade in carbon-intensive products. But that would also depend on the elasticity of the demand of the same product in the importing countries. If the prices of the exportable commodities increase after carbon tax imposition, the importing countries might still import it if the buyers are dependent on the import of the goods on which carbon tax imposition occurs.

The report states that imposition of carbon tax on the exportable energy commodities does not necessarily reduce the exports because of the presence of implicit subsidies that are linked with energy commodities. Bilateral trade flow in energy commodities is to a large extent dependent on political economy, associated with bilateral country negotiations, and the political economy of the domestic situation governing the export of the energy products. Imposition of carbon tax could lead to shifting of pollutant industries from developed to developing countries. But this explanation is often not so straight jacketed. Access to clean technologies by the developing countries and the kind of technology transfer regime would also determine whether a carbon tax imposition would necessarily lead to shifting of a pollutant industry from a developed to a developing country.

The second chapter of the report emphasizes that such a carbon leakage has taken place in case of industries like iron and non metallic mineral products. But global mineral resource scenario shows that production of many mineral ore driven energy-intensive products, like steel, has shifted to places where cheap quality resources are available along with cheaper labour. Also, companies from many Non Annex I countries like India have shifted their production base to countries like South Africa and Zambia to create vertically integrated production chains of mineral ore driven products because of availability of quality mineral ore and cheap labour. The technology has been sourced through joint venture (JV) agreements with companies from developed countries like Denmark. This trend has been seen in case of stainless steel production from ferrochrome derived from chromite ore. The report suggests that import-export ratio of energy-intensive products

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have increased in the developing countries to a larger extent. A rise in energy prices, energy dependence of the developing countries, and the level of reliance on renewable sources of energy could be some of the explanatory factors behind such an observation.

Also, an imposition of an environmental tariff by the developed countries on energy-intensive exports of the developing countries might create a type of 'green imperialism' in the long run. Environmental tariff like the Kyoto Tariff protects the EU industries from international competition without considering the climate change issues of the exporting country. One also needs to assess whether such tariffs are World Trade Organization (WTO) compatible in terms of their compatibility with the General Agreement on Tariffs and Trade (GATT) principles like the most favoured nation (MFN) treatment, tariff and national treatment obligations. The exception clause of GATT might justify the use of production and process methods as an instrument of a climate policy that could restrict trade. This has to be done in a balanced way considering the contextual realities of developing countries.

One critical issue for addressing climate change is related to a transparent, clean technology transfer regime. In such a regime, technology transfer from Annex I to Non Annex I countries would require needs assessment, proper information on technology, capacity building, and a transparent and conducive environment. Intra-industry trade, within developed countries, already exists in climate- friendly technologies like clean coal, wind, photovoltaic (PV), and efficient lighting. But between a developed and developing country the modes of technology transfer that could exist are international JV, licenses (compulsory licenses), relocation of employees through international migration of labor, and international developmental aid. Currently, an aggregate broad tariff codification exists for many renewable energy technologies like solar photovoltaic (SPV) and light-emitting diode (LED). Many dual-usage technologies are also lumped together. A monopolistic control over technology might act as a barrier towards technology transfer. For instance, clean coal technologies largely exist in Netherlands and Spain. General Electricals (GE) is the leading company that produces gas turbine along with Siemens. The main exporters of many dual-use components – like producer gas generators, vapour turbines, gas turbines, removal filters, electrolytic precipitators, flue gas desulfurization, NO_x separators – are US, UK,

Germany, Italy, Switzerland, Japan, France, Mexico, the Netherlands, and Hungary. Some of the importers are China and Japan. The applied tariffs on these technologies are very high in most of the countries apart from Argentina, Indonesia, and Kazakhstan. Presently, wind turbine technology is largely dominated by large manufacturers from Denmark (Siemens), Spain, US, India (Suzlon), and new entrant China. Some form of intra-industry trade has been also taking place in the wind turbine technology. High levels of tariff exist for gear box, coupling, and wind turbine. Additional duties on the PV cells have often acted as a hindrance towards the diffusion of the technology. Currently, import duties exist on storage batteries, charge controllers, compact fluorescent lamps (CFLs), and inverters. A lack of detailed specification of PV system components in the Harmonized System (HS) classification could also hinder trade in these products. Policies for renewables like feed-in laws in US and Germany are implemented in India, Brazil, China, Indonesia, Srilanka, and Thailand to promote the sector. Fiscal incentives in the form of income tax exemption, reduction, credits, preferential income tax treatment for renewable energy investments, accelerated depreciation, sales tax, and value added tax (VAT) exemption could also play a key role in wider diffusion of renewable energy technologies. Also a large-scale domestic awareness programme would be required to create demand for these energy efficient and clean energy driven environmental goods.

But as a precursor, a clear definition of environmental goods and services has to be laid down. Broadly, environmental goods are thought to be the goods, which give rise to environmental benefits in the production stream of the good. Many of these environmental goods have multiple uses. Any outright liberalization of environmental goods with multiple uses could hurt domestic industries of the developing countries. In order to check that many developing countries, like India, have been putting forward the proposal of a project-based approach for environmental goods trade. As part of that approach each of the developing countries would have a designated national authority, which would be selected in discussion with the Committee of Trade and Environment (CTE of the WTO). Such authority would be the clearing agency of the list of environmental goods for each project. Developed countries have been proposing a list-based approach for liberalization in environmental goods and services. Countries like Argentina have been proposing

an integrated approach. New Zealand has proposed a living list that could be regularly updated.

The report highlights that out of 153 environmental goods, 43 are climate friendly but it lacks a clear justification of the basis of selection of 43 goods as climate friendly. A detailed energy balance and life cycle analysis of these goods could be a way forward in providing those justifications. The report further mentions that a plurilateral agreement on the lines of the Government Procurement Agreement (GPA) and the Information Technology Agreement (ITA) could be a way to clinch a deal for ensuring trade in environmental goods. The report does not mention the fallouts of a plurilateral deal for many developing and least developed countries that could arise from the decisions arising from domination of big developed country participation in a plurilateral agreement. There has to be a consensus to see that such a plurilateral deal does not go against the needs of the developing and least developed countries. This immediately raises certain important issues of mutual recognition, financial aid, technological support, and effective entry policies that have to be discussed in such a deal.

Aids might be required to buy technologies from the developed countries. Such aids are often tied with certain conditionalities that might not favour a developing country to purchase the technology. So, it is essential to explore that such an aid should not create parallel distortion and dependencies for the developing and least developed countries. Globally, there is a growing pattern of imposition of standards in technological goods by the developed countries. For instance, China has put forward a clause of local content for wind turbines that are imported. Brazil has linked the clause of impact on employment with import of some environmental goods. It is also proposing bioethanol

as an environmental good and is pushing for trade in bioethanol through the route of trade liberalization in environmental goods. But before anything is decided on that, the issue of prevailing domestic subsidies, credits, social, and environmental impacts of subsidies for bioethanol need to be assessed.

Although the report gives a comprehensive discussion of the current trade and climate change debate, it does not mention certain realities associated with the creation of an equitable technology transfer in clean technology at the backdrop of trade and climate change debate. Those realities include the underpinnings of the kind of Intellectual Property Rights (IPR) regime that exists with each of these clean technologies and the role of each player involved in the development and transfer of the technology. The situation would vary for each technology, and it cannot be explained by the logic of a weak IPR regime. Before we reach such a conclusion there is a need to see how far and to what extent developing countries need a particular climate-friendly technology. Also, alternative options and associated factors, creating the need for such a technology transfer, have to be assessed. Assessment of the needs, hindrances, and binding factors of the developing country with respect to a clean technology, and its subsequent transfer has to be done first to provide a balanced picture of the situation of different groups of countries in the context of the present trade and climate change debate. Given the kind of green protectionism, which is gradually emerging in the US and the EU that could be evinced from various recent legislations, a concrete debate of trade and climate change issues has to put forward the voice of developing and least developed countries along with the developed countries at an equal level.

NEWS IN BRIEF

Trade winds

Indo-Asean talks on services and investment

India and Asean, a 10-member regional grouping of South East Asian countries, has started a fresh round of talks on liberalizing markets in service and investment to complement the bilateral free trade agreement on goods signed recently between the sides. Initially, the entire comprehensive economic cooperation agreement including goods, services, and investment was being negotiated together, but the latter two had to be suspended to speed up talks in goods. The free trade agreement on goods will come into effect in January 2010. The agreement on goods came after six years of negotiations.

The Economic Times, 13 October 2009

Credit regulation hampering trade

International banking regulations to control credit must be reformed to revive trade finance and further the recovery in global commerce, according to World Trade Organization (WTO) Director General, Pascal Lamy. Trade finance, simple, traditional credit to exporters and importers, dried up in the wake of last year's financial crisis, contributing to a contraction in world trade. The sort of risk rating as it appears from the Basel regulations is too heavy for trade finance as compared with other more risky purposes.

The Economic Times, 30 September 2009

Fasttrack Doha round talks

The informal mini-ministerial meeting of more than 30 WTO member countries in New Delhi in September 2009 resulted in breaking the impasse in the negotiations, which had not witnessed any senior level engagement for more than a year. In the Delhi meeting the issues of discord were roughly identified. They need to be sorted out properly and a more specific identification of problem areas needs to be done. Trade ministers had agreed in New Delhi to work towards wrapping up the Doha round of talks by 2010.

Financial Express, 8 September 2009

Energy resources fuel FTA appetite

At a time when Indian utilities are scrambling for securing energy assets abroad, easier access to Australia's vast natural resources could be among the possibilities for domestic companies, if the proposed Foreign Trade Agreement (FTA) between the two countries sails through. Petronet LNG Ltd, India's largest liquefied natural gas (LNG) importer, has already tied-up a mega deal to import 1.5 million tonnes of the fuel from the Gorgon project in Australia earlier this year. For Australian companies, the

prospect offers greater access to the Indian market for agri-products and dairy items, mining resources, and climate change technologies. India is already the fourth largest market for Australia. Negotiations for an FTA are likely to commence early, possibly by the end of 2009. India is also negotiating an FTA with Gulf Cooperation Council (GCC), which is also likely to help access energy resources in Gulf countries.

World requires a new currency

The role of the dollar in international trade should be reduced by establishing a new currency to protect emerging markets from the confidence game of financial speculation, the United Nations said. China, India, Brazil, and Russia this year called for a replacement to the dollar as the main reserve currency after the financial crisis. China argued that a supranational currency such as IMF's special drawing rights, may add stability. Interestingly, Robert Zoellick, President of the World Bank, has also echoed this view and warned against over-confidence in the US dollar and called for a new approach to manage global trade.

Times of India, 9 September 2009; Bridges Weekly Trade News Digest, 30 September 2009

EU, US target Chinese export restrictions

After months of speculation, the EU and the US launched a WTO case against Chinese export restrictions on a range of raw materials, saying that they give unfair advantage to their domestic manufacturers. Beijing countered by saying that the export curbs are justified on environmental grounds, and that it intends to contest the accusations. EU and US also argue that when China joined the global trade body in December 2001 it promised to do away with 'all taxes and charges applied to exports' on all but 84 of its goods.

Bridges Weekly Trade News Digest, 24 June 2009

WTO issues interim ruling in Boeing-Airbus dispute

The WTO has issued an interim report in a long-running spat between the US and the EU over airline subsidies, media sources reported last week. The confidential ruling is believed to be largely in favour of Washington. The interim report concerns the EU's 3.5 billion 'launch aid' subsidies to European manufacturer, Airbus meant to offset the cost of Airbus' A350 long-range aircraft, which will compete with US-based Boeing's 777 and 787 planes.

Bridges Weekly Trade News Digest, 16 September 2009

Investment currents

'Bank of South' for investment in infrastructure

Trade ministers from Latin American countries like Argentina, Brazil, Bolivia, Ecuador, Paraguay, Uruguay, and Venezuela have met and agreed to a charter for establishing an institution called 'Bank of South'. This institution would fund infrastructure projects in the Latin American region. The voting power of all the Latin American nations would be same in this bank and would not depend on the extent of financial contribution of the countries. Decisions of loan disbursements of the bank with an amount greater than \$70 million would be approved by countries contributing at least 60% of the bank's total available capital.

Bridges Weekly Trade News Digest, 13 May 2009

Backlash on private equity firms

Investment deals are drying up in a post global financial crisis scenario. Fears are being cropped up that private equity firms from the Gulf could be pushed to move out of the business because of drying deals. Industry experts have a feeling that in a post financial crisis scenario there is a chance that 70% of the private equity firms could wither away. Before the financial crisis there was a private equity bubble, which saw private equity firms taking stakes in companies belonging to sectors like real estates, petrochemicals, and so on. Post financial crisis, private equity firms have moved out of the real estate and petrochemical companies and have started focusing only on a single activity viz. management of portfolio.

<http://www.thenational.ae/apps/pbcs.dll/article?AID=/20091012/BUSINESS/710129900/1005#>
last accessed on 12 October 2009

Reforms to detect Ponzi Scheme for protection of investors

A special committee review report of the brokerage industry recommended that there is a need to revamp the examination programme of the Financial Industry Regulatory Authority for preventing and detection of serious frauds that is hurting the investors. Many of these frauds often called Ponzi Scheme have been hurting the investors to a large extent and have affected the brokerage industry. A new cell is being thought to be created to deal with the complaints on Ponzi Schemes hurting the investors for a long time.

<http://www.investmentnews.com/apps/pbcs.dll/section?category=INDaily03&IssueDate=20091002> last accessed on 13 October 2009

Tightening of FDI regime in India

The automatic route of Foreign Direct Investment (FDI) regime of India is currently being reviewed. It is being thought that explosives, chemicals would be taken out of the automatic route of FDI regime. At present, the Reserve Bank of India handles and regulates the automatic route of the FDI regime. In the new regime, FDI in explosives, chemicals segment would be routed through the Foreign Investment and Promotion Board (FIPB). The National Security Council has proposed that all FDI in the explosives and chemicals sector should go through the FIPB process for getting security clearance. As a part of the new proposal all information regarding FDI in these sensitive sectors should be available to the domestic agencies dealing with national security through a single window.

<http://www.indianrealtynews.com/category/fdi-india/> last accessed on 14 October 2009

Fall in global FDI inflows

A fall in global FDI inflows took place in 2008 for the first time in the span of last six years. According to United Nations Conference on Trade and Development global FDI inflows reduced by 14% from \$1.98 trillion in 2007 to \$1.70 trillion and dropped to \$1.2 trillion in 2009. This drop in global FDI has largely occurred due to a steep fall in cross-border mergers and acquisitions. In contrast, the US was the highest recipient of FDI in 2008 in spite of the financial downturn that culminated from the country and spread all over the world.

The Economic Times, 18 September 2009

Low factor costs drive South-South FDI

A study done by the Manchester Business School suggests low factor cost as one of the drivers of global South-South FDI. According to the study, some of the reasons facilitating a drive towards South-South FDI across countries are access to natural resources, saturation in home markets, and difficulty in getting access to matured and industrialized economies. Additionally, access to cheap entrepreneurship skills and economic diplomacy is also being posed as some of the factors pushing countries to move towards larger South-South FDI.

http://www.unctad.org/sections/wcmu/docs/ciimem2p09_en.pdf, last accessed on 13 October 2009.

Energy and Resources

South America-Africa cooperation in mining sector

In a summit of 28 African and South American countries, Hugo Chavez, President of Venezuela, addressed that in spite of having huge resources, African and South American people remain poor and exploited. Thus, there is an urgent need for creating a cross-continental mining corporation unitedly for keeping control on their resources. According to Chavez, Venezuela had already agreed to form a mining venture jointly with Sierra Leone. It has also signed letters of intention with Mauritania, Mali, Niger, and Namibia. Venezuela holds some most underdeveloped mineral deposits (like gold, diamond, and bauxite) and recently received some Russian loan to develop those. It is willing to help some other South American and African countries to explore their mineral resources. There is a prospect of setting up a technical commission very soon for starting the exploration camps and carrying out geological prospecting.

<http://www.miningweekly.com/article/chavez-proposes-africa-south-america-mining-firm>, last accessed on 28 September 2009

China-Russia energy cooperation

In the fifth round of China-Russia energy negotiators' meeting, Chinese deputy premier remarked that energy cooperation between the countries has reached a new stage of long term and strategic cooperation. According to him, they should continue the cooperation in the field of oil, natural gas, coal, nuclear energy, and electricity. He also asked that this year they have witnessed a series of achievements like inter-government agreements on oil cooperation (in April) and signing of a MoU in natural gas cooperation (in June). It was also informed that construction of 1030-km long oil pipeline from Siberia to north-eastern China had started in May, this year, and is expected to be operational from end 2010 for transporting crude oil from Russia to China.

http://news.xinhuanet.com/english/2009-10/12/content_12213421.htm, 15 October 2009

Copper mine in Afghanistan

A copper mine in Afghanistan is expected to start production by the end of 2011. This is a joint venture by two Chinese companies— Metallurgical Corporation of China (MCC) and Jiangxi Copper. The \$ 4.4 billion project was started in July with an expected capacity of 320 000 tonnes of copper concentrate per year. According to MCC president, the average cost of copper from the project would be about \$ 2800 per tonne, which is less than half of copper price. In the first phase of production (two years from starting operation) the capacity would be 180 000 tonnes per year and would increase to full capacity in phase II. The produced copper concentrate would be mainly supplied to Huludao Zinc—a subsidiary of MCC.

http://steeltguru.com/news/index/2009/09/25/MTEzNDMy/Afghan_copper_mine_to_begin_production_in_2011_-_MCC.html, 30 September 2009

SAIL investment in coking coal mine abroad

Steel Authority of India Ltd (SAIL), as a joint venture with Government of India, is planning to buy coking coal mines in Australia, Indonesia, and Mozambique. According to SAIL chairman, it would happen at the earliest because of huge domestic steel demand and prospect of increasing demand with future growth of India. He also informed that as a venture they are willing to invest about \$2.2 billion in the project. The venture has a capital of \$750 million as fund and is planning to borrow \$1.5 billion.

http://steeltguru.com/news/index/2009/10/14/MTE1OTcy/SAIL_considering_buying_coking_coal_mines_abroad.html, 15 October 2009

Nigerian initiative of electricity generation from renewable energy

The Nigerian government is expecting to surpass the national target of 6000 megawatt (MW) electricity generation by December. It has also said that power generation capacity would increase with private partnership and energy efficiency would also increase. Collaboration with private sector for electricity generation from renewable energy could reach 18000 MW in future. According to the minister of environment, the government is targeting to bring at least 20% of the population under renewable energy and low-carbon economic development. To combat global warming and climate change, he suggested that energy-efficient products must be used in home and offices.

<http://allafrica.com/stories/200910140419.html>, 15 October 2009

Bio-ethanol plant in Philippines

One sugarcane based ethanol and cogeneration plant, first in South East Asia, was inaugurated in Philippines. It will produce about 40 million litres of ethanol per year. According to the officials, it will help Philippines to reduce its dependence in fossil fuel and imported source of energy. It will ensure energy security along with social equity and environmental sustainability. Starting with this plant in San Carlos city, the government has plans to set up 20 more across the nation. This plant will produce 8 MW of power, a part of which will be transported to local grid for rural electrification. The country is second in world in geothermal energy and has huge potential for solar, wind, and ocean energy and, thus, wants to concentrate more on renewable energy sources.

<http://newsinfo.inquirer.net/inquirerheadlines/nation/view/20090905-223649/P3-B-ethanol-plant-is-Southeast-Asias-1st#>, 30 September 2009

Environment and Development

Sunken ship poses threat to biodiversity of Bay of Bengal

MV Black Rose, a vessel containing 24 000 tonnes of iron ore and about 924 tonnes of furnace oil sank in the Bay of Bengal, near the Indian port of Paradip. The vessel is owned by a Singapore-based company. The entire incident attracted concerns from various international and local environmental groups vis-à-vis its impacts on fish population and endangered Olive Ridley turtles. Teams from Paradip port trust and Orissa State Pollution Control Board were sent to the site for examination. An oil spill was found, and it was revealed that the vessel owners were not forthcoming in the clean up action as the vessel was not insured and the insurance document was forged.

<http://www.thehindu.com/2009/09/27/stories/2009092753170300.htm>, 30 September 2009

Climate change and biodiversity dominate WIPO's agenda

The World Intellectual Property Organization (WIPO) Conference on 'Intellectual Property and Public Policy Issues' concluded on 14 July 2009. The high profile meeting recognized that intellectual property has the potential to drive innovation, creativity, and transfer of technology. The meeting emphasized on the need to harness the potential of intellectual property for producing social and economic benefits. In light of the upcoming meeting at Copenhagen and international negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), the discussions were dominated by focus on climate change.

Bridges Trade BioRes, 7 August 2009

National Environmental Protection Authority for India

The Ministry of Environment and Forests (MoEF) has proposed the creation of a National Environment Protection Authority (NEPA). The independent regulatory authority will perform functions such as protecting the environment, mandatory environmental clearances, and enforcement of the Environment Protection Act, 1986. The MoEF, in a discussion paper, has divided the spheres of environmental governance, whereby MoEF is responsible for policy-making and initiation of legislation, the NEPA will be the environmental regulator, and the proposed green tribunal will perform the judicial functions.

<http://moef.nic.in/downloads/home/NEPA-Discussion-Paper.pdf>, 15 October 2009

First pandemic of 21st century creates panic

In April 2009, WHO announced that a novel influenza A virus has emerged. The particular strain, H1N1 was new. Based on the evidence and assessments of experts, WHO declared the influenza as a pandemic in June 2009. According to WHO, 'Influenza pandemics, whether moderate or severe, are remarkable events because of the almost universal susceptibility of the world's population to infection'. The universal nature, along with greater access to information, stricter quarantine, and panic across countries have been dominating the public health scene for the last few months.

Waxman-Markey Bill passed

The US House of Representatives passed the landmark and much talked about America Clean Energy Security Act 2009 (Waxman-Markey Bill) in June 2009. The bill proposes to create clean energy jobs, achieve energy independence, reduce global warming pollution, and further the transition to a clean energy economy in the US. It deals with clean energy for promoting renewable sources of energy and carbon capture and sequestration technologies, low-carbon transportation fuels, clean electric vehicles, and the smart grid and electricity transmission; increasing energy efficiency across all sectors of the economy, including buildings, appliances, transportation, and industry; global warming capping emissions of heat-trapping pollutants; and promoting green jobs during the transition to a clean energy economy.

http://energycommerce.house.gov/Press_111/20090331/acesa_summary.pdf, 15 October 2009

Negotiations at meetings leading up to Copenhagen

The year 2009 is a crucial year in the international effort to address climate change. A series of UNFCCC meetings are taking place throughout the year, designed to culminate in an ambitious and effective international response to climate change, to be agreed at the United Nations Climate Change Conference (COP 15) in Copenhagen from 7–18 December. The first round of negotiations this year took place in Bonn from 29 March–8 April. The second meeting took place in Bonn from 1–12 June. Informal consultations were held in Bonn from 10–14 August. The penultimate session before Copenhagen took place from 28 September–9 October in Bangkok. The last session before Copenhagen will be held from 2–6 November in Barcelona.

<http://unfccc.int/2860.php>, 15 October 2009

TERI INVITES YOU TO

10th Annual Delhi Sustainable Development Summit Beyond Copenhagen: new pathways to sustainable development

4-7 February 2010, Hotel Taj Palace, New Delhi, India

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- Indo-US cooperation ■ Role of technology ■ Adaptation challenges in developing countries, SIDS, and the Gulf region
- Indo-European collaboration on renewable energy technologies

WORLD CEO FORUM

The much appreciated and valued event preceding the summit – the World CEO Forum – will be hosted by TERI-BCSD India in association with WBCSD on 4 February 2010 in Hotel Taj Palace. It will focus on the theme 'Vision for a Sustainable Tomorrow: business as a game changer'.

3rd INTERNATIONAL CLIMATE CHANGE EXHIBITION

The exhibition will be held at Shahjahan hall, Hotel Taj Palace, to create awareness and showcase climate-friendly technologies, products, and services for reduction of GHG emissions.

Stall size: 9m²

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For more information, write or call:

SUMMIT SECRETARIAT

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LaBL MUSICAL CONCERT



Since 2008, DSDS has engaged its stakeholders by providing them unique opportunity,

each year, to volunteer for the ambitious global campaign, LaBL (Lighting a Billion Lives), which aims at powering villages with solar energy across the world.

1.6 billion people worldwide lack access to electricity, 25% live in India alone. Marking its 10th year, DSDS 2010 will host the **LaBL musical concert** bringing light into the lives of those still living in darkness.

DIGNITARIES AT DSDS 2010

- **HE Mr Jigme Yaser Thinley**, Prime Minister of Bhutan
- **The Hon Jean Charest**, Premier of Quebec, Canada
- **HE Ms Michelle Bachelet**, President of Chile
- **HE Mr Jose Maria Figueres Olsen**, Former President of Costa Rica
- **HE Mr Matti Vanhanen**, Prime Minister of Finland
- **HE Dr Ahmed Rashid Beebeejaun**, G.C.S.K Deputy Prime Minister, Minister of Renewable Energy and Public Utilities, Republic of Mauritius
- **HE Dr Gro Harlem Brundtland**, Former Prime Minister of Norway and Special Envoy on Climate Change, United Nations, Norway
- **HE Mr James Alix Michel**, President of the Republic of Seychelles
- **HE Dr Danilo Turk**, President of the Republic of Slovenia

And many more are expected!

OUR VALUABLE PARTNERS



About TERI

A dynamic and flexible not-for-profit organization with a global vision and a local focus, TERI is deeply committed to every aspect of sustainable development. From providing environment friendly solutions to rural energy problems to tackling issues of global climate change across many continents and advancing solutions to growing urban transport and air pollution problems, TERI's activities range from formulating local and national level strategies to suggesting global solutions to critical energy and environmental issues. With staff of over 700 employees drawn from diverse disciplines, the institute's work is sponsored by ministries and departments of the government, various bilateral and multilateral organizations, and corporations of repute.

About GALT

The Centre for Global Agreements, Legislation, and Trade (GALT) is an area within the Resources and Global Security Division of TERI. The broad objectives of the area are.

- To engage in research on trade, investment, resource development and use, and sustainability issues from a multidisciplinary perspective;
- To engage in capacity building through training programmes, workshops, and seminars;
- To create awareness through an effective dissemination of knowledge and dialogue amongst policy-makers, academia, practitioners, and other stakeholders.

Thrust Areas

- Trade and environment (such as linkages between the World Trade Organization, trade agreements, and multilateral environmental agreements including on climate change, and their implications on national and international regulatory regimes of governance).
- Resources, trade and development (such as trade implications to poverty, inequality and economic development, minerals and metals security, trade in commodities, globalization and vulnerabilities of countries and groups).

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