

# TRADE MEASURES IN CLIMATE CHANGE POLICIES: COMPATIBILITY WITH WTO AND UNFCCC

U.Sankar

Madras School of Economics

## ABSTRACT

This note deals with the compatibility of trade measures used in cap-and-trade and carbon tax systems in developed countries with the provisions of the WTO and UNFCCC. After a critical examination of the American Clean Energy and Security Act 2009 of the United States, it finds that unilateral measures such as targeting only China and India and levy of import duties or requirement of allowances for imports of carbon-intensive products into the U.S from only certain countries, would violate WTO Articles dealing with Most Favoured Nation, National Treatment and Environmental Exceptions. Some trade measures in the cap-and-trade and carbon tax systems violate the principles of equity and common but differentiated responsibilities according to the respective capabilities of states contained in the UNFCCC. It concludes with a negotiation strategy for India in the forthcoming COP 15 meeting at Copenhagen.

---

## 1. Introduction

The Kyoto Protocol (KP), an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC), set binding targets for 37 industrialized countries and to the European Community for reducing greenhouse gas (GHG) emissions to an average of 5.2% of 1990 levels over the five-year period 2008-12. The KP was adopted on 11 December 1997 and entered into force on 16 February 2005. 184 Parties of the UNFCCC have ratified the KP. Under this treaty countries must meet their targets primarily through national measures. However, the KP offers means of meeting their targets by way of three market-based mechanisms, namely, emissions trading (the carbon market), clean development mechanism and joint implementation.

The Inter-government Panel on Climate Change (IPCC), in its 4<sup>th</sup> Assessment Report, stressed that warming of the climate system is "unequivocal" [IPCC (2007)]. It considered different scenarios for climate change mitigation. One scenario with a stabilization target of 445-490 ppm of CO<sub>2</sub>-e to limit global warming to less than 2 °C requires global GHG emissions reduction by 50-85% relative to emissions levels in 2000 by the year 2050. Another scenario with a stabilization target of 535-590 ppm

of CO<sub>2</sub>-e to confine temperature increase between 2.8° C and 3.2° C by 2050 requires global emissions to be between 30% lower and 5% higher than the emissions levels in 2000. The Stern Review on the Economics of Climate Change (2007) notes that climate change is the greatest and widest-ranging market failure ever seen and reports that the benefits of strong, early action on climate change considerably outweighs the costs.

The Conference of Parties to the UNFCCC, in its Decision- (cp-13 (Bali Action Plan)), in response to the Fourth Assessment Report of the IPCC called for enhanced national/international action on mitigation of climate change. It is anticipated that the UN Climate Change Conference to be held at Copenhagen during December 7-18, 2009 would come with a long -term cooperative enhanced action now, up to and beyond 2012 for mitigation of climate change, adaptation to climate change and transfer of climate- friendly technologies to developing countries. Many countries have proposed action plans or indicated their positions on the Conference. The United States, which has not ratified the Kyoto Protocol, has introduced the American Clean Energy and Security Act of 2009, with binding GHG emissions targets and a cap-and-trade system as a cost-effective means of achieving the emissions targets.

The UNFCCC and the KP have exempted developing countries from GHG emissions targets, based on the Rio principle of common but differentiated responsibilities of states according to their respective capabilities and their need for social and economic development. But some developed countries recommend GHG emissions reduction targets for developing countries on the ground that their current emissions are increasing at a faster rate and would soon exceed the annual emissions level of developed countries. Their national legislations or action plans contain proposals for import duties or other trade restrictions on products coming from countries without commitments on GHG reductions, export subsidies for domestic industries, and financial assistance to developing countries conditional on their satisfying existing international legal agreements or/ and agreeing to GHG reduction commitments .Some of the proposals may be incompatible with the WTO rules and objectives and principles of the UNFCCC.

This note deals with two important market-based instruments for mitigation of climate mitigation, namely cap-and- trade system and carbon tax system. Both contain trade measures to achieve goals such as solving the free-rider problem, addressing competitiveness concerns, preventing carbon leakage and punishing countries with no binding GHG emissions commitments. Section 2 considers trade measures and provisions relating to developing countries in the U.S cap-and-trade system envisaged in the Waxman Markey bill 2009. Section 3 deals with carbon tax approaches to achieve GHG reduction. Section 4 examines the compatibility of the trade measures for achieving GHG reduction with the WTO rules. Section 5 assesses these provisions in the context of the objectives and principles of the UNFCCC. The last section contains suggestions for India's negotiation strategy in the forthcoming COP meeting at Copenhagen.

## **2. Cap and Trade: the Waxman Markey Bill, 2009**

The American Clean Energy and Security Act 2009, known as the Waxman Markey Climate Change Bill, (1427 pages) was passed by the US House of Representatives in June 2009 and the US Senate may consider the bill in October 2009. It is a comprehensive legislation covering clean energy, energy efficiency, energy security and global warming pollution reduction. It proposes a cap-and-trade approach for GHG reduction. The bill envisages the following economy-wide GHG emissions reduction goals:

97% of 2005 levels by 2012,

80% 2005 levels by 2020,

58% of 2005 levels by 2030, and

17% of 2005 levels by 2050.

The House of Representatives changed the 2020 year target to 83% (implying only 17% reduction). Hence the proposed reduction in 2020 in terms of 1990 levels amounted to only about 4%. It may be noted that the European Union has announced a reduction of 20% of 1990 level by 2020 whether or not an international agreement is concluded, and 30% if other developed countries agree for binding commitments. See Commission of the European Communities (2009).

In order to minimize the adverse effects of the legislation on industries, about 80% of the allowances would be distributed free. The legislation also provides for distribution of rebates to the owners and operators of entities in high energy/GHG intensity sectors and to trading facilities on a product output basis with compensation provided for both direct and indirect compliance costs. It provides federal support for accelerating technology development and diffusion of climate-friendly technologies. Allowances are to be distributed to consumers of electricity and natural gas.

### *Provisions Relating to Developing Countries*

There are many provisions which would have impact on climate policies of developing countries. Section 3 on international participation says that the Administrator of the US Environment Protection Agency 'shall annually prepare and certify a report to the Congress regarding whether China and India have adopted greenhouse emissions standards at least as strict as the standards required under this Act'.

Section 761 deals with measures to prevent increase in GHG emissions in other countries as a result of direct and indirect compliance costs incurred under this title. It provides emission allowance rebates to the owners and operators of entities in domestic eligible industrial sectors for their GHG emission costs incurred under this Act.

Section 766 deals with US negotiating objectives with respect to multilateral environmental negotiations. The objectives are: (1) to reach an international binding agreement in which all major GHG-emitting countries contribute equitably to the reduction of global GHG emissions; (2) to include in such international agreements provisions that recognize and address competitive imbalances that lead to carbon leakage and may be created between parties and non-parties to the agreement in domestic and export markets ;(3) not to prevent parties to such agreement from addressing the competitive imbalances that lead to carbon leakages and may be created by the agreement among parties to the agreement in domestic and export markets; and (4) to include in such international agreement remedies for any party to the agreement that fails to meet its GHG reduction obligations in the agreement.

The President of the U.S has to determine for each eligible sector, whether or not more than 85% of US imports of covered goods with respect to that sector are produced or marketed in countries that have met at least one of the following conditions: (1) the country is a party to an international agreement to which the U.S is a party that includes a nationally enforceable and economy-wide GHG emission reduction commitment for that country that is at least as stringent a that of the U.S; (2) the country is a party to a multilateral or bilateral emission reduction agreement for that sector to which the U.S is a party; and (3) the country has an annual energy or GHG intensity for that sector that is equal to or less than the energy or GH intensity for such industrial sector in the U.S in the most recent calendar year for which data are available.

Section 768 on International Reserve Allowance Program for importers of the covered group contains the following exemptions: (1) any country meeting the standards provided in Section 767(c); (2) a least developed country; or a country responsible for 0.5% of total GHG emissions and less than 5% of U.S imports of covered goods.

Section 441 on exporting clean technologies, while recognizing the need for transferring clean technologies to developing countries, notes any weakening of IPR protection poses a substantial risk to US companies and the creation of high quality US jobs, inhibiting the creation of new “green” employment and transformational shift to the “Green Economy” of the 21<sup>st</sup> century. It states that developing countries should promote the robust compliance and enforcement of existing international legal requirements for the protection of IPRs as formulated in the TRIPS Agreement.

The House of Representatives inserted into the Waxman-Markey bill a provision to impose tariffs on countries from 2020 on countries that do not take action to limit the GHGs.

### **3. Carbon Tax**

A carbon tax is based on the carbon content of fossil fuels. A national carbon tax was introduced in Finland in 1990. Some European countries, Canada and California State in USA levy the tax on fossil fuels. UK and Germany have climate charge levy. For the status of carbon tax regimes in select OECD countries, see Table 2.2 in World Bank (2007). A carbon tax should be set at a level that internalizes the cost of environmental damage, so that the prices reflect the environmental social costs. Nordhaus (2008) proposed carbon tax of US\$34 (in 2005 prices) per metric ton of carbon in 2010, rising to US\$ 42 per ton in 2015, and US\$90 per ton in 2050. However, the prevailing carbon taxes are generally below the social costs of carbon.

Imposition of a carbon tax raises the unit production costs of carbon intensive products. When the products are internationally traded and one group of countries levies carbon taxes and other countries have no carbon taxes or lower rates of carbon taxes, concerns are being raised in the countries levying carbon taxes about loss in competitive advantage and “carbon leakage” (flight of industry to countries with no carbon or lower carbon tax). Hence, these countries want a global carbon tax regime, and if it is not feasible then desire levy of import duties on goods imported from countries with no carbon tax or low carbon tax. The purpose is to create a “level playing field”.

Stiglitz (2006) argues that not paying the cost of damage to the environment is a subsidy. He says that economic efficiency requires that those who generate emissions pay the cost, and the simplest way of forcing them to do so is through a carbon tax. There could be an international agreement that every country would impose a carbon tax at an agreed rate (reflecting the global social cost). He advocates that Europe, Japan and others adhering to the Kyoto Protocol should restrict or tax the import of American goods to make up for the fact that U.S producers do not incur GHG related costs of production. Many including Stern (2006) favor a global price for carbon in order to achieve economic efficiency (in Paretian sense).

### **4. WTO Compatibility of Trade Measures**

The trade measures contained in the Waxman Markey bill and the proposal for carbon taxes on imports from countries with no GHG reduction commitment raise issues about the compatibility of the trade measures with WTO rules and their adverse impacts on developing countries' exports.

#### *Border Adjustment: Import Tariff*

The U.S President Obama said the proposed import tariff runs counter to free trade principles. New York Times in its editorial dated 18 July 2009 said that such tariffs must be part of an international agreement on climate change and unilateral penalties would be seen as illegitimate and could easily back first, scuttling chances

of an agreement on climate change. Paul Krugman endorsed the idea of carbon tax in theory [New York Times, 29 June 2009]. According to him the WTO would treat an import tax in the cap-and-trade system the same as it treats value added taxes (VATs) with border taxes allowed if they can be seen as reducing distortions. The price of emissions license may be thought of as ultimately a tax on consumers and consumers should pay the same tax on emissions tied to imports as they do on emissions tied to domestic production.

A trade measure that applies to both imports and domestic products is unlikely to violate WTO rules as long as it does not discriminate against imports [GATT Article III: National Treatment and Internal Taxation and Regulation] or against imports from particular countries [GATT Article 1: General Most-Favoured-Nation Treatment]. The GATT rules do not prevent the U.S from imposing on the importation of any product a **charge equivalent to an internal tax** in respect of **like** domestic product or in respect of an article from which the imported product has been manufactured or produced in whole or in part [GATT Article II 2(a)]. The justification is based on the destination principle to ensure trade neutrality.

It is not clear whether or not a tax on inputs which are not physically incorporated into the final product can be adjusted in the border. The GATT Working Party report on border tax adjustment (BTA) left the question unanswered. In GATT Superfund case the Dispute Panel found that a U.S tax on certain substances (such as inputs in the production process of certain chemicals) which was imposed directly on products was eligible for BTA. A WTO-UNEP report (2009) opines that carbon and energy taxes are eligible for BTA on both the product and the related production process of the production.

#### *Border Adjustment: Allowance Requirement*

Under cap-and-trade regulation, the requirement to hold an allowance for every ton of carbon emitted does impose an opportunity cost. Does this regulation apply to a process measure? Pauwelyn (2007) argues that even if a carbon regulation may not be adjustable at the border under GATT rules US carbon regulation is justified by the Technical Barriers to Trade (TBT) Agreement, if it is non-discriminatory and not more restrictive than necessary to fulfill the legitimate objective...inter alia: protection of the environment.

GATT Article III on national treatment requires that imported products are not treated less favourably than “like” domestic products. In the EC-Asbestos case, the Appellate Body of WTO said ‘a determination of likeness... is fundamentally a determination about the nature and extent of competitive relationship between and amongst products’.

### *Other Import Restrictions*

Import restrictions such as an import ban or punitive tariffs for not incurring the environmental costs would violate GATT Article XI which requires elimination of all quantitative restrictions. They are justifiable only under GATT Article XX dealing with general exceptions. Anti-dumping duties against environmental dumping is not feasible. As noted by Pauwelyn the benchmark or normal value against which we must compare the price of an import is not U.S. prices which would fully incorporate the price of carbon; rather the benchmark is normal prices in the market of the country of origin. Countervailing duties to offset "subsidization" of imports in the country of origin also raises two issues: 1. there must be a financial contribution by the government; and 2. the subsidy must be a specific subsidy. Hence, non-imposition of a carbon tax is neither a specific subsidy nor an export subsidy.

### *Practical challenges*

The WTO-UNEP report highlights practical challenges such as (i) difficulty in assessing product-specific emissions; (ii) variability in GHG emissions per unit of output because of variations in production processes, type of fuel used, vintage of plant etc; (iii) the fluctuation of the carbon price in a cap-and-trade system; and (iv) when imported products are subject in the country of origin, to other climate change regulations, such as technical regulations rather than price mechanisms such as taxes, compliance with fuel efficiency regulation. The issue is how a customs office could figure out the carbon content of an imported product. One option is to require a supporting document from the foreign manufacturer. The compliance problem may be serious. Another option is: could the amount of carbon that would have been emitted have the imported product produced in the U.S. using the U.S. predominant method of production (as in the Superfund legislation). There is a likelihood that the carbon emitted may be underestimated. There are also concerns that most of the restrictive trade measures may turn out to be non-tariff barriers to trade or/ and raise the trade transaction costs of trade and thereby weaken the smooth functioning of the global trade regime.

As the legislation targets only certain countries by giving exemptions to countries with emission reduction commitments, least developed countries, and countries with low import shares in the U.S. it would violate GATT Article I on most-favoured-nation treatment which prohibits discrimination between the products from different countries. The violations can be justified only under Article XX:

### *GATT Article XX: Environmental Exceptions*

The introductory part of the Article states that subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination where the same conditions prevail, or a disguised restriction on international trade, the exceptions are given. In the context of climate change, the following are relevant:

(b) necessary to protect human, animal, or plant life or health; and

(g) relating to conservation of exhaustible natural resources, if such measures are made in conjunction with restrictions on domestic production and consumption.

The WTO jurisprudence in Asbestos and Shrimp cases are relevant. In the Asbestos case, the Appellate Body accepted a French ban on imports of asbestos as qualifying under GATT XX (b) for health protection. In the U.S Shrimp case, the Appellate Body found a modified US ban on shrimp based on how these shrimp were caught abroad ( a process measure) was justified under XX (g) as a conservation measure for endangered turtles. Since the atmosphere is a global common, an exhaustible good and carbon emissions affect human beings and certain plant and animal species, a climate policy addressing GHG reduction may come under Article XX (b) and (g).

Under Article XX the discrimination is based on “**countries**” where the same conditions prevail. It is obvious that the Waxman Markey bill does not take account of local conditions in developing countries. Section 3 on international participation says that the Administrator of the US Environment Protection Agency ‘shall annually prepare and certify a report to the Congress regarding whether China and India have adopted greenhouse emissions standards at least as strict as the standards required under this Act’. Similarly, provisions in Section 766 on U.S negotiating position and other conditions are unilateral measures. There is no consideration of other countries own policies such as nationally appropriate mitigation actions. A multilateral approach to the global public bad problem is desirable to take into account problems of developing countries, provision of special and differential treatment measures for developing countries and to achieve universal membership.

Hufbauer (2008), in his presentation to the House of Representatives, states that the U.S imports of carbon-intensive goods are largely from Canada and the EU. China and India, the primary targets of U.S trade measures, are not large suppliers of carbon-intensive exports to the U.S. For 2007, the shares of OECD countries in U.S imports were 63.8% in steel, 69.6% in aluminum, 49.7% in chemicals, 82.4% in paper and 56.7% in cement. China’s shares were more than 10% in steel, paper and cement. India’s share was negligible and only in chemicals it had a share of 2.8%. Hence he argues that trade measures may not provide intended economic relief to domestic industries adversely affected by climate change policy. Further, as these industries would get free allowances and other reliefs, it appears that competitive concerns are exaggerated.

From an analysis of the effects of the legislation, the Congressional Budget Office (2009) concludes that the cap-and-trade programme would reduce GDP below what it would otherwise would have been by roughly ¼ to ¾ % in 2020 and by between 1 and 3.5 % in 2050. It projects that real GDP will roughly 2.5 times as large as it is today. It also estimates that the lowest fifth of households when arranged by income

would see gain in purchasing power in both 2020 and 2050, but households in the middle fifth would see net losses in purchasing power amounting to 0.6% of after-tax income in 2020 and 1.1 % in 2050. Hence the cost of climate protection is relatively small.

## 5. UNFCCC and Unilateral Trade Measures

The UNFCCC acknowledges that change in the Earth's climate and its adverse effects are a common concern of mankind. It notes that the largest share of historical and current global emissions of GHGs has originated in developed countries, that per capita emissions in developing countries are still relatively low and that the share of emissions originating in developing countries will grow to meet their social and development needs.

Article 3 .1 states that the Parties should protect the climate system for the benefit of present and future generations of humankind, 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. For this reason the KP did not prescribe any binding emission reduction targets for the non-Annex 1 (developing) countries.

Article 3.5 states that the parties should cooperate to promote a supportive and open international economic system and 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. The measures in the U.S bill such as targeting China and India, requiring other countries to adopt the U.S standards, levy of import duties on imports from countries with no emissions reduction commitments, prescribing eligibility conditions etc are unilateral and violate provisions of this Article.

Article 4 dealing with promotion and cooperation in the development, application, including transfer of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of GHGs not covered by the Montreal Protocol in all sectors, taking into account their common but differentiated responsibilities and that economic and social development and poverty alleviation are the first and overriding priorities of the developing country Parties.

The Bali Action Plan envisages enhanced action on technology development and transfer to support action on mitigation and adaptation via removal of obstacles to, and provision of financial and other incentives in order to promote access to affordable environmentally sound technologies via official and concessional funding for developing country Parties. The U.S bill provides US\$225 million to Clean Technology Fund and US\$75 million to Climate Strategic Fund of the World Bank subject to the condition that the U.S support is conditional on robust compliance and enforcement of existing international requirements for the protection of IPRs. This is

U.S response to a recent proposal by Group of 77 and China calling for climate-friendly technologies to be excluded from patenting and other proposals calling for compulsory licensing to access IPR protected technologies, sharing of publicly funded technologies, and creation of a Global Technology Pool for climate change that ensures access to technologies including royalty-free terms [Third World Network (2009)].

The Bali Action Plan of 2007 which made a commitment to a shared vision for long-term cooperative action recommended nationally appropriate mitigation actions (NAMAs) by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity building, in a measurable reportable and verifiable manner.

Many provisions in the Waxman Markey bill are not compatible with the objectives and principles of the UNFCCC, namely equity and common but differentiated responsibilities of countries according to their respective capabilities. As the atmosphere is a global common, every country has access to the common on the basis of equity. According to the World Resources Institute (2005), the shares of cumulative emissions of CO<sub>2</sub> in the atmosphere during 1850-2002 were 29.3% for the U.S, 26.5% for EU.25, 8.1 % for Russia, 7.6% for China and 2.2 % for India. The shares in GHG current emissions in 2000 were 20.6% for the U.S, 14.7% for China, 14.0% for EU-25, 5.7% for Russia and 5.6% for India. The shares of developed and developing countries were 52% and 48% respectively. India's per capita emissions were only 1.9 tons of CO<sub>2</sub>e while the corresponding figures were 24.5 for the U.S and 3.9 for China. India ranked 140 in per capita emissions; China's rank was 99. Despite the facts, the bill targets China and India as the major emitters and wants them to adopt GHG emission standards at least as high in the U.S.

There are many countries with per capita GHG emissions even higher than that of U.S, but as they are small countries and as the bill's focus is on absolute emissions rather than per capita emissions they are not affected by the trade measures. Section 441 states that developing countries should promote the robust compliance with and enforcement of existing international legal requirements for the protection of IPRs as formulated in the TRIPs Agreement. This statement inhibits any attempt to encourage access to climate –friendly technologies to developing countries on fair/ concessional terms as contemplated in the Bali Action Plan. Further, such unilateral measures create road blocks in achieving an equitable solution to the problem of global public bad.

## **6. India's Negotiation Strategy**

The rationale for a common global price for carbon or CO<sub>2</sub>-e either through a global carbon tax system or a world-wide emission trading scheme is based on the notion of static economic efficiency (Pareto optimality). The Rio principles and the principles of UNFCCC and KP are based on equity, common but differentiated

responsibilities of states according to their respective capabilities and sustainable development. To achieve an equitable and efficient solution, the issues of historical responsibility for the current stock of GHG emissions, recognition of the atmosphere as a global common and the right to social and economic development must be addressed.

India's position is that, as the atmosphere is a global common, there is a case for per capita entitlement (Government of India (2008)). The climate modeling studies sponsored by the Ministry of Environment and Forests (Climate Modelling Forum (2009)) reveals that India's per capita GHG emissions in 2030-31 would be between 2.77 tonnes and 5.00 tonnes of CO<sub>2</sub>-e, most likely under 4 tonnes of CO<sub>2</sub>-e which is lower than the global per capita emissions of 4.22 tonnes of CO<sub>2</sub>-e in 2005. India's stand can be justified on moral grounds, but countries' positions in international negotiations, including climate change negotiations, are dictated by national interests.

Both global trading regime and global climate regime aim at sustainable development, but there is an important difference. World trade in goods are private goods and the role of the state is to facilitate free trade, while the problem of climate change arises because GHG emission is a global public good and global cooperation is needed to solve the problem. The UNFCCC is the appropriate forum for reaching a cooperative solution based on the concepts of publicness in consumption, publicness in decision making and publicness in distribution of net benefits [Kaul et al (2003) , Sankar (2008)] However, ways and means must be found to enhance the mutual supportiveness of the two regimes .See Sankar (2007).

What are India's negotiation options? First, we address the problem of dealing with cumulative GHG emissions (the stock problem). Many developed countries have national policies for correcting past environmental damages. For example, the Superfund in the U.S is the federal government's program to clean up the nation's uncontrolled hazardous wastes. It is a strict liability assigned to past damages. Applying the same logic, the "stock burden" must be borne by developed country Parties. As suggested by Bhagwati (2009), we need a Superfund to pay for the mitigation and adaptation expenses in developing countries due to the past damages resulting from accumulation of GHGs in the atmosphere. The contributions must come from Annex I Parties reflecting UNFCCC principles of equity and common but differentiated responsibilities and the need for ecorestoration of the global common. The annual contributions can come from their national budgets and revenues realized from carbon taxes or sale of permits in the cap-and trade system The funds should be utilized for (a) acquisition and transfer of climate-friendly technologies to developing countries on concessional terms, (b) climate change adaptation programmes in developing countries, (c) development of renewable energy sources and (d) covering incremental costs of shifts from carbon -intensive to low carbon-intensive production in developing countries.

Second, consider the current emission trends (the flow problem). The U.S and a few other developed countries argue that by 2015 developing countries emissions would exceed that of developed countries. The current annual GHG emissions are approximately 50 billion tonnes of CO<sub>2</sub>-e. According to Stern(2009) if we are to have a reasonable chance of avoiding a rise in global average temperature by more than 2°C, annual emissions have to be cut to no more than 20 billion tones by 2050,the goal is to reduce the global emissions to around 20 billion tonnes by 2050 This means that assuming developed countries' share in current emissions in 2010 would be 50% and even if developed countries agree for an emission reduction target of 80%by 2050, unless developing countries as a group adopt GHG mitigation policies, the goal cannot be realized. The Commission of the European Communities (2009) suggests that developing countries as a group should limit the growth of their emissions to 15 to 30% below business as usual .The arithmetic is obvious.

As a bargaining strategy, to overcome the anticipated deadlock in the Copenhagen negotiation, to ensure access to climate-friendly technologies and financial support and to demonstrate India's willingness to address the common concerns of mankind, India may support voluntary reductions in GHG emissions for developing countries in a phased manner based on their nationally appropriate mitigation action plans. The voluntary emissions reductions may take the form of either limiting the growth of the emissions below the business as usual scenario in a phased manner- e.g. no reduction till 2020, 10% reduction during 2020 – 2030,and 20% reduction thereafter; or reducing GHG intensity( GHG emissions/GDP) in a phased manner- e.g. no reduction till 2020, 10% reduction during 2020-2030, and 20% reduction thereafter, subject to the condition that developed country Parties bearing the incremental costs of GHG reductions from the proposed Super Fund or/and other means, Such an outcome would enable developing countries to switch to low carbon growth path. Developed country Parties would also gain via increases in their exports of green technologies and reduction in GHG emissions.

In return for voluntary quantified GHG emission reductions, India and developing countries as group may demand from Annex I Parties (a) they must meet their KP targets by 2012, if not they must pay the penalty; (b) they must agree for stringent emissions reduction targets in a phased manner to achieve at least 40% emission reductions by 2030 and 80% emissions reduction in 2050, compared with the 2000 level; (c) they must create a Global Superfund to finance mitigation, adaptation and capacity building in developing countries; (d) agree for changes in TRIPs and other legal frameworks to permit easier access to climate-friendly technologies to developing countries; and (e) they refrain from adopting unilateral trade measures in their legislations/action plans or dictating climate policies of developing countries.

## REFERENCES

Bhagwati, J. (2009), India should accept climate change flow obligations, ask for superfund, Interview by Narayan Lakshman, The Hindu, August 9.

Climate Modelling Forum (2009), India's Greenhouse Emissions Profile: Results of Five Climate Modelling Studies, <http://moef.nic.in/downloads/home/GHG-report.pdf>

Congressional Budget Office (2009), Effects of Legislation to Reduce GHG Emissions, <http://cboblog.cbo.gov/?p=361>

Commission of the European Community (2009), Towards a Comprehensive Climate Change Agreement in Copenhagen, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0039:FIN:EN:PDF>

Government of India (Prime Minister's Council on Climate Change) (2008), National Action Plan on Climate Change, New Delhi, [www.igovernment.in/site/India-launches-action-plan-on-climate-change/](http://www.igovernment.in/site/India-launches-action-plan-on-climate-change/)

Hufbauer, C.C. (2008), U.S. House of Representatives Committee on Ways and Means Hearings on Policy Options to Prevent Climate Change, <http://www.iie.com/publications/papers/hufbauer0908.pdf>

IPCC (2007), Assessment Reports, AR4, <http://www.ipcc.ch/>

Kaul, I., P.Conceicao, K.L.Goulven, and R.U.Mndoza (2003), Providing Global Public Goods: Managing Globalization, Oxford University Press.

Krugman, P. (2009), The Conscience of a Liberal, The New York Times, June 29, 2009.

New York Times, Editorial, July 18, 2009

Nordhaus, W.D. (2007), To Tax or Not to Tax: Alternative Approaches to Slowing Global Warming, OECD Trade and Environment, Working Paper No.2005-07

Pauwelyn, J. (2007), U.S Federal Climate Policy and Competitive Concerns: The Limits and Options of International Trade Law, [www.nicholas.duke.edu/institute/internationaltradelaw.pdf](http://www.nicholas.duke.edu/institute/internationaltradelaw.pdf)

Sankar, U (2008), Global Public Goods, MSE Working Paper, 28, <http://www.mse.ac.in/pub/Working%20Paper%2028.pdf>

----- (2007), Specific Trade Obligations in Multilateral Environmental Agreements and WTO Rules, A Policy Brief prepared for the Inter-ministerial Committee on Trade and Environment.

Stern, N (2006), The Economics of Climate Change: The Stern Review, Cambridge University Press, Cambridge.

----- (2009), China, India show the way, The Hindu, Chennai, September 25, p.13

Stiglitz, J.E. (2006) A New Agenda for Global Warming, Economists Voice, [www.bepress.com/ev](http://www.bepress.com/ev)

Third World Network (2009), US Protectionism Increases Barriers to Climate-Friendly Technologies,

<http://www.twinside.org.sg/title2/climate/info.service/2009/climate.change.20090704.htm>

U.S Congress (2009), H.R. 2457, American Clean Energy and Security Act of 2009,

[http://energycommerce.house.gov/Press\\_111/20090331/acesa\\_discussiondraft.pdf](http://energycommerce.house.gov/Press_111/20090331/acesa_discussiondraft.pdf)

UNFCCC (2008), Bali Action Plan, FCCC/CP/2007/6/Add.1UNFCCC (2009) Revised Negotiating Text Note by the Secretariat, FCCC/AWGLCA/2009/INF.1

World Bank (2008), International Trade and Climate Change, The World Bank, Washington D.C

World Resources Institute (2005), Navigating the Numbers, Greenhouse Data and International Climate Policy, [http://pdf.wri.org/navigating\\_numbers.pdf](http://pdf.wri.org/navigating_numbers.pdf)

WTO –UNEP Report (2009), Trade and Climate Change, World Bank, Washington, D.C.