Climate change and the WTO

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OUTLINE

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The WTO confesses that "*The issue of climate change, per se, is not part of the WTO's ongoing work programme and there are no WTO rules specific to climate change*"[1]. It is not directly involved by the objective of reducing greenhouse gases (GHG) emissions in CO_2 equivalent (CO_2e)[2] but "*trade openness can help efforts to mitigate and adapt to climate change*"[3], and therefore it insists to finalize the Doha Round as soon as possible. On 46.880 gigatons (Gt or billions of tons, Bnt) of CO_2e global emissions in 2007[4], China accounted for 8.130 Gt, the US for 7.282 Gt[5], the EU-27 for 5.045 Gt[6], Indonesia for 3.160 Gt, Brazil for 2.350 Gt, India and Russia for 1.970 Gt, Japan for 1.350 Gt. But the US drags its feet on both issues which will interact mutually, the more so as the WTO ministerial conference will convene about ten days before the 15th Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC) which is taking place in Copenhagen in mid-December 2009. It is now clear that this one will not adopt the new protocol which will apply from 2013, at the end of the Kyoto Protocol, because the US Congress cannot finalize its climate bill this year.

Before analyzing the compatibility of the WTO rules with the already taken or contemplated measures to fight climate change, it is essential to present these measures and the debates about them. We will also stress the specific case of agriculture and forest.

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[1] http://www.wto.org/english/tratop_e/envir_e/climate_intro_e.htm

[2] $CO_2e = (N_2O \times 310) + (CH_4 \times 21) + (CO_2 \times 1)$

[3] Climate *mitigation* is any action taken to permanently eliminate or reduce the long-term risk and hazards of climate change to human life and property, through limiting energy wastes, substitution of renewable energy to fossil fuels and carbon sequestration. Climate *adaptation* refers to the adjustment to climate change to moderate potential damage, to take advantage of opportunities, or to cope with the consequences.

[4] Deutsche Bank, *Global Climate Change Policy Tracker: An Investor's Assessment*, October 2009, http://www.dbcca.com/dbcca/EN/investment-research/investment_research_1780.jsp

[5] http://www.eia.doe.gov/oiaf/1605/ggrpt/

[6] 5,1 Gt en 2006 pour l'EU-27 contre 5,6 Gt en 1990 : http://dataservice.eea.europa.eu/pivotapp/pivot.aspx?pivotid=475

I – The wrong track of CO_2e emission quotas and credits and the necessary carbon taxes to fight climate change

The Kyoto Protocol signed in 1997 and brought into force in 2005 has requested that the 41 developed and transition countries (of Annex 1)[7] shall reduce their emissions of 6 greenhouse gases (GHG, or CO_2e) by 5% (8% for the EU-25) from 2008 to 2012 in relation to the 1990 level. The Annex 1 countries are historically co-responsible of 64% of the present GHG effect[8] – of which 25.6% for the US, 15.9% for the EU-15, 7.3% for Russia and 2.8% for Japan –, an indicator of their ecological debt. The emissions of these countries, net of the carbon sinks in agriculture and forest, have decreased by 5.2% from 1990 (17.5 Gt) to 2007 (16.5 Gt)[9] but have increased by 0.9% from 2000 to 2007, which is unfortunate. They have decreased by 9.3% in the EU from 1990 to 2007 but have increased by 16.7% in the US. But the Intergovernmental Panel on Climate Change (IPCC) estimates that, in order that the global temperature would not increase by more than 2°C until 2100 in relation to the level in the pre-industrial period (1850), the CO_2e emissions of Annex 1 countries should be reduced by 25% to 40% up to 2020 and by 80% to 95% up to 2050. Besides the CO_2e concentration should be reduced at 350 ppm (parts per million) to have 80% chances to remain below the +2°C increase because the EU present objective, at 450 ppm, has only 50% chances to keep that threshold. Beyond 2°C there is a risk of a race out of control of global warming. Furthermore the IPCC President estimates that global emissions should begin to decrease as soon as 2015[10], which implies much stronger reductions for the developed countries, responsible for about 70% of emissions since 1850, because those of developing countries (DCs) will continue to rise for quite a long time given their development level and population increase. OECD estimates that, if policies to fight climate change were lacking, the GHGs would increase by about 70% up to 2050 and would continue to grow beyond that time, which would make possible a 6°C rise in temperature by 2100[11]. OECD estimates that the present commitments of developed countries would reduce the emissions by only 8% to 14% from 1990 to 2020. It adds that, even if the developed countries would bring their emissions down to zero, the present global emissions would be exceeded if the emerging countries do not do anything.

Now the EU aims at an objective of only 20% up to 2020[12] – 30% if a "satisfactory agreement" stands out in Copenhagen (in fact in 2010), notably if other developed countries go beyond 20% and if emerging countries agree to cut their emissions – and from 60% to 80% up to 2050, knowing that it emits in 2007 10.8% of global GHGs but has contributed to 18% of the 0.76°C rise in global temperature from 1900 to 2005, a minimal indicator of its ecological debt. In the EU the market of emission rights has only concerned in the first phase 2005-07, so-called trial phase, 2.030 Gt for businesses representing 40% of GHG emissions in 2005 (5.111 Gt) but should reach 2.475 Gt in 2012 or 49% of EU emissions after the

[7] There is an ambiguity: the Kyoto Protocol speaks of 41 countries of annex 1 (in fact 40 plus the EU) whereas the commitments of 38 countries (the 40 less Belarus and Turkey) are placed in annex B. In fact 3 of the 38 countries do not have reduction commitments – Russia, New-Zeland and Ukraine – and 3 may increase their emissions in relation to 1990: Norway by 1%, Australia by 8% and Island by 10%.

[8] Benito Müller, Niklas Höhne and Christian Ellermann, *Differentiating* (*Historic*) *Responsibilities for Climate Change*, October 2007, www.oxfordclimatepolicy.org/.../DifferentiatingResponsibility.pdf

[9] http://unfccc.int/documentation/documents/advanced_search/items/3594.php?rec=j&priref=600005460#beg

[10] Friends of the earth, *Copenhagen: for a climate justice*, July 2009.

[11] http://www.oecd.org/document/56/0,3343,en_2649_34361_43705336_1_1_1_1,00.html#Table_of_contents

[12] The EU objective is to reduce by 21% in relation to 2005 the emissions of businesses subject to the quotas market and by 10% the emissions of the other activities.

inclusion of Norway, Island and aviation[13]. However the EU reduction commitment bears clearly on all emitting activities, including air and sea transport, but with the exception of emissions from soils and forest (LULUCF: land, land use change, forest) which would be incorporated only after an international agreement[14]. The revenues from auctioning emission rights – that the World Bank expects to be of about €25-40 billion annually during the third phase (2013-2020) for an average of 1.3 billion in auctioned EUAs – will partly finance reductions in activities not subjected to emission ceilings. In fact the EU has an objective of "3 times 20" up to 2020 in relation to 1990: a 20% reduction in GHG emissions, a 20% improvement in energy efficiency and a 20% increase in the share of renewable energy in total energy consumption.

The climate bill adopted by the US House of Representatives the 26 June 2009 aims only at a 17% reduction in 1920, 58% in 2030 and 83% in 2050 in relation to 2005, even if the Senate bill, still under negotiation, aims at 20% in 2020. The covered activities subject to reduction will represent 66.2% of GHG emissions from 2012, 75.7% from 2014 (including N_2O outside agriculture) and 86.4% from 2016 (including CO_2 by transport and housing). In other words the US volume of emission rights will pass from 4.6 Gt of CO_2e in 2012 to 5.5 Gt in 2016 before decreasing progressively to 4.9 Gt in 2020, 3.5 Gt in 2030, 2.3 Gt in 2040 and 1 Gt in 2050 and beyond. The emission ceilings will affect the 7,400 entities producing or importing more than 25,000 tons of CO_2e annually and which account for 85% of total US emissions. However the Environment Protection Agency (EPA) could lower the ceiling at 10,000 tons which will affect 7,000 additional entities but accounting for only 0.6% of total emissions. In fact the assessment made the 29 October 2009 by the World Resources Institute of the impact of the House of Representatives' bill and of the Senate's draft concludes to a reduction of 74% in emissions by 2050 instead of the 83% claimed in these texts[15]. However the recourse to offsets credits linked to deforestation in developing countries (DCs, see below) will increase by 10% the rate of emissions reduction as soon as 2020, getting therefore to 27% instead of 20% in relation to 2005[16]. However the reality of these expected reductions will be much more difficult to control than those occurring in the US, hence a risk of carbon leakage.

Beyond the various public norms and subsidies to promote a low carbon intensive economy, there are essentially two incentive ways to induce businesses and households to reduce their CO_2e emissions: the direct way of progressively rising taxes on the carbon content of products – a way which regulates emissions by an action on the CO_2e price –, and the way of capped and tradable emission permits (cap-and-trade) which attempts to regulate them through the reduction of the allowed emitted volumes of CO_2e. Most NGOs worldwide choose clearly the first way[17] but it is the second which has been preferred by the Kyoto Protocol as by the EU and US, and that we have now to analyze.

The Kyoto Protocol is based on the allocation of emission quotas of CO_2e for Annex 1 industrialized countries subject to emissions reductions – the ERUs or Emission Reduction

[13] Susanne Dröge, coordinator, Tackling Leakage in a World of Unequal Carbon Prices, 5 October 2009, http://www.climatestrategies.org/our-reports/category/32/153.html; *Repères CO_2 et énergie - édition 2009 - 1ère partie*, http://www.caissedesdepots.fr/actualite/mediatheque/recherche-climat.html; voir aussi

[14] The Kyoto Protocol classifies the emissions in 6 categories: energy, industrial processes, use of solvents, agriculture, residues and LULUCF (land use, land use change and forest).

[15] http://www.wri.org/publication/usclimatetargets

[16] http://www.forestcarbonportal.com/article.php?item=681

[17] ATTAC, *Pour une justice climatique, libérons le climat de la finance*, juillet 2009; Attac et Les Amis de la Terre, *Conjuguer l'urgence climatique et la justice sociale. Les enjeux de Copenhague 2009*, Lignes d'Attac n° 76, juillet 2009.

Units –, the creation of domestic markets of emissions quotas and two "flexibility mechanisms" to alleviate their constraints: the external markets of emissions credits.

The domestic market of emissions quotas

On the domestic market, where the emissions quotas are counted in tons of carbon equivalent, businesses having got from the State more quotas than they need sell their surplus to those having exceeded their allocation. The EU has created in 2005 a compulsory system to exchange emissions quotas – the ETS: Emission Trading System – where 1 EUA (European Union Allowance) represents 1 ton of CO_2e[18]. These capped quotas have been allocated each year (in February) on a free basis for 2.030 Gt of the only CO_2 during the first period 2005-07 (trial period), to 11,000 businesses[19] accounting for 40% of the EU CO_2e emissions. In April, these businesses have to return to their EU Member States as many quotas as tons of emitted CO_2e during the preceding year. However they may keep for the following year their surplus of EUAs or borrow some of their quota for the following year. If they cannot reimburse they had to pay a fine of 40 €/ton of excess CO_2 during the first phase 2005-07 and will have to pay100 €/ton during the second phase 2008-2012 (now per ton of CO_2e), which is the first phase of the Kyoto Protocol commitments. The EUAs are traded on specialized markets, mainly the European Climate Exchange (ECX)[20] which had a 69% market share in May 2009, against 20.3% to Bluenext which is an international carbon exchange launched in January 2008. However emissions quotas may also be traded over the counter (OTC), in a confidential way between businesses or generally through brokers (the OTC share is of about 10%). And we have to distinguish between the spot market – the only one available for trading in the 2005-2007 period and which is working now essentially on Bluenext – and the futures market, which has been working already since 2005 but only for contracts covering the 2008-2012 period.

The EUAs prices have been highly volatile: as emissions quotas have been allocated too much generously at the beginning – because the Member States did not know precisely the actual emissions level of their businesses –, their price has trebled over the first six months (from 10 €/t to 30 €/t) but, when the first report on the emissions has been released in April 2006, the price has slumped by 54% in 4 days and the spot price has remained between 2€/t and zero from June to December 2007 because the quotas, which were exceeding the actual emissions, could not be transferred on the second period beginning in January 2008. On the European Climate Exchange the amount of traded EUAs has jumped from 94 million tons (Mt) of CO_2 in 2005 for a contracts value of €2.1 billion to 2.8 Gt in 2008 for €51.3 billion, but the price has evolved from 28.7 €/t in July 2008 to 8 €/t the 12 February 2009 before recovering to 14.2 €/t the 28 October 2009 (for 12.9 Mt of trade EUAs). Again the report of April 2008 on the actual emissions of 2007 has shown that the allocated quotas had exceeded them by 8%[21].

[18] Other smaller voluntary markets of emission rights exist: in the US since 2003 – the Chicago Climate Exchange since 2003, and 3 regional projects for gas (North-East), 2010 (Midwest) and 2012 (West) – in Japan since 2005, in New-Zeland in 2009 and in Australia in 2010. Without forgetting the US huge federal emission quotas markets which will be opened once adopted the climate bill.

[19] The concerned businesses are in the sectors of energy (which include transports and industry), production and transformation of iron metals, mineral industry and paper paste, paper and cardboard. Air transports will be integrated from 2012. But the US and EU have not foreseen, in contradiction with the Kyoto Protocol, to integrate agriculture, forest and the management of residues.

[20] http://www.ecx.eu/EUA-Futures

[21] http://economix.u-paris10.fr/fr/dt/2008.php?id=69

A study on the Netherlands and Germany has shown that, during the 2005-07 period, the free allocation of EUAs has provided super-profits to electric companies, linked to higher sales prices by €3 to €5 per megawatt-hour (1,000 kwh)[22]. More recently, as the production subject to CO_2e has fallen by about 20% because of the recession, many businesses have sold their surplus quotas, which has depressed their prices. Those which had received free allocations larger than their needs have cashed profits without having to invest to reduce their emissions and, on the other hand, the low price of EUAs has induced some businesses to buy them rather than to invest to reduce GHG emissions. Which has been acknowledged by the Caisse des Dépôts: "*Given the high level of free allocations to businesses, this distribution is leading to an unexpected situation: the carbon market has turned for many participants into an important source of financing… Quotas of the current year are sold on the spot market whereas an equivalent volume is bought on the futures market (for instance for December 2012). Thus the business firm shows cash flow while locking its future commitment on price*"[23]. Christian de Perthuis concludes: "*The instability of carbon prices is not a good thing. And the possibility to borrow one year of quotas is dangerous… If we want to know the carbon price in advance, we should not implement a market but a tax. Yet this is not the retained solution. Therefore the carbon price may fluctuate and we cannot know it in advance*"[24].

This conclusion remains valid even if the 2005-07 years have been considered as a trial period, if quota allocations have been reduced by 7% for the 2008-12 period (from 2.2 Gt to 2.1 Gt) and will be cut by 21% up to 2020 (when they will be of 1.72 Gt) in relation to their 2005 level, falling by 1.74% per year. On the other hand if the emission quotas allocated through auctions have only concerned 0.7% of total in the 2005-07 period and should not exceed 3% in the 2008-12 period, a EU directive of April 2009 has stated that the energy producers would have to buy their quotas through auctions from 2013, whereas the share of quotas allocated to industries through auctions will pass from 20% in 2013 to reach progressively 100% in 2027. However the 18 September 2009 "*the Member States have agreed on a provisional list of 164 industrial activities exposed to international competition which will continue to benefit from 100% free quotas after 2012*"[25], the definitive list of businesses being fixed the 30 September 2012. The long term objective is that the price of emission rights increase progressively so as to reach 200 $/t in 2050, reflecting the decreasing capacity of the planet to absorb CO_2e. Let us underline in passing that, if we were to discover very large new sources of oil, gas or coal so that their prices would be maintained at very low levels, this would be a catastrophe for climate change and hence they should not be exploited.

In the US the American Clean Energy and Security Act (ACESA) passed by the House of Representatives the 26 June 2009 but also the Senate Draft foresee that, in the first years, 85% of emission rights will be allocated free and 15% only will be auctioned, which, for the expected low emission prices of 13 $/ton of CO_2e in 2015 up to 25 $/t in 2025, will provide revenues of $60 billion and $113 billion respectively. 30% of emission rights allocated free will go to electric entities up to 2026-30, including coal-fired power stations, and 9% to gas-fired power stations[26]. In 2030 71.7% of emission rights will still be allocated free and will disappear only in the middle of the decade. A federal reserve of 2.5 Gt, constituted from a

[22] www.dspace.cam.ac.uk/bitstream/1810/.../1/eprg0617.pdf

[23] Trevor Sikorski, *La tirelire du marché européen du carbone*, Tendances carbone, avril 2008, http://www.caissedesdepots.fr/actualite/mediatheque/recherche-climat/finances-carbone.html

[24] http://www.euractiv.fr/energie/interview/capacite-entreprises-emprunter-an-quotas-est-dangereuse-001494

[25] Caisse des Dépôts, *Tendances carbone*, 15 octobre 2009, http://www.caissedesdepots.fr/actualite/mediatheque/recherche-climat/finances-carbone.html

[26] http://www.mondaq.com/article.asp?articleid=84824

fraction of the quotas emitted annually, will permit to control the quotas prices in case of their unexpected increase, through auctioned sales of part of them. To protect the poorest citizens 15% of the revenues on the sales of emissions permits will be refunded to allow them to recover their additional costs linked to higher prices for energy and energy intensive goods and services. Independently of the fact that all citizens should not pay much more for electricity and gas as local companies delivering them will receive free emission allowances[27].

However we may fear the worst with the globalization of cap-and-trade systems, first that already adopted by the US House of Representatives and still debated in Senate. According to the World Bank, the global carbon market has been of 4.8 Gt of CO_2e in 2008 for $126 billion – against 3 Gt in 2007 for $63 billion –, of which $93 billion (against $63 billion) for EUAs trade, and $26 billion (against $18 billion) for the secondary market of certified emission reductions (CERs, see below)[28]. For Point Carbon, the main company analyzing the global carbon markets, the allocations of emission rights (primary market) would be of about 9.4 Gt in 2020, of which 5.4 Gt on the US market and 2 Gt on the EU one, the remaining covering the new markets which will open in Australia, New-Zeland, Canada, Japan, Korea, Mexico and Turkey, and including the integration of air and sea transports in these markets. The figure does not include the new carbon market created in Brazil at the end of 2008. On the other hand the transactions on the secondary market would be 4 times larger than these "assets" and would reach 38 Gt for a value of $3,100 billion (€2,000 billion) of which $2,300 traded on the US market, on the basis of a carbon price at 50 €/t assessed in May 2008 but revised at 37 €/t the 29 October 2009[29], which confirms the total lack of visibility of those markets and the impossibility for businesses to make long run investments to reduce their emissions in such conditions[30]. Moreover the markets analyst Frost & Sullivan reveals that the market of emission credits, linked to projects of emission reductions, has realized a turnover of $94.3 billion in 2008 and estimates that it would reach $344.6 billion in 2015[31].

Now these carbon markets are essentially derivatives markets with tradable futures and options and are based on the necessary presence of speculators as counterparts, among which all the financial institutions already implicated in the subprime crisis and the following global recession since 2007. The head of the US Commodity Futures Trading Commission has confirmed in June 2008 that the derivative carbon markets are expected to exceed all the other commodities markets, the more so as they will impact on the derivative markets of coal, oil, gas and electricity[32]. Already the EU wants that the ETS carbon market be extended to all OECD countries by 2015 before turning in a global carbon market by 2020 so as to avail of a global single carbon price, which is a laudable objective but this price will be subject to even more fluctuations difficult to master. Friends of the Earth warns that the next bubble "carbon subprime" might have a more serious economic and social impact than that of the previous subprime bubble and will be totally counter-productive on climate change[33].

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[27] http://www.cbpp.org/cms/index.cfm?fa=view&id=2865

[28] World Bank, State and trends of the carbon market 2009, http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22192038~pagePK:34370~piPK:34424~theSitePK:4607,00.html

[29] http://www.pointcarbon.com/aboutus/pressroom/pressreleases/1.1272364

[30] http://www.reuters.com/article/pressRelease/idUS187544+22-May-2008+BW20080522

[31] http://www.environmentalleader.com/2009/11/02/global-climate-talks-set-carbon-offsets-in-motion-market-may-quadruple-by-2015/

[32] http://us.ft.com/ftgateway/superpage.ft?news_id=fto06252008124711679

[33] http://www.foe.org/subprime-carbon-testimony

The two external markets of emission credits

It is possible to reach the objectives of CO_2e emissions reduction through emissions credits linked to financing, outside of the domestic markets, investments reducing emissions, either in other Annex 1 countries, mainly Eastern Europe for the EU, – it is the "Joint Implementation" (JI) allowing "emission reduction units" (ERUs) –, or in DCs: it is the "Clean Development Mechanism" (CDM) allowing "certified emission reduction credits' (CERs). In fact the JI market has represented less than 5% of the CDM market in 2008 and, if the CDM primary market ($7.4 billion) has remained higher than its secondary market ($5.5 billion) in 2007, the situation a completely changed in 2008 ($6.5 billion against $26.3 billion).

The creation of the CDM has constituted an attempt to induce indirectly the DCs to reduce their CO_2e emissions, as they have refused in Kyoto to be subject to direct reductions, and at the same time to allow the developed countries' businesses to fulfill at the least cost their reduction commitments. Jeffrey Rubin has estimated that the "*the cost of importing emissions credits [will] be a third of the cost of domestic abatement policies such as carbon taxes*"[34]. But the CDM record is very negative – not only for researchers and NGOs but also for the US Government Accounting Office[35] – as many projects did not lead to any emissions reduction, a fortiori were not additional to the already decided or even ongoing projects – for example many hydroelectric projects in China –, but have often slowed down the adoption of clean technologies in order to benefit of CDM financing before implementing them. Some projects have even increased the emissions together with tragic social impacts, such as the expulsion of small farmers in Indonesia to produce oil palm. Furthermore these offsets projects are very expensive to prepare and have been concentrated on heavy installations and few large countries, first of all China which has received 66% of all CDM projects from 2002 to 2008 (against 9% for India and 8% for Brazil but very few to LDCs) and even 84% in 2008 (against 4% for India, 3% for Brazil, 2% in Africa). For M. Wara and D. Victor of Stanford University, "*The CDM is structurally unable to engage developing countries in ways that would actually make a dent in emissions… On current trajectories, import of CERs could account for up to ten times the actual reductions of emission reductions from within the EU cap-and-trade… The EU, to be sure, is making a serious effort to control emissions at home, but those emission controls are proving much more costly than importing CERs*"[36]. And the Science review is more specific: "*Chinese developers have received $7.4 billion worth of CDM credits in return for preventing the release into the atmosphere of roughly 6600 tons of a gas called trifluoromethane, a greenhouse gas 11,700 times more potent than CO2 created during the manufacture of refrigerants. But Victor and Wara found that destroying the same amount of the gas would have cost only $157 million*"[37]. Daphne Wisham takes the example of large US "*oil companies operating in Nigeria like Chevron are likely salivating over the amount of money they can now extort from a global carbon offset regime in exchange for finally obeying the law. But it's not just the extortion in Nigeria that would be problematic: In exchange for ceasing gas flares in Nigeria and getting paid to do so, a Chevron facility in,*

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[34] Southern People's Ecological Debt Alliance, *Ecological debt: the South tells North,* http://www.ecologicaldebt.org/What-is-Ecological-Debt/

[35] Friends of the Earth, *A dangerous distraction. Why offsets arte a mistake the US cannot afford to make*, http://www.foe.co.uk/campaigns/climate/news/dangerous_distraction_20319.html; David G. Victor, *Global Warming Policy After Kyoto: Rethinking Engagement with Developing Countries*, January 2009, http://pesd.stanford.edu/publications/cad/; GAO, *Climate Change: Observations on the Potential Role of Carbon Offsets in Climate Change Legislation*, March 5, 2009 (http://www.gao.gov/products/GAO-09-456T)

[36] Michael W. Wara and David G. Victor, *A Realistic Policy on International Carbon Offsets*, April 2008, http://pesd.stanford.edu/publications/a_realistic_policy_on_international_carbon_offsets/

[37] www.climos.com/news/articles/californiaemissionsplan.pdf

say, Richmond, California could carry on polluting. End result: Chevron wins, Richmond residents lose, and our overall climate grows more unstable"[38].

Lastly, even if the allowed share of JI and CDM credits is limited to 13.5% of emission quotas of the EU businesses from 2008 to 2012 and if that share should decrease from 2013, CDM projects have had a negative or at best nil impact on global CO_2e emissions reduction since they have allowed those businesses to avoid reducing them in the same proportion: it is the "carbon leakage".

On the other hand the House of Representatives' ACES bill states that the businesses subject to reductions will be able to cover 30% of their emissions through offsets as soon as 2012, this increasing percentage being able to reach 67% in 2050, which could represent 2 Gt of CO_2e. However half of the offsets shall be located in the US and, for the other half located abroad, a reduction of 1.25 ton of CO_2e will be required from 2017 to get an emission right of 1 ton in the US, so as to reduce the possible carbon leakage. However the Senate draft foresees that only one quarter of offsets could be implemented abroad. We will come back further on international offsets against deforestation.

In fact the domestic offsets projects have the same drawback to postpone the adoption of low carbon intensive production methods. The Congressional Budget Office estimates that the lack of foreign offsets would increase by 50% the price of emission permits in 2030 and that the lack of any offset, even in the US, would trebled that price. Which underlines the extent to which those offsets will slow down the adoption of low carbon technologies[39]. On the other hand the EPA (Environment protection Agency) estimates that the Climate bill will not impact on the average consumption of US households which would increase by 15% to 19% from 2010 to 2020, i.e. by only 0.1% less than without the bill, and that will imply a lower annual consumption per household of $80 to $111. If such a conclusion is a good political point in the short run to help the Senate bill to pass, this will not change the consumption model even if it is less carbon intensive.

An authoritative criticism of the inefficiency of carbon markets to fight climate change has just come from the prestigious Deutsche Bank, in a report jointly prepared with Columbia University: "*In the long run, economists agree the most efficient way to incentivize markets is to directly price the carbon externality and leave markets to sort out the long-term winners and losers… While general mandates that do not attempt to pick winners and rely on market pricing might seem to be most defensible, they do not adequately address all of the market failures at work in climate change, which include underinvestment in network expansion and technological innovation, as well as path-dependency on sub-optimal technologies that have benefited from high levels of historical investment. To address these market failures, public policy interventions that reduce risk must be implemented*"[40].

Finally, beside JI and CDM markets, domestic markets of emissions quotas are possible for businesses and other activities not subject to reductions. Domestic projects intend to foster voluntary emissions reductions, initiated in sectors not covered by the Kyoto Protocol, for

[38] http://www.ips-dc.org/articles/kerry-boxer_climate_bill_still_stinks_despite_cologne

[39] Larry Parker & Brent D. Yacobucci, *Climate Change: Costs and Benefits of the Cap-and-Trade Provisions of H.R. 2454*, Congressional Research Service, September 2009, http://ncseonline.org/NLE/CRS/abstract.cfm?NLEid=2233

[40] Deutsche Bank, Global Climate Change Policy Tracker: An Investor's Assessment http://www.dbcca.com/dbcca/EN/investment-research/investment_research_1780.jsp

agriculture, transports, housing and some industrial sectors, which emit about 70% of GHG in France.

The room made to agriculture and forest in the EU and US policies on climate change

The weight of agriculture (13.3%) and forest (18%) in global emissions of GHG is important. 74% of agriculture emissions are attributable to DCs against 9% to the US (where agriculture accounts for 76% of nitrogen protoxide emissions and 31% of methane emissions) and 10.5% in the EU where those emissions have fallen by 20% from 1990 to 2006, against 7.7% for all activities (but they have increased by 80% in international air and sea transport!). For example it is estimated that 580 tons of CO_2e are emitted by hectare of tropical forest (combustion and decomposition) and that, in France, a milk cow emits 1 ton of CO_2e/year due to its enteric fermentations and a pig emits 0.5 ton of CO_2e due to its mess. However agriculture and forest are not subject to reduce their GHG emissions in the US as in the EU, even if the EU contemplates to reconsider the issue for forest in 2020, on the ground that it is very difficult to assess the carbon flows between the soil, the forest and the atmosphere. On the other hand the US will allocate many offsets for the reduction of their emissions and carbon sequestration, contrary to the EU which does not foresee it, on the ground that the small size of farms would not permit to make profitable the administration of such offsets[41]. Another reason why the EU does not want to grant emission credits to forest, particularly through the REDD emissions mechanism (Reducing Emissions from Deforestation and Degradation), is that the weight of forest in global GHG (18%) would reduce the competitiveness of European businesses on low carbon technologies if, besides the CDM, they can get significant emission credits in DCs for projects reducing deforestation[42]. Incidentally the REDD program is not part of the Kyoto Protocol but DCs would like to include it in the next Protocol. A new report seems to imply that, contrary to the US where agriculture and forest are considered as an important net sink, "*Methane emissions from feedstock and nitrous oxide emissions from arable agriculture are fully compensated for by the carbon dioxide sink provided by forests and grasslands. As a result, the balance for all greenhouse gases across Europe's terrestrial biosphere is near neutral, despite carbon sequestration in forests and grasslands. The trend towards more intensive agriculture and logging is likely to make Europe's land surface a significant source of greenhouse gases*"[43].

Indeed the ACES Act of the House of Representatives, and the Senate Draft as well, exempt agriculture and forest from any emissions reduction, even if the issue could be reconsidered in 6 years, but they will benefit of large emission credits, tradable on the market, for carbon sequestration up to 2 Gt of CO_2e, half of which abroad (see below). Net national sequestration (LULUCF: land use, land use change, forest) would be of 1.063 Gt of CO_2e per year, which will offset 15% of other US GHG emissions, and 8.6% taking into account the agriculture emissions of methane and nitrogen protoxide[44], making agriculture and forest net contributors to US emissions reduction. In 2006 LULUCF activities made a net sequestration of 884 million tons of CO_2e, representing an offset of 12.5% of total GHG emissions[45]. Over 84% of this net sink occurs in forest because agriculture is a net emitter, methane emissions from enteric fermentation and manure management representing 23% and 7% of total CH4

[41] http://thinkcarbon.wordpress.com/2009/07/11/comparison-of-waxman-markey-eu-ets-and-cprs-emissions-trading-schemes/;
https://wiki.usask.ca/kis/index.php/Section_3:_Emissions_Trading/Offset_Credits_%E2%80%93_A_Market_Based_Instrument

[42] http://www.illegal-logging.info/item_single.php?it_id=2813&it=news

[43] http://www.nature.com/ngeo/journal/vaop/ncurrent/abs/ngeo686.html

[44] www.aere.org/meetings/documents/beach.pdf

[45] http://edis.ifas.ufl.edu/AE435

emissions respectively. Between 1990 and 2006, total LULUCF net carbon flux resulted in a 20% increase in CO_2 sequestration. The Energy Information Administration (EIA) claims that the agricultural offsets could reach $24 billion annually, which would dwarf all agricultural subsidies (without domestic food aid)[46], but this calculation appears not feasible to the EPA (Environment Protection Agency) for which net agricultural offsets will be between $1-2 billion per year between 2012 and 2018 and rising to $20 billion in 2050[47]. However the most recent report, by Duke University, appears to confirm the EIA figures as it shows that the average annual agricultural income (discounted at 4%) would increase, in relation to the baseline without climate policy, by $21 billion (in 2004 $) with a CO_2e price of 15 $/t to $66 billion with a CO_2e price of 50 $/t[48]. The main offsets will come from forestation on previous agricultural (mainly pasture) lands, forest management and biomass-based electricity, not so much from carbon sequestration in soils and improvement of production systems (lower fertilizers consumption, better livestock management). Furthermore this report estimates that, taking into account the negative consumers' surplus and agro-industries' surplus linked to higher agricultural prices, the net annual agricultural welfare would nevertheless be of $7.92 billion for a CO_2e price of 15 $/t and of $30.8 billion for a price of 50 $/t. However these calculations anticipate the profitability of the second generation biofuels which, according to the Energy Independence and Security Act of 2007, should reach 75 billion liters in 2022 on a total of 136 billion liters for all biofuels, level at which they would stabilize. This is a risky bet as USDA considers that the on-going tests are far from reaching a competitive price with that of corn ethanol[49], a view confirmed by the Government Accounting Office which estimates that second generation ethanol costs twice as much as corn ethanol[50].

However these calculations do not take into account the effects of land use changes in the rest of the world (ILUC: indirect land use change) linked particularly to the US boom of corn ethanol. Incorporating or not these effects is at the core of the debates in the US Senate, as it had been previously in the House of Representatives: the agrofuels' lobbies refuse to acknowledge that the explosion of world agricultural and food prices in 2007-08 – and the persistence in the second week of November 2009 of higher prices than those of 2006 and 2007 for basic grains in spite of their large drop since the 2008 summer[51] – are mainly due to the US corn ethanol boom and the EU biodiesel boom, which has led many DCs, particularly Brazil and Indonesia, to increase their production of feedstocks for ethanol (sugar cane) and biodiesel (palm and soybean oil). Indeed Brazil and Indonesia are responsible for 60% of the GHG linked to global deforestation, which accounts for 18% of global GHG emissions[52].
However the ACES Act and the Senate draft will devote large means, under three programs, to fight deforestation in, mainly tropical, DCs[53]: 1) the EPA will allocate part of the annual emission permits to finance avoided deforestation, but not reforestation, in the context of the

[46] http://www.ips-dc.org/articles/why_are_we_letting_polluters_regulate_themselves

[47] EPA, *Analysis of the Clean Energy Jobs and American Power Act of 2009*, http://www.epa.gov/climatechange/economics/economicanalyses.html; USDA, *A PRELIMINARY ANALYSIS OF THE EFFECTS OF HR 2454 ON U.S. AGRICULTURE* www.usda.gov/oce/newsroom/archives/releases/2009files/HR2454.pdf

[48] Justin S. Baker et al., *The Effects of Low-Carbon Policies on Net Farm Income*, Duke University, November 2009, nicholas.duke.edu/institute/ni.wp.09.04.pdf

[49] http://www.reuters.com/article/marketsNews/idUSN2937141920091029

[50] www.gao.gov/products/GAO-09-446

[51] In the second week of November 2009 the prices of cereals and soybean remain largely higher than the average annual prices of 2005 and 2006, and even than those of 2007 for rice (+62%), soybean (+14%) and maize (+6%), nd it is only for wheat that it is lower than in 2007 (-15% for HRW and WRW). Source FAO.

[52] http://www.nytimes.com/cwire/2009/10/02/02climatewire-leaders-from-indonesia-brazil-join-3-us-stat-93701.html

[53] http://www.forestcarbonportal.com/article.php?item=681

REDD mechanism: 5% from 2012 to 2025, 3% from 2026 to 2030, and 2% from 2031 to 2050. On the basis of a price of emission permits between 10 $/t and 28 $/t this will provide from $49 billion to $137 billion over the program lifetime; 2) the international offsets (see above), also within the REDD mechanism; 3) the revenues from the auction of a strategic reserve of emission permits will allow to buy international offsets permits to fight deforestation. On the whole the REDD mechanism would allow to reduce the cumulative emissions linked to tropical deforestation from 0.7 Gt in 2020 (about 10% of the US emissions in 2005) to 6 Gt in 2025 (equivalent to the US emissions in 1990), through the sale of emission permits and the investment of the revenue in projects fighting deforestation and forest degradation[54]. However the REDD mechanism, which is still negotiated since 2005, is highly challenged by civil society because it is founded on a definition of forests including new plantations which could be substituted for natural tropical forests. Yet they store 5 times more carbon, are an essential reserve of biodiversity, provide a livelihood to large indigenous populations who have often been evicted and run the risk to be even more with the large on-going land grabbing to grow biofuels, short cycle plantations to make cellulose or agricultural products for exports. Besides, these large offsets abroad will present the same difficulties of monitoring and of carbon leakage as those observed for CDM projects.

The cycle of progress of the agricultural frontier in the Brazil Amazon corresponds to the following dominos effect: the national area in sugarcane has increased by 43% from 2005 (6.1 million ha) to 2008 (8.7 million ha) – an annual increase of 13%[55] – and not only sugarcane has extended into the Amazon but, as it is the most profitable crop, it has displaced in the South and South-East the other productions – soybean, cereals and bovine cattle – to the Cerrado and the Amazon. Thus 70 to 80% of deforested lands in the Amazon have been converted into pastures, a process largely facilitated by huge subsidized interests on loans to ranchers. Even if 47% of Brazil's energy consists of renewable energies (mainly hydro-electricity and agrofuels) – which is a positive worldwide record –, Brazil is also the fifth largest emitter of GHG, 75% of which is attributable to deforestation and land use change, of which 59% for deforestation in the Amazon – which has been of 19,368 km2 per year on average from 2000 to 2007[56], even if it has decreased in the last years. Indonesia was already ahead of Brazil in 2000 as the fourth emitter – after the US, EU and China –, with 3 Gt of CO_2e[57], due essentially to deforestation (2,6 Gt, including peat bogs destruction) which has represented 85% of total GHG emissions of the country and 34% of global emissions linked to land use change and deforestation, most often to produce palm oil exported for food or biodiesel.

On the whole the status conferred to agriculture and forest in the US ACES bill and the Senate draft is very favorable but unbalanced as the GHG emissions will not be capped and as no account will be taken of emissions abroad linked to US agriculture and forest activities (ILUC), but will benefit of very large offsets credits to reduce their emissions, even if very large resources will be devoted to reduce deforestation in DCs. Even if agriculture and forest are no more subject to emission reductions in the EU than in the US, they will not get emission rights for offsets in the EU itself or in DCs to fight deforestation. This difference will confer a significant competitive edge to US agriculture over EU one. But the large forest

[54]http://www.climatechangeinsights.com/2009/07/articles/us-policy/seeing-redd-international-avoided-deforestation-is-a-big-winner-in-waxmanmarkey/

[55] André M. Nassar et al., *Prospects of the sugar cane expansion in Brazil: impacts on land use allocations and change*, 2009, www.iddri.org/Activites/Ateliers/081009_Conf-Ethanol_Executive_Summary_Andre_Nassar.pdf

[56] http://www.greenpeace.org/france/news/bresil-etat-du-mato-grosso

[57]http://siteresources.worldbank.org/INTINDONESIA/Resources/Environment/Climate Change_ExecSum_EN.pdf

countries like Brazil and Indonesia are pressuring for integrating the REDD mechanism in the next Protocol in Copenhagen to get emission credits in return for their ambitious objectives to reduce deforestation – which concerns 13 million ha worldwide per year –, in accordance with what had been requested by the UNFCCC Bali conference in December 2007. Indonesia intends to reduce its emissions due to deforestation by 1.3 Gt in 2030 in relation to the 2005 level and even by 2.3 Gt if it gets international financing. As for Brazil, Lula will declare in Copenhagen to be committed to cut by 80% the rate of Amazon deforestation by 2020 if it can get financial offsets[58], and indeed he hopes to get as much as $8 to $16 billion annually in emission credits within the REDD mechanism[59].

To conclude, the headlong flight in putting CO_2e emission quotas and credits in global financial markets will be counter-productive to fight climate change, independently of its perverse economic and social effects, and we must therefore opt for the way of a planned rise of carbon taxes, beside rules and incentives to modify profoundly the behavior of all economic agents, producers and consumers alike, for all goods and services.

The necessary taxation of carbon

As the way of carbon markets of a cap-and-trade type, adopted by all developed countries, cannot be efficient on the climate issue but is the source of many other perverse effects, it is the way of carbon taxation which should be favored. Let us remind the main reasons.

- The cap-and-trade system caps the GHG quantity which can be emitted and, even if this cap decrease over years, this does not induce businesses to reduce the emissions the most quickly possible and, conversely, this cap is linked to an unpredictable cost for businesses as the price of emission quotas fluctuates much on the market.

- The free emission quotas allocated in the EU ETS brings about a carbon leakage because the benefitting businesses are not induced to invest immediately in carbon saving technologies. If they are thus protected from the competition of imports from countries not subject to GHG emission reductions, they can nevertheless choose to import and sell their surplus of emission quotas on the market. Furthermore, as the percentages of free allocation of emission quotas will differ according to industry branches between the EU, the US and the other countries which will adopt markets of emission rights, this will imply different rates of subsidies opening possible proceedings at the WTO. In other words free emission quotas do not allow to know the carbon leakage accurately.

- Whereas carbon taxes are normally applied to all products, the EU emission quotas system will concern only businesses responsible of 49% of emissions from 2013 against 83% in the US. The EU has only subjected to emission reductions the industrial businesses the most exposed to international competition but not the sectors of transport and housing which are not exposed or very little but which register a strong growth and represent a high level of total emissions.

- For the US Congress Budget Office, "*A tax on emissions would be the most efficient incentive-based option for reducing emissions and could be relatively easy to implement. If it was coordinated among major emitting countries, it would help minimize the cost of achieving a global target for emissions by providing consistent incentives for reducing*

[58] http://www.cyberpresse.ca/environnement/200910/13/01-910903-le-bresil-promet-de-reduire-de-80-la-deforestation-de-lamazonie.php

[59] http://www.abemc.com/arquivos/imprensa/Folha%20S.Paulo_mat%C3%A9ria_out2009.jpg

emissions around the world"[60]. It concludes that "*Tax dominates any cap and trade system by a factor of 3 to 8 times depending on how the cap & trade system works (auctioned or not, other features)*"[61].

- For E. Laurent and J. Le Cacheux of OFCE, "*In the case of the carbon tax, it is important to fix from the beginning, and for a long time, a "carbon price" high enough to foster the adoption, by businesses and households, of technologies which spare fossil energies or allow to get rid of them completely, and to favor, when they do not exist, the research and development efforts aiming at their rapid emergence… The market of fossil energies is too much volatile to ensure the reliability of its price and to ensure a sufficient visibility to investors and households; besides, each rise of the oil prices generates substitutions towards other fossil energies, notably coal, whose emissions of GHG – and of other pollutants – are larger than those of oil ; finally, the rise in the prices of fossil energies may happen too late, when the urgency demands technological choices as quickly as possible. We must therefore overcome market failures by including in the private cost of fossil energies the estimated cost of climatic consequences of the emissions*"[62].

- For Shapiro, "*Under cap-and-trade, the price of carbon depends on the relationship between energy demand and the supply of permits. But… the demand for energy shifts all the time. So, when that demand increases unexpectedly… the price of the permits will rise sharply… The same kind of volatility occurs when demand shifts downward… Such additional price swings are unequivocally bad for an economy… This volatility is equally troubling environmentally: It means that cap-and-trade cannot provide a predictable price for carbon, which undermines the basic strategy of getting people to shift away from carbon-based fuels. This drawback is even more important for businesses… The contrast to a carbon usage fee is clear: By definition, the carbon tax provides a known price for carbon which can be set at whatever level scientists believe will enable us to meet the necessary goal of reducing greenhouse gas emissions*"[63].

- Besides, the lack of visibility for businesses and households linked to the high volatility of the prices of carbon and products containing it, carbon taxes allow a tax neutrality and, better, a socially progressive redistribution taking into account the specific constraints of businesses and households.

- But, whereas emission rights have been fixed at a very low and insufficient level to modify rapidly the behavior of economic agents, the carbon taxes must be high enough to provide the resources necessary not only to compensate the income of the poorest households who do not pay an income tax but also to finance public incentives to adopt production technologies and consumption of goods and services of a low carbon content. To the contrary the EU emission quotas have been allocated free from 2005 to 2012 (only 3% are auctioned from 2008 to 2012) and will continue to be partly up to 2027, the US continuing to do it partly up to the mid 2030s. Consequently the public revenues linked to the emission credits will be limited and will not permit to refund much to poor households but a large part will be captured by the financial institutions operating on these markets.

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[60] http://www.cbo.gov/doc.cfm?index=8934

[61] www.cga.ca/documents/Olewiler.pdf

[62] Eloi Laurent et Jacques Le Cacheux, *Taxe carbone : TCA contre CO2*, Lettre de l'OFCE, 6 juillet 2009, www.ofce.sciences-po.fr/pdf/lettres/311.pdf.

[63] Robert J. Shapiro, *The Case for a Carbon Tax to Control Climate Change*, August 10, 2009 http://www.theglobalist.com/StoryId.aspx?StoryId=7922

- The carbon taxes are transparent and easy to understand by businesses and the public whereas the markets of emission quotas and credit are beyond reach[64]. Carbon taxes may be implemented rapidly whereas the complexity of cap-and-trade systems leads them to a lot of trial and error. The experience of the EU Emission Trading System (ETS) shows that it is still not fully mastered after four years of experience and we can expect that it will be less and less as it will continue to grow and be integrated in a global market of emission rights that financial speculation will corrupt.

- Recent analyses show that using carbon taxes at the border is more efficient by 5% to restrain GHG emissions than the free allocation of emission permits to businesses exposed to the competition of imports from countries not subject to emission reductions, at least in the case of electricity, steel, cement (clinker) and aluminum[65].

- Stiglitz underscores that the systems of emission permits, particularly for those allocated free, are highly subject to corruption by the benefitting businesses[66].

- Carbon taxes limit, much more that emission permits markets, the uncertainty over the profitability of investments to reduce emissions.

- Carbon taxes avoid carbon leakage to the extent they do not depend on offsets projects, either domestic or abroad, at least if national competitiveness is maintained vis-à-vis countries without emissions reduction commitments.

- The lack of carbon taxes in DCs not subject to reduction commitments at the multilateral level slows down their possibilities to export to developed countries products not complying with the environmental norms that they are increasingly imposing to their own products, for example the CO_2 emission norms on automobile vehicles.

- Carbon taxes would be very favorable to the promotion of agro-ecological production systems with a low intensity in inputs, in DCs as well as in developed countries, and particularly of organic farming[67], as the large farms highly capital intensive (heavy motorization, chemical inputs and feedstuffs based on grains) would be strongly taxed[68]. A study in Indonesia confirms this statement[69].

Finally we can read the statements of many experts on the many reasons why to opt for carbon taxes instead of emissions quotas markets[70].

Examples of implemented carbon taxes

Several countries of Northern Europe – Denmark, Norway, Sweden – have been using carbon taxes with success for a long time. The Swedish tax, in place since 1991, uses different rates

[64] http://www.carbontax.org/issues/carbon-taxes-vs-cap-and-trade/

[65] Susanne Dröge, coordinator, *Tackling Leakage in a World of Unequal Carbon Prices*, 5 October 2009, http://www.climatestrategies.org/our-reports/category/32/153.html; basée sur une étude sous presse de S. Monjon et Ph. Quirion, *Implications of design options for border adjustment to the European Union Emissions Trding System*.

[66] J. E. Stiglitz, SHARING THE BURDEN OF SAVING THE PLANET: GLOBAL SOCIAL JUSTICE FOR SUSTAINABLE DEVELOPMENT, www0.gsb.columbia.edu/ipd/pub/Global.Warming.COMBINED.pdf

[67] http://www.abiodoc.com/index.php?id=138

[68] Third World Network, *What kind of agriculture do we need in an era of climate change?*, http://www.twnside.org.sg/title2/climate/barcelona.bp.021109.htm

[69] http://www.scidev.net/en/news/carbon-tax-wont-hurt-the-worlds-poor.html

[70] http://sites.google.com/site/300orgsite/sciennce-economics-experts-carbon-tax-needed-not-carbon-trading

for households and services on the one hand – rate passed from 27 € in 1991 to 109 € in 2009 – and for businesses exposed to international competition on the other hand – industries, agriculture and cogeneration – for which the tax has evolved from 7 € in 1991 to 16 € now for businesses subject to the ETS and 23 € for the others[71]. If electricity production is exempted from the tax, this is not the case for electricity consumers. The end result: the CO_2e emissions have fallen by 20% since 1990.

The climate-energy contribution (CCE) adopted in France in 2009 and implemented from 2010 will give a price to CO_2 energy emissions not covered by the ETS in diffuse sectors: buildings and housing, transport, small enterprises in industry, craft industry or agriculture. The CCE is a tax on fossil fuels (fioul, petroleum, gasoil, gas, coal, GPL) which provides compensation. The initial price, fixed at 17 €/t of CO_2 by the government, will increase the price of one petroleum liter by 4 cents of euro, and on the whole the average household will pay 102 € in taxes per year.

However this CCE has a lot of limitations[72] : 1) 17 €/t of CO_2, a level much lower than the €32 € proposed in Michel Rocard's report, will be insufficient to modify the behaviors, the more so as the levies will be essentially refunded to consumers and businesses whereas it should have provided public resources to finance the energy-saving consumptions (collective transports, housing renovation…); 2) the argument that this amount is close to the present price of emission quotas does not hold as this price should increase rapidly along the increase share of auctioned quotas, the economic recovery and the rise in the oil price; 3) the more so as the French government did not planned the future increases in the CCE price in order to change rapidly citizens' behaviors; 4) only the CO_2 is taxed, not the other GHG which account for 25% of the French emissions; 5) electricity is not taxed so as to imply that nuclear energy is a clean one although electric production accounts for 8% of the French GHG emissions; 6) agriculture, fishery and road transports will largely be exempted. Yet N_2O emissions of agricultural soils represent 9% of the French GHG emissions. Although it is not possible to assess these emissions as accurately as those of CO_2, we can approach them through the consumption of nitrogen fertilizers, the method selected by the national survey of GHG emissions. Taxing fertilizers consumption would provide other benefits: reduction of nitrogen pollutions (nitrates) and of fossil energy consumption.

The highly controversial border tax adjustments on carbon

The DCs' and NGOs' points of view

In order for a carbon tax to be efficient on global GHG emissions, it should apply to all goods and services, to those produced and consumed domestically as to those imported in order not to reduce the competitiveness of national (and EU) businesses and favor carbon leakage through their delocalization in countries without carbon tax or the reduction of their capacity to invest in less carbon intensive technologies. But border tax adjustment – which would translate in levies on imports and refunds on exports of a level comparable to carbon taxes collected on the domestic market for the same products – clashes with the understandable opposition of DCs and most NGOs which, for lack of specifying their fair conditions of implementation, find here a new protectionism of developed countries which have already a heavy ecological debt vis-à-vis the South. Thus for Martin Khor, Director of the South Centre, "*Imposing extra tariffs or financial charges on imports on the basis of how the products are produced ("process and production methods" or PPMs in technical jargon) is very controversial. It has been rejected by developing countries at the WTO since 1996 as a*

[71] http://www.actu-environnement.com/ae/news/taxe_carbone_suede_8682.php4

[72] http://ecolosphere.net/archives/952-contribution-climat-energie-le-rendez-vous-manque/

form of protectionism, which they say will unfairly curb developing countries' exports. They also argue that it is against the rules of the WTO"[73].

This revives and broadens the old debate on ecological and social clauses to trade, a debate which had contributed to the failure on the WTO Ministerial Conference in Seattle in 1999. Furthermore this idea raises technical issues of identifying the actual carbon content of imported products as DCs technologies (their PMMs) are often more carbon intensive than those of the developed countries. And there is the issue, on which we will come back, of the compatibility of those taxes with the WTO rules.

Beyond DCs and NGOs criticisms of the hidden protectionist nature of border tax adjustments, they demand large transfers from the North to help them cope with climate change. The Northern NGOs are also critical of the alleged efficiency of the emissions permits markets but agree to the use of national carbon taxes to subsidize technologies producing low carbon intensive goods. Yet economic protection is defined in broad terms as any public measure increasing the competitiveness of national businesses relatively to that of foreign businesses. But the majority of DCs and NGOs have not understood that subsidies are actually more protectionist than import taxes because only the developed countries can afford to grant them. They do not realize also that DCs themselves will need to impose import taxes in South-South trade – which will soon represent the majority of global trade –, as most of them cannot afford to grant significant domestic subsidies. Now the needs of subsidies, including to reduce unemployment, will be much larger if we do not slow down the import of products whose lower production costs are due to the non taxation of carbon in the exporting countries.

Generally speaking DCs and Northern and Southern NGOs avoid to debate on this sensitive issue of border tax adjustments and demand a large increase of North-South transfers to help DCs master the problems of mitigation and adaptation to climate change, underlining the North's huge ecological debt. Beyond necessary large financial transfers the North should also provide free low carbon technologies, hence abolish its patents in that field, avoiding to repeat its former resistance in the field of generic medicines to fight HIVs since the WTO Ministerial Conference in Doha in 2001.

There is however exceptions to this prevailing NGOs' stance. Lori Wallach, director of Public Citizen's Global Trade Watch division and one of the great figures of the alter-globalization movement, has signed an article jointly with Fred Bergsten in the Washington Post of 13 November 2009, stating: "*We agree that it is politically unrealistic -- and unwise -- to try to enact a cap-and-trade system that puts manufacturers in the United States at a competitive disadvantage with those operating overseas that do not produce under comparable requirements. It makes no sense to impose a cost on those producing steel, autos and other goods, only to have them shift jobs and pollution to China or India -- which are wary of binding international obligations on mission reductions*"[74].

[73] Martin Khor, *The Rise of 'Climate Protectionism'*, http://www.twnside.org.sg/title2/climate/bangkok.briefings02.htm

[74] C. Fred Bergsten and Lori Wallach, *Cooling the planet without chilling trade*, November 13, 2009 http://www.washingtonpost.com/wp-dyn/content/article/2009/11/12/AR2009111209923_pf.html

It emerges also from a debate of 18 September 2009 at the South Centre that "*Net revenue from any border adjustment measures could be channelled back to developing countries to support mitigation or adaptation efforts in domestic sectors*"[75].

Daphne Wysham of the Institute for Policy Studies defends the same idea of "*Turning a carbon tax into a positive funding flow for the Third World… Proceeds should go directly to the countries whose products are being taxed, for the purposes of explicit greenhouse gas reduction*"[76].

In France Philippe Quirion, of the Executive Committee of the Climate Action Network and recognized expert in the economic analysis of climate change, supports also the refund of carbon taxes to the exporting DCs whereas Olivier Godard of CIRED estimates that only a border tax adjustment would allow to auction enough emission quotas to finance decarbonization in DCs.

The developed countries' positions

Oddly enough many developed countries, advocating a higher trade liberalization and agreeing on that issue with all the international institutions, do not propose either border tax adjustments according to the carbon content of imports and satisfy themselves with promises of very modest contributions to the various existing funds intended to help DCs cope with climate change. Thus if the European Commission estimates that €100 billion per year up to 2020 are required to fight climate change, of which €22-50 billion from international public funds, the EU share going possibly from €10 billion to €15 billion. However, if the Swedish Presidency of the EU Council pleads for an EU contribution of €50 billion per year up to 2020[77], the European Summit of 29-30 October 2009 has specified that, except LDCs, DCs should also contribute to the international financing of €22-50 billion according first to their emissions level and second to their GDP, but it did not announce any figure for the EU and its Member States contributions, which will depend of the Copenhagen conference outcome. It is appropriate here to compare this lack of EU financial commitment vis-à-vis DCs with the some €7,000 billion in investments required in the EU from 2005 to 2050 – i.e. an average of €155.6 billion annually – to make its way towards a low carbon intensity economy, even if the public share of that financing would be only partial[78].

There are however exceptions to these developed countries' positions. During the French presidency of the EU Councils (second semester of 2008) Nicolas Sarkozy has proposed to impose a carbon tax on imports from countries without emissions reduction commitments, through "*the introduction of a mechanism to include importers in the European system of trading emission quotas*"[79], the more so as 12% of the EU GHG are attributable to imported products.

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[75] http://www.climatestrategies.org/our-reports/category/32/79.html

[76] http://www.europe-solidaire.org/spip.php?article15349

[77] http://www.touteleurope.fr/fr/organisation/institutions/conseil-europeen/actualite/actualite-vue-detaillee/afficher/fiche/4049/t/44275/from/2832/breve/traite-de-lisbonne-et-climat-au-menu-du-conseil-europeen.html?cHash=643c9d0acb

[78] Henry Neufeldt et al., *Reaching the 2°C Target: Technological Requirements, Economic Costs and Policies*, CEPS Policy brief, n°188, May 2009, www.ceps.be/ceps/download/1662

[79] Centre d'analyse stratégique, *Régulation climatique globale : quels mécanismes d'inclusion des importateurs de carbone en Europe?*, juin 2008, www.strategie.gouv.fr/IMG/pdf/NoteVeille104.pdf; voir aussi http://www.euractiv.fr/energie/article/taxe-carbone-defendue-france-coeur-vives-controverses-internationales-00643

But the European Summit has refused the French proposal of carbon tax on imports, a fortiori if their amount should be refunded to the exporting countries (see below), due to the very clear EU free-trade stance. It suffices to read Peter Mandelson's speech of 29 September 2008 to the EU Conference on trade and commodities: "*Between 70-80% of our primary resources are imported. In 2007 about 70% of all imports to the EU were not finished consumer products but intermediate goods headed for the transformation industries here. The fundamental reason why Europe's foreign economic policy has to be based on openness is because we depend on it… Our competitive advantage is already acutely sensitive to the supply and the costs of these inputs. On average, raw material costs make up around a sixth of the costs of manufactured goods in the EU. In industries like plastics, chemicals and paper the costs of raw materials can be easily as much as a third or more... So, the goal of the EU's trade policy is, and will remain, an open global market completely free of all distortions on trade in energy and raw materials*"[80]. The more so that Mandelson' speech was centered on the condemnation of restrictions put by DCs on exports of raw materials and semi-finished products, which has increased their world price. Indeed the EU tariffs are nil or very low on those products: 0% on oil, coal, most ores, lime, wood, cellulose, paper, raw cotton and wool, green coffee, cocoa beans, 0.7% on gas, 1.7% on cement, 3.2%-5.1% on oil seeds and raw vegetable oil (with lower tariffs for most DCs), even if the rate reach 5%-5.5% on most chemical products (6.5% for some) and few metals. In other words, even if those products are the first responsible of GHGs in producing countries, the EU does not seem prepared to tax their carbon content as long as its first concern is to buy them at the lowest price possible to remain competitive on the products processed from those imported raw materials.

In the same free-trade spirit, Peter Mandelson has recommended that the WTO Member States commit themselves to eliminate all tariffs on low carbon technologies, a proposal which could appear as facilitating the appropriation of these technologies by DCs but which hides in fact the developed countries' will to maintain their domination if the emerging countries are denied the right to protect their infant industries in that field.

OECD has also expressed its clear opposition to carbon border tax adjustments, for the same reasons that the European Commission, adding that the risks of carbon leakage are paltry: "*If the European Union acted alone (i.e. no other countries put in place climate policies), almost 12% of their emission reductions would be offset by emission increases in other countries. However, if all developed countries were to act, this leakage rate would be reduced to below 2%*"[81].

Yet Susanne Dröge estimates that, in the assumption that 100% of emission quotas would be auctioned in 2016, the rate of carbon leakage – linked either to imports or to the delocalization of production in countries without reduction commitments – would be of 39% for the production of steel, 21% for that of aluminum, 16% for that of clinker and 19.5% for that of cement[82].

It is also for not going against free-trade that Jean Tirole's report for the Stategic Analysis Council of the French Government criticizes border taxes on carbon: "*The border tax adjustment clashes with two important pitfalls: the lack of information on the carbon content*

[80] http://ec.europa.eu/commission_barroso/ashton/speeches_articles/sppm219_en.htm
[81] http://www.oecd.org/document/56/0,3343,en_2649_34361_43705336_1_1_1_1,00.html#Table_of_contents
[82] Susanne Dröge, coordinator, *Tackling Leakage in a World of Unequal Carbon Prices*, 5 October 2009, http://www.climatestrategies.org/our-reports/category/32/153.html; basée sur une étude sous presse de S. Monjon et Ph. Quirion, *Implications of design options for border adjustment to the European Union Emissions Trding System*.

of imports and the protectionist use that countries will not miss to make. In short, border tax adjustments are only justified in case of a partial agreement and have important drawbacks, like that of harming free-trade"[83]. Yet the same report, which advocates a global market of emission credits, declares that "*Our discussion up to now has clearly assumed that the emissions are measurable (or rather "computable" given the technology used). In fact any regulation presupposes that we know the emissions of the various sources… Appropriate and certified devices (so that countries agree on the objectivity of measures) should be put in place rapidly*".

On the other hand section 768 of the ACES Act adopted by the House of Representatives forces the importers to buy emission rights from January 2020 on commodities (steel, cement, etc.) and industrial consumption goods (including cars) of energy intensive sectors exposed to international competition. These provisions will be compulsory except if at least 85% of imports come from countries with reduction commitments comparable with those of the US or if they come from LDCs, from countries responsible for less than 0.5% of global emissions or from countries chose exports to the US are lower than 5% of the US total import value of the concerned product[84]. If the Senate Draft does not foresee explicitly border tax adjustments, the pressures exerted by Republicans will likely end up in their insertion so that the bill could be adopted by the two assemblies which have to compromise on a common text.

The required conditions for carbon border taxes to be fair to DCs

There are many conditions to fulfill in order that carbon border taxes would be fair for DCs and climate change:

1) To not penalize imports relatively to national products, we must take into account all domestic subsidies granted to businesses forced to reduce their emissions as they increase the competitiveness of national products and have an import substitution effect as well as an export facilitating effect. Joseph Stiglitz underlines that the US refusal to reduce its CO_2e emissions corresponds to massive subsidies to its businesses which have not internalized the cost of damages made to the global environment[85].

2) Precisely the free emission rights allocated by the EU[86], and which will be allocated by the US, to businesses with a high carbon intensity and which are the most exposed to international competition – rights that they may furthermore sell with profit – correspond to subsidies and are therefore a substitute to carbon taxes on imports[87]. Therefore the corresponding imported products should not be taxed[88] or, which is the same, the importers should not have to buy emissions rights. More generally the importers should only have to buy emission rights or pay carbon taxes of the same amount paid by domestic businesses. On the other hand there should not be any refund of emission rights to domestic businesses which would have received them free.

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[83] http://www.strategie.gouv.fr/article.php3?id_article=1049

[84] www.rgit-usa.com/.../ACES_-_Analysis_of_Border_Tax_Adjustments.pdf

[85] Robert Howse, *Subsidies to address climate change: Legal issues*, IISD, August 2009, www.iisd.org/pdf/.../bali_2_copenhagen_subsidies_legal.pdf

[86] The list of businesses receiving free emission quotas should be established by end December 2009.

[87] Susanne Dröge, coordinator, *Tackling Leakage in a World of Unequal Carbon Prices*, 5 October 2009, http://www.climatestrategies.org/our-reports/category/32/153.html

[88] http://climateprogress.org/2009/07/06/krugman-vs-obama-on-border-adjustments-to-the-waxman-markey-climate-bill/

3) Conversely, when the highly carbon intensive products are taxed at the export level – which is the case in China for steel and aluminum –, they should not be taxed again in the importing country, the more so as the carbon incorporated is valued in China at prices comparable to the EU emission quotas price (15 à 25 €/t)[89] and as China is price maker since it is the first exporter of steel and aluminum. Contrary to what we could think, China is pursuing a strategy aiming at reducing largely its carbon intensive technologies for these two products and not at maximizing the volume of its exports. However, as it is price maker on the world market, its export revenues remain very high. But this win-win situation does not play for cement (clinker) exports because of the overwhelming weight of high carbon intensive factories so that the incorporated carbon is only priced at 2.5-3.5 €/t in price equivalent of the EU emission quotas prices. In that case it would be justified to impose carbon taxes on imports in order to maintain the competitiveness of EU cement businesses and to prevent their delocalization. On the other hand China states that 35% of its CO_2e emissions are attributable to exports[90] and considers consequently that it is unfair to charge it for the corresponding carbon which should be attributed instead to the importing countries. However this stance may be turned twice against China: in justifying carbon taxes in the importing countries and in reducing its export revenues.

4) As domestic carbon taxes are generally devised to be tax neutral – as they replace other taxes or are refunded to households not paying any income tax – the same should be applied to the carbon border tax adjustments: they should be refunded to the exporting DCs either directly to reduce the carbon intensity of the exported products or via the UNFCC to finance broader climate change mitigation or adaptation measures.

On the other hand, as domestic carbon taxes may be refunded to citizens in a socially progressive way, the same approach should be applied to carbon import taxes which should be differentiated according to the development level of the DC country – LDCs being fully exempted –, and also according to the carbon intensity of the product.

All these conditions should reconcile DCs and NGOs with the idea that carbon tax adjustments at the border might not be a bad solution to propose to their governments.

We are pleasantly surprised to acknowledge that the idea to refund carbon taxes on imports to the exporting countries is shared by the Strategic Analysis Center of the French government, which writes in June 2008: "*Such border adjustment mechanisms should not be considered as a global solution to the issue of collective action raised by climatic regulation if their institution is not accompanied by that of a redistributive mechanism addressing the demands of compensation of the Protocol. Taxing CO_2 intensive imports of the poorest or emerging countries which "inherit" of a degraded climate, without giving them the (financial and technological) means to update their norms, is not acceptable politically. This challenge of "compensation" exceeds very largely that of the compatibility of the tax with the rules of the World Trade Organization (WTO). The requirement of compensation implies that the historical producers of GHG take on first and foremost the costs of the damage made and those of risks prevention. DCs require it on equity grounds and not in the name of an ambiguous "right to development", synonym of a right to harm the environment, as if only*

[89] Xin Wang et Tancrède Voituriez, Can unilateral trade measures significantly reduce leakage and competitiveness pressures on EU-ETS constrained industries? The case of China export taxes and VAT rebates, IDDRI, 2009, http://www.iddri.org/Publications/Publications-scientifiques-et-autres/

[90] John Whalley, *On the effectiveness of carbon-motivated border tax adjustments*, ARTNeT, March 2009, http://ideas.repec.org/p/esc/wpaper/6309.html

exists a single, fordist, development model, and a single growth mode, ecologically intemperate. Nevertheless an external carbon tax could bring about the solution to the redistributive problem it raises, on the condition that the amount of that tax would be allocated to update the carbon standards in DCs, being for instance affected to the Adaptation Fund of the Kyoto Protocol. This Fund is presently supplied only by a tax on emission reduction credits generated by the Clean Development Mechanism"[91]. You should read the remainder of this very interesting text, which has also been used by Nicolas Sarkozy for his proposal to the European Council on the carbon tax on imports but that the Council did not accept.

Such a solution is also shared by other specialists. For Mehdi Abbas, "*We might consider to attribute to the Kyoto adaptation fund the net revenues collected on the tax adjustments at the Europe borders. The principle of "common but differential responsibility" confers to DCs a particular statute which complicates the use of trade policy instruments for them. To that may be added the provisions of [GATT] article XXXVII.1.c asking "to refrain from imposing new fiscal measures" to less-developed countries. Therefore compensatory mechanisms are necessary. They allow, furthermore, to show that the first objective is not to discriminate between countries but to support the fight against climate change*"[92].

5) An interesting proposal to solve CO_2e emissions in international sea transportation, and which seems to have been supported at the Barcelone conference in end October 2009, concerns the International Maritime Emission Reduction Scheme. All merchant ships pay a carbon tax of 15 $/t on the fuel to a central account managed by the scheme, knowing that 70% of sea imports are made by the developed countries and that all DCs get a refund of their taxes, the remaining about $10 billion annually being transferred to multilateral funds on climate change to help DCs mitigation and adaptation policies[93].

6) There remains to refine the implementation modalities of carbon taxes at the border, particularly on imports. As most manufactured products contain inputs and amortization of equipments made in a large number of countries, it is not fair to tax the total carbon content of the imported finished product: it would be fairer to tax only the carbon added within the exporting country. This is the solution defended by several experts, among whom Stiglitz[94] and, in France, economists of OFCE and CIRED. There are clearly complex technical problems to compute the tax on carbon added at each stage of the product chain but the problem would be much easier and almost solved if all countries taxed themselves the carbon included in the inputs and equipments imported so that the country importing the final product could tax the whole carbon included, in the same way as the final consumer pays the whole value added tax. However one can adopt at the beginning simplified solutions based on the carbon content of the best available technology and on taxing only the carbon included in the most important inputs such as raw materials and energy.

But we could theoretically go further by computing the carbon incorporated in the manpower used in the product, based on the CO_2e per capita emissions, which vary a lot between countries: in 2005 they went from 26.9 t in Australia to 23.5 t in the US, 13.7 t in Russia, 11.9

[91] Centre d'analyse stratégique, *Régulation climatique globale : quels mécanismes d'inclusion des importateurs de carbone en Europe?*, juin 2008, www.strategie.gouv.fr/IMG/pdf/NoteVeille104.pdf
[92] Mehdi Abbas, *L'Europe face aux changements climatiques : quelle gouvernance pour l'après-Kyoto ?*, Laboratoire d'économie de la production et de l'intégration internationale (LEPII), Grenoble Université, CNRS, mars 2009, http://webu2.upmf-grenoble.fr/LEPII/spip/spip.php?article644.
[93] http://imers.org/
[94] See note 53.

t in Germany, 10.5 t in Japan, 9.8 t in Poland, 9 t in France as in South Africa, 5.5 t in China, 5.4 t in Brazil, 2.7 t in Indonesia, 2.1 t in Nigeria, 1.7 t in India and 0.1 t in Burkina Faso[95] (however these figures do not take into account the emissions from agriculture and forest).

II – The compatibility of the WTO rules with the various proposals to fight climate change

Paragraph 3 of article 2 of the Kyoto Protocol states that "*The Parties included in Annex I shall strive to implement policies and measures under this Article in such a way as to minimize adverse effects, including the adverse effects of climate change, effects on international trade, and social, environmental and economic impacts on other Parties, especially developing country Parties*" and paragraph 14 of article 3 repeats the same provisions. On the other hand paragraphe 31(iii) of the Doha Ministerial Declaration request to open negotiations on "*the reduction or, as appropriate, elimination of tariff and non-tariff barriers to environmental goods and services*". All the issue is to identify pertinently what is an environmental good or service and the answer is not obvious, for example for agrofuels.

We have reminded at the beginning of this paper that, for the WTO[96], "*The issue of climate change, per se, is not part of the WTO's ongoing work programme and there are no WTO rules specific to climate change*" but that "*trade openness can help efforts to mitigate and adapt to climate change*". In fact the WTO is highly concerned because it has to monitor that the measures taken to master climate change – notably carbon taxes or emissions quotas and credits at the borders, various subsidies – comply with its rules, i.e. do not have trade distortion effects, do not constitute unnecessary obstacles to trade and do not discriminate between Members ("most preferred nation" and "national treatment" clauses). The WTO underlines that a protectionism linked to measures to fight climate change would be out of place in the present period of global recession. However it admits that trade restrictions are sometimes necessary, provided that the rules of its different Agreements are complied with and many are indeed concerned: GATT, Agreement on agriculture (AoA), Agreement on sanitary and phytosanitary measures, Agreement on subsidies and countervailing measures (ASCM), Anti-dumping Agreement, Agreement on safeguards, Agreement on technical barriers to trade, General agreement on trade in services (GATS), Agreement on trade-related aspects of intellectual property rights (TRIPS), Agreement of trade-related investments measures, Agreement on government procurement.

In the report prepared with the United Nations Program on Environment (PNUE)[97], the WTO reminds that the economists distinguish three effects – of scale, technical, of composition – of market opening on climate change: the scale effect refers to the rise of CO_2 emissions linked to the intensification of economic activity and trade; but this increased trade facilitates the transfer of technologies reducing the carbon intensity of products and production processes (technical effect) and leads the countries to modify their production structure towards sectors less energy intensive (composition effect). The WTO admits however that most studies have acknowledged that the scale effect tends to prevail on the technical and composition effects on CO_2 emissions and hence recognizes implicitly that trade liberalization has contributed negatively to climate change.

[95] http://en.wikipedia.org/wiki/List_of_countries_by_greenhouse_gas_emissions_per_capita

[96] Quand on écrit OMC il faut entendre en général "Secrétariat de l'OMC" et non les décisions de son Organe de règlement des différends (ORD).

[97] UNEP and WTO, *Trade and Climate Change*, 2009 http://www.wto.org/english/res_e/publications_e/trade_climate_change_e.htm. Most WTO quotations are drawn from this report.

Distinguishing the WTO Secretariat's views from the decisions of the panels and Appellate Body of the Dispute Settlement Body (DSB)

The discourse of the WTO Secretariat on the measures taken against climate change is very open-minded but embellishes noticeably the reality of the panels' conclusions and Appellate Body's rulings. Now, these decisions do not make case law strictly speaking as underlined by the WTO Secretariat: "*There is no rule of stare decisis in WTO dispute settlement according to which previous rulings bind panels and the Appellate Body in subsequent cases. This means that a panel is not obliged to follow previous Appellate Body reports even if they have developed a certain interpretation of exactly the provisions which are now at issue before the panel. Nor is the Appellate Body obliged to maintain the legal interpretations it has developed in past cases*"[98]. However, "*If the reasoning developed in the previous report in support of the interpretation given to a WTO rule is persuasive from the perspective of the panel or the Appellate Body in the subsequent case, it is very likely that the panel or the Appellate Body will repeat and follow it*", but there is no obligation. Thus the EU has preferred to follow a long legal proceeding at the WTO since September 2002, before being condemned eventually by the Appellate Body in April 2005, in denying the dumping of its sugar exports when the case law in the Canada dairy products case was crystal clear since December 2001.

The WTO Secretariat claims to be very open to the possibility to take measures against climate change despite their incidence on trade: "*WTO case law has confirmed that WTO rules do not trump environmental requirements. If, for instance, a border measure related to climate change was found to be inconsistent with one of the core provisions of the GATT, justification might nonetheless be sought under the general exceptions to the GATT (i.e. Article XX), provided that two key conditions are met. First, the measure must fall under at least one of the GATT exceptions, and a connection must be established between the stated goal of the climate change policy… Second, the manner in which the measure in question will be applied is important: in particular, the measure must not constitute a "means of arbitrary or unjustifiable discrimination" or a "disguised restriction on international trade*".

Let us remind that article XX 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 between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:… (b) necessary to protect human, animal or plant life or health;… (g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption*".

However the WTO Secretariat adds: "*GATT case law has shown that the implementation of a measure in a way that does not amount to arbitrary or unjustifiable discrimination or to a disguised restriction on international trade has often been the most challenging aspect of the use of GATT exceptions*".

The compliance of measures taken against climate change with the WTO rules concerns mainly those at the border and subsidies but the distinction between the two is not always clear-cut.

[98] http://www.wto.org/french/tratop_f/dispu_f/disp_settlement_cbt_f/c7s2p1_f.htm

The WTO rules and border measures

For Mehdi Abbas, "*The introduction of a border adjustment will not be sufficient to meet the challenges of climate changes. To the contrary, it must be designed in the framework of a global architecture of climate governance. In other words, within a multilateral governance system which would articulate the WTO Agreements with the UNFCCC*"[99].

For the WTO, "*The objective of a border tax adjustment is to level the playing field between taxed domestic industries and untaxed foreign competition by ensuring that internal taxes on products are trade neutral*".

Import levies are allowed by the WTO to the extent they do not discriminate among exporting countries – in accordance with the most preferred nation clause (GATT articles I et II.1 – and are not higher than domestic taxes – in accordance with the national treatment clause (article III). Indeed, according to GATT article II.2.a, "*Nothing in this Article shall prevent any contracting party from imposing at any time on the importation of any product: (a) a charge equivalent to an internal tax imposed consistently with the provisions of paragraph 2 of Article III in respect of the like domestic product or in respect of an article from which the imported product has been manufactured or produced in whole or in part*".

From the point of view of the WTO rules, we could think that there is no difference between the use at the border, on imports or exports, of CO_2e emission rights or carbon taxes, the more so as the issue has not yet been raised for emission rights. Besides, the WTO acknowledges the interest of carbon taxes for the environment: "*Most of the studies undertaken in the early 1990s on carbon taxes show that these have small but positive effects on CO_2 emissions in specific sectors, such as heating, and in the industrial and housing sectors*".

That is why, for Mehdi Abbas, "*It is important to classify the tradable emission quotas as equivalent to a tax. However, two issues arise: how to adjust at the borders the cost of a quotas system in which a part of them are allocated free? Which would be the carbon tax equivalent of tradable quotas the price of which would vary along time?*"[100]. He adds that "*If we do not consider the permits system as being a tax, it enters into the category of economic regulations which would have as an effect or not to increase production costs. On this point, the WTO system is clear: this type of regulation is opposable at the international level as, according to this logic, one should also compensate or subsidize businesses because of differences in labor law, on wages costs, hygiene and security rules, etc.*".

Furthermore when, as it is the case with the EU ETS and will be the case with the US cap-and-trade, part of the emission quotas are allocated free to businesses which might sell them on the market without necessarily reduce their emissions, this corresponds to a subsidy which can be sued at the WTO. It is indeed a subsidy in the meaning of article 1.1.(a).ii of the SCM Agreement ("*government revenue that is otherwise due is foregone or not collected (e.g. fiscal incentives such as tax credits*"), which effect is to confer a competitive advantage to the EU businesses, particularly of import substitution. This point is confirmed by Howse and Eliason who support Stiglitz's argument that the US denial to reduce its CO_2e emissions has corresponded to massive subsidies to its businesses which did not internalize the cost of

[99] Voir note 68.

[100] Mehdi Abbas, *Taxe CO_2 aux frontières, régime commercial multilatéral et lutte contre le changement climatique*, LEPII, Grenoble Université, Août 2007, http://upmf-grenoble.fr/iepe/Equipe/abbas/AbbasPubli.html

damages to global environment[101]. They add that, the tradability of the EU emission rights being limited to some countries – to the EU Member States for emission quotas, to the other annexe 1 countries for the "joint implementation" (JI) and to DC shaving signed the Kyoto Protocol for the "clean development mechanism" (CDM) –, this constitutes a violation of the GATS article II.1 on the most preferred nation clause and to article XVII on the national treatment clause. Clearly, the emission permits system was not the way to adopt by the EU!

The issue set down is to know whether an imported product is "like" a domestic product when their only difference is the carbon content linked to its "Processes and production methods" (PPM). In other words does the carbon tax relate to the product or to the PPM? The answer lies first in the possibilities to differentiate the two products according to their PPM but also in he fact to know if the carbon emissions may be considered as incorporated into the product.

For Medhi Abbas, "*We cannot find in the GATT/WTO texts criteria allowing to conclude that two or several products are similar or not. Two doctrines clash. The first estimates that products obtained from different methods and production processes cannot be considered as similar products… The second doctrine considers that… the production process of these products should not be taken into account in the likeness or not of the products. The GATT/OMC case law has the tendency to favor the last one. However, according to the Appellate Body, the notion of likeness should be appreciated case by case according to the context and circumstances*".

However, for Robert Howse, "*It is noteworthy that with respect to border tax adjustments in the case of exported products, footnote 61 of the SCM Agreement provides that rebates on taxes on inputs in production for exported products should be regarded as border tax adjustments, not illegal export subsidies, wherever the inputs are 'consumed in the production process'. The definition of inputs consumed in the production process is as follows: 'inputs physically incorporated, energy fuels and oil used in the production process and catalysts which are consumed in the course of their use to obtain the exported product'. This definition makes it clear that the relevant concept is whether inputs are used to create the final product, not whether they are physically embodied in it, at least with respect to energy, fuels and oil. It is true that there is no comparable language with respect to border tax adjustment in the case of imported products; but arguably there is no need for such language, since, again, the concept of border tax adjustment, as defined by the OECD and incorporated in the GATT Working Party allows for the normal application of GATT Article III:2 to such taxes*".

But Howse concludes: "*The difficulty under GATT Article III:2 may be much less one of whether, doctrinally, goods produced with significantly different levels of carbon emissions can be considered like products, than one of determining accurately whether a particular imported product is produced with significantly higher carbon emissions than a particular domestic product. This refers to the challenge, mentioned above, of ascertaining the carbon footprint of a particular imported product, which may have gone through production stages in several different facilities at different locations. Typically, domestic pollution taxes have been imposed with respect to a particular enterprise or polluting facility, not on finished products. Thus, there has generally not been the problem of attributing emissions to a finished product*".

[101] Robert House and Antonia Eliason, *Domestic and International Strategies to Address Climate Change: An Overview of the WTO Legal Issues*, in INTERNATIONAL TRADE REGULATION AND THE MITIGATION OF CLIMATE CHANGE, Bigdeli, Cottier, Nartova (eds.), Cambridge University Press, 2008.

For Ismer and Neuhoff[102] the implementation of carbon taxes at the borders on the basis of the best world technology available would avoid proceedings at the WTO because no national business can have lower emissions than that technology. Therefore the carbon tax at the border would be lower than the carbon tax for national businesses, whatever the way the "like products" and the PPMs would be defined.

On the other hand, as the free allocation of emission quotas corresponds to a subsidy, one may expect proceedings at the WTO not only by non Annex 1 countries not subject to emission reductions but also between Annex 1 countries.

Furthermore for Howse, if the subsidies to research-development of low carbon technologies might be considered at first glance as compatible with the WTO – on the account of article 8.2.a) of the SCM Agreement as well as of paragraph 2.a of Annex 2 of the Agreement on agriculture (AsA) –, they might also limit the transfer of those technologies in favoring their early acquisition in the countries able to subsidize them and which will rush to patent them which will slow down their transfers and hence the global reduction of GHG.

Finally we must think about the strong interactions between carbon taxes or emission rights at the border and the existing tariffs: one should avoid cumulating them but one cannot either propose to replace totally the existing tariffs by carbon taxes, particularly if we minimize their levels through the proposed suggestions made above.

Carbon taxes, tariffs and subsidies on agrofuels and agricultural products

The issue is that of tariffs on agrofuels that the EU and US consider as a powerful means to fight the GHG emissions. Thus the EU ethanol is protected by a tariff of 0.192 €/l, equivalent to about 40% *ad valorem*, including against ordinary DCs exports which can avail only of the GSP (Generalized System of Preferences) since 2006, and the US ethanol is protected by a tariff of 2.5% plus 0.14 $/l. In both cases these tariffs aim expressly at protecting the domestic productions and do not have any motivation of reducing CO_2e emissions in the exporting countries, even if these two WTO Members claim that they are justified on that ground. This is all the less convincing that these import taxes are the same whatever the exporting country and hence the carbon content of the imported agrofuels. Besides the UE and US cannot claim either that these tariffs are offsetting domestic taxes on ethanol production since it is to the contrary largely subsidized. Furthermore one can acknowledge that most NGOs and family farmers of the South are denouncing the perverse effects of their own agrofuels production not only on the environmental level but also on the social and territorial levels. So that they approve, at least implicitly, the North's tariffs which slow down the production in the South even if, conversely, their governments protest against them[103].

The carbon content of domestic and imported agrofuels requires a case by case assessment taking into account all the effects along the chain (including of the agricultural products used as feedstocks and of the feed co-products) and of the land-use changes, directly in the exporting countries (LULUC) and indirectly in the rest of the world (ILUC). But we must also assess their effects, particularly in net food importing countries, resulting in the spikes of the world food prices induced by the boom in the production and imports of agrofuels and their

[102] Roland Ismer and Karsten Neuhoff, *Border tax adjustment: a feasible way to support stringent emission trading*, European Journal of Law and Economics, October 2007.

[103] J. Berthelot, *La fuite en avant de l'agro-business dans les agrocarburants et leur impact sur la sécurité alimentaire*, Solidarité, 14 juin 2009, http://solidarite.asso.fr/home/textes2008fras.htm; *Agrocarburants et sécurité alimentaire*, Revue Politique et Parlementaire, mars-juin 2009, pp. 91-101.

feedstocks in the US and EU[104]. Unfortunately, given their high tariffs on ethanol and biodiesel (they are much lower on vegetable oil in the EU) to protect their domestic production, the EU and US are not likely to have a change of heart. Even if the EU directive 2009/28/EC of 23 April 2009 on renewable energies states: "*If land with high stocks of carbon in its soil or vegetation is converted for the cultivation of raw materials for biofuels or bioliquids, some of the stored carbon will generally be released into the atmosphere, leading to the formation of carbon dioxide. The resulting negative greenhouse gas impact can offset the positive greenhouse gas impact of the biofuels or bioliquids, in some cases by a wide margin. The full carbon effects of such conversion should therefore be accounted for in calculating the greenhouse gas emission saving of particular biofuels and bioliquids… However, there is a concern that production of biofuels and bioliquids in certain third countries might not respect minimum environmental or social requirements. It is therefore appropriate to encourage the development of multilateral and bilateral agreements and voluntary international or national schemes that cover key environmental and social considerations, in order to promote the production of biofuels and bioliquids worldwide in a sustainable manner*"[105]. But the directive does not propose to differentiate the tariffs on agrofuels, or their feedstocks (mainly palm oil) to make biodiesel in the EU, according to their impact in the rest of the world and satisfies itself by referring to a report to be prepared in 2012 on "*the impact of increased demand for biofuel on sustainability in the Community and in third countries, considering economic and environmental impacts, including impacts on biodiversity*".

For Howse the lack of subsidies – or of free allocation of emission rights – to promote alternative energies alternatives poor in carbon to fight market failures is itself a market failure as it does not internalize the emissions of fossil fuels[106]. However the SCM Agreement does not distinguish the subsidies which increase trade distortions and have a protectionist effect from those compensating market failures. Howse quotes the subsidies to corn ethanol production, combined with tariffs, as particularly inefficient to fight GHGs if we compare it with sugarcane ethanol, and he thinks surely to Brazil. We can clearly say the same for the EU subsidies to ethanol and biodiesel production. And we should not forget to count the subsidies to the feedstocks processed into agrofuels: those to the US farmers for the corn processed into ethanol have reached $4.8 billion in 2007 (of which $3.729 billion representing 13% of the US corn price spike as a result of the ethanol boom according to a FAPRI research[107]) on a total of $9.8 billion of ethanol subsidies in 2007 (of which $3.3 billion for the volumetric ethanol excise tax credit: VEETC) and $3.9 billion in 2008 (of which $2.800 billion as the result of the US corn price spike due to the ethanol boom) on a total of ethanol subsidies of $9.6 billion (of which $4.6 billion for the VEETC). The EU subsidies to agrofuels have been of €4.5 billion in 2006 of which €1.4 billion to farmers and €3 billion in lower taxes on agrofuels compared to liquid fuels[108].

But we should go further and make a comprehensive assessment of the actual impacts of the agrofuels and their feedstocks on the environmental (GHG and biodiversity), economic and

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[104] J. Berthelot, *Les Etats-Unis ne peuvent réduire leurs soutiens agricoles dans le Doha Round*, Solidarité, 1er août 2009, voir pages 19 à 21 sur les subventions à l'éthanol de maïs.

[105] http://www.ecolex.org/ecolex/ledge/view/RecordDetails;jsessionid=C50CB582E3AB8EB307A62871C2203F9A?id=LEX-FAOC088009&index=documents

[106] op. cit. note 62

[107] Seth Meyer, Pat Westhoff and Wyatt Thompson, *Impacts of Selected US Ethanol Policy Options*, http://www.fapri.missouri.edu/

[108] J. Berthelot, *The EU's main agrofuels subsidies in 2006 and 2020*, Solidarité, 11 October 2008.

social levels, particularly those coming from Brazil, Malaysia and Indonesia, which justify carbon tax on imports, although their level could be modified according to the changes in their carbon content. But EU and US carbon taxes on imports would only be justified vis-à-vis the WTO if they began by assessing their own agrofuels production on the basis of a methodology as rigorous as that used on their imported agrofuels or feedstocks, which could eventually imply that, instead of subsidizing their agrofuels production, they should tax it.

To what extent the paragraph 12 of the AoA Annex 2 can protect agrofuels subsidies from proceedings at the WTO? It considers as exempted from reduction commitments, in other words as being in the green box, the "*Payments under environmental programmes: (a) Eligibility for such payments shall be determined as part of a clearly-defined government environmental or conservation programme and be dependent on the fulfilment of specific conditions under the government programme, including conditions related to production methods or inputs. (b)The amount of payment shall be limited to the extra costs or loss of income involved in complying with the government programme*". It is clear that if a serious assessment standed out that these agrofuels programs are not globally benefitting the environment, particularly against net GHG emissions, the corresponding subsidies could not be placed in the green box et could be sued at the WTO, at least for ethanol which is classified as an agricultural product contrary to biodiesel which is considered as a chemical product.

However beyond the necessary criticisms to the EU end US subsidies to agrofuels whose net carbon content is more than dubious, we must eliminate the huge subsidies to the fossil fuels whose carbon content is even higher. The United Nations' General Secretary Ban Ki-moon together with Al Gore have declared the 17 February 2009 in the Financial Times that the global subsidies to fossil energies were of $300 billion annually![109] According others however this amount is largely underestimated, the truth being close to $500 billion, of which $400 billion to the end users – taking the form of sales at prices much below world prices (CIF prices for importers and FOB prices for exporters) – and $100 billion to producers[110]. And these $500 billion correspond to about 1% of the global GDP in 2006, a figure that the Stern report has judged necessary to devote to the fight against climate change so that the global temperature would not increase by more than 2°C. What is the most surprising is that the bulk of these "subsidies" to consumers comes from the 20 first non OECD emerging countries, for $226 billion in 2006 and $313 billion in 2007 in line with the hike in the global price of fossil fuels[111]. These subsidies have been of $72.5 billion in the US for the 2002-08 period against $29 billion to all renewable energies[112]. The EU is not outdone since its subsidies to fossil fuels were of about €27 billion annually in the early 2000s[113] and the EU has granted $3.4 billion to the fossil fuels in 2008 against $2 billion to renewable energies in its package to stimulate the economic recovery.

However there is much to say in considering as a subsidy the gap between the domestic price and the world price: first because this world price is largely a dumping price – in the specific case of fossil fuels we could speak of an ecological dumping whereas for the agricultural products it is a commercial dumping due to the large subsidies in the exporting countries – and, on the other hand, because this puts into question the sovereignty of each country and the

[109] http://www.un.org/sg/articleFull.asp?TID=92&Type=Op-Ed
[110] Doug Koplow, *Measuring Energy Subsidies Using the Price-Gap Approach: What does it leave out?* March 2009, www.iisd.org/pdf/2009/bali_2_copenhagen_ff_subsidies_pricegap.pdf
[111] The Global Subsidies Initiative, *Achieving the G-20 Call to Phase Out Subsidies to Fossil Fuels*, http://www.globalsubsidies.org/en/research/gsi-policy-brief-achieving-g-20-call-phase-out-subsidies-fossil-fuels
[112] http://www.bloomberg.com/apps/news?pid=20601103&sid=a2ygdsSj.KQI
[113] www.eea.europa.eu/.../technical.../Energy_FINAL_web.pdf

price it wants to charge to its citizens and businesses, or even to friend countries as Venezuela is doing for its oil sales to Cuba, independently of the world price. It is not because it is desirable to have a global carbon price to limit GHG emissions that the trade in oil products should be aligned on their world prices, first because it does not internalize the impact of their use on GHG emissions. This conception of the necessary alignment of the domestic price to the world price – that free-traders apply also to the agricultural products – presumes that we consider that these fossil energies should be traded immediately whereas the Ecuador has considered rightly that, to limit global GHG emissions, it is better not to extract and export them but to sequester them, even if it could also be viewed as a good economic calculus if eventually it decides to sell them when the oil price would have increased considerably.

Beyond the subsidies to agrofuels and agricultural products used as feedstocks, we must also consider those to all agricultural products whose net carbon balance could be negative, even when the subsidies are authorized by the AoA. Now this Agreement authorizes not only the "green box" subsidies – and they are quite a lot – but also those considered as trade distorting – of the "blue box" and "amber box" –, and even the export subsidies of the "red box", as long as they do not exceed their allowed cap. Neither the AoA nor the SCM Agreement provide explicitly for the case of subsidies to activities with an overall negative impact on the environment, but only to those assumed to have a positive impact. But one can acknowledge – we have mentioned it above – that some agricultural production systems have a clearly negative impact on GHG emissions: the production systems highly industrialized and intensive in chemical inputs, heavy equipments, fossil fuels and imported feedstuffs. Yet they are generally the large farms managing these production systems which get more subsidies. We can then enlarge Stiglitz's argument and prosecute these subsidies to the farms which have not internalized the cost of damages to the global environment.

III – From Rome to Copenhagen through Geneva

The world food Summit, the WTO Ministerial Conference and the United Nations Framework Convention on Climate Change (UNFCCC) make the same recommendations to overcome the scourges striking mankind and which will strike it even more along this century: free trade and market mechanisms on the one hand, and North-South massive financial transfers on the other hand. But neither one is a viable or credible solution.

Free trade and market mechanisms

What is at stake in Geneva is to recognize that the discourse of international institutions – first of all of the WTO – and of the developed countries on the correlation between the development level and the degree of insertion in the world market is a huge lie because it is the reverse which is true. This degree of insertion – measured by the ratio [(imports + exports of goods and services)/2]/GDP – was in 2006 of 27% for the world average, passing from 13.5% for the US and Japan to 14.3% for the EU-27, 23.5% for India, 29.5% for LDCs and 34.5% for the Sub-Saharan Africa. The only exception is China with 36%, which can be explained by the fact that it has become the global industrial workshop and has neglected the development of its domestic market where social inequalities are increasing, particularly for the small peasantry.

We should therefore revise fundamentally the core principles on which the WTO and its specific Agreements are based. For example we must question the assertions made in the Preamble of the Agreement creating the WTO that, to reach the commendable objective of a global sustainable development, one should planned *"the substantial reduction of tariffs and other barriers to trade*" and, in the Preamble of the AoA, "*substantial progressive reductions*

in agricultural support and protection sustained over an agreed period of time, resulting in correcting and preventing restrictions and distortions in world agricultural markets".

We need to the contrary to subject the WTO trade rules to the broader rules of the United Nations Chart, human rights, basic social rights and to multilateral conventions on the environment. It is necessary to restore national sovereignty against economic imperialism, food sovereignty against food imperialism, energy and climatic sovereignty instead of the progressive destruction of the climate by the developed countries and their unsustainable growth model. Trade should not be war. In the Doha Round negotiations Members have permanently spoken of "offensive" and "defensive" interests. Each Member should have the right to define its defensive interests as it wishes, provided it does not harm other Members by offensive actions. An efficient import protection should be a right of all WTO Members for all products and services, and access to the market of other members should never be considered as a right. Dumping which is one of the most aggressive "offensive" actions, should be prohibited and defined as exports made at prices below the average full production cost of the country, taking into account all types of upstream and downstream subsidies and cross-subsidization.

What is at stake in Rome is the necessity to recognize at last the right to food for every human being, which requires the right to food sovereignty of every country, hence the right to protect its domestic market as long as it denies itself any dumping disguised under domestic subsidies either direct – including those of the alleged "green box" – and indirect, including those to feedstuffs.

The reverse correlation observed between the rate of insertion in the world market and the development level is even truer for the basic staple foods: the more developed are countries, the lower the share of those products in the domestic consumption. Thus, for the period 2000-04, that share went for cereals from 1.4% in the US to 5.9% in the EU, 12.6% in DCs of which 19.3% in Sub-Saharan Africa and of which 18.9% in West Africa. For dairy produce the share went from 2% in the EU to 2.7% in the US, 10.3% in DCs of which 11.1% in Sub-Saharan Africa and of which 39% in West Africa. For meats the gaps are lower because poor countries have less means to eat them: from 4.2% in the EU to 4.9% in the US, 5.1% in DCs of which 6.7% in Sub-Saharan Africa and of which 7.4% in West Africa. Besides, the developed countries' claim that they have lower agricultural tariffs than those of DCs does not mean anything. Thus, despite an EU average tariff of 22.9% on its 2,202 agricultural tariff lines (and of 10.5% taking into account its imports at preferential tariffs), its average tariff on cereals remains at about 50% in the EU-27 against 5% in the WAEMU (West African Economic and Monetary Union); that on powder milk is of 87% against 5%; that on sweeteners of 59% against 20%; that on frozen meats (beef, pork and poultry) is of 66% against 20%. An example of the spectacular effect of protection is given by the comparison of dairy products in Kenya and the WAEMU: the tariff on milk powder has risen in Kenya from 25% in 1999 to 35% in 2002 and 60% since 2004, when it has remained at 5% in the WAEMU. The end result: Kenya is an increasing net exporter of dairy products and has the highest per capita consumption of milk in Sub-Saharan Africa, at 112 liters. To the contrary imports in milk equivalent represent 64% of milk production in West Africa and the per capita consumption is of 35 liters.

What is at stake in Copenhagen is also to recognize the right to energy and to a viable planet for everybody of today and tomorrow on an equal basis, which goes through the right to energy sovereignty of States, taking into account the huge climatic debt of the developed countries vis-à-vis the DCs given the level of their accumulated CO_2e stocks. Now the

emission rights markets already working and which will be created in the developed and emerging countries will not permit to mitigate the emissions because they do not cover all activities, they will be the source of huge carbon leakages in Annex 1 countries subject to emission reductions as well as in the other countries, the high volatility of the resulting carbon price will not send to businesses and consumers a clear signal to adapt their investments and behaviors. They will be to the contrary the source of a huge financial speculation non controllable by the States or at the international level, with the risks to reproduce a speculative bubble with economic and social consequences even more harmful that those stemmed from the bubble of the subprime housing market which has spread to all financial and commodities markets, particularly the oil, raw materials and agricultural markets. Let us add that the compatibility of tradable emission rights with the WTO rules is more subject to proceedings than carbon taxes because the carbon price established on the emission rights markets is unpredictable and they could be sued on the account of the GATS or the Agreement on subsidies and countervailing measures (SCM).

The solution to mitigating GHG emissions is to preset increasing carbon prices in all countries through increasing carbon taxes – in fact energy taxes taking into account nuclear electricity but excluding the true renewable energies – so as to induce businesses and households to adapt their technologies and behaviors.

We have seen the multiple reasons and conditions which would induce all countries to adopt efficient measures to reduce emissions, taking into account their common but differentiated responsibilities: energy taxes applied also at the border without any national protectionist design but to protect the planet with solidarity implying, among others, to refund to the exporting DCs the amounts levied and to adjust them according to their per capita GDP and per capita CO_2e emissions.

An implicit reason of the opposition of most NGOs to propose to governments the idea of refunding carbon import taxes – or of the emission rights bought by importers – is that they do not consider it as feasible and credible, although they have not discussed the issue. We should therefore find the means to back it up by making the refund compulsory in the new Protocol which will replace the Kyoto Protocol, even if the present positions of Annex 1 countries and DCs are far from going in that direction.

That solution should be considered all the more seriously that we should be convinced that the developed countries will find solutions to maintain the competitiveness of their industries subject to domestic carbon taxes despite the lack of carbon taxes on imports: they will find an expedient to subsidize them indirectly, in a way not easily challenged at the WTO. Let us take a theoretical example: we have the company A of the EU whose sale price of the high carbon product in the domestic market is €95 € whereas the import price in the same country of a similar high carbon product of the company B from DCs is €100. After putting a carbon tax of €20 both in the domestic market and on imports the domestic price rises to €115 and the import price at €120 so that the relative competitiveness of the 2 products has almost not changed. However the EU reimburses the €20 to the DC, possibly through a specific fund managed by the UNFCCC to finance the costs of decarbonization in the same DC. If the EU cannot use carbon taxes on imports, imports will rise much because they will outcompete domestic products as the product of the company B will stay at €100 against €115 for the price of the company A which would have adopted a low carbon product and it might become bankrupt. To avoid it, either A will delocalize in the exporting country or in another one not subject to emission reductions or the EU will find a means to reimburse indirectly the €20 to A: additionnal free CO_2e emission quotas that A could sale – and Mehdi Abbas has shown

that the WTO does not assimilate them necessarily to subsidies –, preference in public procurement, subsidized credit, reduction on income tax, accelerated amortization, etc. The DC will lose as it will not be refunded the €20 to finance the decarbonization of its economy and the planet will lose as well.

The solutions which would be adopted by the Conference of the Parties (COP) of the UNFCCC – in 2010 as the US will not have finalized its climate bill for Copenhagen – will be in all cases sub-optimal and will not allow to fight efficiently against GHG emissions which could only increase. All the more so as the second mechanism to fight the GHG, that of North-South massive transfers, is not credible.

It is not realistic to expect massive North-South financial transfers

The OECD official development assistance (ODA), of $103 billion in 2007 and which includes a good part of loans at concessional rates, has represented only 0.28% of their GNP even if they have been repeating for at least 30 years that it would reach 0.7%. Therefore the considerable North-South transfers required to reach at the same time the 10 Millenium objectives – beginning by halving the number of chronically undernourished people in 2015 in relation to 1996 – and those of the fight against climate change are not credible.

One example of the actual derisory Northern assistance to DCs despite apparently huge amounts is given by that of the 10th EDF (European Development Fund) to ACP countries for the 2008-13 period. Apparently that assistance looks huge: €21.966 billion. However if we compute the average assistance per year (€3.661 billion) and per capita (given the 914 million inhabitants the 31 December 2010, in the middle of the period), this makes €4 per capita and per year, the price of a pack of candies, less that a pack of cigarettes. Taking into account a conservatory average inflation rate of 2.4%, the amount falls at €3.72[114]. And it is with that carrot that the EU has been exerting considerable pressures on these countries to sign criminal Economic partnership agreements (EPAs) which would eliminate 80% of their tariffs on EU exports over 12 years!

All FAO food summits in Rome since 1996 have prescribed essentially two recipes: free trade in agriculture together with important Northern transfers to Southern agriculture. For the World food summit of 1996 FAO estimated this transfer at $25 billion annually in order to reduce the number of chronically hungry people, a figure that FAO has risen to $44 billion in the last food summit of November 2009, against an actual figure of $7.9 presently – not forgetting that a good part is made of loans at concessional rates –, of which $1.4 billion on average to Sub-Saharan agriculture from 1998 to 2007. Indeed the share of OECD ODA to African agriculture has fallen from 25% in 1988 to 5% in 2005.

The Stern report has estimated that the necessary annual investments to limit the CO_2e concentration between 500 and 550 ppm in 2050 would be of about 1% of the global GDP, meaning $620 billion for the 2008 GDP. In fact we should go much beyond since the IPCC recommends to limit the concentration at 350 ppm to have 80% chances, and not 50%, to stay below +2°C. The International Energy Agency estimates at $530 billion annually the needs in additional investments[115] and the World Bank of at least $475 billion for DCs. It is on these estimates that the DCs are logically basing their demands for a transfer of 0.5% to 1% of their

[114] J. Berthelot, *With the EPAs the EU derisory aid to ACP countries will not prevent an increased gap in their competitiveness*, Solidarité, 22 November 2007.

[115] UNEP, *Catalysing low carbon growth in developing economies - Public Finance Mechanisms to scale up private sector investment in climate solutions*, Cape Town, 22-23 October 2009, http://www.unepfi.org/

annual GDP to DCs and a 40% reduction in the developed countries' GHG emissions from 1990 to 2020, and it is only if the developed countries agree on these two conditions that the emerging DCs would agree to reduce their emissions from 2020 on.

However the financial resources presently allocated by the developed countries to DCs to help them fight climate change are of about $9 billion, including the transfers on account of the Clean Development Mechanism (CDM), i.e. less than 2% of the needs estimated by the World Bank! The adaptation Fund created by the Kyoto Protocol expects between $80 to $300 million annually from 2008 to 2012 and from $100 million to $5 billion annually from 2013 to 2030. This fund is and will be supplied by a 2% levy on the CDM emission credits: the adaptation is paradoxically based on South-South financial transfers, instead of North-South transfers and on uncertain resources, fluctuating along with the carbon market price.

We have seen that the EU estimates that the fight against climate change requires about €100 billion annually – less than 10% of global military expenditures – of which from €22 to €50 billion of international public resources, the EU share going possibly from €10 to €15 billion, but the European Council has refused in end October to commit on a specific amount before Copenhagen.

Yet, according to the World Bank, on the $2,000 to $3,000 billion that the developed and emerging countries have allocated in fiscal packages to fight recession over 2009 and 2010[116], $436 billion – of which China accounts for half ($221 billion)[117] – have been directed to investments to fight climate change under various forms: investments in energy efficiency, energy savings, renewable energies and adaptation measures.

To conclude it seems clear that the promise of massive transfers from the developed countries to DCs are empty promises, either to reach the Millenium objectives, particularly to fight hunger, or to fight climate change.

As neither free-trade nor North-South public transfers are reliable to bring the much needed remedies to the treble global crisis – economic, on food and climatic –, these three summits in Rome, Geneva and Copenhagen should be used to launch the bases of profound structural reforms in the rules of global governance. As stated by Fred Bergsten and Lori Wallach the 13 November 2009, "*There is little doubt that current WTO negotiations do not fully address the real problems confronting the world and the trading system itself. The threat of global climate change and the catastrophic consequences for the natural environment -- and for the world's poorest citizens -- ought to focus the minds of our leaders. The only way to solve our problems is to treat them together, before the challenges pile on each other and produce paralysis instead of action*".

[116] World Bank, *World Development Report 2010: Development and Climate Change*, http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTWDRS/EXTWDR2010/0,,contentMDK:21969137~menuPK:5287748~pagePK:64167689~piPK:64167673~theSitePK:5287741,00.html

[117] Nick Robins, Robert Clover, Charanjit Singh, *A climate for recovery.The colour of stimulus goes green*, HSBC, 25-02-2009, www.globaldashboard.org/wp-content/.../2009/HSBC_Green_New_Deal.pdf

Conclusion: rebuilding trade relations on a hierarchy of norms

The issue is not only to make compatible the rules of the various WTO Agreements with the fight against climate change but to subject them to a hierarchy of norms, to the rules on human rights, basic social rights and international agreements on the environment.

Rebuilding the Agreement on agriculture (AoA) on the right to food and food sovereignty

To feed the 9.3 billion inhabitants expected in 2050 constitutes a more urgent and formidable challenge than the fight against climate change for the poorest DCs, where the bulk of the one billion chronically undernourished people are surviving and where most of the hunger riots linked to the spikes in agricultural prices have taken place in 2007-08. They are also those DCs which will register a demographic explosion at the same time that global warming will reduce the most their potential agricultural yields – from 15% to 30% in Sub-Saharan Africa according to FAO. They are also the DCs whose best lands, under-exploited by lack of domestic financial resources, are the target of huge grabs, either indirectly by Western countries willing to ensure their agrofuels objectives through imports, or directly by Asian and Gulf countries eager to guarantee their supply of food products in the context of higher food prices in the long run. Indeed the unprecedented spike in world agricultural prices in 2007-2008 followed by the burst of their bubble in the second semester 2008 has brought to light their huge volatility, shaking the prevailing dogma of the self-regulation of agricultural markets. Indeed, facing a stable food demand in the short run, the agricultural production fluctuates with climate vagaries, leading to a large variation of prices and incomes. That is why all countries, since the Pharaoes, have regulated the agricultural supply at the import level together with stockholding policies.

The AoA are profoundly unfair for DCs, particularly with its definition of dumping. For the WTO there is no dumping as long as exports are made at the domestic price, even if, through domestic subsidies, it has been lowered below the average production cost. This has been the way followed progressively by the US and EU from the 1990s to be able to export without formal dumping and to import less. The distinction between the authorized subsidies (green box) and those subject to reduction because they are trade-distortive (blue and amber boxes) is a huge hoax. In the on-going Doha Round negotiations, the US and EU have proposed to cut by 70% and 80% respectively their agricultural trade distorting supports in relation to their authorized levels in the 1995-00 period if the DCs open enough their markets of non agricultural products and services to their exports. But they have kept cheating on a massive scale on the notification of their trade-distorting supports: the US has notified $8.5 billion of distorsive supports for 2007 when they have been of $28.2 billion and the EU has notified €43.1 billion for 2005-06 (last notified marketing year) when they have been of €72.9 billion![118] To cap it all, the US and EU benefits from the complicity of the WTO Secretariat and of the Chair of the Special Committee on agriculture who lie on the actual AoA rules.

There is therefore a pressing need to rebuild agricultural policies, at the national and multilateral levels, on food sovereignty, the right of every country or group of neighboring countries to define its agricultural and food policy as it wants as long as it does not harm other countries through dumping, included that hidden under indirect domestic subsidies as those to feedstuffs which benefit to the exported animal products. As the reduction of import

[118] J. Berthelot, *The US cannot reduce its agricultural supports in the Doha Round*, Solidarité, 1st August 2009; *The US cannot cut its agricultural supports in the DR-Highlights*, Solidarité, 3 August 2009; *The EU cannot cut its agricultural supports in the Doha Round*, Solidarité, 16 September 2009.

protection and of agricultural trade-distorting subsidies are the UE and US bargaining chip in the Doha Round negotiations in exchange for market openings of DCs on their imports of non agricultural products and services, the DCs avail of a master trump. They should denounce the fallacious interpretation of the AoA rules in the Chair's Draft modalities on agriculture of 6 December 2008 and the massive under-notifications of the EU and US trade-distorting supports, and sued them at the WTO. As the US and EU offers to cut by 70% and 80% their agricultural supports would appeared unfeasible, DCs would not be forced to open their markets to the US and EU exports of non agricultural products and services, the Doha Round would collapse and a large political space would be open to rebuild agricultural policies and the AoA on food sovereignty. This would not be a revolution as the GATT did not put any limit on the level and forms of import protection up to 1995 but it would be necessary to forbid the direct and indirect dumping that the GATT had permitted. This is a necessary condition to feed mankind in 2050.

But this imperative implies also low carbon agricultural production systems, based on agro-ecological family farms, short marketing channels and food systems minimizing animal products and rehabilitating vegetal proteins. Implementing a right to food equal for all human beings in 2050 and respecting the planet implies a worldwide per capita average consumption of 3,000 kilocalories daily, of which only 500 kilocalories from animal products, according to the proposal made in the CIRAD-INRA Agrimonde scenario. All forms of environmental dumping of agricultural products should be abolished, which implies to forbid the production of biofuels made from food products in food deficit countries and their exports and to authorize the second generation biofuels non based on agricultural feedstocks only after an assessment of their ecological and social impact and if they are profitable without subsidies. This implies also not to exempt agriculture and forests from reduction commitments of GHG emissions contrary to the provisions of the Kyoto Protocol de Kyoto, and also to put an end to CDM projects.

Rebuilding the Kyoto Protocol on the right to energy for everybody, energy sovereignty and climatic debt and adapting the WTO rules accordingly.

For Mehdi Abbas a regulation of a climate compatible international trade requires "*the implementation of a governance system, necessarily multilateral given the nature of the challenge, articulating the WTO trade regime to the regime of the fight against climate change. Indeed the climate change requires a macro transformation of the growth regime which has nothing to do with a problem of collective action or of environmental governance. Il is a matter of "de-carbonizing" the capitalist mode of production with all that implies in terms of changing the production and consumption models and the technological paradigm*".

Clearly the potential carbon tax on imports would be refunded partially to the exporting DCs and partially to a Fund managed by the UNFCCC to finance a low carbon economy. However if it turns out politically impossible to use carbon taxes on imports of products made through carbon intensive production processes from countries without emission reduction commitments, one can at least reduce the existing tariffs on low carbon intensive products according to reduction efforts of the exporting DC.

Mehdi Abbas proposes to introduce in the rules of the next UNFCCC protocol an enlargement of the bilateral "generalized system of preferences" (GSP) of most developed countries such as the EU GSP+ which lowers the tariffs on imports from DCs having taken measures to fight drugs, apply the minimal social conventions of the International Labor Organization or protect tropical forests. The multilateralization of the generalized preferences would benefit

only to DCS having ratified the Protocol or which would commit to undertake additional efforts against CO_2e emissions[119].

The proposal made by some to soften the WTO rules on subsidies for the promotion of low carbon intensive technologies would only be acceptable if the developed countries grant to DCs the same level of subsidies since the bulk of DCs cannot afford to grant them. We should be convinced that the developed countries will increase their domestic subsidies to fight climate change, all the more if there will not be an agreement on carbon taxes at the border or, which would be the same, on the purchase and refund of emission rights at the border. And, as massive indifferentiated North-South transfers are not credible, it would be much easier to incorporate in the next UNFCCC Protocol the commitment of the Annex 1 countries to transfer to DCs, through the UNFCCC, the same amount of domestic subsidies that they grant at home to fight climate change. This link between the levels of domestic subsidies of developed countries and the assistance to DCs on climate change would also be broader and bring more resources than the refunds from border tax adjustments, which should remain however. Indeed some of the largest polluters like Australia, the US or Russia, which enjoy large domestic resources of raw materials and import relatively few of them (except oil for the US) would not have to refund as much to DCs in carbon taxes on imports. If we rely on the $200 billion figure, given by Nick Robins et al.[120], allocated to climate change in their fiscal packages by the developed countries for 2009 and 2010, granting the same to DCs would already be a significant contribution to climate change. Clearly in that case softening the WTO rules on subsidies could be a win-win solution.

[119] Mehdi Abbas, *Environnement et fiscalité : l'enjeu de la taxe carbone*, Fondation pour l'innovation politique, février 2008, www.fondapol.org/.../DT_Environnement_et_fiscalite_Lenjeu_de_la_taxe_carbone.pdf

[120] Nick Robins, Robert Clover, Charanjit Singh, *A climate for recovery.The colour of stimulus goes green*, HSBC, 25-02-2009, www.globaldashboard.org/wp-content/.../2009/HSBC_Green_New_Deal.pdf