

# Towards a Fair and Rigorous International Emissions Trading System: A Blueprint for Success

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**Abstract** The international negotiations to mitigate the emissions of GHGs are reaching a critical phase. But to be successful the outcome must be fair and rigorous, taking into account not only a country's historic emissions but also its capacity to pay. Furthermore, any agreement must be enforceable with failure to comply involving economic consequences. In this paper, the necessary elements of such an agreement are presented demonstrating that Europe and the United States must reduce emissions much more vigorously and an international emissions trading scheme is an absolute necessity to meet a 2 °C pathway.

## 1 Introduction

In late 2015, one of the most critical meetings for the future of the planet will be held in Paris. This United Nations Conference of the Parties (COP) is charged with negotiating a new climate agreement to keep global temperatures from exceeding 2 °C. As part of the negotiations, the developed nations are to create financial assistance to developing countries so they can invest in carbon reducing technologies. Sadly the chances of real success at Paris are low despite the critical and urgent need to check the growth of greenhouse gas (GHG) emissions.

Already the UN process leading to the Paris COP is in trouble. Countries have made weak, uneven and unenforceable pledges under Kyoto and few have pledge anything for the second commitment period despite numerous meetings of the Parties.<sup>1</sup>

While there are modest expectations for this COP, any realistic assessment says that international negotiations have failed and will continue to fail under the current

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<sup>1</sup>As of May 1, 2014 only 9 countries with minor amounts of emissions have ratified CP2. 144 are need for CP2.

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format of multiple agendas, long and diplomatically laden documents, and parties intent on scuttling any agreement. And even if they did succeed, they are unenforceable under the current format as Canada demonstrated clearly under the Kyoto Protocol by exiting at their convenience, preferring oil sand revenue to meeting an international “legally” binding commitment.

For the world to collectively check the growth of global emissions consistent with a 2° pathway, the ambition of countries in reducing emissions must increase and their efforts be linked internationally. Also there must be an enforcement mechanism that has teeth.

The negotiations must:

1. **Be simplified and viewed as fair**, resulting in an agreement consistent with responsibility for existing levels of GHGs in the atmosphere and with the ability to pay;
2. **Result in the substantial transfer of finance** from developed to developing countries with active participation of the private sector; and
3. **Be enforceable with economic consequences** for nations not achieving their targets in emission reductions.

## 2 Simplification

To simplify the negotiations, common standards must be established that are applicable to all countries. These standards can be broken down to three parameters for negotiation:

1. **Responsibility:** *The base year from which emissions* will be counted, meaning countries should have responsibility for emissions from that year onward. A reasonable base year could be 1990 when all countries should have known that their GHG emissions were responsible for climate change (as was confirmed in the Rio UN Convention of 1992). This is one logical suggestion and I am sure that there could be others equally forcibly argued. Once the base year is negotiated then it is well known what each country’s contributions to global emissions are up to the COP meeting in Paris.
2. **Capacity to Pay:** *The minimum income* level above which people should have the capacity to pay for the efforts to reduce emissions. All countries have rich and poor. Those whose income is above a certain level, say \$7,500, should have the capacity to pay. By taking a measure of income distribution (the Gini Coefficient) and total income, this capacity to pay can be estimated. Once the negotiators agree upon the cutoff income level, the capacity to pay falls out of the calculation.
3. **Weighting:** *The relative weights assigned to responsibility and capacity to pay.* A simple proposal would be to give equal weights to both.

By isolating to three parameters, the base year for emissions, the minimum income level and the weight to be given to each, the negotiations would be

immensely simplified. Once these parameters are agreed, emission caps for every country, rich and poor, would be set. Some of these emission targets would be very low for low-income countries and could be disregarded if the negotiators so chose.

### 3 Finance

As will be shown shortly, choosing reasonable parameters for responsibility and capacity to pay would mean that the annual emissions of the United States and Europe would need to be negative, that is, these countries would need to be withdrawing GHGs from the atmosphere. Under current technologies, this is not possible.<sup>2</sup> The only way to achieve negative emissions is to buy allowances from other countries as under the Kyoto Protocol, meaning that there would need to be an international carbon market which would allow Europe, the United States and other developed countries to purchase allowances from developing countries or from other developed countries that overachieve their target.

Thus, the adoption of the three parameter negotiations sets up the necessity for an international carbon market where large amounts of funds can flow to technologies and investments to reduce carbon emissions so as to free-up allowances for trading. The specific parameters negotiated on responsibility and capacity to pay along with the weight to give to each would determine the amount of these financial flows.

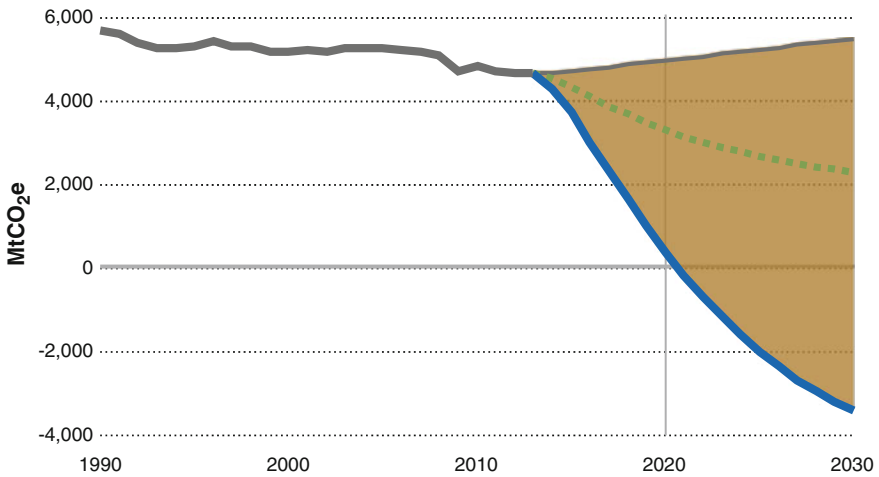
Let's illustrate how this approach would play out for four important parties in the negotiations: the European Union, the United States, China and India. Assume that the negotiators reach an agreement for the base year being 1990, the cutoff per capita income level of \$7,500, and a neutral weighting scheme of 50/50, equal weights for responsibility and capacity to pay. Fortunately converting these parameters to obligations on emission reductions has been facilitated by the Stockholm Institute of Environment. The Institute has developed an online tool to calculate any country's burden in reducing greenhouse gases by 2030 under the fair standard of responsibility and capacity to pay as specified above.

### 4 The European Unions' Responsibility and Capacity to Pay

EU 27 emissions will be at about 5.4 billion tons by 2030. For a 2° weak pathway to global reductions (meaning that emissions are gradually reduced), *global* emissions by 2030 will need to be reduced below baseline by 45 billion tons of which Europe (based on its historic contribution to global emissions) would need

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<sup>2</sup>Forestry and land management could sequester carbon but not at the magnitudes needed.



Source for data: Stockholm Environmental Institute Calculator

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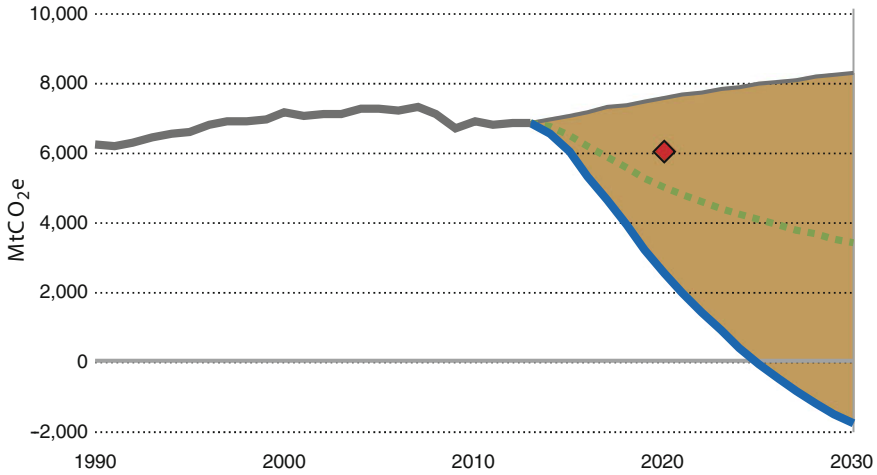
IIIIIIII International Purchase

**Fig. 1** Europe's fair obligation to 2030 for a weak 2 °C pathway

to reduce its emissions by about 8 billion tons, that is achieve negative emissions of 3.4 billion tons. This is clearly impossible without purchasing offsets or allowances from other countries that have overachieved their reductions or legitimately escape a hard cap on emissions. A 'realistic' scenario is that Europe reduces emissions to about 2 billion tons (a 60 % reduction from 1990 emissions) and purchases about 6.4 billion tons of emission reduction offsets or allowances from other countries. At a 25 Euro price (currently the price is less than a half of a Euro) for international credits, this would result in just over €160 billion of purchases in 2030. While less than 1 % of European GDP, €160 billion Euro would represent a substantial incentive for climate friendly investment in developing countries (Fig. 1).

## 5 The United States' Responsibility and Capacity to Pay

The same criteria can be applied, as with Europe, that is fair historic responsibility and capacity to pay. The United States' project emissions are about 8 billion tons by 2030. To fulfill its historic responsibility and utilizing its capacity to pay, the United States should reduce annual emissions by 10 billion tons. Realistically the United States could reduce by 4 billion tons domestically (about a 25 % reduction from



Source for data: Stockholm Environmental Institute Calculator  
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**Fig. 2** US’s fair obligation to 2030 for a weak 2 °C pathway

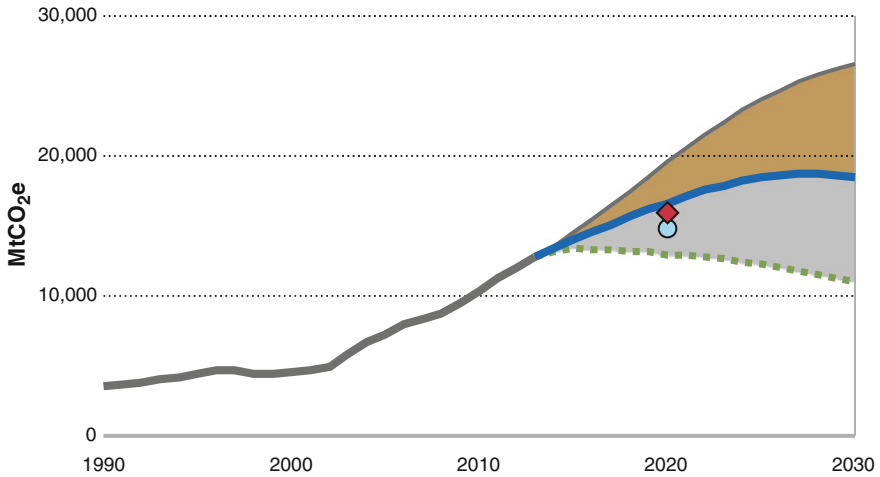
1990 or 50 % reduction from projected 2030 emissions) and then purchase internationally about 6 billion tons.

Again at a price of €25 per ton for an allowance, this would obligate the United States to transfer through the international carbon markets about €150 billion to developing and over-achieving developed countries (Fig. 2).

## 6 The China’s Responsibility and Capacity to Pay

For China, emissions are projected to reach 26 billion tons by 2030 with a historical responsibility and capacity of a reduction by 8–18 billion tons. By implementing a national international trading scheme and at the same time, moving increasingly to natural gas, China could reduce its emissions significantly. If China makes a concerted effort to reduce emissions beyond the 18 billion tons then it has excess carbon tons available to sell to the US and Europe. With these sales giving additional financial incentive, it is possible that China could reduce its emissions to 10 billion tons by 2030, freeing up about 9 billion tons for trading.

At €25 per ton for an allowance this would mean a net inflow of €225 billion in 2030 (Fig. 3).



Source for data: Stockholm Environmental Institute Calculator

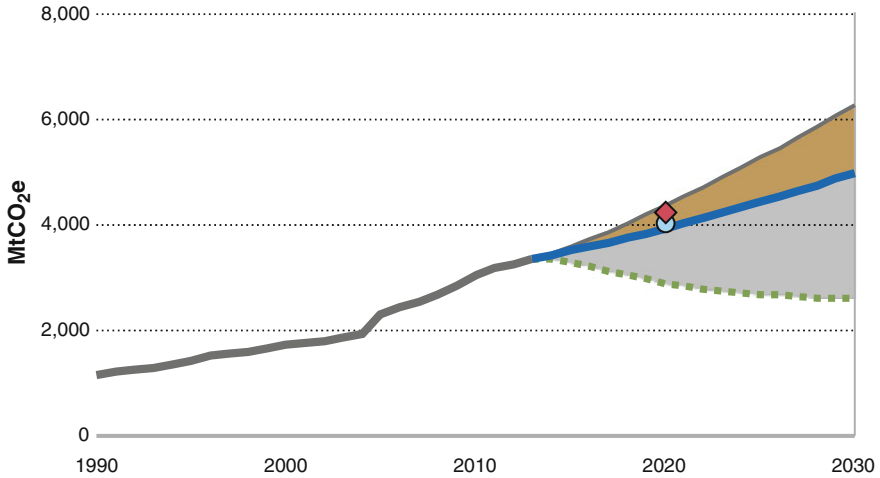
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**Fig. 3** China's fair obligation to 2030 for a weak 2 °C pathway

## 7 The India's Responsibility and Capacity to Pay

For India, a similar scenario could play out. India's emissions are growing as China but from a much lower emission base of just over 1 billion tons. In 2030 emissions are projected to reach nearly 6 billion tons, a six time increase and equal to the United States' 1990 emissions. Its obligation will be to reduce emissions by 1.3 billion tons or a 20 % reduction well within feasibility. This means that India will have the potential of several billion tons to sell abroad. With a concerted effort, India could have about 6 billion tons for international trading by 2030, generating at €25 per ton about €150 billion a year of revenue for green investments (Fig. 4).

As these domestic reductions would be challenging, China and India alone may not be able to supply the international emission credits and allowances needed by Europe and the United States and other developed countries. Linking with many other economies would be needed and be inevitable as purchasing countries seek the lowest cost sources for allowances. But that said, it is highly conceivable that the United States and Europe could meet their obligations by engaging in the rigorous purchase of allowances and offsets from countries that could more easily and with less costs achieve substantial emission reductions. Even in the absence of a well-endowed international fund, the substantial flow of revenue from international trading could create a boom in low carbon emission investments in these



Source for data: Stockholm Environmental Institute Calculator  
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**Fig. 4** India’s fair obligation to 2030 for a weak 2 °C pathway

countries. As with the experience under the Kyoto Protocol, an international carbon market with at stake such substantial flows would draw in wholesale the private sector.

## 8 Enforceability

Not all countries would be willing to sign up to such a “fair” allocation of global responsibility. Those that did not would face carbon import tariffs at rates based on their carbon content of the imported good so no country would have an unfair advantage in trade. Disputes would likely arise but these could be handled under the dispute mechanism of the World Trade Organization (WTO), which has a proven record of handling disputes successfully.

Under such a regime, countries would be taxed at the border for not living up to their shared responsibility. No longer could a country escape their obligations as Canada did under the Kyoto Protocol without consequences. Countries that exceeded their responsibilities/capacity obligations would benefit by being paid for their emission reductions through international trading. As reductions to be met by industrial countries would be high, prices for carbon emission reductions are likely to be attractive, motivating a new wave of carbon reduction projects, policies and innovations.

## 9 Risk of Underachievement

A fully linked international market trading allowances and JI type credits would have risks that either: countries would not be achieving their emission reductions or that the underlying allowances/offsets would not correspond to real emission reductions. But as with financial securities, these risks can be assessed and the allowances and offsets rated for risk.

The United Nations could in theory be the risk assessor but given the experience with the CDM and the inherent conflict of interests built into the body, it is unlikely to get the political support from buying countries for taking on this role. Alternatively, the world could turn to independent risk assessors—the large rating agencies such as Standard and Poors, Moodys, Fitch or some smaller ones that would likely rise up to the challenge and the potential returns for selling their ratings. Regulatory bodies in buying countries could have several independent ratings to determine whether permits from any one country should be discounted for risk or prove to be so risky as to fall below a threshold for inclusion in a domestic system. Imported allowances or credits could have an internal exchange rate to domestic allowances based on the risk that the emissions were less than stated or that the source country would not fulfill its target of emission reductions.

In addition rating agencies would not be conflicted if paid from a pool of funds not tied to one country or a supplier of credits. The buying countries can set up an international fund with contributions based on their responsibility and capacity to pay, which would purchase ratings on country performance removing the bias to please the client or purchaser of the rating. Countries with stronger ratings would find more demand and prices for their allowances to be higher. If a country failed to achieve its obligated emission reductions, then the allowances from that country would be devalued in the “true-up” accounting. Forward contracts would likely have provisions for failure to deliver. It is therefore in the interest of all parties to see that the ratings are as accurate as possible.<sup>3</sup>

## 10 Wrapping It up

The Copenhagen Accord, while not a formal binding agreement, did signal that the major powers are committed to keeping global warming to below a 2° rise. Currently, no country is on a pathway of reduction consistent with this goal. If we adopt

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<sup>3</sup>Already the World Bank has been working on such a risk rating system and may shortly ask for proposals to conduct pilot risk assessments. Some European governments have reacted sharply to this approach, either because they are still wedded to the extremely difficult task of bringing reform to the United Nations CDM process or because they know that if such a system was implemented ex-post on their own stock of emission credits much of their purchases would be devalued significantly.



reasonable criteria of responsibility and capacity to pay, both Europe and the United States would need to set a target of negative emissions, an impossible objective without international trading of emission reductions. In other words, international carbon emission trading is a necessary condition for achieving a 2° pathway.

The downside is such an international trading scheme would face risks of non-performance or free-riding. The risk of non-performance could be dealt with by independent rating from private sector agencies well versed in assessing risks. This rating would be similar to the rating of sovereign bonds where non-performance is an issue. In the case of international carbon trading, the rating body would determine whether a country is on course to achieving its pledged emission reduction as determined by responsibility and capacity to pay. Just like with bonds, such ratings would determine the value of the underlying asset, in this case allowances from the rated country.<sup>4</sup>

The free-rider problem could be dealt with through focused import carbon tariffs so domestic producers would not be at an unfair advantage or tempted to reestablish production in countries without a satisfactory price or tax for carbon emissions. Countries that are failing in fulfilling their fair-share obligations would face higher import duties based on the goods carbon content. The tariff rate per unit of carbon would be set based on its gap in fulfilling its target and the prevailing domestic price of a carbon allowance. The WTO could be a monitor of this process and as now, a platform for dispute resolution.

The UN would have a role in broad policy discussions and in monitoring, reporting and verification (MRV). Likewise the WTO would have an important task of ensuring that carbon tariffs did not morph into protectionism. Private rating agencies would fulfill the role of providing the needed risk assessment so countries importing credits and allowances would be better assured that their imported credits have minimal risk of not equaling ton for ton to their domestically generated reductions.

How feasible is such an outcome? Note that the option of a carbon tariff was in ever climate bill approved by the United States Congress and has been a threat pursued by some countries in Europe. While ratings are imperfect, agencies that do better in accessing risks and outcomes would be increasingly relied upon by domestic regulators and private parties.

The Paris meeting of the COP is just over 1 year away. Clearly given the progress to date, the experience under the Kyoto Protocol, and the urgency to deal with climate change, new innovative solutions must be considered which rely more heavily on the private sector and a more equitable system of country obligations, based on objective measures of responsibility and capacity to pay. Incentives must be in place to economically impact those countries that do not fulfill their responsibilities.

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<sup>4</sup>Ideally the rating body would be paid not by the seller of permits but by a pooled fund, where the rater is not being paid by the entity being rated. The resulting rating could be used to discount the imported credit with respect to a domestic generated reduction.