How Could Emissions Trading Benefit Developing Countries[1]

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This paper aims to show how an emissions trading system could work if some participating entities are allocated an "emissions budget" or non-binding target. This will allow them to sell allowances if their actual emissions are less than their budget, but will not obligate them to buy allowances if their emissions exceed their budget. Different rules aiming at ensuring the environmental integrity of such a system are considered.

Parties to the Framework Convention on Climate Change may wish to consider building a regime where developing countries are allocated emissions budgets on some provisions of the Kyoto Protocol and in full respect with the principles of the Convention. In any case such system would be complementary to the Clean Development Mechanism. The potential benefits would be

- to provide non Annex-I (developing) countries with substantial capital inflows, and stimulate their economic growth;
- to allow Annex-I (Industrialised) Countries achieving their Kyoto commitments at the lowest possible cost;
- and to achieve global participation towards the objective of the Convention while reducing the risk of creating "tropical hot air" by giving some developing countries more allowances than they need under a "business-as-usual" scenario.

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1. Introduction

This paper shows that, from a technical standpoint, it is possible to mix two categories of stakeholders in a single emissions trading system: some participants with firm limits on their emissions, some others with emissions budgets or "non-binding targets". It shows further that, if the Parties to the Convention wished to elaborate such a system on the Kyoto Protocol provisions, by defining ways to allocate emission budgets to some developing countries, this could be beneficial to:

- Non Annex-I countries, by providing them substantial capital inflows through emissions trading, therefore stimulating their economic growth;
- Annex-I countries, by reducing the cost of achieving their commitments;
- The Climate itself, by encouraging developing countries to abate more emissions through mutually beneficial trading, while not bringing huge amounts of emission allowances in excess (or "tropical hot air") in the international trading system.

The idea of emissions budgets is that developing country Parties with such budgets would be allowed to sell allowances if their actual emissions are less than their budgets, but would not have to buy allowances if their actual emissions are more than their budgets.

Emissions trading is an "economic instrument for environmental protection". Emissions trading should by no means be viewed as an exclusive policy instrument; other policies and measures (command and control, standards, etc.), other economic instruments (taxes, charges, etc…) are also needed for environmental protection. Emissions trading also does not mean that "the markets would solve everything if there were no perverse governmental action". On the contrary, emissions markets mix governmental or intergovernmental decisions to adopt an environmental objective, and the market's forces to allow societies reach the objective at the lowest possible cost. Economic instruments allow us to reach a given environmental objective at a lower cost, or to achieve a better environmental performance at a given cost. Lowering the cost of achieving a given environmental objective will save scarce resources, which can be used for other urgent needs, especially in developing countries. Enhancing the environmental performance at a given cost is our responsibility to those who suffer the most from a damaged environment: the poor, and the future generations. The development and implementation of sound economic instruments for environmental protection is the cornerstone of sustainable development – which is nothing more than reconciling economic development and the environment.

As Climate Change is one of the most important environmental threats today, one must devote all efforts to build an efficient, cost-effective international regime to face this threat through mitigation and adaptation, upon the provisions of the Kyoto Protocol which have been agreed to by all Parties. This can only be done by accepting the principle of "common, but differentiated responsibilities" of the different countries of the World that has been established by the Framework Convention on Climate Change.

In this paper, we first examine how developing countries could become involved in emissions trading while not taking on any new commitments, through the definition of "emissions budgets" and look at this option in relation to the Clean Development Mechanism (**I**). We further examine how such emissions budgets could be negotiated for developing countries (**II**). We then look at some legal issues involved in building such a system under the provisions of the Kyoto Protocol (**III**). We finally devote some considerations to the relationship between negotiating emission budgets for developing countries and the question of "supplementarity" (I**V**).

2. Emission budgets and emission limits: where they differ

Would it be possible for developing countries to be involved in emissions trading without taking a firm, binding commitment on their emissions?

At first sight, this seems to be impossible. In all existing tradable permit schemes, all participants do have a commitment. They have a limit on their emissions, and this is why they can trade emission allowances – they can buy some allowances if their actual emissions are above their allowed level, or sell allowances in the opposite case. This is also the reason why such systems are often called "cap-and-trade" systems. And obviously, an entity could not enter an allowance trading system with an unlimited amount of allowances that it could put on the market, without destroying the system itself.

2.1 The concept of an emission budget

However, one may distinguish the tradable allowance allocation, on the one hand, and the imposition of a limit on actual emissions, on the other hand. Some entities could be given a finite number of allowances for trading purposes, while not being given a true limit on emissions - provided that some other entities – at least one - were given or accepted some limits, therefore creating potential buyers, as well as sellers. Any entity with no cap on its emissions would not be a potential buyer, only a potential seller – if its actual emissions are less than its allocated amount. And if its actual emissions are more than its allocated amount, it will not enter the trading market, for it will not be in a position to sell anything, and will not have to hold allowances for its emissions.

Therefore, it seems technically possible to conceive a tradable permit system where some entities are given a true limit on their emissions, or take a firm, legally-binding commitment regarding their emissions, while others, through a negotiating process, are eventually given an "emissions trading budget".

Parties to the Convention may wish to consider such a system that could be elaborated under the provisions of the Convention and the Kyoto Protocol, for involving developing countries in emissions trading while not "*introducing any new commitment*" on their behalf.

The most important difference between negotiating emissions limits and negotiating emissions budgets arises from the fact that there must be some period of time between negotiating budgets and their coming into existence. Abatement options, investments and

policies will take some time to produce their effects; therefore, defining very short-term budgets would be meaningless.

We detail below in (**II**) some important consequences of this difference. For now, let us just consider, for example, that such budgets are negotiated in 2000 or 2002 for a "budget period" 2008-2012. Many developing countries would refuse to negotiate a firm, legally binding limit on their emissions at that time because they fear a potential restraint on their economic development. The key point here is the uncertainty on the effects and costs of abatement policies and options – as well as the more general uncertainty on economic growth.

However, the same countries may wish to consider negotiating emission budgets. They would then have an incentive to develop sound abatement policies, with the possibility of being able to sell some allowances if their actual emissions in the budget period turn out to be less than their budget. But they will not face any "non-compliance" procedures or even be blamed if their actual emissions turn out to be more than their budget.

One important advantage in negotiating emission budgets, rather than limits for developing countries, in full respect with the principles of the Convention, might be to ease the negotiation of these allocations, as will be shown below in (**II**). This would help prevent the formation of potentially huge amounts of tropical hot air that would otherwise undermine the Protocol itself.

Parties may also wish to consider the option of defining such budgets for years earlier than 2008, as is already the case with the Clean Development Mechanism, although a minimum period of time between negotiating such a budget and the actual budget period should be considered.

2.2 Options for maintaining the integrity of the system

A difficulty may arise from the length of the "budget period" envisioned in the example above, modelling the "commitment period" for Annex-I country Parties under K.P. Article 3. What if a developing country starts selling allowances at the beginning of a budget period but then faces an increase in its emissions and ends the period with more actual emissions than its (diminished) budget? A country could even sell its entire budget and thus inundate the market while keeping its emission level unchanged. Different options may be considered in order to maintain the environmental integrity of a trading system including entities with a non-binding target or "emission budget".

2.2.1 Turning non-binding into binding

A first option is to state that, as soon as a country with an emission budget starts to sell some allowances, it faces a real limit on its emissions. The risk disappears or, rather, is reduced to the same level as with binding targets (it relies on the strength of the compliance procedures). One may wonder, then, what is the difference in this option and establishing binding targets from the onset. The answer is in the withdrawal of the uncertainty related to the time lag between the establishment of the budget and the day it turns into a binding target – presumably several years. This may help negotiate the targets and alleviate the fears of undue constraints on economic growth or introduction of

tropical hot air into the system. However, at the end of the day trading would in this option require binding targets.

2.2.2 Combining binding and non-binding

A second option could be to establish two targets for one country: one non-binding, another one binding. The binding one would be at a higher level, and would be established in order to prevent undue constraints on economic growth. The non-binding one would be established at a lower level, in order to reduce or eliminate tropical hot air. The non-binding target would be a "selling target", while the binding target would be a "buying target". The country would be able to sell allowances if its emissions are below the lower (non-binding) target, while it would be urged to buy allowances only if its emissions were above the higher (binding) target. If its actual emissions are in between, the country will not take part to any trading.

Such an option could limit the importance of the potential problem raised by the non-binding character of a target allowing a country to trade, but not solve it entirely. Let us suppose a country with a binding assigned amount 20% higher than its non-binding budget. Let us further suppose that, due to a slower-than-expected economic growth, this country's emissions are expected at the start of the commitment period to be equal to its non-binding budget. Nothing could prevent this country to sell up to 20% of its budget without achieving any further emission reductions. At the end of the commitment period, its binding assigned amount would be reduced of the same quantity, and the country would then be in compliance.

In other words, this option rests in part upon the good faith of countries. It reduces the tropical hot air while not creating constraints on economic growth in the sense that if a country exceeds its non-binding target, it would not have to buy allowances or to face compliance procedures. If its emissions are below its non-binding target, it would only sells this surplus if acting in good faith. However, if it does not act in good faith and sells not only its actual surplus but also the difference between the non-binding budget and the binding assigned amount, it will not face compliance procedures.

2.2.3 Trading after the commitment period

At the other end of the spectrum, another option is to allow countries with emission budgets to trade only after the end of the commitment period, that is, after the existence of an actual surplus of allowances has been demonstrated.

This option is more really "non-binding" than the two previous ones: it never turns into a binding target, nor uses a binding target as a complement. Its drawbacks is that it would be of little help for financing up-front abatement investments for an investor will not know from the onset if emission reductions will eventually be sold on international markets. This drawback may be of some importance for developing countries, due to their lack of financial resources.

To reduce the time lag between the emission reduction and its selling on international markets, a possibility would be to consider short commitment periods, say, annual. A country with a non-binding target does not need the temporal flexibility of multi-year

periods. This option would then imply an annual monitoring of the country's emissions, as is the case for Annex-I countries but not for non Annex-I countries. Arguably, however, the same annual monitoring could be required for emissions trading with non-binding targets, whatever the option is.

2.2.4 Limiting the responsibility to unit sold

Finally, a fourth option would be an obligation to buy back the allowances sold if they bring about an excess of emissions. Let us suppose that a country has an emission budget of, say, 100 million tonnes. It sells, presumably at the beginning of a commitment period, 10 million tonnes. If its actual emissions at the end of the period are 90 million, the country is in compliance. If its emissions are below, the country can continue to sell. If its emissions are more than 90 million, it must buy back the surplus up to 10 million – but not beyond. That is, if its emissions are 95 million, it must buy back 5 million tonnes. If its emissions are more than 100 million, it must buy back 10 million – and this, whatever the excess is.

Thus, the responsibility of the country is limited to the unit sold and the non-binding character of its target entirely preserved. There is no need to shorten the commitment period and increase the burden of monitoring emissions (although an annual monitoring might be required for any trading as it is with Annex-I countries). The uncertainty on the tradability of allowances and the safety regarding the environmental integrity only depends of the country – exactly as is the case with biding targets.

2.3 Relations between emissions budgets and the CDM

The scope of the Clean Development Mechanism might be limited by the fact that it is restricted to "project activities" – although this expression has not been defined. Moreover, a baseline needs to be established for each project activity, to ensure that the reductions in emissions are "*additional to any that would occur in the absence of the certified project activity"* (K.P. Article 12). The latter raises numerous difficulties, but is needed to prevent the formation of "tropical hot air" – although there might be some ways to simplify the issue.

This involves transaction costs, which may be acceptable for large projects, but may be too high for small projects. Moreover, estimating emissions reductions may be very difficult for some projects in certain sectors like transportation, housing or small businesses. Therefore, the Clean Development Mechanism will be in position to deal with emissions from large industries and the power sector more easily than those from other sectors. Depending on the countries, the emissions the C.DM. could address represent between 15 to 40% of the emissions of a country.

On the other hand, for some large projects at least, the Clean Development Mechanism might be a more attractive option than emissions trading under the "budget concept", for a set of reasons:

- It may provide up-front financing of investments. This would be particularly relevant if the option chosen is that of trading only after the commitment period;

- Certified emission reductions obtained during the period from the year 2000 up to the beginning of the first commitment period can be used to assist in achieving compliance in the first commitment period;
- Depending on the liability rules to be established for international emissions trading (see Baron, 1999), the markets may value certified emission reductions at a higher price than the allowances[i] sold under emissions trading.

Therefore, negotiating emissions budgets for developing countries should not be seen as an alternative to the Clean Development Mechanism. Rather, both instruments should be considered as complementary options. This means that one must consider how both could work in parallel in a developing country, while avoiding potentially problematic interference. But it seems that this problem could be dealt with easily, by deducting any certified emissions reduction under the Clean Development Mechanism from the country's emissions budget.

There is another potential link between non-binding targets and the Clean Development Mechanism: the possibility that the framework for trading with non-binding targets be established within the current negotiated framework having established the C.D.M. (the Kyoto Protocol Article 12). This possibility is examined below, in section IV.

3 Negotiating developing countries emission budgets

3.1 Growth Targets

The Kyoto Protocol itself gives three Annex-I countries, assigned amounts above their actual 1990 emissions. The European Union reached an agreement in March 1998 that will provide, under the provisions of Kyoto Protocol Article 4, assigned amounts above their actual 1990 emissions to five of her member states which are also Annex-I Parties. And for obvious reasons, developing countries' emissions budgets – if any - will be above their actual emissions during the reference year, 1990[ii].

It seems that analysts and governments largely share this view, at least implicitly. As an example, the US administration, while analysing the Kyoto Protocol and its impacts for the US economy (see United States, 1998), assessed an option including emissions trading with key developing countries. It reads: "*Key developing countries are assumed to adopt emission growth targets equal to their 2010 business as usual emissions level and participate in international emissions trading.*" In this case, the hypothesis is not only a "growth target", it goes further by assuming that this growth target is nothing but the business as usual emissions level. However, economic projections are always uncertain, particularly for developing countries, and one may expect that a developing country would only accept a commitment that would not put its economic growth at risk Thus, it is very much likely that its assigned amount will exceed its real needs.

The option of fixed and biding targets would therefore allow large amounts of tropical hot air to enter the global system, thus undermining the commitments made or to be made in subsequent commitment periods by the industrialised countries. This drawback could be

dealt with in an easier manner if we consider negotiating emissions budgets, not limits, for developing countries, as suggested below.

3.2 The case of "no-regrets" policies

A somewhat different view is proposed by the Center for Clean Air Policy (see Hargrave and Helme, 1997), and picked up by Tietenberg et al (1998) in a report for Unctad. Let us go through the CCAP proposal:

> *"Under this approach, developing country emissions would not be capped in absolute terms. Instead, they would be allowed to rise above current levels, but countries would have to make sure that their GHG emissions grew at a slower rate than their economies. Developing country economic growth thus would not be restrained, but countries would commit to reducing their emissions relative to business as usual levels by improving the 'carbon efficiency' of their growth."*

Here, a distinction is introduced between the "baseline" (in fact, the commitment), and the "business as usual" level, as illustrated by figure 1 (from Hargrave and Helme, 1997):

> *"To simultaneously ensure that developing countries were allowance sellers and carbon emissions were reduced, it would be necessary to set developing country baselines below what emissions would have been otherwise, but high enough so that countries could make reductions below target levels through "no regrets" measures – those that have no net cost or even provide a savings."*

The CCAP "Growth Baseline" proposal would eventually lead Annex-I countries to buy no-cost reductions from developing countries. These reductions, sometimes called "win-win" would then become "win-win-win". However, one may note first that this goes beyond the requirements or even the principles established by the Convention or the Protocol. Moreover, one should say that, from an economic standpoint, profitable investments or actions, as soon as they have been identified with some certainty, should be performed for their own merits. If this were the case, giving allowances for emissions that could be reduced at no cost would lead to an increase in global emissions compared to what would have been the case otherwise. This is usually called "hot air" by negotiators to the Convention – and "tropical hot air" or "tropical air" if it originates from developing countries.

This issue also arises in the definition of a baseline for a project under the Clean Development Mechanism. The baseline should not be considered as the mere prolongation of the recent past; rather, it should be the emission level that would have occurred if the most profitable decision was taken (see Philibert, 1998). The amount of potential tropical air is more important in the case of emission budgets than in the case of CDM, because the baseline in the former case will cover all emissions by a country.

As an illustration of this potential, one may recall an evaluation of the percentage of emission reduction from Business as Usual through no-regrets measures (Unep, 1994). It goes from 5% in the short term to 40% in the long term in some of the developing countries studied at that time. Moreover, there is no doubt that some large developing countries have already started to take advantage of this negative-cost potential,

progressively removing cost-ineffective energy subsidies (see Goldemberg and Reid, 1998, Sinton et al, 1988), and therefore it makes sense to fully take into account this current trend while establishing baselines.

Should one negotiate emission limits or emission budgets, the definition of the appropriate baselines will in both cases be difficult from a technical standpoint, and any final decision should be left to a political negotiating process. However, negotiating emission budgets will not provoke the same fears of possible constraints upon economic growth as negotiating emission limits, and this could ease the negotiating process.

It may appear, however, that the interest of a country in negotiating an emission budget will be to inflate this budget as much as possible to get more benefits from trading. But it is not that simple, because if all developing countries were successful in obtaining higher budgets than what the "no-regrets" baseline would provide, huge amounts of tropical air would enter the global system. This would have two consequences: first, it would undermine the commitments taken by the Annex-I countries in Kyoto, and raise the level of global emissions, to the detriment of the Convention's purposes. Second, this would lower the international price of carbon allowances, possibly to a very low level. Therefore, it is the collective interest of developing countries themselves to keep their budgets as close as possible to the expected "no-regrets" baselines. As wrote Ellerman (1998),

> *"the principle for determining the cap on a non-Annex I country in the first commitment period is clear: what emissions would be without the trading activity. The ideal would be an exactly fitting but non-binding cap. In such an ideal, there would be no constraint on the non-Annex I country's growth and there would be no 'hot air'".*

One must finally note that, even if the budget definition incorporates all no-cost options ("the no-regrets baseline"), an additional incentive to have them performed still remains, as it opens the door for trading further reductions.

3.3 The option of dynamic targets

There is another option to deal with the potential "tropical hot air" problem associated with the inclusion of Developing Countries into a world emissions trading regime. It is that of carbon intensity commitments, rather than commitments on absolute levels of emissions.

This option was implicit in the Hargrave and Helme's paper (1997) and further elaborated by Frankel (1999) and Baumert et al (1999). All of them conceived it as a different form of binding targets. But the exact size of the assigned amount would be computed at the very beginning (Frankel) or at the end (Baumert et al) of the commitment period. Another way of presenting the option is that of "indexation" (Frankel): an assigned amount is adopted from the onset, but then modified if the actual economic growth is different than expected.

Thus, the fears concerning economic growth – fear of undue constraint on it, for the Developing countries, fear of tropical hot air for other stakeholder – may be alleviated. It

must be noted that the target unilaterally adopted by Argentina in 1999 was of this kind, expressed in level of emissions relative to an economic indicator (the square root of gross domestic product). It must also be recalled that this target

> "*shall constitute a binding international commitment once the Conference of the Parties to the United Nations Framework Convention on Climate Change implements a new option that may enable Non-Annex I countries which, like the Republic of Argentina, wish to assume an emission target, to participate in the mechanisms established in Articles 4, 6 and 17 of the Kyoto Protocol and after this Protocol became in force"* (Argentine Republic, 1999).

However, the "flexible" or "dynamic" character of the targets they envisioned did not prevent Hargrave and Helme or Frankel to explicitly accept some hot air in them. This might be thought of a consequence of the binding character of these flexible targets. A target indexed to the Gross Domestic Product may remove the uncertainties associated with the economy, but not those associated to other factors, such as the effectiveness of different policies and measures to abate emissions. Thus, it is not obvious that the dynamic targets option deprive the non-binding target one of its pertinence. It may be that combining the two options in "non-binding dynamic targets" offers the best opportunity for meeting developing countries' concerns as well as for the sake of climate protection

3.4 The "Contraction and Convergence" view

There is a growing amount of literature suggesting that the level of emissions – or emission rights – allocated to countries for the next commitment periods should lead to a "convergence" of per capita levels. How strong and useful are these ideas?

First, one must distinguish a convergence in actual emission levels, and a convergence in emission rights. Apart from historical reasons, there are many geographical, climatic and other reasons for actual emissions to differ from one country to another, depending on the national circumstances of each country.

However, the idea of equal per capita emission rights seems to have some moral strength. All human beings should be entitled an equal share of a scarce common resource: the limited ability of the atmosphere to handle greenhouse gas emissions while not provoking tremendous climate change.

However, what would be the concrete implications of such an allocation? Let us first suppose it is a short-term objective. A global amount of emissions would be defined, departing from business as usual but taking into account our collective capability to reduce emissions. There is no doubt that this global amount would be above 1990 global emissions: none of the emission paths presented by the IPCC (IPCC, 1996, see also Wigley et al, 1996, Grubb, 1997) suggest that immediate global reduction would be possible. Then, this amount would be allocated on a per capita basis in the world. The obvious result would be massive financial transfers from countries with actual per capita emissions above this allocated level, to countries with actual per capita emissions below it.

Although this may attract some sympathy, it seems obvious that some countries will oppose this idea with at least the same strength as some others will favour it. Thus, the prospect for an agreement is very unlikely. Moreover, it must be said that this kind of allocation would not have a different result than any other allocation of the same global amount of emission allowances, in terms of its effects on concrete emission abatement efforts (they would take place in the same places, where they cost the least). Finally, because of this absence of implications for concrete reductions, this massive redistribution of wealth would go far beyond the purposes of the Convention, and the principles it has established.

It would seem much more reasonable to consider per capita emission rights allocation as a long-term objective – say one century or more. Then the question is: how helpful would it be? Is it worth focusing an international negotiation to obtain a formal agreement on such a very long-term objective?

Finally, it seems preferable for this idea to keep the status it has today. It is a view that may be used into the negotiating process, if some Parties wish to use it, to check if short-term agreements, built on short-term baselines with the lowest possible level of economic, scientific and technological uncertainties, are heading in the right direction.

For example, the Kyoto Protocol would broadly pass such a test (it actually results in a limited convergence in per capita emission rights), although some of its dispositions might have been challenged from that perspective. It could eventually be even more successful in passing this test, at least from the "contraction" viewpoint, if Parties decide to negotiate emission budgets for developing countries.

Many other criteria or formulae might be developed and proposed to help negotiators in defining allocations for different countries. Some will extrapolate present trends, looking at energy intensity, per capita emissions, levels of development and so on, while others will propose a long-term perspective, taking into account different conceptions of equity or different visions of the future, and try to define reasonable pathways to them. All these efforts are valuable and might help. But at the very end decisions will be taken through a negotiating process; the point being that, it might be easier to negotiate emission budgets rather than negotiate emission limits, and this option also may be more helpful in preventing tropical hot air.

4 Legal issues

One may wonder how such "emission budgets" for developing countries could be negotiated, by building on the Climate Convention and Kyoto Protocol provisions, if Parties wished to do so. Three options are suggested here:

4.1 By amendment

One obvious possibility would be an amendment to the Protocol. According to Article 20 of the Kyoto Protocol, such an amendment could be adopted by the Conference of the Parties serving as the meeting of the Parties to the protocol. Therefore, it could only be adopted after the entry into force of the Protocol. The latter is itself dependent on the

ratification of 55 Parties to the Convention, incorporating Annex-I Parties which accounted for at least 55% of the 1990 carbon dioxide emissions of Annex-I Parties, as provided for by Kyoto Protocol Article 25.

Kyoto Protocol Article 21 makes very clear that Annex B of the Protocol, as well as any new annex to the Protocol, could only be changed or added through the process of amendment.

4.2 By a COP decision on emissions trading

Another possibility could be envisioned by building on Kyoto Protocol article 3 paragraphs 10 and 11. The former reads: *"Any emission reduction units, or any part of an assigned amount, which a Party acquires from another Party in accordance with the provisions of Article 6 or of Article 17 shall be added to the assigned amount for the acquiring Party"*. The latter reads: *"Any emission reduction units, or any part of an assigned amount, which a Party transfers to another Party in accordance to the provisions of Article 6 or of Article 17 shall be subtracted from the assigned amount for the transferring Party"*.

There is no explicit provision in Article 17 to support the inclusion of "emission budgets" for developing countries. It states that *"the Parties included in Annex B may participate in emissions trading for the purposes of fulfilling their commitments under Article 3."* However, as developing countries have not made any such commitments – and are not asked to in this proposal – the restriction of stipulating *"Parties included in Annex B"* does not explicitly prohibit Parties not included in Annex B to participate in emissions trading in a different manner.

Moreover, Article 17 states that *"The Conference of the Parties shall define the relevant principles, modalities, rules and guidelines, in particular for verification, reporting and accountability for emissions trading"*. Here again, the listing of "verification, reporting and accountability" after the words "in particular" does not mean that the principles, modalities, rules and guidelines should be limited to those explicitly mentioned. Thus, one may envision that the Conference of the Parties could adopt decisions on the principles, modalities, rules and guidelines that would provide some developing countries with an "assigned amount" of a specific nature – budgets, not limits. This would allow them to enter the emissions trading regime through Article 3 paragraphs 10 and 11: the former will allow Annex-B countries to acquire parts of these assigned amounts, the latter would merely ensure that any part of such assigned amounts could only be transferred once.

The Conference of the Parties is the supreme body of the Convention, and as such, is entitled to make, within its mandate, decisions to promote the effective implementation of the Convention. Therefore, if the Parties wish to take a decision in the sense suggested here, and feel it useful to effectively implement the Convention and allow it to arrive closer to its ultimate objective, the Conference of the Parties would certainly not have any problems doing so.

4.3 By building on the Clean Development Mechanism

Another possibility could be to consider negotiating emission budgets for developing countries as part of the process of implementing the Clean Development Mechanism. This would be considered as a special form the C.DM. can take and be negotiated by building on the provisions of Kyoto Protocol Article 12.

Article 12 is rather explicit on the fact that the C.D.M. is based on "project activities", but no definition has been given of this concept. There is nothing to prevent a project to be sector-level or even country-level – although arguably in this case there might not be a single "investor". Therefore, a country-level CDM project would presumably follow the "unilateral scheme" envisioned by many (see, e.g., Stewart et al, 1999), under which the host country would both develop and invest in a project. If a non-binding target is adopted along the "no-regret baseline" approach suggested above, then trading with non-binding targets would be very close to running a country-level, unilaterally funded CDM project. Once an agreement is reached on the baseline/target, certified emission reductions/excess allowances occur if the emissions of the project/country are less than the baseline, but if they are equal to or above the baseline, nothing happens.

This might be a promising option for broadening the existing emissions trading framework to non-binding targets for developing countries for it would avoid the weight and length of the amendment process.

5 Emission budgets and the question of "supplementarity"

Article 4 provides for some unlimited flexibility amongst Parties having reached an agreement to fulfil their commitments under Article 3 jointly, provided the terms of the agreement are notified to the secretariat at the time of ratification. But the Kyoto mechanisms (Articles 6, 12, 17) do not do not provide such unlimited flexibility. Article 6 states that "*the acquisition of emission reduction units shall be supplemental to domestic action*". Article 12 states that Annex-I Parties "*may use the certified emission reductions accruing from such projects activities to contribute to compliance with part of their quantified emission limitation and reduction commitments under Article 3*". Article 17 states that "*any such trading shall be supplemental to domestic action for the purpose of meeting quantified emission limitation and reduction commitments*" under Article 3.

Two reasons are usually given in the analytic literature (see, e.g., Grubb (1998, 1999) to explain these provisions, and sometimes to justify that they should be implemented through precise rules in the different decisions still to be taken by the Conference of Parties in order to implement the Kyoto Mechanisms. They are the following:

- The need to prevent "hot air trading"; and
- The fear that "too much" flexibility would reduce the incentive for technical change and consumption pattern changes in countries with some global leadership, therefore slowing the transition of all countries towards an economy compatible with a low level of GHG emissions.

We are looking here at the possible consequences of negotiating emission budgets for developing countries, in relation to this question usually referred to as “the question of supplementarity” (i.e. of Kyoto mechanisms to domestic action in the developed countries).

Concerning the first matter of "hot air", it seems very important for the climate's sake, that no “tropical hot air” be introduced in the trading system. This is all the more true as it appears rather difficult to prevent hot air trading, if some hot air is created by the allocation of emission budgets (for developing countries) or limits (for developed ones). However, if, for example, ceilings are put on the use of the Kyoto Mechanisms, be it for their use by sellers, or buyers, or both, they would not prevent hot air trading, but rather limit what would have been an environmentally sound use of the mechanisms. The reason for that is that, by definition, “hot air” allowances cost nothing, and will thus be traded first. Instead, these ceilings, if any, will probably reduce the incentive to further reduce emissions in potential “hot air seller” countries, leaving actual reductions, through low-cost opportunities, aside.

Therefore, it seems that the most efficient way to prevent hot air trading is at the time of allocation negotiation for each country, where inflated allocations can potentially be avoided. Furthermore, as we have shown, negotiating emission budgets, not limits, increases the probability of avoiding the creation of large amounts of hot air.

To deal with the second concern is more difficult. Even if no tropical hot air is created, involvement of developing countries in emission trading, if it happened, would further reduce the cost for Annex-I countries of meeting Article 3 commitments, and therefore reduce the need for domestic action in these countries. However, different counter-arguments should be considered here:

- Reducing the cost of achieving Kyoto commitments could play a decisive role in adopting further, more stringent, commitments for subsequent periods. Thus, it seems very difficult, if not impossible, to weigh this effect against the effects of stronger incentives for technical change, for future Climate protection.
- Moreover, one may argue that achieving the Kyoto commitments at the lowest possible cost may allow countries to devote some resources to actions with rather low short-term effects on emissions, but important long-term effects (R&D, structural changes, etc.)
- With the proposal of negotiating emission budgets, a complementary incentive would be given, to developing countries wishing to participate, to achieve their potential for “no-regret” actions, as this would open the door for mutually beneficial emission trading. However, these emission reductions would not be traded, and thus would not have been compensated by emission increases in buyer countries. This would benefit the Climate.

6 Conclusion

Involving developing countries in emissions trading through the negotiation of emission budgets would provide them substantial capital inflows through emissions trading,

therefore stimulating their economic growth. It would also allow the World to take advantage of the fact that most of them are building their infrastructure, which would determine long term paths of greenhouse gas emissions.

This would be fully in line with the provisions under the Convention that *"the global nature of climate change calls for the widest possible co-operation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions"*.

References:

Argentine Republic (1999) – *Revision of the First National Communication*, Secretariat for Natural Resources and Sustainable Development, Buenos Aires, October

Baron R. (1999) – *An Assessment of Liability Rules for International GHG Emissions Trading*, International Energy Agency, Paris, October

Baumert K.A., Bhandari R., Kete N. (1999) – *What Might a Developing Country Climate Commitment Look Like?* Climate Notes, World Resources Institute, Washington D.C.

Ellerman A.D. (1998) – *Obstacles to Global CO_2 Trading: A Familiar Problem*, MIT Joint Program on the Science and Policy of Global Change, Cambridge, MA, November

Frankel J.A. (1999) – *Greenhouse Gas Emissions*, Policy Brief 52, Brooking Institution, June

Goldemberg J., Reid W. (1998) – "Developing countries are combating climate change", *Energy Policy*, **26** (3): 233-237

Grubb M. (1997) - "Technologies, energy systems and the timing of CO_2 emissions abatement", *Energy Policy*, **25** (2), February, 159-172

Hargrave T., Helme N. (1997) – *Growth Baselines: Reducing Emissions and Increasing Investment in Developing Countries*, Center for Clean Air Policy, Washington D.C., October (re-issued in January, 1998)

IPCC-WG III (1996) - *Climate Change 1995 - Economic and Social Dimensions of Climate Change*, Bruce J.P., Lee H., Haites E.F. (Eds), Contribution of Working Group III to the Second Assessment Report of the Intergovernmental Panel on Climate Change, Cambridge University Press, UK

Philibert C. (1998) - "An economic approach to the environmental additionality", *Ad Hoc International Working Group on the Clean Development Mechanism*, UNCTAD, Geneva, November

Sinton J.E., Levine M.D., Qingyi W. (1998) – "Energy efficiency in China: accomplishments and challenges", *Energy Policy*, **26 (**11), 813-829

Stewart R., Anderson D., Aslam M.A., Eyre C., Jones G., Sands Ph., Stuart M., Yamin F. (1999) – *The Clean Development Mechanism – Building International Public-Private Partnership*, UNCTAD, Geneva, October

Tietenberg T., Grubb M., Michaelowa A., Swift B., Zhang Z.X. (1998) - *Greenhouse Gases Emissions Trading: Defining the principles, modalities, rules and guidelines for verification, reporting and accountability*, UNCTAD, Geneva, August

UNEP (1994) – *UNEP Greenhouse Gas Abatement Costing Studies*, UNEP Collaborating Centre on Energy and Environment, Risø National Laboratory, Denmark, May

United States (1998) – *The Kyoto Protocol and the President's Policies to address Climate Change: Administration Economic Analysis*, Washington D.C., July

Wigley T.M.L., Richels R. & Edmonds J.A. (1996) - "Economic and environmental choices in the stabilization of atmospheric CO_2 concentrations", *Nature*, **379**, 240-243

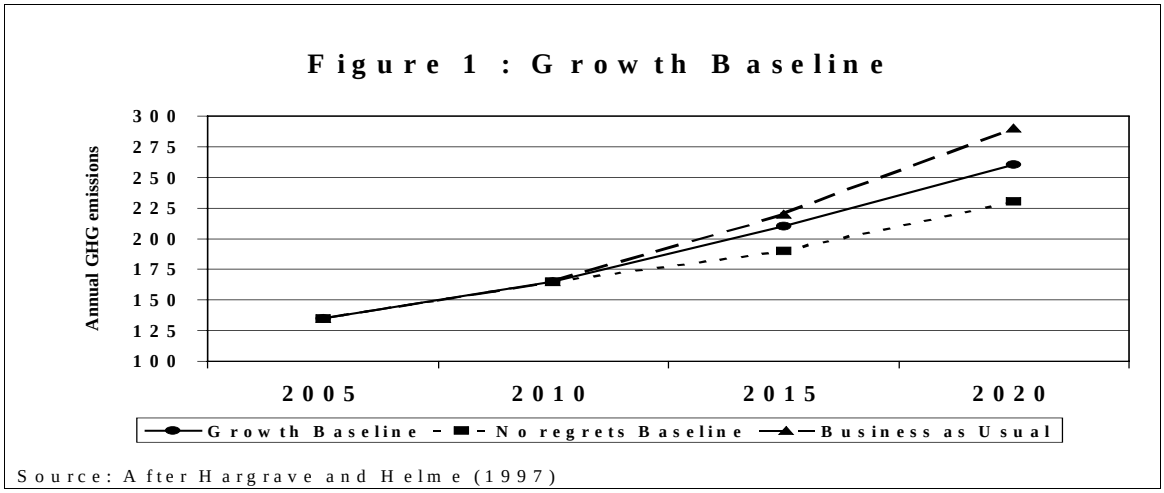

Figure 1: the Growth baseline envisioned by Hargrave (1998) is somewhere between the No Regrets Baseline and the Business as Usual.

[i] In the current language of the Kyoto Protocol there is no "budget" but "assigned amounts", nor "allowances" but "parts of assigned amount". But this is relevant only for Annex-I countries.

[ii] The choice of 1990 here is only one possibility, as everything will have to be decided by the Conference of the Parties, if it wishes to do so. One must recall that the Kyoto Protocol allows for some flexibility in the choice of a reference year for economies in transition for all greenhouse gases, and for all countries in the choice of reference year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride.