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Frameworks & Proposals

A Brief, Adequacy and Equity-Based Evaluation of Some Prominent Climate Policy Frameworks and Proposals

By PAUL BAER & TOM ATHANASIOU (ECO-EQUITY)

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Paul Baer: pbaer@ecoequity.org Tom Athanasiou: toma@ecoequity.org
EcoEquity – 1514 Beverly Place – Albany CA, 94705 USA – www.ecoequity.org

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Frameworks & Proposals
A Brief, Adequacy and Equity-Based Evaluation of Some Prominent Climate Policy
Frameworks and Proposals. By Paul Baer & Tom Athanasiou
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1 Foreword

“There remains a frightening lack of leadership”
Kofi Annan 15 November 2007, addressing the COP/MOP in Nairobi

While the climate debate is raging, the climate negotiations themselves are barely moving. Finger pointing seems to be the name of the game, with each negotiating bloc focused on passing the bill for solving the climate crisis onto the others. The process as a whole is in impasse, and it’s time to admit it, as it’s time to admit that disagreements about fairness and equity are at the centre of the impasse.

So recall that both the Berlin Mandate (1995 at COP1) and the Kyoto Protocol (1997) implement equity in a particular way: The developed countries take the lead in accepting binding reduction commitments. Other countries may follow at later stages: This was the implicit assumption of the early negotiations.

But it is not enough. Ten years after Kyoto, greenhouse gas emissions are rising steeply. Moreover, we know that we have far less time than we previously thought: If we’re to keep the temperature increase below the critical threshold of 2 degrees Centigrade above the preindustrial level, then emissions increases must be very rapidly curbed, and total emissions must soon begin to steeply drop. All this makes the Kyoto Protocol’s focus on legally binding reduction commitments more necessary than ever. But its stepwise approach is in deep crisis due to three factors:

1) With the exception of the EU, most developed countries have failed to live up to their Kyoto commitments. Even many of the EU member states are not on track and will have to resort to the flexible mechanisms to meet their commitments. The US and Australia have not ratified and is difficult to imagine how Canada might stick to its commitments.

2) Kyoto’s division of the world into developed, developing and transition countries, a division inherited from the Cold War and even colonial times, is increasingly questionable given the profound shifts in economic and associated political power that we’re now witnessing.

3) Kyoto’s flexible mechanisms convert national commitments (or their residual “assigned amounts”) into a tradable commodity. But as long as there is no rational

basis, no principle-based method for determining those commitments, the horse-trading logic of the negotiations in which these commitments are fixed seems likely to lead to a race to the bottom in terms of environmental ambition. Countries that take on ambitious commitments but fail to implement them domestically will be punished financially, while countries that stone-heartedly assume only minimal commitments and then easily meet them might be rewarded. It's easy to see that this kind of process creates perverse incentives towards minimizing commitments in each subsequent round, and that this is quite the opposite of the process that we need to lead us down the path of steep emissions reductions, the path that we'll have to follow to keep the planet below the 2 degrees threshold.

It's in this context that our interest in principle-based approaches to climate agreements arises and persists. Such approaches, to be sure, are not the ones most frequently cited as being likely to be adopted for the next commitment period, and they're easily dismissed as unrealistic by most seasoned climate negotiators and even NGO observers. But it would be unwise to rush to a final judgment, and to decide that principle-based approaches have no critical role to play. Indeed, given of the urgency of the climate crisis, and the inability of the current approach to overcome stalemate and deliver results in line with the objective of avoiding dangerous climate change, it may yet be necessary to step back, and to reconsider approaches that *redefine* political realism rather than accepting it as we know it today.

We commissioned this comparison of a number of approaches as an input to an international roundtable in early May 2007. But we believe that it might well be useful to a wider audience as well, by stimulating thinking outside the established paths. The way things look at the moment, such thinking is going to be needed.

Jörg Haas
Heinrich Böll Foundation

2 Introduction

In this report, we briefly consider six approaches to a post-Kyoto climate regime. We don't say "six proposals" because one of them, the Climate Action Network's "Viable Framework," is too general to be taken as a proposal proper; indeed, two of the others, both of which really are proposals, can be considered as examples of what the CAN framework would look like if it were fleshed out. In any case, these six have been chosen because they are, at least nominally, based on explicit equity principles. In this they're notably different from most other approaches now in play and under development, and considering them as a group turns out to be instructive.

One thing that becomes obvious, as we work through these six approaches, is that two significant subgroups exist:

- One we can call the "Contraction and Convergence" family. It includes, of course, the canonical formulation of Contraction and Convergence (C&C) that has for so long been promoted by London's Global Commons Institute, as well as two more recent formulations: the "Common but Differentiated Convergence" variant on C&C proposed by Nick Höhne et al and Lutz Wicke's "Global Climate Certificate System," which, as it turns out, is another such variant. It would also, if we had the time to be more complete, include the "Cap and Share" proposal,¹ for it too relies on the principle of equal per-capita rights.
- The second we can perhaps call the "Responsibility and Capacity" family, for these principles are the ones upon which it primarily relies. This family includes CAN's "Viable Framework" and the two proposals that are, we believe, compatible with that framework. These are the South-North Dialogue's "Equity in the Greenhouse" proposal, and our own "Greenhouse Development Rights" reference framework.

¹ See <http://www.capandshare.org/>. This idea was first proposed by the Foundation for the Economics of Sustainability (FEASTA) in 2005.

The Vattenfall proposal falls into neither of these families, though it, too, is principle-based. Its framers have however chosen different principles upon which to stand. In any case, it will come as no surprise that our six approaches cannot be straightforwardly compared on every important dimension. They are too different and many of them are open to multiple interpretations even at the level of fairly basic characteristics.² Despite all this, however, it is possible to examine all six (and potentially many others) within a coherent framework, with regard to environmental adequacy, fairness (particularly the crucial aspects of equity that we roll up under the name of *developmental equity*), and the relationship between the two. This relationship is crucial because, as we will discuss, a critical aspect of any viable (or even reasonable) framework is *how the right to development of poor countries is protected as the emissions target is strengthened*.

The comparison of post-Kyoto proposals is not a new endeavor, and there are a variety of existing analyses to which we can and sometimes do refer. Many of them are more ambitious (or at least more quantitative) than this brief paper, though it is nevertheless notable for its normative leverage of the notion of developmental equity, and for its consideration of a number of approaches that, to our knowledge, have not previously been analyzed. These are CAN's framework, our³ Greenhouse Development Rights framework, the Vattenfall proposal, and the Global Climate Certificate System.

A key challenge in any analysis like this is separating the core features of any proposal from what one might call either "optional" or "contingent" features. For example, a core feature of Contraction and Convergence (C&C) is that all countries converge to equal per capita rights at a specified year in the future. The particular year at which such a convergence occurs is a contingent feature, a parameter or "knob" if you will. Yet it is not clear, for example, that if one sets the convergence year to zero (immediate per capita allocations), the result is still C&C. Furthermore, C&C is clearly intended to include all countries under a global cap, yet it has been proposed that LDCs could be excluded from the system. Would the result still be C&C? Perhaps so. But what about systems like

² For example, the Greenhouse Development Rights framework is intended to allocate obligations (not entitlements) and could be implemented either as a global cap-and-trade system, a fund-based system, or a hybrid.

³ The authors of this report are two of the principal developers of Greenhouse Development Rights, along with colleagues from the Stockholm Environment Institute (USA) and, more recently, Christian Aid.

the Global Climate Certificate System, which erect a similar architecture on the basis of somewhat different mechanisms?

In an analysis of modest length such as this, it's quite impossible to consider all such questions in detail. We will try therefore to consider only some of the possible modifications to each proposal, to suggest what the purposes and tradeoffs of such modifications might be, and to suggest some of the questions that would need to be answered in a more complete analysis.

Our analysis will try to be both straightforwardly descriptive (e.g., how does it work?), and evaluative (e.g., what are the likely consequences?). In regards to the environmental adequacy of each proposal, we will ask the following questions:

1. What is the nominal objective of the proposal (e.g., are emissions limits referenced to a temperature target, a stabilization target, or both)?
2. How is the emissions pathway specified, and is it presented as being fundamental or merely indicative?
3. What gases and sources are specified as included in the coverage?

In regards to the “developmental equity” of each proposal, we will ask:

1. What are the explicit equity principles on which it is based?
2. Does it attempt to protect the “right to development” (i.e., how are poor countries protected from costs?) and is its overall strategy likely to succeed?
3. How are poor countries affected as the mitigation target becomes more stringent? What if it becomes *extremely* stringent?
4. What other equity issues are raised (e.g., the determination of “population” in per capita-based proposals)?

We will also briefly examine each proposal's treatment of adaptation.

Finally we will evaluate each proposal in terms of its potential modifiability (its ability to evolve beyond its weaknesses) and its likely overall performance in terms of adequacy and equity. We will in general not provide any quantitative analyses beyond that that available in the proposal source documents themselves, or which can be inferred from transparent reference to available data (e.g., what countries exceed global mean emissions levels).

3 A Normative Approach to Analyzing Adequacy and Equity

In this analysis, our goal is to go beyond simple description, and to evaluate each proposal in the light of explicit, and explicitly normative, criteria of *adequacy* and *equity*. By adequacy, we broadly mean compliance with the goal of preventing dangerous climate change, which we will approach by reference to the widely endorsed threshold of 2°C mean warming (above pre-industrial).⁴ By equity, we intend both the fair distribution of the burden costs of mitigation (and the associated benefits of the right to emit) and the fair assignment of liability for adaptation to unavoided climate change and compensation for climate damages.

Article 2 of the UNFCCC famously specifies that its objective is the “prevention of dangerous anthropogenic interference with the climate system,” adding three sub-conditions regarding the protection of food production, the ability of natural systems to adapt to climate change, and the need to ensure that “economic development may proceed in a sustainable manner.” While a discussion of these objectives is largely beyond our scope here, two crucial points should be made. First, “dangerous anthropogenic interference” is *not* the same thing as dangerous climate change – increases in GHGs that cause a substantial *risk* of dangerous impacts properly constitute dangerous interference, and (especially in the light of the invocation of the precautionary principle in Article 3) are to be avoided. Second, climate change that is already happening or in the pipeline clearly poses risks to food production and the adaptation of natural ecosystems in at least some regions. Thus any reasonable interpretation of the UNFCCC must conclude that current GHG concentrations are already too high.

As a practical matter, however, GHG concentrations are going to continue to increase, and the text of the UNFCCC is not going to prevent this increase. In practice, the question we’re now facing is how best to rapidly reach a peak GHG concentration level, looking ahead as necessary to the speed and character of the

⁴ Note that we’re being literal minded here, and evaluating proposal on the basis of their explicit features. Some “realist” approaches are defended with claims of the form “it’s not adequate, but it’s realistic, and it therefore has the best chance of triggering the tipping point that is our only hope.” Much can be said about the political and strategic logic of such claims, but we will say none of it here.

post-peak decline. It's in this light that the widely endorsed 2°C threshold⁵ is such a useful reference point, not because further temperature increases below 2°C would be “safe” or because 2°C represents a physical threshold beyond which we know that risks steeply increase, but because it's fairly easy to show that, beyond the 2°C level, there is a high probability of risks that reasonable people would choose to avoid.

For this reason, we will whenever possible attempt to estimate the likelihood that the emissions trajectories associated with particular proposals would exceed the 2°C threshold. Such estimates are not by any means straightforward, because the ways in which different proposals frame their objectives in terms of temperature increase, stabilization targets or emissions targets vary widely. *Crucially, many proposals make explicit reference to the 2°C target, but use emissions trajectories in their exposition that may have a greater or lesser likelihood of staying below it.* Thus we will attempt to evaluate both the stated objectives and the quantitative implications of the various proposals. Furthermore, as we describe below, we will attempt to infer the likely behavior of the proposed system with regard to equity as the mitigation target is made increasingly stringent.

With regard to burden sharing, the UNFCCC states in Article 3 that nations must act “on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.” This text and many other provisions of the UNFCCC and the Kyoto Protocol make it clear that there are widely shared assumptions that parties with greater emissions (responsibility) and wealth (capability, or more commonly “capacity”) should have relatively larger obligations. But beyond this generality, there is little consensus, particularly when it comes to the relevance of historical emissions, how much wealth makes you wealthy, etc. There is, in other words, little agreement as to how the principles of responsibility and capacity might be quantitatively made operational.

The problem of assessing equity is confounded by a number of issues. We highlight three:

⁵ A wide range of institutions (e.g., The European Union), organizations (e.g., the Climate Action Network), corporations (e.g., Vattenfall) and individuals have endorsed 2°C as a limit for maximum allowable increase in global mean surface temperature above the pre-industrial level (compared to which we have already increased about 0.8°C).

1. There are two alternative framings of the climate mitigation problem. In the first, the problem is one of allocating the *costs* of reducing emissions to the desired level. In the second, the question is one of allocating a *common resource* (the finite carbon budget, cumulated over some period of time). Neither of these framings is *prima facie* the “correct” one; both can inform our judgments in different ways.
2. Because there is no absolute standard of equity, countries (like people) will tend to advocate views of equity which tend to favor their (usually short term) interests. These differing views may be more or less sincerely held or, alternatively, may be advocated more or less cynically. It is tempting in this light to say that no reasoned resolution is possible, and to advocate, (as per Benito Müller’s classic proposal⁶) a merely procedural resolution. However, we hold a stronger position, which is that there are a wide range of shared ethical premises and precedents which apply to the climate problem, and that impartial reasoning (as behind a Rawlsian “veil of ignorance”) can produce a clear and “reasonable” definition of what is actually at stake in equity debate.
3. The ethical principles by which we normally live are primarily intended to apply to persons, but the agents negotiating the climate regime are nation-states. Note then that it is reasonable but by no means unproblematic to treat countries as if they had the uniform characteristics of their “average” citizen. Inequality within countries is as great or greater than inequality between countries, and the *practices* of international relations which place domestic inequality outside the bounds of global regulation should not prevent us from discussing its implications. These, as it turns out, are considerable.

A more complete discussion of our perspective on equity and its relationship to political “realism” will have to await another forum. But a brief synopsis of our working premises would include the following:

1. The global sinks for GHGs *are* a common resource, and their use effectively provides an economic subsidy to emitters by allowing them to make use of cheap fossil energy. In addition, when the right to emit is converted into a tradable commodity (as it is in global emissions trading systems), scarcity rents accrue to those who receive emission licenses for

⁶ B Müller, *Justice in Global Warming Negotiations: How to Obtain a Procedurally Fair Compromise*, Oxford Institute for Energy Studies, 1998, www.oxfordenergy.org/pdfs/EV26.pdf

free⁷. Thus, fundamentally, equity requires that poor people and countries today not be *disadvantaged* due to the need to limit global emissions, and that there is a *prima facie* claim to an equal *cumulative* benefit from this common resource.

2. Given that there are identifiable *costs* to reducing emissions to sustainable levels, and to funding adaptation and compensation, these costs should be borne proportionally to *responsibility* and *capacity*. While there is no *a priori* correct way to define and quantify responsibility and capacity, the range of *reasonable* definitions is not that broad.
3. Claims that parties who would face significant costs from desirable policies (e.g., American consumers or Saudi producers) deserve protection or even compensation are not *prima facie* unreasonable. However, in a world of great inequality, claims that policies need to strictly preserve the existing distribution of wealth and income are not defensible. Where transitional protections need to be applied, these must be finite and reasonable. And where such protections come into conflict with protections for the poor and the vulnerable, then – as a matter of justice if not of realism – it is they that must yield.

Our perspective, then, is one in which inequality figures large, one in which the demands of justice are taken as being quite intelligible, and even plain. We speak of *developmental equity*, and by this term we believe that we make at least our intentions clear. The only other point that we perhaps need to stress in this brief introduction is that, under the rubric of developmental equity, we include the problem of transitional justice, as we will, all of us, come to increasingly know it on a planet in which climate impacts, and environmental limits more generally, actually undermine human progress. Developmental equity, in other words, is not a problem of mitigation alone. It demands that the logic of vulnerability, the calculus of responsibility, and the demands of adaptation be taken as integral to the climate regime.

⁷ P. Barnes, *Capitalism 3.0: A guide to reclaiming the commons*. Berrett-Koehler, 2006, www.capitalism3.com

4 Contraction and Convergence

Contraction and Convergence is a *global cap and trade framework*, based on the principle of *convergence from grandfathered allocations to equal per capita allocations*. It does not address the questions raised by adaptation and adaptation funding.

Contraction and Convergence (C&C) is so well known it hardly needs describing, at least not for an “expert” audience. C&C proper is the particular version of per capita-based allocations promoted by the Global Commons Institute of the UK (www.gci.org.uk) and its founder and principal, Aubrey Meyer. As noted in the introduction above, C&C is best considered the paradigm case of a broader class of proposals based on equal per capita rights. Some, such as “Common but Differentiated Convergence” (described briefly in this section) are simple variations; others (like the Global Climate Certificate System covered in Section 8, or Benito Müller’s “Procedurally Fair Compromise” proposal, which we don’t discuss at all) involve more complex variations on the basic theme. The differences are not unimportant, as small modifications can have large impacts on the fairness to particular countries or classes of countries.

4.1 Key Elements

At its heart C&C includes only three elements: the specification of a global emissions pathway, presumed to “contract” to some low level; a “convergence date,” at which time the emissions allocated to each country completes a transition from fully grandfathered to equal per capita; and an assumption of global emissions trading, allowing countries with surplus permits to sell them to those without enough. A variety of further specifications are required to make the proposal complete, particularly those which define the population basis for allocation and the mix of gases and sources that is to be covered.

4.2 Environmental Adequacy

C&C is, as a proposal framework, neutral regarding the specific climate protection objectives to be sought. The critical operational requirement is an emissions trajectory, specified sufficiently far into the future that countries can reasonably assess their allocations and plan accordingly; “commitment periods” aren’t discussed. C&C’s promotional materials generally refer to CO₂ emissions only and fossil fuel emissions in particular, but conceptually there’s no reason that the emissions pathway could not be specified as CO₂ from all sources or CO₂-

equivalent emissions, with reference to either concentration (radiative forcing) targets or temperature targets.

4.3 Developmental Equity

4.3.1 Explicit equity principles

C&C is known for its use of the principle of *equal per capita emissions rights*, but it should equally be known for grandfathering. After all it seeks to institutionalize a gradual transition that begins with grandfathered emissions rights before proceeding forward.

4.3.2 Protection of the “right to development”

C&C claims that it offers “Equitable Rights to Development for All” because, on average, developing countries will have surplus permits to sell during the transition to equal per capita allocations. However, the correlation between existing emissions and development status (broadly, “capacity”) is far from perfect. There are many developing countries which would have few or no surplus permits under any even plausibly adequate emissions target, as well as “industrialized” nations (such as Russia and the other “economies in transition”) with high emissions and relatively low capacity, which would receive no particular latitude on this account.

Furthermore, the fact that C&C begins with the grandfathering of permits ensures that, even during the future timeframe of the regime (to say nothing of “history”) developing countries will receive lower – and in many cases *much* lower – cumulative per capita emissions allowances than the already wealthy countries. And while a convergence that begins with grandfathering can be ethically justified as easing the transition on high-emitting countries, consistency would seem to demand a similar “back end” mechanism by which emissions in low-emitting countries would be allowed to temporarily overshoot the global average⁸, if, that is, “easing the transition” is indeed the justification for initial grandfathering.

4.3.3 Behavior under stringent targets

Straightforwardly, the more stringent the mitigation target, the less growth is allowed to developing countries before they must begin to reduce their emissions. However, the *economic* impact of steeper targets cuts both ways, since steeper

⁸ Such a “double crossing” variant would allow developing country emissions to overshoot the global convergence target before peaking and declining to convergence. The goal, ultimately, would be equalize national developmental space, as represented by some (technologically discounted) function of cumulative per-capita emissions.

reduction obligations in rich countries would simultaneously increase the value of surplus permits and that of low-cost mitigation opportunities.

4.3.4 Other equity issues: The population question

Ever since the first per-capita allocation proposals, it has been said that they would provide an incentive for population growth. Oddly, this criticism has been repeated by the *advocates* of per capita rights, including the advocates of C&C, and rarely with any citation to *critics* of per capita rights who claim this as a substantial weakness. In this matter, the advocates of C&C are certainly too accommodating, for, at least as far as we know, no one has ever made a convincing case (or, frankly, any real case at all) that, given the relatively modest potential benefit in additional permit sales per additional human, it would be likely to have a significant influence on any country's population policy.

However, efforts to *diffuse* this alleged criticism, particularly by suggesting a population "base year" or "cutoff year," have the predictable effect of reducing the *actual* per capita allocation to the (typically poor) countries with higher population growth rates. This is not a trivial issue, as the difference between an 0.5% population growth rate, typical of European countries, and a 2.5% population growth rate, typical of many LDCs, is a 35% difference in population increase in just 15 years!

4.4 Adaptation

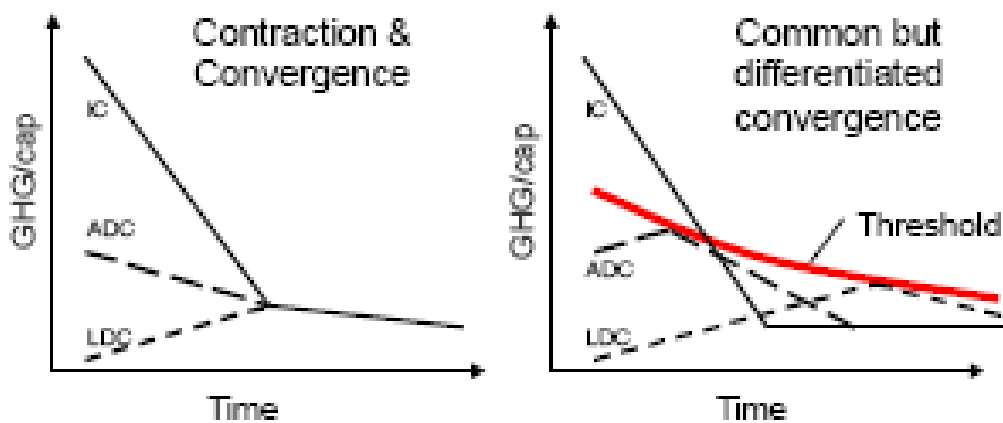
C&C is structurally silent on issues of adaptation, although the concern of its supporters is evident in various texts. It has been suggested at times that the sale of surplus permits by poor countries could be used to fund their adaptation requirements as well as their clean energy development, although the obvious fact that the relationship between vulnerability and permit surpluses is quite variable would make this rather problematic if it were the only such funding mechanism. Insofar as an adaptation fund could be funded by a levy on global emissions trading, C&C's emphasis on global trading would likely provide (relatively) large flows to tap.

4.5 Prospects for Modification

The intuitive appeal of the idea of equal per capita emissions rights has led to a variety of attempts to try to modify C&C (or the simpler idea of pure equal allocations). Indeed, the authors of this proposal, who initially supported C&C, for some time promoted an idea called "Per Capita Plus" that attempted to find ways to modify an equal rights regime to take account of varying national circumstances and historical emissions. Though we never finished or published such a proposal, others have done so, notably the "Common but Differentiated

Convergence” proposal of Höhne et al.⁹ Furthermore, the Global Commons Institute itself has proposed regional “bubbles” (akin to the EU bubble in the Kyoto Protocol) as a way to address some of the inequities arising from varying national circumstances. It has also proposed that the least developed countries be exempted from emissions limits. Others who support the general C&C approach have proposed modifications that include the creation of an alternative carbon currency (which would, in the “cap and share” approach, be divided among individuals rather than nations, “double crossing” variants of C&C in which developing countries are allowed to exceed the per capita emissions of rich countries before a subsequent convergence, and even the backdating of the convergence year as a means of accounting (roughly) for the historical responsibility of the industrialized world.

Common but Differentiated Convergence (“CDC”) is particularly notable, in our view, because it takes a straightforward approach to increasing the “developmental equity” of C&C. The essential idea of CDC is that, rather than a simple formulaic convergence by all countries to the global average – *in which by definition no country that starts below the global average can ever reach that level* – developing country per capita emissions should be allowed to rise until they reach a threshold that is equal to or higher than the global average (though not so high that there would be an actual convergence of *cumulative* per capita emissions) before they must begin to reduce their emissions. A simple graphic comparison (Figure C from Höhne et al. 2005) is shown below.



⁹ Höhne, N., D. Phylipsen, S. Ullrich and K. Blok (2005). *Options for the Second Commitment Period of the Kyoto Protocol*. Berlin, EcoFys for the German Federal Environment Agency

CDC also includes additional modifications to the basic C&C framework, including the exclusion of poor countries from binding commitments. Notably, this has the effect of reducing the resource transfers associated with permit surpluses (pejoratively labeled “hot air”) and thus making the system more attractive to high emitting countries. What it does not do, and this is crucial, is demonstrate that the resultant allocations would be defensibly fair, and seen as such even by low income countries that are justifiably concerned about the preservation of their rights to development. GCI itself has long argued that the core principle of strict convergence to equal per capita allocations should not be modified, claiming (plausibly) that its simplicity is one of its principle virtues, and that any generalized treatment of differential national circumstances would lead to interminable negotiations and “horse-trading” as countries attempted to plead for modifications that are in their national interest. The intent of the system is that this “equal treatment of unequals” (which is *prima facie* unfair to the poor) should be accepted as the necessary “price” of a *broadly* equity-based system that can prevent global climate catastrophe and lock-in a long-term convergence to an equal emissions world. GCI argues, in other words, that C&C is “fair enough,” and the best way forward.

4.6 Evaluation

It seems plain that “pure” C&C cannot meet the legitimate demands of developing countries for an equitable framework that protects their right to development. Notwithstanding the growing support for C&C in the UK, it has little support elsewhere, including in the developing world, where early rhetorical support for the idea of equal per capita rights has been tempered by the realization that there is insufficient “atmospheric space” remaining for C&C to allow significant growth in per capita emissions for many developing countries. Variants such as Common but Differentiated Convergence offer some possibility of modifying the basic structure in ways that increase its fairness, although CDC continues to define national allocations in terms of per capita emissions rather than taking direct account of capacity, responsibility or other factors. No doubt additional “hybrid” systems in which the idea of equal per capita rights is combined with other multi-stage frameworks or responsibility and capacity based allocation systems will continue to emerge. Hopefully, however, C&C itself, having served its purpose as an “ideal type” and an extremely valuable pedagogical tool, will soon cease to be promoted by serious climate policy advocates. At the very least, its advocates should honestly reflect on their claim that C&C offers a real basis for a strategic North / South compromise capable of supporting a global emergency program and thus avoiding a climate catastrophe. There is simply no good evidence for such a claim.

5 The Climate Action Network’s “Viable Framework for Preventing Dangerous Climate Change”

The Climate Action Network’s “Viable Framework,” adopted during a CAN meeting at the 9th Conference of Parties in 2003, is a *multi-stage framework* which assigns countries to one of two mitigation “tracks” based on responsibility and capacity, and, for some countries, to an adaptation track as well.¹⁰ The “Kyoto track” is based on a Kyoto-style cap-and-trade model, and the “Greening (decarbonization)” track includes non-quantified commitments such as “Sustainable development policies and measures” (SD-PAMS), though these are primarily contingent on external funding. Vulnerable countries are also part of the adaptation track, to be funded on the basis of capacity and responsibility. *No quantified example of the CAN Framework exists, and CAN is not developing one.*

5.1 Key Elements

Central to CAN’s framework is the sharp division between countries with binding emissions limits (whether they allow growth or require absolute reductions) and those without. The former are in a “Kyoto Track,” (an enlarged Annex I), the latter – effectively the developing countries – are in a “Greening” or “Decarbonization” track. The criteria for “graduation” is specified to include some combination of development status and emissions – that is, capacity and responsibility.

The adaptation framework is seen as integral to the system. Moreover, CAN is very clear about adaptation funding: “those that bear the main responsibility for these climate changes, the industrialized countries, would be required to fund these measures.”

5.2 Environmental Adequacy

The framework is referenced to the widely endorsed 2°C target, but is very vague about emissions and stabilization targets. This raises a significant question as, by design, only some countries have quantified caps. Maintaining a global emissions cap under this circumstance would potentially be quite difficult, although one can imagine a variety of ways in which it could be attempted. (Note that it is not

¹⁰ www.climnet.org/pubs/CAN-DP_Framework.pdf

sufficient to restrict the emissions of the rich countries enough to allow growth in the developing countries; if offsets are allowed without limit or effective additionality, global emissions can exceed even a target set in this fashion.)

5.3 Developmental Equity

5.3.1 *Explicit equity principles*

The CAN framework begins by affirming the “big three” equity principles: “equal access to the atmospheric commons,” “historical responsibility,” and “ability to pay and capacity to act,” but it says little about how they would be operationalized. It also cites a number of other more general but still relevant principles, including the precautionary principle, the “general principle of international law that activities within the jurisdiction of one country must not lead to grave damage on another state’s territory,” the “basic right to life and physical integrity, as they are embodied in a number of international treaties and the Universal Declaration of Human Rights,” and, importantly, “the right to sustainable development, in particular equitable access to affordable energy services, livelihoods, food security, health, water and other basic human needs.”

5.3.2 *Protection of the “right to development”*

The CAN framework clearly intends to protect the right to development, which it explicitly circumscribes as a right to *sustainable* development. However, it does not attempt to operationalize a regime that would protect that right, and can’t really be evaluated in this regard.

5.3.3 *Behavior under stringent targets*

The CAN framework is *explicitly* intended to specify, albeit in general terms, the requirements of a regime designed to make stringent targets achievable. It is for this reason that it takes a normative rather than pragmatic approach, though of course the devil is in the details, and these are not specified.

5.4 Adaptation

The “adaptation track” is assumed to focus on LDCs and Small Island Developing States, but it is conceived generally and applies to any “vulnerable regions.” Obligation to fund adaptation is explicitly conceived to be on the basis of responsibility, and, importantly, because “a certain level of climate change is now unavoidable virtually irrespective of policy action,” compensation for damages is explicitly within the ambit of the adaptation obligation. It is assumed that the Adaptation, SCCS and LDC funds will be leveraged in the construction of a future adaptation regime. Countries receiving assistance under the adaptation track

would also be eligible (and in fact required) to operate under one of the other tracks.

5.5 Prospects for Modification

CAN itself apparently has no intent to pursue modification or further development of the CAN framework. However, at least two proposals – “South-North” and “Greenhouse Development Rights” – have emerged that are broadly consistent with the CAN approach, and both are being developed by people who are directly or indirectly associated with CAN. The South-North framework (Section 5, below) elaborates the two tracks into six stages, whereas the GDRs proposal (Section 6) divides countries into low income (full “mitigation exemption”), middle-income (partial exemption) and high income (no exemption), and further differentiates responsibilities within those tracks based on responsibility and capacity. Any other operationalization of the CAN framework would have to take an approach that was something like these more detailed proposals.

5.6 Evaluation

The CAN “viable framework” is less concrete than any of the other approaches defined here, and cannot really be called a proposal. But it remains relevant and, as the most coherent NGO statement on the issues here, it should not be allowed to drop silently out of the discussion. This is particularly the case because of its strong normative approach (especially its commitment to defining obligations in terms of responsibility and capacity) and additionally because it treats adaptation as integral to the climate regime. Perhaps most importantly, however, it sets out the principles that CAN considers fundamental, and thus defines the terms that any proposal would need to meet in order to win the backing of the mainstream environmental community.

6 The South-North Dialogue's "Equity in the Greenhouse" Proposal

The framework proposal from the South-North Dialogue on Equity in the Greenhouse (hereafter South-North, or simply SN) is a multi-stage framework which divides countries into six classes, each with differentiated mitigation commitments based on capacity, responsibility, and potential to mitigate. As countries develop, they "graduate" and are expected to assume increasingly rigorous obligations. Trading is implied among the four classes of countries with quantified commitments, with direct funding of mitigation activities in the poorest countries by the wealthiest countries. Adaptation is stressed as a part of the framework, by way of general allusions to responsibility-based (polluter-pays) funding.

The original SN framework proposal¹¹ included a "reference case" division of countries into the six classes described, but did not attempt to model the quantified commitments of any countries pursuant to a particular emissions trajectory. Such an effort was subsequently carried out by independent analysts¹², although only the emissions commitments, and not any financial transfer commitments, were quantified. We draw extensively on the latter two articles in this report.

6.1 Key Elements

The six categories of countries in the SN are based on a combination of historical categorizations (Annex I and Annex II countries, as well as least developed countries), and, within the remaining non-Annex I countries, by an index calculated from measures of capability (per capita income and HDI), responsibility (historical fossil fuel emissions 1990-2000), and potential to mitigate (combining per capita emissions, carbon intensity, and growth rate of

¹¹ Climate Protection Programme (2004). *South-North Dialogue on Equity in the Greenhouse*. Eschborn, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)

¹² Höhne, N. and S. Ullrich (2005). *Emission allowances under the proposal of the "South-North dialogue – equity in the greenhouse"*. Cologne, ECOFYS; Den Elzen, M. G. J., N. Höhne, B. Brouns, H. Winkler and H. E. Ott (2007). "Differentiation of countries' future commitments in a post-2012 climate regime: An assessment of the "South-North Dialogue" Proposal." *Environmental Science & Policy* 10: 185-203.

emissions).¹³ The index, which weights each of the three sub-indices equally, divides non-LDC countries into “Newly Industrialized Countries” (NICs), “Rapidly Industrializing Developing Countries” (RIDCs), and “Other Developing Countries” (Other DCs). The division is somewhat arbitrary (and problematic!) with countries with index values greater than one standard deviation above the mean being classified as NICs, and countries within one standard deviation of the mean but also with economic growth rates over 2% annually and per capita incomes over the non-Annex I being classified as RIDCs.

Categorization into one of the six classes determines the basic obligations of each country in terms of the types of commitments it has and the level of external funding it can expect to help it comply with those commitments. Briefly, the obligations are as follows:

- Annex II: Quantified (Kyoto-style) reduction targets, plus obligation to provide funding for mitigation activities in all classes of developing countries.
- Annex I but not Annex II (hereafter “Economies in Transition,” or EITs): Quantified (Kyoto-style) reduction targets, low or no funding obligations.
- Newly Industrialized Countries (NICs): Quantified limitation or reduction targets, with some funding from Annex II countries; also obligatory Sustainable Development Policies and Measures (SD-PAMs); sectoral CDM; non-binding Renewable Energy (RE) and Energy Efficiency (EE) targets.
- Rapidly Industrializing Developing Countries (RIDCs): Quantified limitation targets contingent on full funding from Annex II countries; obligatory SD-PAMs (co-funded by Annex II); sectoral CDM; non-binding RE and EE targets.
- Other Developing Countries: Obligatory SD-PAMs (co-funded by Annex II); sectoral CDM; non-binding RE and EE targets.
- LDCs: Optional SD-PAMS, fully funded by Annex II; sectoral CDM; non-binding RE and EE targets.

Critically, the quantitative emissions targets for NICs and RIDCs are specified to be contingent on all “major” Annex I countries having quantified reduction

¹³ The original document reflects an (entirely understandable) inability to decide whether per capita income or HDI should be used to measure capability. It is also ambiguous on the question of whether the growth rate of emissions is used as part of the measure of mitigation potential.

targets. Also essential is the fact that Annex II country obligations to pay for mitigation in non-Annex I countries are to be specified in terms of responsibility and capacity, but neither the formulas by which funding obligations are to be calculated, nor the institutions and methods by which mitigation funds are to be transferred are discussed at all (indicating that SN is as much a “framework” as it is a “proposal”). In addition, no formulas are specified for differentiating reduction targets within classes of countries, although the rhetorical importance assigned to responsibility and capability, which differ greatly within both Annex II and Annex I but not Annex II countries, implies that such a differentiation would be appropriate.

Notably, the particular formulas used in this calculation divide developing countries on the basis of their *relative* positions. This poses obvious problems for establishing when countries should appropriately be considered to “graduate” from one class to another. Similarly, there are no criteria specified for when a NIC would graduate into Annex I, although the commitment requirements for NICs and EITs are very similar. All in all, there are lots of categories and lots of graduation events, many of which would be controversial within the graduating countries. Clearly, the system is useful in indicative terms. Just as clearly, it would be difficult in practice.

6.2 Environmental Adequacy

The SN proposal includes an extensive discussion of the importance of keeping global temperature increase below 2°C above pre-industrial. Interestingly, the pathway that is used for a demonstration is a 450 ppm CO₂ pathway, which by the authors own admission would meet the 2°C objective only if the climate sensitivity is optimistically low. Also interestingly, the original proposal neglected to use this pathway to actually do an indicative calculation of the required rates of reductions for different countries.

In theory, the stringency of commitments on the different classes of countries and the break points between classes could be adjusted to meet any global emissions reduction goal. The fact that the “Other Developing Country” category, which has no quantified caps, includes many large countries including India, Indonesia, Nigeria and Pakistan, raises some questions about exactly how a very stringent target would be specified. However, given that the rich countries are paying for mitigation in these countries through methods including sectoral CDM, it might be possible to have a high likelihood of meeting a global emissions target if caps were set low enough and financial transfer obligations set high enough. Yet concerns about the additionality of externally funded reductions would remain.

The study of Höhne and Ullrich models the SN proposal for stabilization targets of 450 and 400 ppm CO₂, while the study of den Elzen et al. models the SN proposal for pathways stabilizing at targets between 400 and 550 ppm CO₂-equivalent, after peaking at higher levels. Certainly the hope of the SN authors is that the proposal would be viable with such precautionary targets.

6.3 Developmental Equity

6.3.1 Explicit equity principles

The SN proposal allocates obligations on the basis of responsibility, capability, and mitigation potential. The ethical basis of obligations based on responsibility and capability are well known. “Mitigation Potential,” however, is not in itself an equity principle, and must be explained by reference to other principles. Although much of the reference to “potential” in SN is related to questions of efficiency,¹⁴ the fact remains that the highest-classified developing countries (NICs) have obligations to finance their own mitigation, and thus the use of potential in this classification requires justification. Presumably potential is related to marginal abatement costs, and therefore taking potential into account can be related to a “comparable burden” equity argument; for countries with equal responsibility and capability, countries with higher potential can make greater reductions with the same cost (burden).

6.3.2 Protection of the “right to development”

Fundamental to the SN proposal is the premise that only the wealthiest developing countries (the NICs) should be required to actually pay for mitigation. The RIDCs (which include China), also have quantified emissions targets, but it is specified that the incremental costs of meeting these targets will be paid for by the Annex II countries. In practice, however, the inclusion of measures of both responsibility and potential in the index used to classify countries results in some problematic classifications. In particular, demonstrably poor countries are included in the category of NICs, notably Cuba (\$3500 in PPP adjusted per capita income in 2005), Kazakhstan (\$7600) and Uzbekistan (\$1200). Furthermore, the Annex I but not Annex II countries (EITs) also include a number of very poor countries, for whom the “right to development” is not a trivial concern. No discussion is made

¹⁴ “The potential to mitigate determines the amount of reductions to be carried out domestically. A country with a high potential would be obliged to exploit this potential, i.e. to accept commitments to reduce domestic emissions. However, this commitment is in the context of a climate regime where financial and technological resources for mitigation are assured, so the level of mitigation efforts as determined by this rule does not imply that countries would necessarily have to pay for their mitigation efforts themselves.” P.5

in the original SN proposal or the subsequent analyses of whether and how targets within classes might be differentiated. Clearly, however, such differentiation is necessary.

6.3.3 Behavior under stringent targets

The SN proposal contains a large number of tunable parameters; how they are set determines how the burden of meeting a particular emissions target is allocated. Thus it is very difficult to generalize about the implications for the distribution of costs and the protection of the right to development.

Some indicative results can be extracted from the Höhne and Ullrich and den Elzen et al. studies, but their implications are open to interpretation. For example, in the Höhne and Ullrich study, their 450 ppm CO₂ scenario specifies Annex II reductions at 28% per decade after 2020, EITs at 25% per decade after 2020, and NICs at 22% per decade after 2020; RIDCs, for whom reductions are supposed to be externally financed, reduce to 24% below “reference” (an average based on the SRES scenarios), but “as of 2030, most RIDCs become NICs” (p. 20), and are thus required to pay all or most of the costs for their own mitigation.¹⁵ In their 400 ppm scenario (in which CO₂ emissions are 60% below 1990 levels in 2050), Annex I reductions are 42% per decade after 2020, EIT reductions are 39% per decade, and NIC reductions are 37% per decade, again with most RIDCs becoming NICs after 2030. Notably, however, in both cases the “Other DC” and LDC nations simply follow their reference case projections;. The implication is that countries with reduction targets will be able to meet their obligations in part by paying for reductions in ODCs and LDCs, reductions measured against their reference case pathways, rather than being restricted to domestic reductions.

6.4 Adaptation

The SN proposal is relatively detailed about adaptation, discussing the need for funding on the basis of responsibility (“operationalizing polluter-pays’), for adjustment to the current GEF funding mechanisms, and insurance-based programs. The question of liability is also gestured at in a couple of places. However, no mention of the likely costs of adaptation is made, nor does the proposal include any concrete suggestions about how the necessary “operationalization” might occur, other than a very vague reference to existing oil-spill and nuclear regimes.

¹⁵ Although NICs are specified in the original SN proposal to receive some transfers from Annex II to support their mitigation, no details of how or how much are ever discussed.

6.5 Prospects for Modifications

Because, as noted, there are a wide range of parameters included in the system, there are a great many possible modifications which maintain the essential structure of the system. Some of the critical elements (notably differentiation within classes and the allocation of explicit financial obligations for Annex I on the basis of responsibility and capability) have not been specified at all, even in the subsequent quantitative analyses.

6.6 Evaluation

The South-North framework explicitly includes the key principle of preserving developmental equity under a stringent mitigation target, and it goes on to specify that mitigation costs in poor countries must be paid by wealthy countries. As demonstrated in the Höhne and Ullrich and den Elzen et al. analyses, however, it is possible to parameterize the system so that thresholds between categories (graduation thresholds) are lowered as the system is adapted to the demands of increasing stringency. This would imply the weakening of the protection of the right to development over time. Thus, and critically, the strength of this protection is a contingent feature of the SN proposal.

Additionally, while the assignment of financial obligations to Annex II countries for the funding of mitigation in developing countries is specified in principle to be on the basis of responsibility and capacity, no actual formulas or institutions for this funding are proposed. Such obligations will inevitably be controversial, but they are essential to the structure of the regime. Estimates of the costs that must be covered under various mitigation targets and the plausible assignment of these burdens is an urgent research task if such a proposal (or anything similar) is to be regarded seriously.

Finally, the methods that are used to classify countries would also need to be thought through carefully. As noted above, there are some obvious anomalies in the classification in the original paper, and in practice, such anomalies would be politically poisonous. This is particularly the case when there are lots of categories of countries, and lots of graduation events, as there are in the South-North framework. Also, it would almost certainly be necessary to determine methods for differentiating obligations within classes.

7 Greenhouse Development Rights

The Greenhouse Development Rights approach, developed by EcoEquity in collaboration with Sivan Kartha of the Stockholm Environment Institute USA and, recently, with the support of Christian Aid, is a proposal for a comprehensive climate regime in which national obligations to pay for mitigation *and adaptation* are explicitly tied to a quantitative indicator of responsibility and capacity. Poor countries receive a full or partial *mitigation exemption*, in exchange for an explicit *development obligation*. The mitigation side could, but need not be implemented as a global cap-and-trade¹⁶ regime.

Note that as the authors of this review are also lead authors of GDRs, we will here use the first person in some cases in describing our intentions.

It is critical, in evaluating GDRs, to know that it's a "reference framework." We are not so naïve as to think that it will be operationalized anytime soon, not, at least, as a package. Another way to put this is that, while we hope GDRs will be useful, it's most likely to play a useful role by providing an improved model of a fair and adequate global climate framework, and by so doing helping to clear the air. Our belief is that "something like" GDRs will ultimately be necessary if we're to avoid a climate catastrophe, but GDRs is not intended to be a "realist" proposal, not as realism is understood today.

GDRs was first presented as a broad outline at COP9 in Buenos Aires, and in a somewhat more fleshed out version (but with no quantification of the key elements) at COP/MOP 2 in Nairobi. The first full "reference version" with a demonstration of the key formulas, thresholds and calculations is now under review and final revision, and will be published in July.¹⁷

¹⁶ Actually, the term "cap and trade" is dangerously vague, as it includes "cap and grandfather," "cap and auction" and "cap and allocate" variants. So, to be precise, GDRs could be partially implemented as a global "cap and allocate" system where, in the first instance, the quantity being allocated is an obligation to pay for mitigation rather than a right to emit. The adaption side of GDRs could not be implemented in any sort of cap and trade terms.

¹⁷ Baer, P., T. Athanasiou, S. Kartha, 2007. *The Greenhouse Development Rights Framework: Rationales, Mechanisms, and Initial Calculations*, will be available at www.ecoequity.org/docs/TheGDRsFramework.pdf

7.1 Key Elements

Four elements are central to the Greenhouse Development Rights (GDRs) framework:

1. The specification of an explicit temperature target, and of the global *mitigation requirement* that must be met if we're to have a *high probability* of meeting that target;
2. The calculation of a *responsibility and capacity indicator* (RCI) that determines, for each country, its share of the global mitigation and adaptation burdens. The RCI, crucially, is calculated in a manner that takes the *distribution of income and emissions within countries* into account;
3. The specification of a *mitigation exemption* that relieves poor countries of their obligation to pay for mitigation, that they may instead pursue their proper human development priorities; and
4. The definition of a *development obligation* for rich people in poor countries, an obligation that is directly proportional to their mitigation exemption.

The soon-to-be-released “reference case” version of GDRs proposes specific ways of calculating the responsibility and capacity indicator and the mitigation exemption, but a variety of implementations would be consistent with the framework’s intent.

Key to the reference version is the calculation of national capacity and responsibility, and then of the joint “responsibility and capacity indicator” (RCI), in a way that takes proper account of inequality *within* countries. The method uses a model of national income distribution based on the Gini coefficient to estimate the national income that remains after \$7000 PPP of each hypothetical individual’s income is excluded. This “capacity threshold,” please note, is well above the “survival” or “ethical poverty line”¹⁸ and is intended to define a minimal “global middle class” standard below which no mitigation obligations accrue.

¹⁸ Peter Edward proposes that the “ethical poverty line” be understood as the level at which increasing income ceases to contribute significantly to life expectancy; something between \$2.70 and \$3.90 per day at purchasing power parity.” See Edward, Peter (2006) “The Ethical Poverty Line: a Moral Quantification of Absolute Poverty”. *Third World Quarterly* 27(2):377-393. We are indebted to the New Economics Foundation for this concept; see “After Neoliberalism: Towards a New Economics Paradigm for Poverty Eradication in a Carbon-Constrained World,” forthcoming.

Note that, by defining “capacity” in this way, we have ensured that, given two countries with the same per capita income, the country that is *more unequal* will have *greater capacity*. This because more of its income will be held by individuals whose incomes are over the “capacity threshold.” Responsibility is calculated in a similar way. The underlying definition is “per capita CO₂ emissions from fossil fuel burning since 1990,” and, using the assumption that emissions are distributed in the same way as income, all “subsistence emissions,” as well as any other emission that correspond to income below the \$7000 “capacity threshold,” are excluded.

7.2 Environmental Adequacy

GDRs is intended to deliver a high likelihood of keeping global temperature increase below 2°C. The reference case uses a target emissions pathway that peaks in 2010 and drops at 5% annually, reaching roughly 80% below 1990 levels in 2050. This pathway, which is designed to keep the likelihood of exceeding 2°C to between roughly 10% and 25%,¹⁹ is taken to represent a true “emergency pathway” that is honestly consistent with global climate protection. Other less stringent pathways are defensible, though such defenses must necessarily accept a higher probability of catastrophe than, we believe, most reasonable people would find appropriate. Such bad odds are, in any case, inappropriate in a reference framework such as GDRs.

What is clear is that *any* true emergency pathway requires that emissions drop soon and steeply in both developed and developing countries, and it’s the political and ethical consequences of this inescapable fact that are most at issue. GDRs is designed so that the key precondition of any emergency pathway – that wealthy countries pay for the necessary mitigation in developing countries – is faced square on, as the nub of the problem. Its goal is to outline a framework that can, at least in principle, support an emergency program consistent with the emergency pathway.

¹⁹ The target trajectory is drawn from risk estimates published in Baer, P. with M. Mastrandrea, 2006. *High Stakes: Designing emissions trajectories to reduce the risk of dangerous climate change*. Institute for Public Policy Research, London. Available at www.ippr.org.

7.3 Developmental Equity

7.3.1 *Explicit equity principles*

The allocation of obligations to pay for both mitigation and adaptation are explicitly based on *capacity* and *responsibility*, and the “mitigation exemption” for poor countries (and for middle income countries, for which the exemption is a partial one) is based on a principle of *need*. Crucially, capacity, responsibility and need are conceptualized as the properties of *individuals*, and thus the distribution of income and emissions *within* countries is taken into account in calculating obligations.

At a more abstract level, GDRs does not reject the idea of *equality* as an equity principle, and indeed we hold that *equal rights to benefit from the global commons* is a necessary foundational justification for a viable global climate regime. However, we have concluded that it is the *cumulative* per capita benefit that is actually at stake, and that, because the emissions space left to the developing countries under any plausibly precautionary budget is far smaller than that which was used by the currently industrialized countries as they developed, the goal of equalizing *current emissions* is sharply inadequate in both ethical and political terms. Rather than try to develop a system that tries to formally equalize cumulative emissions, we’ve chosen to focus on the *right to development*, for which emissions rights are only a *means*, and indeed only one means among many. Put simply, GDRs is designed to drive rapid decarbonization while ensuring that the need to pay for that decarbonization does not impede the ability of poor countries to prioritize human development and poverty alleviation, by ensuring, in other words, that its costs are paid for by those who have the capacity and responsibility to do so.

7.3.2 *Protection of the “right to development”*

As noted above, the explicit protection of the “right to development” is fundamental to GDRs. The mechanisms by which this protection is accomplished include the “mitigation exemption” for low-income countries, the gradual phasing out of the mitigation exemption for middle-income countries, and the scaling of obligations for non-exempt countries in proportion to their capacity and responsibility.

7.3.3 *Behavior under stringent targets*

By keying the “mitigation exemption” directly to income, and by defining the mitigation obligations of countries on the basis of their *proportional share* of responsibility and capacity, GDRs is designed to put the economic burdens of stringency primarily on the wealthiest countries. Given that “middle income

countries” (between \$7000 and \$14,000 per capita income in the reference case) are only partially exempted from mitigation obligations, their costs will also rise as the target is made more stringent. Furthermore, because the “development obligation” of the wealthy in poor countries is also keyed to the size of the “mitigation obligation” from which they are being exempted, they are expected to increase their investment in human development as the global mitigation burden increases.

All of which raises an obvious question – would the wealthy accept the obligations indicated by such a principle-based system as this? Obviously, we do not know the answer, but we can say with some confidence that no one else will if they don’t. As for the fact that the costs of climate protection increase with the stringency of the target, this is in the nature of the case. GDRs has to confront it, but so do all other systems, even “pragmatic approaches” that seek to avoid the framework problem altogether.

7.3.4 Other equity issues

GDRs, and all other frameworks that invoke capacity as a relevant indicator of obligation (e.g., the South-North proposal, above), must necessarily question if per capita income is an adequate indicator of capacity. It is plain from more complex indicators of well-being such as the Human Development Index that countries with the same per capita incomes can have very different levels of “human development.” In general, countries with lower inequality will have higher levels of human development at the same level of per capita income. Yet, perhaps paradoxically, given the way in which GDRs measures capacity as “income over a threshold” as attributed to hypothetical individuals²⁰, *countries* with *higher* inequality have higher “capacity” even though they have (on average) lower levels of human development.

The logic of this definition is that “capacity” is effectively *money that is being spent on “luxury” consumption*.²¹ Because the principle obligation that poor countries accept under GDRs is the obligation to increase their domestic

²⁰ Recall that GDRs calculates capacity using a model of income distribution. It’s a simple model, at least for now, but it could easily be improved.

²¹ Admittedly, there’s no sharp border between subsistence and luxury consumption (nor is there between subsistence and luxury emissions), and indeed the absence of a classification more apt than this dichotomy is a significant impediment to clear thinking about capacity and responsibility.

investment in human development in proportion to their responsibility and capacity, this has the desirable effect of encouraging the reduction of inequality.

As a related issue, it is somewhat problematic that GDRs seeks to impose conditions on the ways in which poor countries comply with their “development obligation,” but does not as currently formulated impose any conditions on the ways in which wealthy countries comply with their mitigation (and adaptation) obligations.²² As is well known from debates within rich countries, straightforward mitigation strategies like carbon taxes can have highly regressive impacts. The asymmetry of the treatment of rich and poor countries in this regard reflects not any belief that these consequences in rich countries are unimportant, but rather a concession to a certain kind of realism: it is plain that rich countries will not fund their mitigation obligations if they feel that rich people in poor countries are free riding on the mitigation regime, but there is little evidence that concern for the treatment of poor people in rich countries will have any bearing whatsoever on whether poor countries will join such a regime.

7.4 Adaptation

The GDRs framework takes adaptation (including compensation for climate damages, not merely “pro-active” adaptation”) to be an essential component of any equitable climate regime, and furthermore asserts that the same essential measures of responsibility and capacity should be used to allocate funding obligations for adaptation.

GDRs does not make any more of an effort to estimate the *costs* of adaptation than any of the other proposals considered here. Nor does it attempt to specify the mechanisms by which adaptation funding would be collected and disbursed (although the logic of the system implies that treasury-funded contributions to a very large global fund, widely seen as the biggest of all possible “non-starters,” would be the appropriate mechanism).

²² Such obligations, we think, would necessarily involve the specification of “eligible” categories of investment. These would of course need to be defined in an open and democratic way, one in which not just governments, but also civil society organizations, would participate. The key would seem to be an open peer-reviewed process, perhaps like that pioneered by the Global Fund for AIDS, that would be explicitly designed as an alternative to paternalistically conceived and imposed “conditionalities.” Such a process would be outcome focused, but it would also be informed by “on the ground” social-political realities.

7.5 Prospects for Modifications

As noted at the beginning of this section, the mitigation side of GDRs could, but need not, be implemented by way of a “cap-and-allocate” style global trading system. Alternatively, institutions based on global funds or some mix of cap-and-allocate and global funds could be used to implement the necessary mitigation (though see “non-starter” under Section 7.4, adaptation, above). Thus, a wide range of plausible mechanisms is compatible with the core GDRs architecture.

The basic calculation of a responsibility and capacity indicator, and the various thresholds used to calculate obligations and exemptions, are all of course subject to modification, both in the hypothetical world and the real world. We take this as a given, and seek only to be indicative.

Finally, the idea of a “development obligation” is also in an extremely preliminary form, and to say that it could be modified would be less accurate than saying that there are many possible ways in which it could be developed and fleshed out. Interestingly, a similar idea appears in the Global Climate Certificate System (see Section 8, below).

7.6 Evaluation

It is difficult to evaluate one’s own creations fairly (we make no claim to being “objective” in any case). However, we are also entirely aware of where all the bodies are buried, so we can (if we’re honest) point out what we know to be the weaknesses of the GDRs framework, as well as what we believe to be its strengths.

GDRs is the one of only two proposals we are aware of to make a serious effort to quantify responsibility and capability in a coherent way (the other is South-North, see Section 5), and the only one to use such a responsibility / capacity indicator to actually calculate national obligations.²³ By virtue of these calculations, if one is willing to accept the proviso that such an allocation of obligation would be *fair* even if it is *unrealistic*, one can clear a bit of the underbrush that currently bedevils the climate policy debate. For example, one can see that *the obligations of wealthy countries are far greater than any plausible rate of physical reductions*. This makes it possible to show that the argument about “what fraction of our domestic target should be met through offsets” is really a *misframing* of the

²³ It should be noted that the Brazilian proposal used a responsibility indicator in essentially the same way we use our “RCI.”

question; the proper question is “what fraction of our global obligation can we reasonably meet at home?”

The second major strength of GDRs is that it opens the forbidden box of inequality within countries. It does so because the unwillingness of Northern countries to agree to a regime in which wealthy Southerners have no obligations is a clear, and even legitimate, obstacle to progress (although sheer selfishness, and not moral outrage at free-riding, is more than enough to explain the US’s behavior). This strength is also a weakness, however, for it suggests that the construction of a viable climate regime will require new and dangerous linkages to the core, and of course highly contested, matter of economic inequality.

Finally, we believe that GDRs is the first to seriously ask how a truly precautionary “emergency program” might actually be made to work, *given that the developing countries can’t reasonably be expected to fund their share of the necessary mitigation in the next two decades*. Most climate proposals take the *ability to pay* of poor countries and the *willingness to pay* of rich countries as constraints on plausible rates of emissions reductions, and, if only implicitly, rely on technological revolution to keep hope alive. Yet once one accepts that a 450 ppm CO₂-e pathway with even odds of exceeding 2°C can’t really be considered a reasonable response to the climate crisis, it becomes difficult to avoid that conclusion that technological revolution will not be enough. The necessary emergency program will demand that real burdens be shared, and the obligation to bear those burdens must fall on those who have the responsibility and capacity to solve the problem. In this regard, the GDRs exercise, launched though it was with the goal of outlining a new realism, seems as well to have something useful to say about realism as we know it.

Taken seriously, GDRs forces us to confront the “inconvenient truth” that an *adequate* response to the climate challenge will necessarily involve *very large* North-to-South capital transfers, of the sort that “realist” proposals do their very best to avoid. This is because the growth in energy services that is a necessary condition of poverty alleviation and human development *will not happen without catastrophic consequences unless the North pays the incremental costs of decarbonization*, and this *even with optimistic technological assumptions*. And it is because, without a regime that takes responsibility seriously, there will be no even remotely adequate adaptation regime, and without such a regime, it is quite impossible to imagine the global cooperation that will be necessary to hold a global mitigation regime together in the dark days ahead.

Still, as many of the critics of carbon trading and development aid in general have pointed out, the history of North-South capital flows is not a pretty one. Put simply, one can easily argue that such flows have been at least as detrimental to the South as they have been helpful. How we are to avoid a repetition of this experience is a problem on which literally the lives of millions of people will depend.

8 The Vattenfall Proposal

The Vattenfall Proposal is a detailed global cap-and-trade framework, in which allocations are proportional to GNP, with some modifications for per capita income and historical emissions. It can also be considered a multi-stage proposal, inasmuch as countries below a specified income threshold are exempted from emissions limits. Adaptation is not addressed.

A more detailed analysis of the Vattenfall proposal by the same authors is being published by the Heinrich Böll Foundation under the title *Curbing Climate Change? A Critical Appraisal of the Vattenfall Proposal for a Fair Climate Regime*.

8.1 Key Elements

The two key features of Vattenfall's system are its allocation of permits in proportion to GDP, and its exemption of countries below a threshold level of per capita income. The exemption threshold Vattenfall suggests is one half of average Annex 1 per capita income in 2002, which is roughly \$11,500 PPP adjusted (or about \$10,500 in unadjusted terms).

The model assumes that a global emissions budget will be set with reference to a desired stabilization goal, not unlike Contraction and Convergence. The presumed business-as-usual emissions of countries below the income threshold are subtracted from this budget. The annual emissions allocation for each included country is then determined by first dividing the available budget by Gross World Product to define a baseline "allocation per unit of GDP" (measured effectively in tons per dollar), and by then applying two "adjustment mechanisms."

The first adjustment mechanism increases or decreases the allocation per unit GDP in proportion to national GDP per capita. Poorer than average countries receive a higher allocation per unit GDP, reaching 1.25 times the basic allocation for countries with less than or half the world average GDP per capita; richer than average countries receive a lower allocation per unit GDP, reaching 0.9 times the basic allocation for countries with twice the world average GDP. This variance is intended to account for the general fact that poorer countries have higher carbon intensity.

The second adjustment mechanism imposes minimum and (much more importantly) maximum rates of emissions reduction on current Annex 1 countries. The minimum reduction is not less than 5% below 2002 levels in 2015 and not less than 15% percent below 2002 levels in 2035, which comes to about 0.5% annually. The maximum reduction is not more than 15% below 2002 levels in 2015, increasing to not more than 45% below 2002 levels in 2045, or a maximum annual rate of reductions of about 1.5% annually between 2015 and 2045. This maximum reduction is nominally intended “to allow existing capital to serve its lifetime.”

8.2 Environmental Adequacy

The Vattenfall proposal is strongly linked to the EU’s 2°C target. In its printed version it models a 550 ppm CO₂-equivalent stabilization goal and associated emissions pathway (which would have only about a one in five chance of keeping below 2°C), while allowing for the possibility that the target may have to be reduced. In more recent materials, Vattenfall cites the need for a 450 ppm CO₂-e stabilization target (which would have roughly even odds of staying below 2°C), or in another location, 450 plus or minus 50 ppm. There is no quantified discussion of the acceptable risk of exceeding 2°C.

8.3 Developmental Equity

8.3.1 Explicit equity principles

The Vattenfall proposal makes an explicit effort to reference its mechanisms to equity principles. Ten “overriding principles” are listed, of which four are explicitly equity-based:

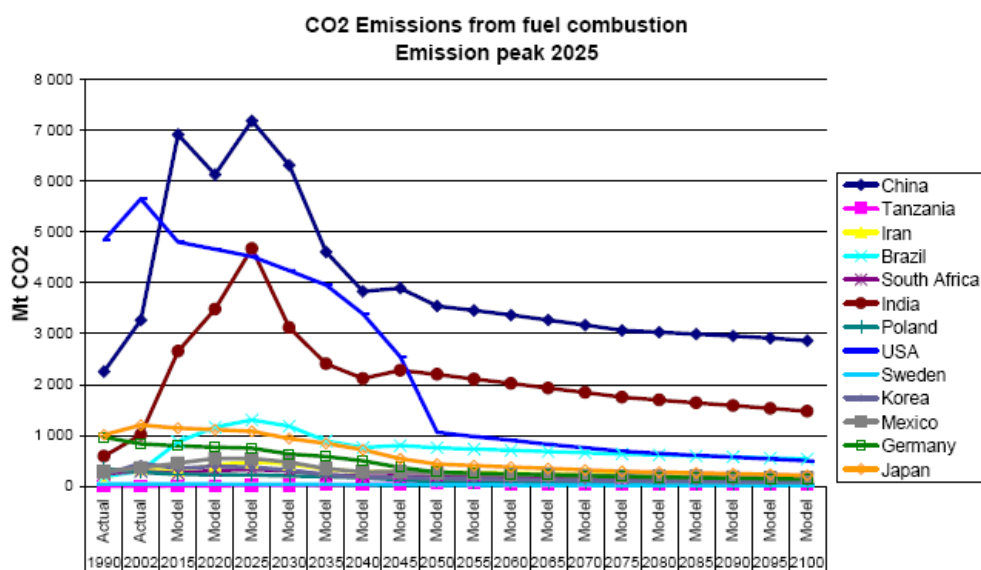
- No poor country shall be denied its right to economic development – no extra cost burden on the poorest
- No rich country shall have to go through disruptive change
- Richer countries pull a larger weight (emission caps do not embrace countries until they have reached a certain economic level; poorer countries with caps get higher allocations compared to richer countries)
- There shall be a level playing field. The proposed framework shall not change relative competitiveness.

Interestingly, the list also includes “Emission allowances are allocated to each country in relation to its share of gross global product” and a “meta-equity” principle declaring that “the mechanism should be able to achieve wide acceptance as being fair and balanced.” But, as we will discuss below, these two principles embody fundamental conflicts with each other.

8.3.2 Protection of the “right to development”

The exclusion of developing countries (defined by the proposed threshold of about \$11,500 PPP per capita) from any mitigation requirements is a significant and important protection for poor countries from the imposition of restrictions on their economic growth and development. And, of course, this threshold could be adjusted. However, the remaining features of the allocation system are fundamentally biased against the interests of poor countries.

The core mechanism, allocation according to GNP, as a matter of policy gives to the already wealthy countries the largest share of emissions permits, and proportionally much higher per capita allocations. Minor adjustments to the “allocation per unit GNP” cannot begin to compensate for this. Furthermore, the already wealthy countries are protected by the “maximum rate of reduction” mechanism from reductions of more than 1.5% annually, regardless of their level of wealth or per capita emissions, whereas poor countries are *explicitly* excluded from such a “maximum rate of reduction” mechanism (nominally to avoid perverse incentives to increase emissions prior to crossing the “development threshold”). The consequence can be seen for example in Figure 8 from *Curbing Climate Change*, reproduced below.



What this figure shows is that allocations for India (brown) and China (dark blue) drop extremely rapidly after 2025 (we can’t actually account for the “two-peaks” shape of China’s allocation), while U.S. allocations (light blue) continue to drop gradually. The graph furthermore shows absolute emissions; thus, given the difference in populations, the maximum level of per capita emissions reached by India or China will only be one fourth to one third the level of the US at the time that they are required to enter the regime.

(This graph is based on a 550 ppm CO₂-e scenario. Under the significantly steeper reductions required to stabilize at 450 ppm CO₂-e, the reduction requirements for countries entering the regime would be even steeper.)

This peak in Indian and Chinese allocations represents a kind of “graduation discontinuity” that affects a variety of multi-stage proposals in which countries pass from one class to another. The discontinuity is particularly abrupt in this case because the permit allocation is based on GNP; thus when countries enter the regime they by definition have a very low per capita allocation, much lower than the global average, independent of what their actual emissions are. This is (in part) supposed to provide incentives to poor countries to reduce their emissions prior to entering the regime, but since no resources are provided to assist them with this decarbonization process, the effective result is the imposition of costs either before or after the threshold is crossed.

8.3.3 Behavior under stringent targets

As noted above, the proposal establishes a maximum rate of reduction for existing Annex I countries. Although this rate could be adjusted, it fundamentally requires that poor countries’ emissions fall more rapidly in order that rich countries’ emissions fall less rapidly. As the global rate of reduction increases, all other things being equal, this increases the disadvantage of poor countries.

Furthermore, with steeper reductions, the global “allocation per unit GDP” will be lower at the time that poor countries enter the regime, making the “graduation discontinuity” described above even steeper.

8.3.4 Other equity issues

There are a variety of reasons why “carbon intensity” has been proposed as a convenient basis for emissions allocations, and one of them has always been that it reduces uncertainty based on uncertain economic growth.²⁴ However, most proposed systems operate by specifying for each country the rates at which carbon intensity is expected to decline, thus allowing for effectively “comparable burdens,” taking into account the broad differences in situations of rich and poor countries. In Vattenfall’s case, notwithstanding minor adjustments within a 35% range, countries are allocated permits at the world average level, regardless of their actual carbon intensity. As a consequence, countries with the same income

²⁴ Although it has been noted recently that carbon intensity can vary as much or more than GDP growth rates.

get the same number of permits independent of their actual emissions. This has the consequence of giving, for example, efficient Northern European economies surplus permits (hot air) (although the minimum rate of reduction compensates for this to some extent), while less efficient economies (like the US) would be required to buy more permits from the start. (It is important to note that any pure per capita system would also have this effect of imposing differential burdens initially on countries at the same income level depending on their emissions levels, although Contraction and Convergence, with its initial period of primarily grandfathered allocations, reduces this problem.)

The mechanism which increases or decreases the unit allocation for poorer or richer countries in general increases the fairness of the proposal. However, the range of variation of carbon intensity between countries is much larger than the 0.9 to 1.25 range of the adjustment, and is only generally correlated with per capita income. Thus some countries which don't need such an adjustment would receive it, and vice versa.

The "maximum rate of reduction" mechanism is also problematic on the basis of its rationale. It is proposed to "allow capital to serve its lifetime." But decreasing a country's permit allocation would not actually require it to retire its capital any earlier; it would simply require a country, if it chose to subsidize particular corporations with carbon-inefficient capital, to draw those subsidies from its own citizens, rather than from the rest of the world.

8.4 Adaptation

The proposal is essentially silent on the question of adaptation.

8.5 Prospects For Modifications

At the heart of the Vattenfall proposal is allocation according to GNP, which is broadly equivalent to grandfathering (the rich countries get most of the permits), while not even providing the benefits (e.g., comparable rates of emissions reductions) that, for example, C&C provides. If this allocation mechanism were changed, the proposal would be fundamentally new. Thus while one could imagine a great many modifications to (for example) the "development threshold," or the particular parameters of the adjustment mechanisms, it is difficult to see how the Vattenfall proposal's primary weaknesses could be fixed without creating a different proposal. Nonetheless, were Vattenfall to respond to criticism by changing the core allocation mechanism, a "Vattenfall II" proposal would be very significant, given Vattenfall's base in the business sector.

8.6 Evaluation

Given Vattenfall's claim that it intends its proposal to be seen as "fair and balanced," it's difficult to understand how its authors could seriously propose allocation in proportion to GDP. Transparently, the right to emit is a subsidy from the global commons; in a cap-and-trade system, permits can in fact be traded for cash. Why poor countries would accept the perpetuation of their lower per capita share of this subsidy *simply because they are poorer* frankly defies any reasonable explanation.

In the end, it appears that the authors took the idea of "no disruption to rich countries" and "no change to relative competitiveness" a bit too seriously. The climate crisis is not likely to be prevented without rather more costs to the rich countries than the Vattenfall authors seem prepared to countenance.

9 The Global Climate Certificate System

The Global Climate Certificate System (GCCS) is a very detailed proposal by German economist Lutz Wicke for a global cap-and-trade system, one that combines a nominal equal per-capita allocation with an administered and (critically) price-controlled transfer of “surplus” permits between low-emitting and high-emitting countries. This amounts to partial grandfathering. The GCCS proposal also includes details about how national permits may be allocated (specifying “upstream” allocation to fuel providers) and traded. Land use emissions and non-CO₂ gases are excluded in the current version of the proposal but their future inclusion is recommended. A possible mechanism for funding adaptation in vulnerable countries by increasing the prices paid for their “surplus” permits is briefly discussed.

9.1 Key Elements

The Global Climate Certificate System is spelled out in great detail in a book of more than 325 pages.²⁵ Many of the key elements are specified down to the dollar level, although Wicke recognizes that many of the critical parameters would be subject to negotiation. Nonetheless, the behaviour of the GCCS system is dependent on the dollar values assumed for key prices; thus we will spend some time examining the reference case with its proposed costs and prices.

At the heart of the system are five²⁶ elements:

1. A global emissions trajectory which holds fossil fuel emissions at projected 2015 levels of about 8.2 GtC for fifty years. This is intended to lead to a 550 ppm CO₂ stabilization path.
2. A global cap-and-trade system in which permits are allocated on a “one man / one woman – one climate emission right” basis, fixed to year 2000 population;

²⁵ Lutz Wicke, *Beyond Kyoto - A New Global Climate Certificate System: Continuing Kyoto Commitments or a Global 'Cap and Trade' Scheme for a Sustainable Climate Policy?* (Hardcover). Springer, December 22, 2004.

²⁶ Wicke actually defines eight elements by dividing our (3) into three separate elements, and by adding an accounting and compliance system as an additional element, but we consider ours to be a more logical grouping of the “basic” elements.

3. An administered trading system in which countries with surplus permits are required to sell them (via a “World Climate Certificate Bank” or WCCB) to countries which require them at a fixed price, one that Wicke suggests start at \$2 per ton of CO₂ (\$7.33 per tC) and increase every ten years. The WCCB also issues additional permits at a global “safety valve” price starting at \$30 per ton of CO₂ (\$110 per tC).
4. A national allocation system based on the allocation of permits on a grandfathered basis to “Fuel and Resource Providers” (FRPs), although the “National Climate Certificate Banks” are allowed to charge for the permits they allocate.
5. A system of conditionalities on the use by developing countries of money from the sale of climate certificates, requiring them to comply with “Sustainable Development and Elimination of Poverty” plans (SDEPs).

As an add-on to the main system, adaptation needs for vulnerable countries are to be addressed through a higher price paid for their surplus permits, possibly out of revenue received from sale of “safety valve” permits.

Understanding the system requires a review of the mechanisms for establishing the quantities of permits to be transferred at a fixed price from low to high emitting countries.

- In practice low emitting countries do not actually receive equal per capita allocations of permits, they receive permits equal to a specified growth target (based on projected economic growth and a target for declining (“decoupling”) carbon intensity, plus a cash transfer – conditional on its use per (5) above – equal to the difference between this “growth target” allocation and the global average per capita emissions. The value of this cash transfer is deliberately held far below the presumed market value of the emissions permits.
- Annex I countries (high emitting “developing” countries like South Africa and even Saudi Arabia are exempted²⁷) in turn receive almost all of their base year emissions, with the global per capita level being provided free and the rest at the fixed transfer price (specified to start at \$2 tCO₂). In order to provide room

²⁷ As per note 384 on page 177 of *Beyond Kyoto*. Note that Saudi Arabia’s per capita income in 2005 was about \$13,000, PPP adjusted, vs. about \$11,000 for South Africa.

for developing country emissions to grow, Annex I entitlements are specified to decline at a fixed rate, suggested in the reference case to be 1% annually.

Thus in economic terms, the permit allocation is not equal per capita, but rather one that effectively starts off grandfathered, converging only slowly to equal per capita allocations. (The resemblance to conventional Contraction and Convergence is probably not coincidental.) To see this it is necessary to do a (relatively) simple calculation.

The *value* of a “Global Climate Certificate” (a right to emit one ton in one year) is equal to the market price, for example \$20/tCO₂ (note that the Wicke suggests a safety valve price of \$30, so \$20-\$30 could all be reasonable estimates. In the reference case, the basic allocation in 2015 is 4.9 tCO₂ per capita. A poor country (for example, India) with emissions of about 1.4 tCO₂ per capita in 2015²⁸ receives (say) a 2% growth target, or 1.43 tCO₂ per capita. It then receives permits for that many tons per capita, which are economically valued at the market price (\$20 if the market price is \$20/tCO₂), plus \$2/tCO₂ for the difference between the global per capita average (4.9 tCO₂ by hypothesis) and their growth target. This is 3.5 additional tons, thus \$7 additional revenue. The sum, \$36, divided by the market price, \$20 tCO₂, is their *effective* per capita allocation, equivalent to 1.8 tCO₂, about 37% of the actual global per capita average emissions level.

For a high emitting country – take not an extreme case like the US, but rather a country like Germany, with per capita emissions of perhaps 8.5 tCO₂ per capita by 2015²⁹ – the calculation is similar. The country gets 4.9 tCO₂ per capita of free permits, worth \$98 at \$20/tCO₂; then, allowing for the 1% decline, it is allocated the balance up to 8.4 tCO₂ per capita at \$2 tCO₂. This balance is (coincidentally) 3.5 additional tons, for which it pays \$2 per ton, but which has a value of \$20 per ton; thus it gets \$70 more worth of permits per capita for \$7, a \$63 allocation. Thus the overall allocation to each German is \$151, equivalent to 7.6 tCO₂, or more than 50% over the global average and more than 4 times the effective per capita allocation of each Indian. Note also that the higher the market price, the greater the effective allocation to the high-emitting countries.

²⁸ This represents 2% growth from 2003 to 2015.

²⁹ This would represent 2% annual decrease between 2003 and 2015.

Two points need to be made. First, the exact allocations will be very sensitive to the assumed prices (both the market price and the transfer price). Second, this result is a not a bug, it's a feature! The author is extremely explicit that the transfers associated with equal actual per capita allocations tradable at market prices would be unacceptably large to the high emitting countries.³⁰ Thus, it's not really necessary to consider whether the GCCS is fair. It is not fair. The relevant question is whether it is *fair enough*. We return to this question below.

9.2 Environmental Adequacy

The GCCS proposal specifies emissions designed to be consistent with a 550 ppm CO₂ stabilization level, and on that basis sets a global emissions pathway that allows 8.2 GtC annually from 2015 through 2065 before beginning to decline. Since land-use emissions are not included in these numbers, actual emissions would be somewhat higher. The possibility of alterations to the pathway is acknowledged based on further scientific information.

With reasonable assumptions about land-use emissions and carbon sinks, CO₂ concentrations would have reached around 500 ppm by 2065, when emissions are presumed to begin to decline.³¹ If non-CO₂ gases were also held flat, and aerosol emissions were not significantly reduced, the net CO₂-equivalent concentration would be about this level (500 ppm CO₂-e), although with a very significant aerosol mask remaining to be removed when CO₂ emissions finally began to be reduced. In “Stern CO₂-equivalents” (counting only Kyoto gases), the CO₂-equivalent level would be approximately 600 ppm at this time. This implies that that temperature increase would likely exceed 2°C by 2100, en route to a global temperature increase of well over 3°C. By the author's own admission, “[comparison to IPCC figures] suggests that global average temperature would see a rise of 2.2 °C by the year 2100 and around 2.8 °C by the year 2300, with temperature bands of 1.8 to 3.8 °C appearing to be conceivable.”³² (Note further that this is an increase above the 2000 temperature, which was about 0.6°C above pre-industrial).

By the author's own comparison with the 2°C target, this is not an adequately precautionary trajectory. The author however claims that “450 ppm CO₂ is politically infeasible.”

³⁰ *Beyond Kyoto*, p. 170.

³¹ Based on calculations from Paul Baer's “Monte Carlo Climate Model” (MC²).

³² *Beyond Kyoto*, page 156.

9.3 Developmental Equity

9.3.1 *Explicit equity principles*

The GCCS proposal explicitly endorses equal per capita emissions rights, or as the author puts it, “one man / one woman – one climate emission right.” The “complimentary” right of wealthy countries is that they not be “overburdened.” No specific definition of “overburdened” is given; however, the text indicates in various places that the important consideration is taken to be willingness to pay.³³

9.3.2 *Protection of the “right to development”*

As noted in Section 8.1 above, the balancing of the per capita and “rich countries must not be overburdened” principles is accomplished by a complex mechanism by which a “World Climate Certificate Bank” (WCCB) purchases surplus permits from countries with lower than world average per capita emissions, and resells them to countries with higher than average emissions. The sale price is fixed; although this would obviously be a negotiated number, the author suggests an initially very low price of \$2 tCO₂ (\$7.33 tC), increasing every 10 years.

Like other per-capita based systems (though not “Common but Differentiated Convergence), the GCCS proposal to a first order takes no account of the varying income and emissions levels of developing countries in allocating emissions permits.

Importantly and rather surprisingly, the author generally writes as if all developing and newly industrialized countries would have surplus permits to sell, although there is one footnote that acknowledges that some developing countries including Mexico, South Africa and some oil exporters would already exceed the hypothetical world average emissions level. In fact, with even modest growth between now and 2015, quite a few more large developing countries, most notably China, would also likely exceed that level. This is not a trivial matter.

³³ “Assisted by the (administrated) transfer market, the financial transfer costs of industrialized countries (and hence their low-cost ‘basic supply’ of CCs which industrialized countries can allocate at a favorable rate to their FRPs) will be limited to a very low level that is, in principle, feasible. Once again, without such transfer market regulation, industrialized nations will never approve the GCCS and hence no transfer of funds resulting from surplus CCs to developing and newly industrialized countries. A transfer market is hence a ‘conditio sine qua non’ for the equal per capita distribution of emission rights.” *Beyond Kyoto*,” p. 170.

9.3.3 *Behavior under stringent targets*

As noted above, the reference case scenario holds the global emissions budget steady at the (projected) 2015 level for 50 years, and this budget is intended to allow steady growth in developing country emissions while requiring only gradual declines in industrialized countries. Obviously with more stringent targets, neither of these would be possible. Nor would it be possible to have a low “safety valve” price.

9.3.4 *Other equity issues: The population question*

Because GCCS, like C&C, bases its allocation on population, the specification of the population basis to be used is an important component of the system. The author again emphasizes the need to set a fixed “base year” population to avoid incentives for population growth (interestingly citing Agarwal and Narain to support this argument). He argues (coherently if you accept the overall approach) that the base year should be before the beginning of negotiations, but then, for no obvious reason, uses a base year of 2000. As noted in the discussion of C&C, the large differences in growth rates between developed and developing countries would result in very substantial differences in the effective per capita allocations to different countries, with allocations of 35% or more permits per capita to rich countries in the first year (2015).

9.3.5 *Other equity issues: Allocation of permits to fuel and resource providers*

The GCCS proposal is the only one in which the mechanism for the allocation of permits *within* countries is specified. The mechanism proposed – grandfathered allocations to existing “Fuel and Resource Providers” (FRPs), with some held out for new entrants, and with the possibility (but not the requirement) that the FRPs pay some price for the allocation – is one that may even be used in many countries, though it does not bear up well under close ethical (or political) scrutiny. Just for starters, the reduction of emissions is by definition to be accomplished by raising the cost of fuel supply; thus the system gives huge windfall profits to the FRPs (i.e. oil and gas companies, and coal mining companies and traders), up to the value of the safety-valve price enforced by the WCCB. It is difficult to imagine how such a system subsidizing fossil fuel companies can be justified ethically.

9.4 *Adaptation*

The author suggests that vulnerable countries could receive higher prices for their mandatory transferred surplus permits, to be funded perhaps from the “safety valve” permits sold by the World Climate Certificate Bank (WCCB). This is problematic on two grounds: first, because there is no necessary correlation

between adaptation need and the amount of surplus permits countries will have to sell (although as the poorest countries are in general the most vulnerable, there is in practice a substantial correlation), and second, because the source of income as proposed has no correspondence to either the scale of need or the responsibility and capacity of the countries that would actually be paying the costs.

The adaptation mechanism has however clearly received minimal consideration compared to the remainder of the proposal.

9.5 Prospects for modifications

Obviously in a system such as this one, in which a large number of the financial (and other) parameters are set centrally, the overall behavior of the system is contingent on the chosen values. One can imagine that – like the convergence date in C&C – negotiations over the key parameters would be extremely contentious. Ultimately the heart of the system is the mandatory transfer of surplus permits at a controlled price; without this mechanism it would effectively be a pure per capita system. Other aspects, such as the specification of the methods for allocating permits domestically, could easily be dropped or modified without substantial impact on the overall model.

9.6 Evaluation

The GCCS proposal in the end shares many of the weaknesses of Contraction and Convergence, the canonical “per capita” proposal, without enjoying the virtue of simplicity that makes C&C so appealing. It is, like C&C, straightforwardly “realist” in arguing that the rich countries will never agree to the size of resource transfers associated with immediate per capita allocations. Like C&C, it never argues that transfers of that size wouldn’t be fair. Since they wouldn’t be accepted by the rich countries, the question is taken to be whether the poor countries are prepared to accept transfers that are “realistically small.” We suspect that this is not likely.

Similarly, GCCS takes no account of “national circumstances,” asserting that population will be the only key to allocation. Again, the implication that this will be “fair enough” for the countries that are disadvantaged – particularly poor countries that will receive low or no additional emissions growth – is, to say the least, questionable.

One way that developing countries growth room is preserved is by assuming that global emissions will be stable at 2015 levels for 50 years, but, alas, this leads to concentrations approaching 550 ppm CO₂-e. The risks of such concentrations are by now well known.

In the end, GCCS's author Wicke seems resigned to the fact that the limited willingness to pay of Northern countries will bound both the adequacy and the equity of any plausible climate policy regime. We are in no position to say he is not, ultimately, correct. But if he is, it will be tragic, and to concede this in advance seems to us to be, at the least, unwise.

10 By Way of Conclusion

This brief comparison of approaches was, in some ways, quite straightforward, as we could simply proceed down the analyst's usual path of isolating and describing key features. However, at a deeper level, it was a bit challenging, since we ourselves are among the creators and chief proponents of Greenhouse Development Rights (GDRs), which is one of the analyzed approaches. This raises an obvious problem of "conflict of interest," and though we tried to be objective, readers will, inevitably, have to judge of our success or failure for themselves

There are, however, two other matters that should also be mentioned.

First, it is not clear to us what some of these proposals are. That is to say, it is not clear to us if they are actually intended to be negotiated, or if they are primarily intended to be instructive, to the negotiators and to the many interested parties around the world that are trying to understand what is happening, and what should happen, within the negotiations. We ourselves, in GDRs, are relatively clear about this. We put GDRs forward as a "reference framework" that seeks to illuminate the actual structure of the problem, as we see it, and the associated solution space. We're trying to be helpful, and while we think that a procedural "big bang" in which GDRs was suddenly and explicitly taken as the focus of negotiations would be real improvement on the existing process, we don't really expect it to happen, not anytime soon. Others of these approaches, while they do not explicitly invoke this notion of a reference framework, are in their own ways making the same sort of move – CAN's "Viable Framework," for example, and also the South North Dialogue's "Equity in the Greenhouse" proposal. Both, in their own ways, seek to illuminate, and to be helpful.

Some of these approaches, on the other hand, seem to be authored with more literal intent. The proponents of Contraction and Convergence, for example, do not seem to be aware that what they have is actually, a reference framework, one that is useful as a pedagogical device but unlikely to sway the negotiations themselves, or to emerge as the explicit foundation of the post-2012 regime. Rather, they put it forward as a blueprint for survival. And the authors of the Vattenfall proposal and GCCS seem to be doing much the same.

Such a move reflects great confidence, and we should perhaps admire it. But consider that a proposed solution cannot really be taken seriously if it does not proceed from a reasonable analysis of *the structure of the problem*. Which, once again, brings us to our normative approach, in which we assert that equity is fundamental to the global climate problem, and that *developmental equity*, in particular, is crucial to its solution.

We have, therefore, when examining these various approaches, looked closely at their implications for developing countries, and at their potential applicability to the problem of adaptation, which we all now know to be absolutely crucial. It goes without saying, or should, that proposals which fail in these two critical dimensions have no legitimate claim to be equity-based. In any case, they will never be accepted within, or even relevant to, the “real” political process that will determine our fates.