The right to development in a climate constrained world

The Greenhouse Development Rights framework

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A climate protection framework designed to support an emergency climate stabilization program while, at the same time, preserving the right of all people to reach a dignified level of sustainable human development free of the privations of poverty

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The Greenhouse Development Rights homepage: http://www.ecoequity.org/GDRs

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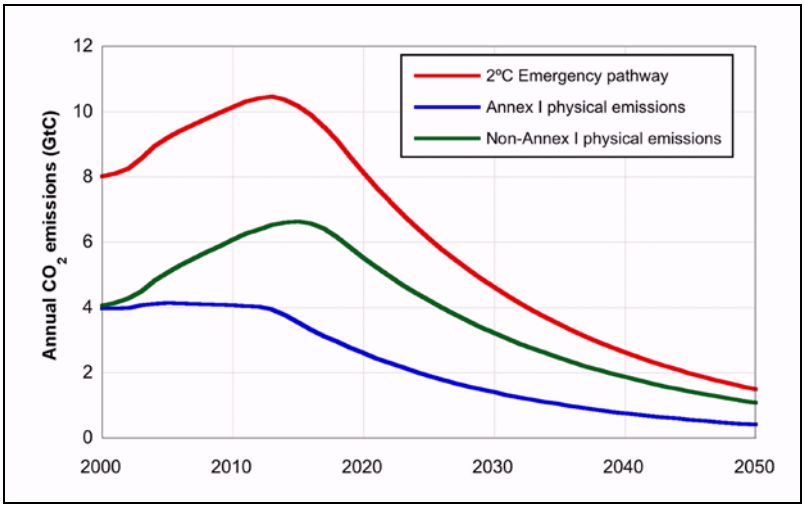
A warming of 2°C over pre-industrial has been widely endorsed as the maximum that can be tolerated or even managed. Yet even as the emerging science[i] increasingly underscores how extremely dangerous it would be to exceed 2°C, many people are losing all confidence that today's inertial, politics-bound societies will be able to prevent such a warming. Our quite different conclusion is that the 2ºC line can indeed be held, but that doing so demands a sharp break with politics as usual. Accordingly, we follow the science, defining a global emissions objective – a "2ºC emergency pathway" – that preserves a real chance of holding the 2ºC line, and then setting out to straightforwardly assess the strategies and accommodations that will be necessary if we're to hold to it. More specifically, since carbon-based growth is no longer a viable option in either the North or the South, we set out to assess the problem of rapid decarbonization in a twice-divided world, one sharply polarized between North and South and, on both sides, between rich and poor.



The South's Dilemma. The red line shows the 2°C Emergency Pathway, in which global CO_2 emissions peak in 2013 and fall to 80 percent below 1990 levels in 2050. The blue line shows Annex 1 emissions declining to 90 percent below 1990 levels in 2050. The green line shows, by subtraction, the emissions space that would remain for the developing countries.

A simple thought experiment, illustrated in this first figure, makes this clear. In this figure, we show a scientifically realistic assessment of the size of the remaining global carbon budget (the 2ºC emergency pathway, shown in red), along with the portion of that budget that the wealthy Annex 1 countries would consume even if they undertake bold efforts to virtually eliminate their emissions by 2050 (as shown in blue). Doing so reveals, by subtraction, the alarmingly small size of the carbon budget (shown in green) that would remain to support the South's development.

A few details only make the picture starker:

- The efforts implied by this 2ºC emergency pathway are heroic indeed. Global emissions peak in 2013 and decline to 80 percent below 1990 levels by 2050, such that CO_2 concentrations can peak below 420 ppm and then start to fall[ii]. Yet even this would hardly mean that we were "safe." We would still suffer considerable climate impacts and risks, as well as a roughly 15-30% probability of overshooting the 2°C line.[iii]

- The Annex 1 emission path shown here is more aggressive than even the most ambitious of current EU and US proposals. It has emissions declining at nearly 6 percent annually from 2010 onwards, and ultimately dropping to a near-zero level. It's a tough prospect, and if it is politically plausible at all, it is just barely so.

- And, still, the space remaining for the developing world would be extremely constrained. In fact, developing country emissions would have to peak only a few years later than those in the North – still before 2020 – and then decline by nearly 6 percent annually through 2050. And this would have to take place while most of the South's citizens were still struggling out of poverty and desperately seeking a significant improvement in their living standards.

It is this last point that makes the climate challenge truly daunting. For the only proven routes to development – to water and food security, improved health care and education, secure livelihoods – involve expanding access to energy services, and, consequently, a seemingly inevitable increase in fossil fuel use and thus carbon emissions. From the standpoint of developing countries, this pits development squarely against climate protection. And with even the minimal *Millennium Development Goals* being treated as second-order priorities, the level of international trust is very low indeed.

Indeed, the developing countries are quite manifestly justified in fearing that the larger development crisis, too, will be treated as secondary to the imperatives of climate stabilization. All told, the situation invites global political deadlock.

And, to be frank, the climate regime is already quite nearly deadlocked. And so it will remain, until we openly face up to the big question: *what kind of a climate regime can allow us to bring global emissions rapidly under control, even while the developing world vastly scales up energy services in its ongoing fight against endemic poverty and for human development?*

The Development Threshold

Development is more than freedom from poverty. The real issue is sustainable human development, and the right to such development must be acknowledged and protected by any climate regime that hopes for even a chance of success. The bottom line in this very complicated tale is that the South is neither willing nor able to prioritize rapid emissions reductions, not while it must also seek an acceptable level of human development for its people. And that the key to climate protection is, therefore, the establishment of global burden-sharing regime in which it is not required to do so.

The *Greenhouse Development Rights* framework (GDRs) is, accordingly, designed to protect the right to sustainable human development, even as it drives rapid global emissions reductions. It proceeds in the only possible way, by operationalizing the official principles of the UN's *Framework Convention on Climate Change*, according to which states commit themselves to "protect the climate system … on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities."

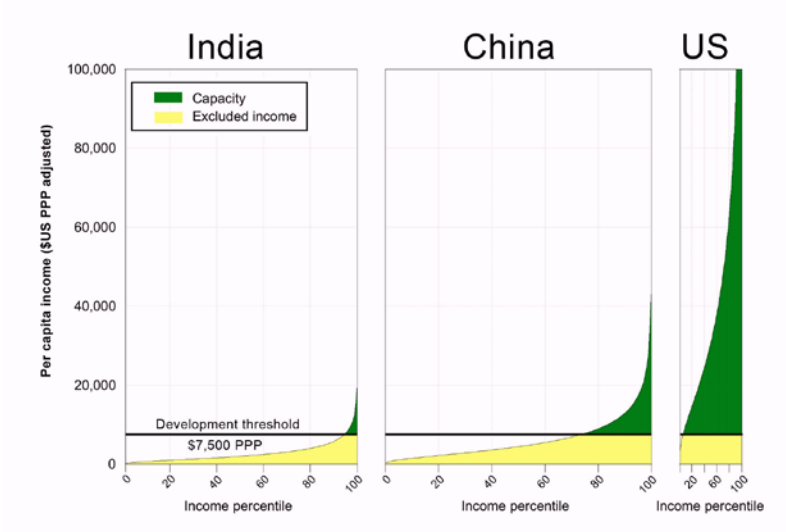
As a first step, the GDRs framework codifies the right to development as a "development threshold" − a level of welfare below which people are not expected to share the costs of the climate transition. This threshold, please note, is emphatically not an "extreme poverty" line, which is typically defined to be so low ($1 or $2 a day) as to be more properly called a "destitution line." Rather, it is set to be higher than the "global poverty line," to reflect a level of welfare that is beyond basic needs but well short of today's levels of "affluent" consumption.

People below this threshold are taken as having development as their proper priority. As they struggle for better lives, they are not obligated to further efforts to keep society as a whole within its sharply limited global carbon budget. In any event, they have little responsibility for the climate problem and little capacity to invest in solving it. People above the threshold, on the other hand, are taken as having realized their right to development and as bearing the responsibility to preserve that right for others. They must, as their incomes rise, gradually assume a greater faction of the costs of curbing the emissions associated with their own consumption, as well as the costs of ensuring that, as those below the threshold rise towards and then above it, they are able to do so along sustainable, low-emission paths. These obligations, moreover, are taken to belong to all those above the development threshold, whether they happen to live in the North or in the South.

The level where a development threshold would best be set is clearly a matter for debate, one that we would welcome. For the purposes of our analysis here, we argue that this threshold should be at least modestly higher than a global poverty line, which is itself about $16 per day per person (PPP adjusted). This figure comes from taking an empirical look at the income levels at which the classic plagues of poverty – malnutrition, high infant mortality, low educational attainment, high relative food expenditures – begin to disappear, or at least become exceptions to the rule. This is a level at which people typically achieve acceptable levels of the Millennium Development Goal indicators. Taking a figure 25 percent above this global poverty line, we do our "indicative" calculations relative to a development threshold of $20 per person per day ($7,500 per person per year). This income also reflects the level at which the southern "middle class" begins to emerge.

National obligations and the "Responsibility-Capacity Index"

Once a development threshold has been defined, logical and usefully precise definitions of *capacity* and *responsibility* naturally follow, and these can then be used to specify and calculate national obligations for shouldering the climate challenge.



Capacity: income above the development threshold. These curves approximate income distributions within India, China, and the US. Thus, the green areas represent national incomes above the ($20 per person per day, PPP) development threshold, our definition of national capacity. Chart widths are scaled to population, so these capacity areas are correctly sized in relation to each other.

Capacity, by which we mean income not demanded by the necessities of everyday life, and thus available to be "taxed" for investment in climate mitigation and adaptation, can be straightforwardly interpreted as total income, *excluding income below the development threshold*. A nation's aggregate capacity, then, is defined as the sum of all individual income, excluding income below the threshold. Responsibility, by which we mean contribution to the climate problem, is similarly defined as cumulative emissions since 1990, excluding emissions that correspond to consumption below the development threshold. "Development emissions," like "development income," do not contribute to a country's obligation to act to address the climate problem.

Thus, both capacity and responsibility are defined in individual terms, and in a manner that takes explicit account of the unequal distribution of income within countries. This is a critical and long-overdue move, because the usual practice of relying on national per-capita averages fails to capture either the true depth of a country's development urgency or the actual extent of its wealth. If one looks only as far as a national average, then the richer, higher-emitting minority lies hidden behind the poorer, lower-emitting majority.

These measures of capacity and responsibility can then be straightforwardly combined into a single indicator of obligation: a "Responsibility Capacity Index" (RCI). This calculation is done for all Parties to the UNFCCC, based on country-specific income, income distribution, and emissions data. The precise numerical results depend, of course, on the particular values chosen for key parameters, such as the development threshold and the year in which national emissions begin to count towards responsibility (we use 1990, but a different starting date could be defended). What is important is that the GDRs framework lays out a straightforward operationalization of the UN's official differentiation principles, and that it does so in a way that preserves a right to development. Beyond that, the specific parameters that we have chosen to illustrate this approach can be easily adjusted and should certainly be debated; and all of them, of course, would have to be negotiated.

By our indicative calculations (shown in the following table) the United States, with its exceptionally large population of people with incomes above the $20 per day development threshold (capacity) and the world's largest share of cumulative emissions since 1990 (responsibility), is the nation with the largest share (32 percent) of the global RCI. The EU follows with 25 percent share. China, despite being relatively poor, is large enough to have a rather significant 6.6 percent share, which puts it not far behind Japan with its 7.4 percent. India is also large but even poorer, placing it far behind with a 0.8 percent share.

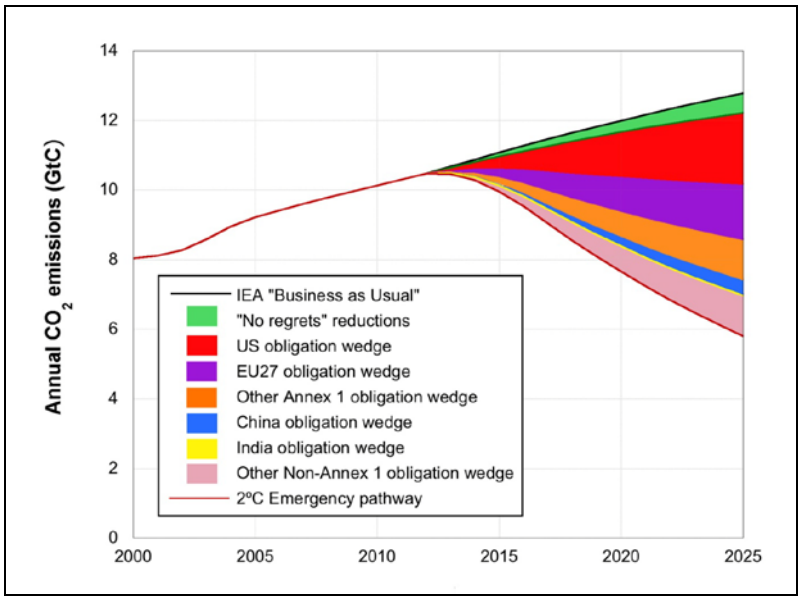
	Percentage of global total					
	population	income	capacity	Cumulative emissions 1990-2010	responsibility	RCI
United States	4.6	20.7	**29.7**	23.3	**33.9**	**31.8**
EU (27)	7.2	21.6	**27.9**	15.9	**20.5**	**24.8**
United Kingdom	0.9	3.1	**4.2**	2.1	**2.9**	**3.6**
Germany	1.2	4.1	**5.6**	3.4	**4.6**	**5.2**
Japan	1.9	6.1	**8.1**	4.6	**6.2**	**7.4**
Russia	2.0	3.2	**2.9**	6.3	**5.9**	**3.9**
Brazil	2.9	2.8	**2.3**	1.4	**1.2**	**1.8**
China	19.7	12.5	**5.9**	15.7	**7.5**	**6.6**
India	17.2	5.2	**0.8**	4.2	**0.7**	**0.8**
South Africa	0.7	0.7	**0.6**	1.6	**1.4**	**0.9**
LDCs	12.5	1.5	**0.1**	0.6	**0.0**	**0.1**
Annex 1	18.8	57.2	**75.1**	56.5	**73.4**	**74.6**
Non-Annex 1	81.2	42.8	**24.9**	43.5	**26.7**	**25.4**
All high income	15.1	55.2	**75.6**	50.9	**71.4**	**74.3**
All middle Income	46.7	36.4	**23.4**	42.2	**27.8**	**24.8**
All low Income	38.2	8.5	**1.0**	6.9	**0.9**	**0.9**
Global Total	100%	100%	**100%**	100%	**100%**	**100%**

Percentage shares of total global population, income, capacity, cumulative emissions, responsibility, and RCI for selected countries and groups of countries. Based on projected emissions and income through 2010. High, Middle and Low Income categories are based on World Bank definitions.

As a basis for differentiating national obligations, this approach is a potential game changer. For one thing, it allows us to objectively and quantitatively estimate national obligations to bear the burdens of climate protection (obligations to support adaptation as well as obligations to mitigate) and to meaningfully compare obligations even between wealthy and developing countries. Using the terminology of the Bali Roadmap, it allows us to gauge the "comparability of effort" across countries. Another way of putting this is that it allows us to escape the Annexes, which have become a significant obstacle to progress. For example, in a GDRs style system, debates about whether Saudi Arabia or Singapore should "graduate to Annex 1" would be unnecessary, and even meaningless; both would simply be countries with obligations of an appropriate scale, as specified by their RCIs.

If, for example, we imagine that there were a single grand international fund to support both mitigation and adaptation − akin to, say, the Multinational Climate Change Fund proposed by Mexico − the RCI could serve as the basis for determining each nation's obligatory financial contribution to that fund. So, for example, if the annual climate transition funding requirement amounted to a trillion dollars (about one and a half percent of Gross World Product), the US, with its 32 percent of the global RCI, would be obligated to pay about $320 billion. Similarly, the EU's share would be $250 billion (25% of the global RCI), China's share would be $66 billion (6.6%), India's share would be $8 billion (0.8%), and so on. The RCI, in effect, serves as the basis of a progressive global "climate tax" – not a carbon tax, per se, but a *responsibility* and *capacity* tax.

Cap and Allocate



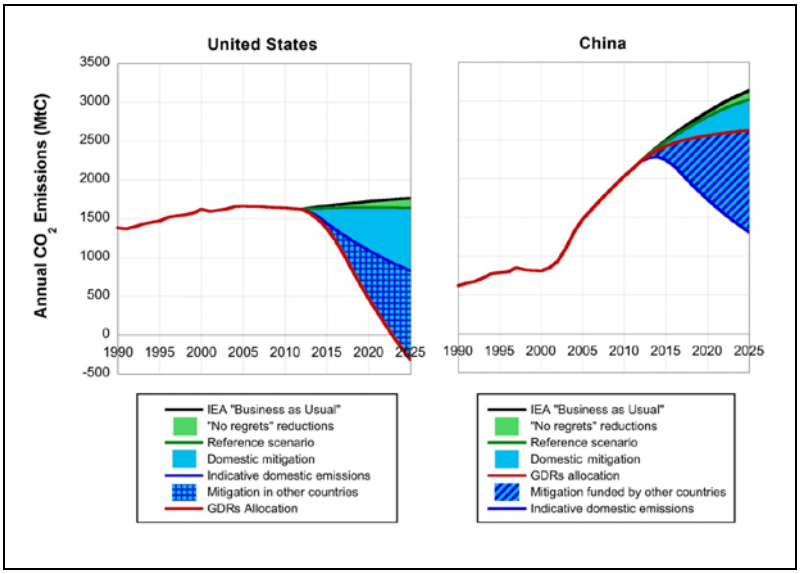
Total global mitigation requirement, divided into "national obligation wedges." Shows the shares that would be borne by particular nations (or groupings) in proportion to their share of the total global RCI.

There are, of course, ways of thinking about burden sharing that do not focus on national financial obligations. The most important of these is emissions reductions driven by way of Kyoto-style national targets. These we approach by comparing a global reference trajectory to the rapidly declining 2ºC emergency pathway, a comparison that allows us to straightforwardly calculate the total amount of mitigation (in, say, gigatons of carbon) that is needed globally in any given year. This "global mitigation requirement" is allocated among countries in proportion to their RCI. Each country is given an emission target equal to its reference trajectory[iv] minus its proportional share of the global mitigation requirement.

Distributing the global mitigation requirement in this way yields some striking results. For one thing, it shows, with startling clarity, that a major commitment to North-South cooperation – including financial and technological transfers – is an inevitable part of any viable climate stabilization architecture. This is because the national mitigation obligations of the high-RCI countries of the North vastly exceed the reductions they could conceivably make at home. In fact, their mitigation obligations will typically come to exceed even their total domestic *emissions*! Which is to say that wealthier and higher emitting countries are given "negative allocations," as is necessary in order to open enough atmospheric space for the developing world.[v]

Within the Greenhouse Development Rights framework, national obligations are functions of the "global mitigation requirement." Thus, for example, US emissions are projected in its reference case to be about 1.7 gigatons of carbon (GtC) in 2025, yet in that same year its overall emissions reduction obligation would be 2.2 GtC. This implies a 130 percent reduction target, not all of which can be realized at home. The rest the US must make in other countries, by way of reductions that are "supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner." [vi]

This situation reflects the nature of national obligations and the obvious truth of the greenhouse world: even if the wealthy countries reduce their domestic emissions to zero or near-zero levels, they must still enable large emissions reductions elsewhere – in countries that lack the capacity (and responsibility) to reduce emissions fast enough and far enough, at least without significant assistance from others.



US (left) and Chinese (right) obligations. No-regrets reductions are shown in green, indicative domestic reductions in light blue. The US's additional, internationally discharged reduction obligation is shown with dark blue hatching (left panel). Conversely, mitigation that takes place in China but is funded by other countries is shown with dark blue stripes (right panel).

Thus, much of the mitigation that takes place within southern countries must be enabled by the North. The United States, to continue the above example, would be obligated to make reductions that increase to almost 2000 MtC by 2025, an amount larger than its projected domestic emissions at that time. Here, we show domestic reductions that, though extremely ambitious (the US share of the same rapidly declining trajectory illustrated for Annex 1 in the first figure above) still satisfy less than half of the US's total obligation. The remainder, about 1200 MtC of reductions in 2025, must be made in other countries. In contrast, China, obligated to 2025 reductions of about 400 MtC, would be able to make them all domestically, even as a much larger quantity of reductions within China, about 1500 MtC in 2025 in this indicative calculation, would be enabled and supported by other, higher-RCI countries.

Thus, in developing countries, modest domestic obligations are coupled with the much larger international obligations of other countries to ensure that development can proceed along a decarbonized pathway.

Towards political realism

It is easier to agree to principles than it is to operationalize them, and the Framework Convention's principles of "common but differentiated responsibilities and respective capabilities" are no exception. Moreover, operationalization is bound to be particularly difficult if, as the Greenhouse Development Rights analysis shows, it requires powerful countries to accept large obligations, and to commit to making large international financial and technology transfers.

Yet it is time to be frank. The size of the transfers implied by the GDRs analysis are not, in the first instance, consequences of its particular burden-sharing architecture, but rather straightforward consequences of the emergency 2°C transition that GDRs seeks to help drive forward. Were we to run the same analysis with a much weaker temperature target, the results would be far less daunting. Which is to say that the size of the financial and technology transfers implied by the GDRs analysis are in largest part the consequences of past delay, of decades of denial that now must surely end.

Moreover, Bali clearly revealed the South's unremitting insistence on linking international financial and technology transfers and the "nationally appropriate mitigation actions by developing country parties" that are now so critically and manifestly necessary. There is simply no longer any way to responsibly deny this linkage, not even in the U.S., where frank talk of America's international obligations is widely seen as an explosive threat to critical domestic action. In this context, the GDRs approach may actually be quite helpful, because it stresses the need for a system in which it's not "the North," but rather the wealthy and consuming classes, that should properly bear the burdens of the climate transition.

This reframing is not merely an ethical one. For while commitments from the South's consuming classes are certainly appropriate for reasons of elementary justice, the politics here are yet more pressing. To be blunt, it is extremely unlikely that the working consensus needed in the North, a

consensus to pay its "fair share" of the world's total mitigation and adaptation costs, could ever emerge if the wealthy minority in India and China and other developing nations are not also paying their fair shares. The GDRs framework is, above all else, an effort to transparently specify what those "fair shares" would be, and to do so in a manner that acknowledges and respects a right to development.

Still, one can reasonably ask if a framework such as this, which makes the climate challenge even more overwhelming by compounding it with developmental equity, is at all politically realistic. Our response is to ask another question – are we yet serious about facing down the climate crisis? For as others have noted before us, the outer bound of today's political realism are still far shy of the inner bounds of scientifically necessity. Besides, the demands of political realism are themselves rather labile; history shows that they can change with remarkable rapidity. And as the impacts of climate change bear down, it is rather more likely that they will do so than that the science itself will fundamentally change.

The bottom line is that, without an unprecedented level of global cooperation, the 2°C emergency pathway, or anything like it, will quickly recede out of range. Climate change is a threat − perhaps humankind's first such threat – that demands cooperation, even across the rich-poor divide. This time around, the limits of enclave civilization are all too visible. There is no solution for the few. The future of the wealthy depends on their solidarity with the poor, and increasingly they know it.

And not a moment too soon. Because it is not rhetoric but fact that the climate negotiations will not succeed unless they ensure the rights of billions of people, far away from the conference halls: the unseen poor of the planet today, and the unborn children of the future. Which, actually, makes our task clear. We have to ensure our common future by recognizing the fundamental condition of success: the North must engage with the South in a way that explicitly honors its legitimate development needs on this shared, finite planet. The alternative, if we may be blunt, is a weak regime with little chance of preventing catastrophic climate change.

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[i] Lenton, T. M., Held H., Kriegler, E., et al (2008): "Tipping Elements in the Earth's climate system," Proceedings of the National Academy of Sciences. 105 (6): 1786-1793. Cambridge.

[ii] See Meinshausen (2006), or Baer and Maestrandera (2006). For the latest evidence that concentration ratios need to drop even below 350 ppm CO_2, see Hansen (2008).

[iii] For details, see Paul Baer and Mike Mastrandrea, *High Stakes: Designing emissions pathways to reduce the risk of dangerous climate change*. London, 2006: Institute for Public Policy Research. http://www.ippr.org.

[iv] The reference trajectory is essentially a business-as-usual trajectory, except that it also includes some "no-regrets" options. In any event, it is not a mitigation scenario.

[v] Incidentally, this kind of negative allocation can never arise under Contraction and Convergence style trajectories, wherein high-emitting countries are only required to transition from their high grandfathered allocations down toward the global per-capita average. Greenhouse Development Rights, it should be said, evolved from Contraction and Convergence, the most well-known of the per-capita rights approaches.

[vi] The Bali Action Plan, Decision 1/CP.13 para 1(b)ii.