



THE CORE CONVENTION-BASED EQUITY INDICATORS

Some people still believe that allowing equity a prominent place in the UNFCCC negotiations only increases the chances of deadlock. Our view, in contrast, is that a breakthrough on equity is essential to a breakthrough in the negotiations. Extremely ambitious action will only occur within a regime that meets the legitimate development needs of the world's poor. Equity, and a process for equity, must be forged into instruments of cooperation and breakthrough.

This brings us, immediately, to the Convention's core equity principles, and to the need for equity indicators that properly express those principles. Clarifying these equity indicators is now a top priority. Doing so wouldn't be enough to bring real life into the negotiations – only action is action, and only finance is finance – but for all that, a greater agreement on equity would be a game changer. Agreement on convention-based equity indicators, in particular, would enable real comparability of effort, and thus a regime in which free riders everywhere can be clearly identified.

The ultimate need, here, is the formal agreement of an Equity Reference Framework under UNFCCC. The immediate need is a focused effort to agree on a small list of well-designed equity indicators that, taken together, allow us to adequately model the Convention's core equity principles, as they bear upon the challenge of a cooperative and extremely ambitious global climate transition.

The goal of this paper is to enrich the equity debate by defining a small (as simple as possible, but no simpler) list of Convention-based equity indicators. We offer this analysis to the Parties, for their use in the coming negotiations and in a possible formal equity review. In addition, this analysis will anchor the informal equity reviews that CAN and other NGOs will conduct in parallel to the formal UNFCCC processes.

DEFINITIONS

Principle – in this paper, a principle is by definition an “equity principle” – though we immediately add, and stress, that adequacy itself is the first of all equity principles. Without ambition there can be no justice. A “core equity principle” is an equity principle that is strongly founded in the (already agreed) text of the Framework Convention.

Equity Reference Framework (ERF) – an effort-sharing framework that posits equity indicators, constructing them out of raw indicators in a manner that is consistent with the Convention's core equity principles. The primary purpose of an ERF is to leverage equity indicators to calculate national “fair shares,” relative to one or another aspect of the common danger, and the common effort that will be needed to meet it.

Equity indicator – a higher-level, ethically-inflected indicator. For example, *capability* is an equity indicator. As is *responsibility*. As is *development need*. Not all equity reference frameworks (ERFs) will consider all equity

indicators, but such indicators are central to equity reference frameworks. They stand between equity principles and raw indicators. They lay down the structure of the ERF approach.

Raw indicators – familiar, publically available demographic or economic data. For example, *population*, or *per-capita income*, or *national emissions intensity*. Raw indicators come as datasets that can be taken “off the shelf.” They are generally maintained by national institutions and tracked by one or another prestigious international institution. Some important raw indicators (e.g., *per-capita income*) are critical in one way or another (e.g., calibrating national financial obligations), but are still not equity indicators per se.

Dynamic CBDR+RC – an approach to global effort sharing that is explicitly rooted in the Convention’s core equity principles (we believe there are three, and they are itemized just below), and which operationalizes those principles in terms of equity indicators that dynamically change with the global economy. For example, a country’s *capability* indicator is taken to constantly change, as a function of change in underlying raw indicators (population, GDP, etc.) which are also inherently dynamic.

THE CORE CONVENTION-BASED EQUITY PRINCIPLES – AND THEIR INDICATORS

CAN has identified the following as the core equity principles of the Convention¹:

1. **A precautionary approach to adequacy**, referring to the collective obligations of countries to undertake and support urgent and adequate global action to prevent dangerous impacts of climate change and provide effective adaptation to unavoidable impacts, without which there can be no justice. (Article 3.3: “The Parties should take precautionary measures to anticipate, prevent and minimize the causes of climate change and mitigate its adverse effects.”)
2. **Common but differentiated responsibility and respective capability (CBDR+RC)**, in which obligations to take action and provide support, and rights to receive such support, are accepted as functions of both historical and current emissions, and of capability to act. (Article 3.1: “The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities.”)
3. **The right to sustainable development**, which we understand as the right of all countries to not just lift their people out of poverty, but also to provide their citizens with sustainable and universalizable living standards. By sustainable we mean “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”² By universalizable, we mean living standards that could be made available to the citizens of all countries.³ (Article 3.4: “The Parties have a right to, and should, promote sustainable development.”)

The right to sustainable development requires clarification. In particular, the roles of right-bearers and duty-bearers must be further defined. Also, all countries must take immediate and urgent action to reduce their unsustainable consumption and resource-use patterns, and to follow pathways of inclusive growth and sustainable development. Countries with greater capability must take ambitious actions to address unsustainable

consumption and resource use, actions which must inevitably include life-style changes. Countries with limited capability should pursue sustainable development models, which are inclusive, gender sensitive, climate resilient and low carbon, which they can only do if they receive adequate and appropriate support from the developed countries.

These three high-level principles suffice to show us where we stand. When searching for useful equity indicators, however, we must be more concrete. To that end, note that the Convention's high-level equity principles refer to *historical responsibility, standards of living, development need, national capability to act, and sustainable development rights*.

The precise meaning of these notions will not be agreed anytime soon, but, fortunately, precision is not needed here. What is needed is an agreed list of well-designed equity indicators that can be wisely and intelligently applied by Parties and Observers as they seek to negotiate a way forward that respects the Convention's core equity principles. With this in mind, it's possible to take another step towards precision. We suggest that the essential elements of the Convention's core equity principles can be captured in terms of five more distinct principles, each of which is well focused and thus amenable to (imperfect but serviceable) quantification. These are *Adequacy, Adaptation Need, Responsibility, Capability, and Development Need*.

Below, briefly, we list the Convention's core equity principles, and the equity indicators that we believe most effectively represents those principles. For each equity indicator, we briefly note some issues, and some of the "raw indicators" (standard macro-economic datasets) that are relevant to its proper construction.⁴

1ST CORE EQUITY PRINCIPLE: A PRECAUTIONARY APPROACH TO ADEQUACY. . .

. . . referring to the collective obligations of countries to undertake and support urgent and adequate global action to prevent dangerous impacts of climate change and provide effective adaptation to unavoidable impacts, without which there can be no justice.

The most relevant indicators here, clearly, are those related to the 1.5°C and 2°C temperature targets. These should be defined, in the first instance, by *GHG emission budgets*, and secondarily by *indicative global emissions pathways (including peaks years) that conform to those budgets*. These pathways should be well specified, with explicit probabilities of success (e.g., 80% chance of holding the 2°C line), well-defined and clearly-stated assumptions about non-CO₂ gases and land-use emission pathways, and explicit 2020, 2030, and 2050 emissions milestones.

The point here is not to pretend to an unachievable accuracy, but rather to establish marker pathways that clearly express the central, and extremely ambitious, goals of the negotiations. Such marker pathways are useful in a number of ways, not least by serving as a foundation for meaningful equity reference frameworks. That is to say, they make it possible to calculate the "mitigation gap" associated with any projected emissions pathway.

On the adaptation side, matters are even more difficult. Any given temperature target implies a level of global impacts, and thus a *global adaptation need*, but not in the unambiguous way that it implies a *global mitigation*

gap. Nevertheless, defining adaptation need is critical, and it is clearly related to mitigation ambition – the lower the global level of ambition, the higher the higher the level of loss and damage, and the greater the *adaptation need*. Moreover, adaptation need will tend to accrue to communities that are lower in *capability* and higher in *development need*. Given all this, any true equity reference framework must support higher levels of ambition, while accounting for *adaptation need* in a meaningful way.

Initial equity indicators

ADEQUACY

- *Adequacy is the first among equity principles. There can be no justice without the stabilization of the climate system. To be sure, this stabilization will only be possible in a regime that meets the legitimate development needs of the world's people. This is the nature of the case.*
- *The key indicators here are global emissions budgets & mitigation pathways.*
- *Note that the level of global ambition implicitly defines global adaptation need – the lower the ambition, the higher the adaptation need.*

2ND CORE EQUITY PRINCIPLE: COMMON BUT DIFFERENTIATED RESPONSIBILITY AND RESPECTIVE CAPABILITY . . .

. . . in which obligations to take action and provide support, and rights to receive such support, are accepted as functions of both historical and current emissions, and of capability to act.

One obvious point here is that *responsibility* and *capability* are frequently correlated. This is not surprising since development and wealth creation have historically been strongly correlated with the consumption of fossil fuels. This frequent correlation between emissions and wealth is implicitly recognized in the second sentence of Article 3.1, obliging developed countries to “take the lead in combating climate change and the adverse effects thereof”.

The need to take both *responsibility* and *capability* into proper account has implications. In particular, it means that the problem here is properly one of equitable effort sharing. In effort-sharing systems, mitigation efforts and contributions must ultimately be expressed relative to national baseline pathways.

Responsibility and the “development threshold”

Responsibility is perhaps a more straightforward notion than *capability*. In particular, *cumulative emissions since a responsibility start date* is widely taken to be a robust indicator of national contribution to the climate problem. But this is not simple. For example, should these emissions include methane? And when should they be expressed in per-capita terms? Further, there are differing views on the proper *responsibility start date*. And should loss-and-damage obligations be calculated from the same start date as mitigation? Some do not think so.

Consider an even more difficult issue, one that dates back to the classic distinction⁵ between *survival* and *luxury emissions*. Equity advocates have long argued that *survival emissions* (or *development emissions*) must be

excluded from calculations of national historical responsibility. This argument is compelling, for the emissions of the poor are simply not morally equivalent to the emissions of the rich. That said, there is real controversy about how best, and where, to draw the line. Operationalizing the distinction in terms of *development need* is the approach that accords with Convention's core equity principles, and this implies the necessity for some sort of *poverty intensity* or (better) *development threshold* parameter, one that allows us to exclude *development emissions* from the calculation of *national responsibility*.

In the Greenhouse Development Rights framework, a *development threshold* is defined in terms of *per-capita income, as measured in PPP dollars*. Others⁶ have drawn the line in terms of the *Human Development Index*, arguing that the HDI more directly measures social development. What is clear is that an *income threshold* has some pragmatic advantages over more multi-dimensional definitions of a *development threshold* (life expectancy, educational levels, etc.), particularly given the extremely high correlation between income and these other aspects of development, particularly at low income levels. On the other hand, this correlation is not universal and could well loosen in the future.

The key point here is that national per-capita income and emission averages are not in themselves serviceable indicators of *poverty* and *development need*. In the next few years, the pressure to accept such indicators will be high, but this pressure must be resisted, and a *development threshold* (or at least some measure of poverty intensity) must be supported as an essential building-block of a proper responsibility indicator. Progressivity, particularly as it results from distinctions at the bottom end of the income or development spectrum, is fundamental to the proper definition of both *responsibility* and *capability*.

CAN recommends addressing *development need* as, primarily, an aspect of *capability*. That is to say, the capabilities of countries to mitigate GHG emissions are obviously related to their capabilities to provide their citizens with basic human rights (e.g. access to food or water) or basic necessities such as healthcare, education, sanitation, and so on. The way forward, obviously, lies in prioritizing such development needs, rather than tying their fulfillment to increased emissions budgets.

Additional equity indicators:

RESPONSIBILITY

- *The responsibility start date is fundamental. Both global and national cumulative emissions are relative to it.*
- *Responsibility must be calculated relative to a development threshold or a measure of poverty intensity – survival or development emissions should be excluded from this calculation.*

Capability and “development need”

A nation's development need is the shortfall between its current socio-economic profile and a future profile in which all its people have achieved some adequate level of economic development, however defined. This is of

course an absolutely minimal definition. It's also a necessary one, because national *capability* cannot be adequately understood (or measured) unless *development need* is taken into proper account.

The minimum requirement here is a *development threshold* that can be used to calculate *development need* below the threshold. This immediately raises a point of potential confusion, for “development” is not reducible to poverty alleviation. A *development threshold* is -- by definition -- something more than a *poverty line*. At the level of indicators, this distinction raises a controversial point about intranational equity. Simply put, an indicator of income distribution⁷ is required to identify the fraction of the population that has already reached a level of income -- a level of development -- that corresponds to sustainable living standards in developed countries. Such an indicator can be used along with a *development threshold* to define an indicator for *capability* that neither includes income that should be targeted to *development need*, nor excludes income that properly contributes to national *capability*. Alternatively, a measure of “poverty intensity” (as for example it is in Oxford Capability Index⁸) can be used in place of a *development threshold*, though, again, it would have to be higher than a mere poverty line.

Similar issues apply to the calculation of *capability* above the *development threshold*. The simple point here is that individuals above a certain level of development (measured in terms of income, or available income) have capabilities and should therefore contribute to addressing climate change, and this irrespective of whether they are citizens of a developed or developing country. More generally, the moral principle here is income progressivity, and it is almost universally accepted when it comes to effort sharing and the provision of public goods. National tax systems are a fine example, for almost all ask the wealthy to contribute a higher proportion of their resources than the poor. This progressivity is often implemented by means of a level of income below which no contribution is expected. Analogously, a *development threshold* increases *progressivity*, relative to any framework that is based on *per-capita emissions or per-capita income across the entire national population*. Also analogously, a truly progressive global effort-sharing system would have to take account of the difference between the incomes and emissions of the global middle class (however defined) and the global rich.

The key points here can be clarified with this simple typology:

A capability indicator that is based solely on national average (per-capita) indicators. Such an indicator, in which there is no *development threshold* (or *poverty intensity* indicator), is not reflective of country's true capabilities. Think of it as a global “flat tax” in which the few coins held by the poorest peasants would weigh equally, in the calculation of national *capability*, if they were transferred instead to the billions of dollars already held by the richest financiers.

A capability indicator that leverages national average indicators, but also considers intranational data (however defined) to capture additional information on development need. A simple approach would be to simply exempt countries with a *per-capita income* that is lower than the *development threshold* from any *capability*-based obligations. Another approach, well represented by the Oxford Capability Index, allows a “poverty adjustment” to a nation's “gross capability.” One may also consider defining a *development threshold* that is, in principle, higher than the global poverty line) to define the *development need* (and, inevitably, to mark off the income range that is

considered when calculating national capabilities). This approach has been used in GDRs (including a Chinese variant⁹) and the South African proposal.

A capability indicator that leverages national average indicators, and development need, but also considers additional intranational data (however defined) to capture additional information on national capability. Here, for example, the *development threshold* could be augmented by a second threshold, above which “luxury income” is weighted more heavily than, say, the income just above the development threshold.¹⁰ The advantage of this approach is that it allows for more nuanced calculation of *capability* that considers the problem of the rich as well as the problem of the poor.

This typology is perhaps enough to show that there’s more to equity than can be captured in national average indicators. In particular, it allows us to argue that a serious treatment of the right to sustainable development requires a push beyond averages and poverty indicators.

Additional equity indicators:

CAPABILITY

- *Like responsibility, capability should be calculated relative to development need or a poverty gap.*
- *Development need can be seen as a function of development threshold and a measure of income inequality. The poverty gap can be seen as a function of poverty intensity, however measured.*
- *Additional progressivity can be added to the capability calculation if luxury emissions and implied luxury capability are taken into account.*

3RD CORE EQUITY PRINCIPLE: THE RIGHT TO SUSTAINABLE DEVELOPMENT. . .

. . . which we understand as the right of all countries to not just lift their people out of poverty, but also to provide their citizens with sustainable living standards equivalent to those available to the citizens of any other country.

The right to sustainable development raises a host of equity issues, not all of them within the ambit of the effort-sharing problem. Another way of saying this is that, rather than trying to immediately agree to indicators relevant to a right to sustainable development, it might be wise to instead attempt to define the irreducible minimum without which no kind of sustainable development is possible. We propose to do so by way of two indicators, both of which have already been mentioned. National *development need* and *adaptation need*.

With regard to *development need*, two points are key. The first is that sustainable development cannot be quantified. For one thing, it implies a level of material life that is not constantly referenced to poverty – poverty alleviation is necessary but not sufficient. For another, sustainable development ultimately depends on qualitative and material factors – education, health and food security, etc. – that cannot be reduced to economic terms. All

this means that economic indicators are inherently problematic as indicators of sustainable development, though this is less true if they are explicitly treated as floors.

The second is that the essential questions of distributional equity include those associated with access to means of implementation. It is necessary, but not sufficient, to devise a set of indicators that allows us to tell if all nations are doing their “fair share,” (in the context of effort- and risk-sharing) and providing their fair share of the international support. We also need to know if all nations are receiving their fair share of that support, their fair share of the benefits of the necessary transformation (opportunity sharing). Unless they do, their right to sustainable development, however it is finally defined, cannot reasonably be said to be respected.

With regard to *adaptation need*, the key point is extremely critical, and bears restatement. The less mitigation we do, the more adaptation will be necessary. Unless this adaptation is properly supported, it is impossible to honestly claim that the right to sustainable development is being respected. In this sense, *adaptation need* is fundamental, and closes the loop that begins with *adequacy* itself. Though there are also limits to adaptation; in these situations there is an additional need to cover loss and damage.

Additional equity indicators:

DEVELOPMENT NEED

- *It is challenging to design proper indicators of sustainable development. Nonetheless, it is clear that the satisfaction of development need, properly defined, is an essential precondition for sustainable development.*
- *Development need is defined in the analysis of capability – relative to either a development threshold or a measure of poverty.*

ADAPTATION (& LOSS AND DAMAGE) NEED

- *The satisfaction of adaptation need is, similarly, an essential precondition for sustainable development.*
- *Adaptation need is the inverse of adequacy – the lower the ambition, the higher the adaptation need.*

INDICATOR LIST

CAN concludes with the following list of equity indicators:

ADEQUACY

- *Adequacy is the first among equity principles. There can be no justice without the stabilization of the climate system. To be sure, this stabilization will only be possible a regime that meets the legitimate development needs of the world's people. There is no contradiction here. It is the nature of the case.*
- *The key indicators here are global emissions budgets & mitigation pathways.*
- *Note that the level of global ambition implicitly defines global adaptation need – the lower the ambition, the higher the adaptation need.*

RESPONSIBILITY

- *The responsibility start date is fundamental. Both global and national cumulative emissions are relative to it. There may be different start dates in the effort and risk sharing contexts.*
- *Responsibility must be calculated relative to a development threshold or a measure of poverty intensity – survival or development emissions should be excluded from this calculation.*

CAPABILITY

- *Like responsibility, capability should be calculated relative to development need or a poverty gap.*
- *Development need can be seen as a function of development threshold and a measure of income inequality. The poverty gap can be seen a function of poverty intensity, however measured.*
- *Additional progressivity can be added to the capability calculation if luxury emissions and implied luxury capability are taken into account.*

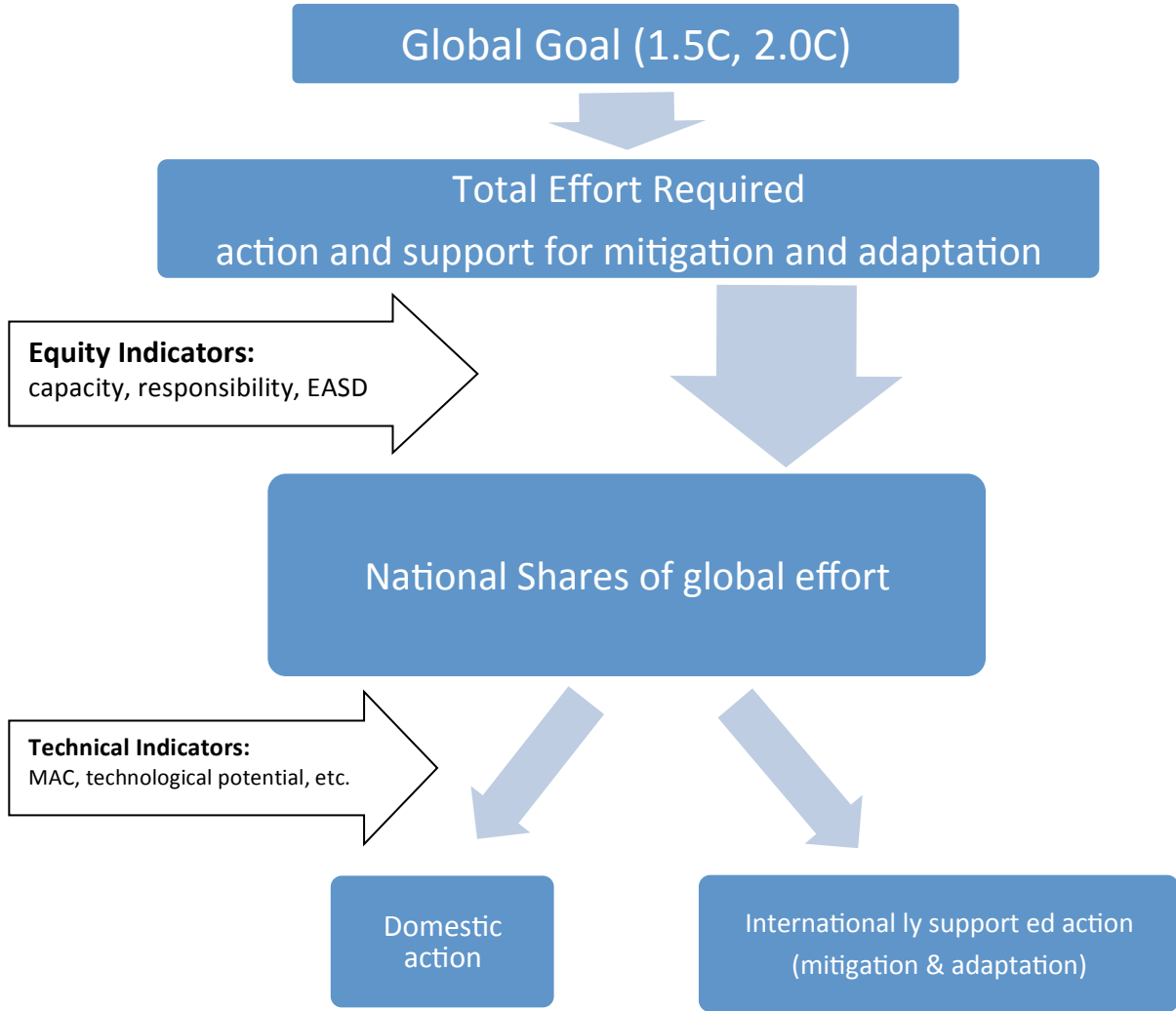
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ADAPTATION (& LOSS AND DAMAGE) NEED

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OVERALL LOGIC



¹ *CAN Fair Effort Sharing Discussion Paper* at <http://www.climate-network.org/publication/can-discussion-paper-fair-effort-sharing-jul-2011>.

² These words are from the 1987 Report of the *World Commission on Environment and Development*, popularly known as the Brundtland commission.

³ On universalizability, see Kant's notion of the "categorical imperative," which states that the only morally acceptable maxims are those that can be taken, rationally, as the basis of universal law.

⁴ The set of all relevant raw indicators is large. Were we to propose a complete Equity Reference Framework (rather than just a list of equity indicators) we would refer to many of them. The only point here is that raw indicators, though essential to the construction of proper equity indicators, are not themselves equity indicators. For example, national population is inevitably a factor in the calculation of national capacity, but it is not, in itself, a measure of capacity. Similarly, the uneven distribution of low-cost mitigation potential is a fact of life, with important implications for the fair distribution of effort, it's still not an equity indicator.

⁵ Anil Agarwal and Sunita Narain, *Global warming in an unequal world, 1991 Centre for Science and Environment*, <http://www.indiaenvironmentportal.org.in/files/GlobalWarming%20Book.pdf>

⁶ See for example the South African contribution to *Equitable access to sustainable development: Contribution to the body of scientific knowledge*, the so-called "BASIC Experts Report" that was published in December of 2011. http://www.erc.uct.ac.za/Basic_Experts_Paper.pdf

⁷ This would be a "raw indicator." For example, an index of Gini coefficients, representing national PPP income distributions, which can be used to generate Lorenz Curves that describe those national income distributions.

⁸ The authors of the "Oxford Capability Index" work out this approach in terms of a "Multidimensional Poverty Index." See Benito Müller & Lavan Mahadeva, *The Oxford Approach: Operationalizing 'Respective Capabilities.'* (February 2013). The summary for policy makers is [here](#), and the technical report is [here](#).

⁹ See Jung Cao, *Reconciling Human Development and Climate Protection: Perspectives from Developing Countries on Post-2012 International Climate Change Policy*, Belfer Center for Science and International Affairs, http://belfercenter.ksg.harvard.edu/publication/18685/reconciling_human_development_and_climate_protection.html

¹⁰ The analogy with a progressive income tax system can be straightforwardly extended by treating income above a given level (e.g., a "luxury threshold") differently. For example, luxury consumption (e.g. long-haul flights to opulent holidays) can be usefully distinguished from, not just development consumption (e.g. safe water, basic health care, food security) but also the routine consumption of the global middle class. Consider a luxury threshold of \$100,000 per person per year (which is close to the income line that defines the global 1%) and the claim that wealth above that level should be weighted more heavily in the calculation of national capacity.