**DRAFT 2.0**

**Does Fairness Matter in International Environmental Governance?[[1]](#footnote-1)**

**Creating an Effective and Equitable Climate Regime**

**Oran R. Young**

**Bren School of Environmental Science and Management**

**University of California (Santa Barbara)**

**Oran.young@gmail.com**

**Abstract**

While practitioners regard considerations of fairness or equity as important factors in efforts to create and implement international environmental agreements, social scientists often adopt a dismissive attitude toward the role of these factors. This article explores this puzzle with particular reference to the creation of an effective international regime to solve the problem of climate change. The first substantive section develops the argument that considerations of fairness or equity become relevant in situations where (i) key actors are not in a position to use coercion to impose solutions on others, (ii) ordinary methods of calculating benefits and costs are not helpful, and (iii) effectiveness requires behavior on the part of a regime’s subjects that conforms to the relevant rules and regulations on an ongoing basis. All three of these conditions are prominent features of the problem of climate change. Turning to the climate regime itself, the next section explores the idea that the critical challenge is to devise an equitable procedure for allocating total allowable emissions (TAEs) on an annual basis, while not ignoring other priority concerns like fulfilling the Millennium Development Goals. It makes the case that the way forward is to allocate TAEs globally on an equal per capita basis, to assign governments to manage permits as trustees for their citizens, and to allow trading of emissions permits on a global scale. One important result of this arrangement would be the transfer of substantial financial resources that poor countries can use to move toward green economies and, in the process, to lift sizable numbers of people out of poverty. The final section turns these findings into policy recommendations for those seeking to make progress toward creating an effective climate regime in the coming years.

**Introduction**

International agreements dealing with largescale environmental issues commonly contain language emphasizing the importance of taking matters of fairness or equity seriously. The 1992 United Nations Framework Convention on Climate Change (UNFCCC), for instance, states that “[t]he Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity …” (UNFCCC 1992 Art. 3.1). The 1997 Kyoto Protocol to the UNFCCC seeks to operationalize this principle through measures such as differentiating between developed (UNFCCC Annex 1) and developing (UNFCCC non-Annex 1) states with regard to targets and timetables for reducing greenhouse gas (GHG) emissions and calling for special measures to protect particularly vulnerable societies, such as small island developing states (Kyoto Protocol 1997). Even the 2009 Copenhagen Accord, widely regarded as a political statement cobbled together following a failure to agree on the terms of a new legally binding agreement on climate change, states clearly that “[w]e shall … on the basis of equity and in the context of sustainable development, enhance our long-term cooperative action to control climate change” (Copenhagen Accord 2009).

There is nothing unusual or extraordinary about the case of climate change in these terms. Similar statements are common in agreements relating to other largescale environmental problems. Yet social scientists, and especially those whose expertise is rooted in political science and economics, routinely dismiss the role that considerations of fairness or equity play in efforts to establish and operate international governance systems dealing with largescale environmental problems. A typical formulation comes from David Victor, a prominent commentator on issues relating to climate change, who writes that “… for most states most of the time, the decisionmaking process is mainly a selfish one. Consequently, there exists very little evidence that fairness exerts a strong influence on international policy decisions” (Victor, 1996:3; see also Victor 2011). What is particularly striking in this regard is that this dismissive attitude is shared for the most part by analysts who espouse neo-realist, neo-liberal, and constructivist perspectives. The neo-realists think that what happens in the world is all about power in the material or structural sense. The neo-liberals focus on the interests of the relevant actors and direct their attention to processes of bargaining or negotiation among self-interested actors seeking to maximize net benefits to themselves. The constructivists direct attention to the role of ideas in the form of discourses or conceptual frameworks, but this does not mean they expect considerations of fairness or equity to loom large in these terms. The influential idea of Gramscian hegemony suggests that prevailing discourses are apt to reflect the views or preferences of the rich and powerful who are not prone to espousing considerations of fairness or equity. Thus, none of the main streams of thinking about international relations finds much evidence indicating that considerations of fairness or equity constitute a force to be reckoned with in creating and administering international environmental governance systems that prove effective in solving problems.

What should we make of this gap? Are the drafters of documents like the UNFCCC and the Copenhagen Accord simply paying lip service to considerations of fairness or equity? Are they cynical representatives of self-interested states trying to deceive others – including members of the attentive public – about what really goes on in efforts to address issues like climate change? Are they perhaps even deceiving themselves, trying to make believe that their efforts involve something more than the pursuit of hard core national interests and that they themselves are enlightened individuals who care about more elevated concerns like the plight of the world’s poor, the destruction of small island developing states, or the fate of the Earth’s climate system?

In this article, I offer an alternative perspective on this complex of issues. Using the case of climate change as a source of concrete examples, I focus on specific conditions under which it makes sense to pay attention to matters of fairness or equity. I argue that there is an identifiable and significant class of environmental issues in which we should expect those trying to solve problems to take considerations of fairness or equity seriously. This argument does not depend on assumptions about the influence of altruistic motives or the existence of some sort of international community that produces deep feelings of social solidarity among members of the international system. Rather, I take the view that most states have good reasons to think hard about matters of fairness or equity when it comes to addressing a well-defined class of environmental problems. The problem of climate change, I argue, belongs to this class.

My argument proceeds as follows. I begin by exploring the characteristics of the class of situations in which it makes sense to think hard about matters of fairness or equity. I then turn to the specific case of climate change, examining issues of fairness as they arise in efforts to address this problem and discussing their implications for climate policy. In the conclusion, I draw on the preceding analysis to distill the most important messages arising from this way of thinking and, in the process, to formulate some recommendations for those responsible for efforts to reach agreement on ways forward in coming to terms with the problem of climate change in the post-Copenhagen era.

**When and why does fairness matter?**

I see little evidence to conclude that the members of international society or the agents who act on their behalf in international negotiations are so deeply socialized regarding considerations of fairness that they respond to such concerns out of a sense of obligation or consider them as a matter of second nature when dealing with largescale issues like climate change. Rather, my argument is that such considerations come to the fore with regard to situations that exhibit a cluster of identifiable features. The most prominent of these features are (i) the inability of key states to pressure or coerce others into accepting their preferred solutions, (ii) the limited usefulness of utilitarian calculations like various forms of cost/benefit analysis, and (iii) the need to foster buy-in or a sense of legitimacy regarding the solutions adopted in order to achieve effective implementation and compliance over time with the prescriptions embedded in any agreements reached. Especially in combination, these conditions produce situations in which states have good reasons to pay attention to considerations of fairness or equity.

Let me address each of these conditions as they arise in the case of climate change. No individual state or cluster of states (e.g. the European Union) has the capacity to impose a solution to the climate problem on other key members of international society. Between them, the United States and China account for almost 45% of current emissions of greenhouse gases (GHG).[[2]](#footnote-2) Any solution to the problem would require active and committed participation on the part of both states. There is no prospect whatsoever that either of these countries can impose its preferred solution on the other. Other major players in this realm include the European Union, Brazil, India, Indonesia, Japan, and Russia. Together, these eight actors account for well over two-thirds of current emissions of GHGs. An agreement among them to launch a forceful attack on the problem of climate change would go a long way toward coming to terms with this problem, though it is already late in the day to be launching a serious effort to tackle the problem in such a way as to fulfill the UNFCCC’s goal of avoiding “dangerous anthropogenic interference with the climate system” (UNFCCC Art. 2). But the politics of this situation make it clear that none of these actors is in a position to force the others into accepting the terms of a climate regime they do not like. Even plausible combinations of these actors, such as China and the US or the EU and the US, are in no position to call the shots with regard to this issue. The terms of an effective climate regime must be acceptable to all the key players, at least in the sense that all the essential players feel that they are getting a fair deal.

By itself, this condition may simply provide an incentive to engage in vigorous bargaining. But add to this the fact that ordinary calculations of benefits and costs are not particularly helpful in addressing the problem of climate change. This is not just a matter of debates about discount rates or the relative merits of different policy instruments, such as cap-and-trade systems, carbon taxes, and conventional command-and-control regulations (Aldy and Stavins 2007). The limitations go deeper than that; they center on fundamental problems in calculating both the likely costs to society of allowing climate change to run its course and the costs of taking the steps required to avoid or at least to mitigate the impacts of climate change. Given the continuing debate about the biophysical effects of projected concentrations of carbon dioxide and other GHGs in the Earth’s atmosphere, not to mention the role of short-term climate pollutants like carbon soot, calculations regarding the magnitude of the costs to society associated with climate change are little more than guesswork. It is not surprising, therefore, that projections regarding these costs range from almost nothing to tens of trillions of dollars. And this is before we even come to questions about the incidence of these costs and about the prospect that climate change may actually produce winners as well as losers. Nor are we in much better shape when it comes to estimating the costs of tackling the climate problem seriously. Optimists, like Nicholas Stern, reckon that we could solve the problem effectively by investing 1-2% of gross world product (GWP) in the near term and that the effect of this effort on the growth of GWP by the year 2050 would be slight (Stern 2007; Stern 2008). They also point out that the actual costs of coming to terms with other largescale environmental problems, like acid rain and the depletion of stratospheric ozone, have turned out to be a fraction of the ex ante cost estimates, especially on the part of those resisting vigorous steps designed to solve such problems. Responsible pessimists (as distinct from climate deniers), on the other hand, anticipate that serious efforts to tackle the climate problem, including adaptation as well as mitigation, would run into trillions of dollars and constitute a significant drag on conventional economic growth (Nordhaus 2007). In short, we simply do not know enough to make useful estimates of these costs; arguments about these matters have the effect of muddying the waters regarding the UNFCCC’s objective of preventing “… dangerous anthropogenic interference with the climate system.”

A third reinforcing condition centers on matters of implementation and compliance and reinforces the other two in providing good reasons to pay attention to fairness or equity. Reaching agreement on the provisions of an international regime is a hollow victory unless those subject to its terms make a good faith effort to implement its provisions and comply with the requirements and prohibitions that form the nucleus of the agreement. This is especially true in a case like climate change where implementation will require substantial changes from business as usual and commitments that will remain in place over an indefinite period of time. Implementation often emerges as the Achilles heel of innovative policies, even at the national level where governments have some capacity to enforce the rules or to provide key players with incentives to alter their behavior in ways needed to conform to new arrangements. The challenge of implementation is considerably greater at the international level where the member states themselves are the subjects of the rules and there is no higher authority capable of compelling or persuading these actors to abide by the rules. As the case of the Montreal Protocol Multilateral Fund in the ozone regime suggests, there are cases in which incentive mechanisms operating at the international level can help to bring on board actors that are willing to comply but lack the capacity to do so in the absence of outside assistance. But this is an unusual – perhaps even unique – case. Providing a similar mechanism in the case of climate change would require the international community to mobilize tens to hundreds of billions of dollars per year over a considerable period of time. The 2009 Copenhagen Accord, which envisions mobilizing $100 billion per year by 2020 to address mitigation and adaptation, offers some basis for hope regarding this issue. But no one expects the UNFCCC Annex 1 countries to provide “new and additional” funding of the sort needed to address issues of mitigation and adaptation effectively during the foreseeable future. This means that there is no way to ensure the implementation over time of the provisions of arrangements like the climate regime unless those subject to the terms of such agreements feel a clear sense of obligation or responsibility to fulfill the commitments they make in the agreements. For the most part, outsiders cannot force regime members to accept and abide by obligations of this sort. What is needed to prompt compliance is a sense on the part of individual members that both the basic terms of the agreement and the process of agreeing on their content are fair.

What are the implications of this line of reasoning for solving problems like climate change? If you cannot force actors to accept the provisions of international agreements, much less to implement them faithfully, and if you cannot demonstrate to them that the benefits of compliance outweigh the costs, the only way forward is to devise governance systems that members feel obligated to abide by because they were developed through procedures regarded as fair and because their major provisions add up to what is widely accepted as an equitable deal. This is not an exercise in applied ethics, much less an assertion about the deontological status of principles of fairness in international society. We would do better, in my judgment, to think of this line of reasoning as making a case for pursuing a form of enlightened self interest. Nor is the view I have presented an attempt to blunt the force of the arguments of those who assert that climate change is a “diabolical problem” (Steffen 2011), though I believe that my argument suggests a way forward in considering next steps in the effort to solve the climate problem. Rather, I want to drive home the proposition that there is an important class of problems arising at the international/global level that cannot be solved in the absence of a concerted effort to devise governance systems that all the major players regard as fair or equitable. Climate change is a prominent example of this class of problems, but it is certainly not the only member of the class.

**What are the elements of a fair or equitable climate regime?**

Looking more closely at the problem of climate change, we can distinguish a number of issues involving equity or fairness that are worth considering in the search for an effective solution (Gardiner et al. 2010). Among the most prominent of these are concerns relating to:

* + The allocation of emissions permits,
  + The internalization of externalities,
  + The treatment of intergenerational issues,
  + The leveling of playing fields, and
  + The attention paid to the broader context.

Space limits preclude an in-depth analysis of all these issues, and they are not of equal importance in meeting the challenge of creating and implementing an effective response to the problem of climate change. Here, I direct attention to the first and last of these issues, suggesting an approach to allocation that embodies a global standard of equity, that might prove acceptable to all parties concerned, and that could go some way toward meeting the concerns of those who remind us of the need to take the broader context seriously.

***Allocating total allowable emissions.***

Suppose we are able to reach consensus regarding the concentration of GHGs in the atmosphere (measured in CO2e) that is compatible with meeting the goal articulated in Article 2 of the UNFCCC together with a schedule for reducing anthropogenic emissions on a year-over-year basis in such a way as to prevent actual concentration from exceeding this level. This would make it possible to calculate total allowable emissions (TAEs) on an annual basis and to develop a formula for ratcheting down TAEs from one year to the next. The next step would be to devise a procedure governing the allocation of these TAEs each year and the schedule of reductions in allowable emissions from one year to the next in such a way as to avoid exceeding the agreed upon target, whether it is set at 350, 450, 550ppmv or some other level of concentration of CO2e in the Earth’s atmosphere. Is there a way to do this that all the essential players might regard as constituting a fair deal and agree to adopt in practice?

This challenge belongs to a well-known class of issues involving the allocation of use rights or permits to use valuable natural resources (e.g. marine fisheries) that are commons in the sense that they are not subject, at least initially, to recognized use rights (Raymond 2003). The valuable resource in this case is the capacity of the Earth’s atmosphere to serve as a repository for wastes in the form of GHG emissions, so long as concentrations in the atmosphere do not reach a level expected to cause “dangerous interference with the climate system.” If we start from the premise that the Earth’s atmosphere is a part of the common heritage of humankind and if we assume that all humans are equal with regard to their entitlement to use this common heritage – as seems only reasonable – then we should adopt as a point of departure the proposition that emissions permits should be allocated in a manner that is proportional to human population and that annual reductions in TAEs should be imposed in the form of equal across-the-board percentage cuts in these initial allocations. Assuming that emissions permits (much like catch shares in some marine fisheries) are tradable and that “major” producers of goods and services worldwide are required to obtain permits to cover their GHG emissions – as also seems reasonable - the eventual distribution of TAEs in any given year will depart substantially from the initial allocation.[[3]](#footnote-3) If the resultant trading system is global in scope and not subject to severe market failures, this arrangement should yield an efficient distribution of TAEs in the sense that permits end up in the hands of those who value them most highly.[[4]](#footnote-4)

This is, in essence, a way to avoid the pitfall of the tragedy of the commons on a global scale. As is true of all such situations, we can proceed either by adopting a strategy of privatization, granting permits to individuals, or by opting for a strategy featuring a role for public authorities, entrusting permits to governments acting on behalf of their citizens (Hardin 1968; Baden and Noonan 1998; Ostrom et al. 2002). Privatization in this case would amount to allocating an equal number of emissions permits to each human beking alive on the planet as of an agreed upon start date. Turning to public authorities, by contrast, would entail relying on governments to act as trustees, managing emissions permits calculated on a per capita basis for all their citizens. Those familiar with the literature on the tragedy of the commons will recognize these options immediately as examples of standard responses to this problem in a variety of settings.[[5]](#footnote-5)

There are good reasons to prefer the public option over the private option in this case, even if we focus on efficiency and favor situations featuring a large role for markets. Privatizing TAEs would lead to a situation fraught with problems. Many individuals would be either unable to understand the nature of these assets or be motivated to liquidate them immediately to address urgent needs (e.g. malnutrition). They would become easy marks for unscrupulous manipulators with money to purchase their assets at cut rates. Such an arrangement also would make it impossible – or at least very difficult – for governments to use these assets to mobilize the resources needed to create social infrastructure and to provide incentives needed to energize economic development or modernization. Of course, many governments are corrupt; it is perfectly possible that powerful individuals would find ways to exploit publicly held or managed emissions permits without taking actions needed to improve the lot of the poor or to provide a broader basis for modernization (Acemoglu and Robinson 2012). Nevertheless, the public option would open up opportunities for governments to take the steps needed to use these assets in a progressive and socially beneficial manner.

Some will dismiss this approach to allocating emissions permits as politically naïve or highly unrealistic, regardless of its virtues from the perspective of fairness or equity. But let me suggest some reasons why this conclusion may be premature. No doubt, powerful actors that are used to getting their way in today’s world (e.g. major oil companies) would advocate some sort of grandfathering procedure that would provide them with generous shares of the TAEs free of charge.[[6]](#footnote-6) And experience in such areas as allocating individual transferable quotas (ITQs) or catch shares in marine fisheries makes it clear that political considerations often play an influential role in this realm (Raymond 2003).

Nevertheless, there are important considerations that cut the other way in the case of climate change. Once integrated into the system, producers of all sorts of goods and services would incorporate the cost of permits into their cost functions and pass this cost along to their customers. So long as the system was global, no subset of producers would enjoy an unfair advantage in these terms. For their part, consumers are used to the fact that prices for most products include the cost of waste disposal. They should not find it hard to understand the unfairness of a system in which producers of some products must internalize the cost of waste disposal, while producers of products generating GHG emissions are not required to include the cost of disposing of these wastes in their cost functions. So long as they are able to pass these costs along to their customers, corporations will not suffer. So long as the resultant price increase for most products is not large, consumers should be able not only to understand the logic of this arrangement but also to acknowledge its essential fairness.

As is the case with all allocation mechanisms linked to population, it will be necessary to establish a baseline, so that countries would not be rewarded for taking steps to promote population growth as a means of upping their shares of the TAEs. There are a number of strategies available for avoiding serious distortions arising from such maneuvering, and it might make sense to make adjustments at regular intervals in a manner resembling redistricting following the decennial census in the United States. To the extent that national governments are responsible for managing shares of the TAEs in trust for their citizens, moreover, it should be possible for the global climate regime to avoid addressing a suite of complex problems that arise when permits are distributed to individuals, including the use of permits as collateral for loans, the treatment of permits in connection with divorce, the transfer of permits to heirs, and so forth.[[7]](#footnote-7)

Equally important is the fact that this allocation system has the potential to solve or at least alleviate several problems that have proven to be major sticking points in the negotiations aimed at strengthening the climate regime. So long as no significant producer of goods and services is allowed to emit GHGs without obtaining valid permits to cover its emissions, this system would lead to a substantial transfer of wealth from emitters to governments acting as trustees for their citizens with regard to the management of shares of the TAEs. The scale of these transfers would depend on a number of things, including the number of permits distributed at the outset, the schedule for ratcheting down TAEs over time, the ability of emitters to come up with inexpensive ways to reduce their emissions, and the rate of economic growth in various parts of the world. But it is reasonable to suppose that, at least at the outset, the transfers in question would amount to several hundred billion dollars per year and that the bulk of these transfers would go to populous countries where a very large proportion of the world’s poor people reside. To the extent that this is the case, it would obviate the highly contentious debates about financial transfers that have emerged as one of the sticking points in efforts to reach agreement on ways to finance mitigation and adaptation under the terms of the climate regime.

Note also that this system can circumvent the problems of selecting a discount rate and finding a direct solution to the problem of fairness to future generations. Presented as a conventional matter of establishing a (social) rate of discount with regard to future benefits and costs, this problem has proved intractable. If we can agree on a TAE for year one and on a schedule for ratcheting down TAEs in subsequent years, on the other hand, there will be no need to tackle the problem of discounting directly. Of course, this procedure does require the adoption of a method of addressing the problem of time. If we agree on an overall target (e.g. 350 or 450ppmv) and on a date by which we must stabilize atmospheric concentrations at this level, we will have agreed de facto to a position regarding the costs of anthropogenic disturbance of the climate system over time. Nevertheless, this way of addressing the problem may prove less contentious than setting a precise discount rate, which is essential to the cost/benefit approach, or reaching some mutually agreeable position regarding the rights of members of future generations, which is a hard proposition to sell in most political arenas.

***Taking the broader context seriously.***

Many observers have noted that we should not become so obsessed with the climate problem that we lose track of all other issues on the international policy agenda. It is true that the climate problem is one of the great issues of our times. A failure to address this problem effectively could lead in the coming decades to serious losses of social welfare, not least among less developed countries already struggling with multiple threats to human welfare. Still, climate is not the only game in town. Among those living on $1-2 a day and struggling to deal with urgent problems of health, education, and welfare, it is understandable that the climate problem may not seem paramount (Collier 2007). If you are preoccupied with the challenges of staying alive this year, the disruptions that climate change may cause a few decades from now or by the end of this century are likely to seem distant and even irrelevant. For shorthand purposes, we can think of this problem as the issue of tradeoffs between addressing the climate problem and focusing our energy on efforts to fulfill the Millennium Development Goals (MDGs). To the extent that efforts to strengthen the climate regime marginalize efforts to fulfill the MDGs, we would be faced with major concerns about fairness (Stern 2009).

How serious is this problem, and is it likely to emerge as a deal breaker in efforts to negotiate agreement on the terms of a strengthened climate regime? This is not an easy question to answer. Much depends on the cost of dealing with climate change and the extent to which we can structure efforts to address climate change in such a way as to address the MDGs simultaneously. If optimists like Stern are correct, we should be able to solve the climate problem and make progress toward fulfilling the MDGs at the same time. A particularly interesting prospect in these terms is that efforts to move toward the creation of green economies needed to reduce GHG emissions may be organized in such a fashion that they also lead to job creation and poverty reduction. There is no basis for expecting that this will happen automatically. But if those who think about these issues in terms of the idea of resource productivity are right, there may well be opportunities to take steps that lead simultaneously to reductions in GHG emissions and the growth of employment opportunities in emerging industries in such a way as to alleviate poverty (von Weizsäcker et al. 2010). If we can succeed in devising strategies of this sort, what may seem initially like an unfair tradeoff between climate change and the MDGs can turn into a synergistic interaction producing win-win outcomes.

The interesting point in terms of this analysis arises from the fact that the allocation mechanism discussed in the preceding subsection should produce significant financial transfers and that a large proportion of these funds should be entrusted to the governments of countries with large populations of poor people (e.g. Bangladesh, India, Nigeria). There is no denying that corruption or bad policies may divert some of these funds to unproductive uses. But such governments could use these funds as a means of financing various forms of low carbon development that would simultaneously address the climate problem and lift sizable numbers of people out of poverty. This proposition assumes that there is merit in the collection of ideas dealing with what is loosely described as a green economy. To the extent that the obstacles to moving in this direction are financial and institutional rather than technological, however, the strategy for dealing with the climate problem under consideration here could make a real difference.

**What does climate fairness demand?**

If we take the argument of the preceding section seriously, what advice can we offer to negotiators endeavoring to strengthen the existing climate regime or to replace it with a more effective alternative arrangement? First and foremost, this analysis leads to the conclusion that we should approach the problem of climate change as a matter of managing the use of a global commons under conditions in which demand for the resource (construed as the capacity of the climate system to absorb additional GHGs without experiencing disruptive change) is now outstripping the supply. This suggests the importance of thinking about this challenge through the lens we have come to think of as governing the commons (Ostrom 1990).

From the perspective of fairness or equity, the crucial step in my view is to calculate TAEs and then to focus on procedures for allocating emissions permits in much the same way as we think about allocating catch shares in marine fisheries. I have made the case for treating the Earth’s climate system as part of the common heritage of humankind and allocating TAEs on a basis proportional to the Earth’s human population. In order to make such a system tractable, it would make sense to appoint national governments to act as trustees in managing the emissions permits allocated to their citizens. Of course, some governments are corrupt, and it would be naïve to assume that such a management regime would operate smoothly in all cases. Nonetheless, the alternatives – some form of private property rights for 7-9 billion people or some sort of common property regime of the sort we can observe in some smallscale societies – seem unworkable in this case. This system for allocating TAEs has a number of virtues. Assuming that all “major” producers are required to obtain permits to cover their emissions, such a system would eventuate in largescale transfers of financial resources to developing countries, thereby circumventing many current debates about funding mechanisms as elements of the climate regime. It would also provide resources allowing developing countries to take vigorous steps toward introducing green economies, thereby alleviating some of the current concerns about unfairness arising from the fact that today’s advanced industrial systems were able to rely on cheap energy derived from fossil fuels to drive economic growth.

What else does fairness require in the development of an effective climate regime? In my judgment, the arrangements described in the preceding paragraphs should go far toward alleviating the issues often described as addressing intergenerational issues and leveling playing fields. To the extent that we create a workable procedure to calculate TAEs on an annual basis (including the year-over-year reductions required to fulfill the objective of Article 2 of the UNFCCC) and to allocate them fairly, we can bypass hot button issues regarding reparations for past injustices and setting aside funds specifically to protect the interests of members of future generations. This approach should also level the playing field for major producers worldwide with regard to terms of trade and provide funds needed by developing countries to move toward green economies without passing through all the stages of energy intensive development that today’s advanced industrial economies have experienced. While all these concerns about fairness are entirely understandable, it seems likely that approaching them through the procedures described in this article has a better chance of succeeding than an approach that features an effort to tackle these contentious issues directly.

On the other hand, I see no way to avoid the issues described in the preceding section under the heading of taking the broader context seriously. Not only does fairness demand a concerted effort to address the issues grouped under the heading of the MDGs; it also seems highly unlikely that major developing countries, like Brazil, China, India, Indonesia, Nigeria, and South Africa, will accept meaningful obligations regarding reductions in GHG emissions that deflect attention from efforts to fulfill the MDGs or siphon off resources required to pursue these goals vigorously. This means that the only way to make real progress in addressing the climate problem is to come up with procedures that link the two sets of issues – solving the climate problem and fulfilling the MDGs – together in a synergistic fashion, so that policymakers will not approach this set of concerns as a matter of making painful tradeoffs between solving the climate problem and promoting sustainable development. This will not be easy. But I believe it can be done, especially if resources are available to allow developing countries to move directly toward the development of green economies. As a number of observers have pointed out, solving the twin problems of climate change and poverty reduction is the grand challenge of our era (Stern 2009). Our lives and those of our children and grandchildren may literally depend on achieving success in efforts to meet this challenge.

**References**

Acemoglu, Daron and James Robinson 2012

*Why Nations Fail: The Origins of Power, Prosperity, and Poverty.* New York: Crown Business.

Aldy, Joseph E. and Robert N. Stavins eds. 2007

*Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World.* Cambridge : Cambridge University Press.

Baden, J.A. and D.S. Noonan eds. 1998

*Managing the Commons.* Bloomington: Indiana University Press.

Collier, Paul 2007

*The Bottom Billion: Why the Poorest Countries and Failing and What Can Be Done about It.* Oxford: Oxford University Press.

Gardiner, Stephen, Simon Caney, Dale Jamieson, and Henry Shue eds. 2010

*Climate Ethics: Essential Readings.* Oxford: Oxford University Press.

Global Carbon Project 2012

“The Carbon Budget 2012,” http://www.globalcarbonproject.org/carbonbudget/

Hardin, Garrett 1968

“The Tragedy of the Commons,” *Science,* 162: 1243-1248.

Kyoto Protocol 1997

*Kyoto Protocol to the United Nations Framework Convention on Climate Change.* Text available at: http://unfccc.int.

Nordhaus, William D. 2007

“A Review of the Stern Review on the Economics of Climate Change,” *Journal of Economic Literature,* 45: 686-702.

Ostrom, Elinor 1990

*Governing the Commons: The Evolution of Institutions for Collective Action.* Cambridge: Cambridge University Press.

Ostrom, Elinor, Thomas Dietz, Nives Dolsak, Paul Stern, Susan Stonich, and Elke Weber eds. 2002

*The Drama of the Commons.* Washington, DC: National Academies Press.

Raymond, Leigh 2003

*Private Rights in Public Resources; Equity and Property Allocation in Market-Based Environmental Policy.* Washington, DC; Resources for the Future.

Steffen, Will 2011

“Climate Change: A Truly Complex and Diabolical Policy Problem,” 21-37 in *Oxford Handbook of Climate change and Society.* Oxford: Oxford University Press.

Stern, Nicholas et al. 2007

*The Economics of Climate Change: The Stern Review.* Cambridge: Cambridge University Press.

Stern, Nicholas 2008

“The Economics of Climate Change,” *American Economic Review,* 98: 1-37.

Stern, Nicholas 2009

*The Global Deal: Climate Change and the Creation of a New Era of Progress and Prosperity.* New York: Public Affairs.

UNFCCC 1992

*United Nations Framework Convention on Climate Change*. Text available at: http://unfccc.int.

Victor, David G. 1996

“The Regulation of Greenhouse Gases – Does Fairness Matter?” unpublished paper.

Victor, David G. 2011

*Global Warming Gridlock: Creating More Effective Strategies for Protecting the Planet.* Cambridge: Cambridge University Press.

von Weizsäcker, Ernst, Charlie Hargroves, Michael H. Smith, and Cheryl Desha 2010

*Factor Five: Transforming the Global Economy Through 80% Improvements in Resource Productivity.* London: Earthscan.

WBGU (German Advisory Council on Global Change) 2009

“Solving the climate dilemma: The budget approach,” a special report. Berlin: Secretariat WBGU.

1. An article prepared for inclusion in Todd L. Cherry, Jon Hovi, and David McEvoy eds., *Toward a New Climate Agreement: Conflict, Resolution and Governance.* [↑](#footnote-ref-1)
2. The latest calculations from the Global Carbon Project put China at 28%, the US at 16%, the EU 27 at 11%, and India at 7% (Global Carbon Project 2012). [↑](#footnote-ref-2)
3. The assumption here is that it will be easier to control the actions of producers of goods and services that generate GHG emissions than of consumers of these goods and services. Still, this formula begs the question of what constitutes a “major” producer. There are various ways to address this issue, none of which is obviously superior to the others. But the key point here is that the requirement regarding permits should extend to all producers in the relevant categories wherever they are located. [↑](#footnote-ref-3)
4. The German Advisory Council on Global Change arrives at somewhat similar conclusions using what it calls a “budget approach” (WBGU 2009). [↑](#footnote-ref-4)
5. I am assuming here that international society is not conducive to the evolution of the sort of informal rules among appropriators of common-pool resources discussed by analysts who study “governing the commons” in smallscale societies (Ostrom 1990; Ostrom et al. 2002). [↑](#footnote-ref-5)
6. This has already happened in the case of the European Emissions Trading Scheme. The sorts of proposals discussed in the US commonly feature similar arrangements. [↑](#footnote-ref-6)
7. For an account discussing these issues as they arise in the case of the Alaska limited-entry permit system for fisheries under state management, see Young 1982, Ch. 6. [↑](#footnote-ref-7)