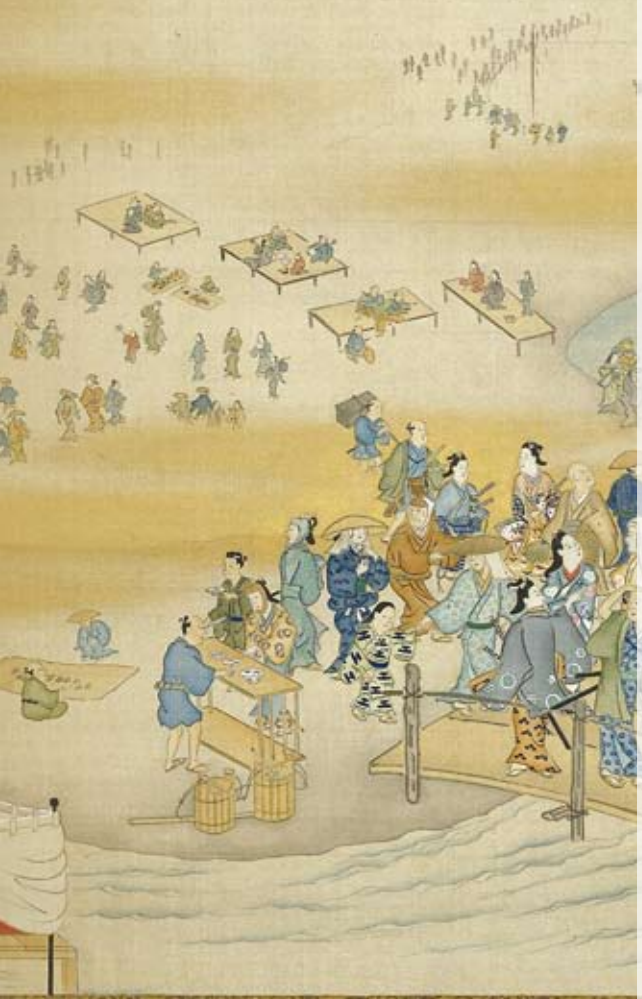
INTERNATIONAL COUNCIL ON HUMAN RIGHTS POLICY



Climate Change and Human Rights

A Rough Guide

International Council on Human Rights Policy

The International Council on Human Rights Policy was established in Geneva in 1998 to conduct applied research into current human rights issues. Its research is designed to be of practical relevance to policy-makers in international and regional organisations, in governments and inter-governmental agencies, and in voluntary organisations of all kinds. The Council is independent, international in its membership, and participatory in its approach. It is registered as a non-profit foundation under Swiss law.

Climate change at the International Council

The International Council added climate change to its research programme in 2007. In addition to this report, which maps the links between human rights and climate change, the Council will prepare a second project in 2008-09 that will examine one issue in more depth. (As this report went to press, human rights questions associated with transfer of technology was the most likely theme.) In addition, the Council is editing a book of articles on climate change and human rights that will be published by Cambridge University Press in 2009. For more information about these pieces of work, please contact the International Council or Stephen Humphreys, the Research Director responsible (at humphreys@ichrp.org).

Cover illustration

 Suzuki Shuitsu, Enjoying the Evening Cool by the Dry Riverbed at Shij. A hanging scroll painting. Japan. Late Edo period, early 19th century AD.

Climate Change and Human Rights: A Rough Guide

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ACRONYMS

ATCA	Alien Tort Claims Act
C&C	“Contraction-and-convergence”
CBDR	“Common but differentiated responsibilities”
CDM	Clean Development Mechanism
CERD	Committee on the Elimination of Racial Discrimination
CER	Certified Emission Reduction
CESCR	Committee on Economic, Social and Cultural Rights
CIFOR	Centre for International Forestry Research
CSR	Corporate Social Responsibility
ECtHR	European Court of Human Rights
EPA	Environmental Protection Agency
ETS	Emissions Trading System (of the European Union)
FAO	Food and Agricultural Organisation
FIELD	Foundation for International Environmental Law and Development
GATT	General Agreement on Tariffs and Trade
GCI	Global Commons Institute
GDR	Greenhouse Development Rights
GEF	Global Environmental Facility
GHG	Greenhouse Gas
IACHR	Inter-American Commission on Human Rights
IBRD	International Bank for Reconstruction and Development
ICC	International Criminal Court
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICHRP	International Council on Human Rights Policy
ICJ	International Court of Justice
IELRC	International Environmental Law Research Centre
IMF	International Monetary Fund
IOM	International Organization for Migration

IPCC	Intergovernmental Panel on Climate Change
IPCC AR4	IPCC Fourth Assessment Report (2007)
IUCN	International Union for the Conservation of Nature and Natural Resources
LDC	Least Developed Country
LDCF	Least Developed Country Fund
MDG	Millennium Development Goal
NAPA	National Adaptation Programme of Action
NHTSA	National Highway Traffic Safety Administration
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the High Commissioner for Human Rights
ppm CO2e	Parts per million of carbon dioxide equivalent
REDD	Reduced Emissions from Deforestation and Degradation
SCCF	Special Climate Change Fund
SPA	Special Priority on Adaptation
TVPA	Torture Victims Protection Act
UDHR	Universal Declaration on Human Rights
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization
WTO	World Trade Organization

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FOREWORD

by Mary Robinson

As I write these lines, new tragedies are unfolding for thousands of individuals and families in China and Myanmar. It is sobering to reflect on how poorly equipped we are to manage the devastation wrought by natural catastrophes. We lack early warning systems, efficient response mechanisms, and – as the suffering of the Burmese people in particular cruelly reminds us – the global solidarity and coordination needed to deliver help where and when it is most needed.

We know there will be more natural catastrophes in future. But they will not always involve horrific headlines and images of hurricanes and tsunamis. More commonly, they will be cumulative and unspectacular. People who are already vulnerable will be disproportionately affected. Slowly and incrementally, land will become too dry to till, crops will wither, rising sea levels will undermine coastal dwellings and spoil freshwater, species will disappear, livelihoods will vanish. Occasional cataclysms will exacerbate these trends. Mass migration and conflicts will result. Only very gradually will these awful consequences reach those whose lifestyles and activities are most to blame.

Climate change will, in short, have immense human consequences.

We have known this for a long time. This report is not by any means the first to draw attention to the urgency of the many human impacts that climate change will entail, nor to broach the difficult justice questions it raises, nor to inquire into its long term implications for development. Each of these concerns has been discussed repeatedly since the United Nations Framework Convention on Climate Change (UNFCCC) was opened for signature in May 1992, and indeed before then. What this report does for the first time, however, is think through the human rights implications of climate change and ask how the substantial body of international human rights law and experience can help us to prepare.

Human rights law is relevant because climate change causes human rights violations. But a human rights lens can also be helpful in approaching and managing climate change. The human rights framework reminds us that climate change is about suffering – about the human misery that results directly from the damage we are doing to nature. Many communities already feel the adverse effects of warming temperatures – yet so far few remedies are available to them. While we cannot say precisely who will be affected in future, or how severely, the signs are nevertheless clear. Where information is still lacking, as it often is, we know where and how to gather it. As this report makes clear, if we build human rights criteria into our future planning, we will better understand who is at risk and how we should act to protect them.

Attending to human rights also means recognizing that as we take steps to address climate change, we must not do so at the cost of the most vulnerable. It is surely possible to repair our environment while still assuring our fellow human beings a path out of poverty and insecurity. Ensuring that good information exists – and that it is in the hands of those most affected – can enhance participation in efforts to prevent and manage climate change. Beyond that, we must design with care global and regional programmes that substitute fuels, preserve forests, apply new technologies, or redesign markets. At each step we must ask where the heaviest burden falls and whether it should be shared otherwise.

Finally, human rights make clear that government obligations do not stop at their own borders. For example, states have a special responsibility to monitor and, where necessary, regulate the behaviour of private entities within their purview, including those operating abroad. This is especially important in the case of climate change, where the causes are generally found in private acts. Large emitters must not fall through the net of a global system that (rightly) imposes different obligations on rich and poor countries. Rather, entrepreneurial ingenuity must be harnessed towards equitable solutions that can target and head off unacceptable human harms.

Climate change already threatens the livelihoods of peoples in distant corners of the world, from North Alaska to the Pacific islands. It is contributing to rising prices for grains and staples that are undermining food security for millions, particularly in countries with unstable weather patterns. It poses a profound threat to development in states that currently lack the resources to fulfil basic human rights.

The scope of these problems – and of the action required to treat them – reach beyond previous human challenges. Yet in the sixteen years since the UNFCCC was signed, global negotiations have proceeded at a glacial pace. We have collectively failed to grasp the scale and urgency of the problem. Climate change shows up countless weaknesses in our current institutional architecture, including its human rights mechanisms. To effectively address it will require a transformation of global policy capacity – from information-gathering and collective decision-making to law enforcement and resource distribution.

This year, as we celebrate the 60th anniversary of the Universal Declaration of Human Rights, it is worth remembering that document's injunction that "everyone is entitled to a social and international order in which [their] rights and freedoms … can be fully realized". Climate change disrupts that order. But perhaps it is also an opportunity, if we are willing to grasp it, to create the kind of international and social order that the framers of the Universal Declaration dreamed of.

Mary Robinson, President, Realizing Rights: The Ethical Globalization Initiative.

FOREWORD

by Romina Picolotti

As this publication goes to press, the Organization of American States has just approved Resolution 2429 on Human Rights and Climate Change in the Americas. The resolution calls on the hemisphere's various development and human rights agencies to help States understand the adverse effects of climate change on the most vulnerable populations of the region, and to build the ability of States to adapt to evolving climate phenomena more effectively.

There is little doubt now that climate change has serious development impacts, and seriously threatens the capacity of individuals and communities to realize their human rights. The causes of global climate impacts, originating historically in industrialized nations, economies, and industrial sectors, not only affect the lives of millions and even billions of people: they also place undue strains on other States to uphold their international human rights commitments. And unfortunately, some of the most climate vulnerable States and communities are also some of the most human rights sensitive.

Thinking about climate change from a human rights perspective is not only a fundamental necessity in terms of guiding our international development policy framework, but also offers us an invaluable opportunity to reappraise the most pressing needs of a highly inequitable global society, with greatly differing social, environmental and economic levels of development.

The international debate on climate change has largely focused on the discussions between a handful of nations in terms of their commitments, or failure to commit, to emissions reductions. Further, much current information, statistics, and policy debate revolves around, and is generated by, States and actors that are part of the climate problem, limiting discussion of their commitments to the costs they are willing to forego in order to slow climate change.

The debate hence is largely focused on the economic and industrial costs of addressing climate change. This emphasis leaves out a more important focus on the human and environmental costs of climate variation to vulnerable groups and climate-sensitive ecosystems. Some of the more active current negotiators pay lip service to their intention to support adaptation, but the reality is that both adaptation actions in developing countries, and the commitments to financing adaptation from industrialized countries, remain far below what is needed.

The global climate crisis is not just a matter of fixing industry so that it can produce profitably and contaminate less. There is a far more pressing issue facing us: how to address the negative climate impacts of development that is irresponsible in terms of its human and environmental costs. Mitigation and adaptation are two fundamental pillars of the climate debate. Technological equity and efficiency (mitigation) and the capacity of communities to brace

themselves in the face of climate change (adaptation), are both fundamental to advance international climate change negotiations.

We need to shift our attention to the opportunities offered by transferring modern technologies (accompanied by financial transfers) from industrialized societies to developing countries, to work towards energy efficiency and security. This will ensure that developing countries can continue to develop while nevertheless working to phase out contaminating industries. It will also benefit many millions of people in some of the world's poorest regions, by providing cost efficient energy solutions that also help the environment.

We also must focus on helping climate vulnerable countries and communities effectively address the disastrous negative impacts of climate change on their quality of life and their ability to protect and realize basic human rights. For the most part, climate vulnerable countries and communities have contributed little or nothing to the current climate crisis, yet they bear a disproportionate portion of its burden. A climate-justice agenda and a proper understanding of the development imbalances caused by climate change, will be critical to effectively infuse the climate change debate with human rights in a way that is equitable for the most climate-vulnerable groups.

Human rights provide a framework within which to think through the risks of climate change and the policy structures and mechanisms required to provide effective responses to those that most need them.

States and affected communities must begin by understanding who is affected by climate change and in what way, so that appropriate policy and normative responses can be devised. As is evident from recent natural phenomena related to climate change – such as droughts, floods, fierce storms, water temperature changes, and habitat destruction, and the devastating impacts on human life and the natural environment these are causing – it is imperative that we address the social dimension of climate change without delay.

Thinking through climate change from a development perspective and through a human rights lens, as the present report recommends, will undoubtedly serve us well as we develop national climate strategies and programs and mitigation and adaptation policies, and as we identify the appropriate and necessary financing, allocate resources, and generally set the tone for future negotiations and global policy geared to equity and balance in our global climate policy.

Throughout this process, nothing is more important than to remember and understand the perspective of the climate victim. It falls to States, and to us, acting as individuals and in organizations, to address the human emergencies that anthropogenic activities are causing in global society, because they threaten our lives, our health, our safety and our environment.

Romina Picolotti, Secretary of Environment and Sustainable Development, Argentina.

EXECUTIVE SUMMARY

This report discusses a spectrum of human rights concerns raised by anthropogenic climate change and by the strategies devised to address it. It does not seek to reframe climate change as a "human rights issue" or to buttress the many existing grounds for urgent cuts in greenhouse gas (GHG) emissions with human rights rationale. Rather, it pinpoints areas where climate change will have direct and indirect human rights impacts, and where human rights principles might sharpen policy-making on climate change, including in the two core policy areas of adaptation (preparing for the unavoidable and foreseeable effects of climate change) and mitigation (reducing GHG emissions in order to curb climate change).

The report is intended primarily as a mapping exercise. It lays out a range of research agendas that deserve greater attention than they can be given here. It also assesses the adequacy of human rights conceptions and processes to the larger justice concerns climate change raises. Although human rights considerations arise throughout climate change policy, the report suggests that human rights applications will be most useful if they are narrowly tailored to specific problems.

The report has five chapters. The introduction provides an overview of human rights concerns raised by climate change and asks why they have received so little attention to date. It discusses briefly the likely drawbacks and potential benefits of applying a human rights optic to climate change, and summarises existing rights-based perspectives on the subject.

Chapter II examines policy. Human rights analyses will be relevant in formulating the detailed research agendas needed to inform overarching climate change policy options, including strategies for mitigation and adaptation. This involves thinking through the long-term human rights impacts of policy choices already on the table. The report introduces the notion of *human rights thresholds* as a means to permit the practical application of human rights norms and standards. One research priority is to refine the assessment of the human costs of climate change for the most vulnerable communities, in order to mobilise substantial adaptation funding and direct it where it is most needed. Human rights thresholds can also assist in planning sound mitigation strategies, to help evaluate or refine policies on forestry, fuel substitution, carbon trading and technology transfer.

Chapter III turns to litigation. Litigants have started to use human rights instruments to address harms caused by climate change, and the chapter tentatively assesses the scope and prospects of human rights and other litigation. As climate change impacts are felt increasingly concretely, human rights cases will multiply. Litigation will remain an important response to policy failures. However when it comes to larger climate change challenges, it will

likely bring too little relief too late. Its usefulness will lie rather in pointing the way towards, and generating support for, the adoption of better policies to prevent or minimise climate change-related harms.

Chapter IV discusses procedural human rights. These are well established under both human rights law and international environmental law and policy. A range of treaties entrench norms of information provision and public participation. These standards might have untapped applications in the climate change context, and may be relevant to the conduct of international negotiations. The design and implementation of effective adaptation policies, for example, will depend on collecting and analysing accurate baseline information. Yet poorly resourced states have received minimal international help in this area. Negotiations on international allocations of adaptation funding have repeatedly stalled and been occasionally acrimonious. The states most likely to suffer severe human rights harms due to climate change often lack the means to compile quality data and to attract broad-based international support. In addressing the resulting trust gap, the report recommends that attention be paid to the principles embodied in treaties such as the 1998 Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters.

Finally, further research is needed to understand the human rights dimensions of several ethical and legal concerns that have consistently surfaced in the context of climate change. Chapter V examines four of these. First, competing justice claims saturate and sometimes distort the climate change debate; but it is not always clear how they interact, and whether the mix of solutions now on the table addresses them adequately or consistently. Second, notions of "equity" and "common but differentiated responsibilities" lie at the heart of the United Nations Framework Convention on Climate Change (UNFCCC), the centrepiece of the evolving international climate change regime. These principles appear to open the way to consideration of human rights claims across borders, but they have yet to fulfil that promise in practice. Third, human rights lawyers are already grappling with the difficulty of assigning liability to public and private actors for climate change related harms. The report reviews this issue and considers structural obstacles that make it difficult to assign fault in this context. Fourth, the report looks at the potential value of the right to development. Though contested, ongoing negotiation of this right has provided an official forum for reflection on human rights and development that may prove constructive in future climate change discussions.

A concluding chapter summarises the report's main findings and suggests what these might imply for future climate change policies and programmes.

I. INTRODUCTION: WHY HUMAN RIGHTS

Two starting points inform this report. The first is that, as a matter of simple fact, climate change is already undermining the realisation of a broad range of internationally protected human rights: rights to health and even life; rights to food, water, shelter and property; rights associated with livelihood and culture; with migration and resettlement; and with personal security in the event of conflict.[1] Few dispute that this is the case.

Moreover, the interlinkages are deep and complex. The worst effects of climate change are likely to be felt by those individuals and groups whose rights protections are already precarious.[2] This is partly coincidence. As it happens, the most dramatic impacts of climate change are expected to occur (and are already being experienced) in the world's poorest countries, where rights protections too are often weak. But the effect is also causal and mutually reinforcing. Populations whose rights are poorly protected are likely to be less well-equipped to understand or prepare for climate change effects; less able to lobby effectively for government or international action; and more likely to lack the resources needed to adapt to expected alterations of their environmental and economic situation. A vicious circle links precarious access to natural resources, poor physical infrastructure, weak rights protections, and vulnerability to climate change-related harms.

At another level, the close relation between climate change and human rights vulnerability has a common economic root. Rights protections are inevitably weakest in resource-poor contexts. But resource shortages also limit the capacity (of governments as well as individuals) to respond and adapt to climate change. Worse, where governments are poorly resourced, climate change harms will tend to impact populations unevenly and unequally, in ways that are *de facto* discriminatory because the private capacity of individuals to resist and adapt differs greatly.

The construction of an international climate change regime too has rights implications. Mitigation policies have clear human rights dimensions. On one hand, any strategy (or mix of strategies) that is successful at global level will tend to determine the long-term access that many millions of people will have to basic public goods. On the other, choices made in the shorter-term – such

1 The present report does not deal with all of these topics directly. On the rights of indigenous peoples under conditions of climate change, see IUCN, 2008. On migration, see IOM, 2008. On gender, see IUCN, 2007. On conflict, see German Advisory Council on Global Change, 2008; European Council Doc. 7249/08 Annex, *Climate Change and International Security*, Paper from the High Representative and the European Commission to the European Council (March 2008).

2 The vast literature on climate change vulnerability raises significant human rights concerns. See, for example, Brooks et al., 2005; Ribot, 1995; Guèye et al., 2007.

as whether and where to cultivate biofuels or preserve forests – will affect food, water and health security and, by extension, the cultures and livelihoods of numerous particular persons in particular places.

Adaptation policies will raise comparable human rights concerns. Adaptation may be reframed as a compensatory or corrective response to potential or actual climate change-related human rights violations. Adaptive interventions before or during climate change impacts reduce the likelihood that rights violations might result from those impacts; adaptation actions after the fact may provide redress where violations have already taken place. Indeed, discussions of adaptation at international and government level (as opposed to autonomous local measures) already assume a rights basis for policy construction, even if it is rarely articulated in those terms. At the same time, adaptation actions can themselves affect human rights – such as, for example, if communities or individuals are forcibly removed from disaster or flood-prone areas, or, less forcibly, expected to conform to new economic policy imperatives (by adopting different cash crops or energy sources, for example).

Despite the obvious overlaps outlined above, the mainstream climate change literature and debate has, until very recently, given little or no attention to human rights concerns.[3] This has been so even though the reports of the Intergovernmental Panel on Climate Change (IPCC) have steadily examined the social impacts of climate change – in particular on food, water and health – and have progressively expanded their sphere of reference to include the social as well as the physical sciences. Nonetheless, perhaps unavoidably, climate change analyses generally remain aggregated at continental or subregional level: the available information is still not sufficiently nuanced to cover the situation of individuals and communities who experience climate impacts directly as rights infringements. This too reflects the resource asymmetries that everywhere inform climate change discussion and research. Information is far more detailed for those areas likely to experience lesser impacts than for those where the consequences will be most devastating.

The paucity of rights-specific information is not, of course, merely a *cause* of the negligible analysis of the human rights dimensions of climate change, it is also a *consequence*. Given their salience to the main themes discussed in the IPCC's fourth assessment report ("IPCC AR4"), for example, it is remarkable

3 The situation is now changing. At its seventh session, in March 2008, the United Nations Human Rights Council passed a resolution on human rights and climate change. See UN Doc. A/HRC/7/L.21/Rev.1 (26 March 2008). The resolution calls on the Office of the High Commissioner of Human Rights to undertake "a detailed analytical study of the relationship between climate change and human rights" for consideration by the Council. A series of projects investigating the link have been initiated at universities and non-governmental organisations and elsewhere.

that human rights are scarcely signalled in almost 3,000 pages of analysis.[4] This would appear to indicate a near complete disciplinary disconnect, an impression borne out by a glance at the 10,000-strong participants' list for the recent (thirteenth) Conference of the Parties of December 2007, among whom no more than a tiny handful hailed from human rights backgrounds. Scanning for human rights "language" is, of course, a poor analytical tool. Similar concerns may be addressed using different terms – and this appears to be at least partly true in this instance. Nevertheless, the choice of language and disciplinary lens will determine to some extent the relevance of certain kinds of information, orientation and response. Since the IPCC reports are essentially literature reviews, the shortage of rights references no doubt indicates a mere vacuum in the literature rather than any conclusion, bias or failing on the part of the IPCC authors. That vacuum says as much about an absence of interest in climate change among human rights professionals to date as vice versa.

Why the silence on human rights?

What explains this mutual disinterest? The primary cause appears to be a kind of disciplinary path-dependence. The study of climate change began among meteorologists, became firmly entrenched in the physical sciences, and has only gradually – if inevitably – reached into the social sciences. The basic orientation has remained pre-eminently, though not solely, economic. Climate change negotiations have centred on consensus-driven welfare-based solutions, approaches that have historically thrived independently of and in parallel to human rights. Human rights organisations, for their part, are unlikely, as a matter of professional orientation, to take up issues framed as "hypothetical" or scenario-based, quite aside from the disciplinary boundaries that have long existed between environmental and human rights law. It may be that consideration of "new and additional" *future* harms simply escapes the ordinary purview of human rights analysis. The confluence is consequently marginal: on the few occasions human rights are mentioned in the IPCC reports, it is almost exclusively in connection with harms that have already taken place.[5]

In addition, experts in either discipline might identify plausible reasons for doubting that a "human rights approach" would assist the formation of effective policies to address climate change. Listed below are five such reasons.[6]

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4 Human rights are mentioned occasionally in IPCC AR4 (each volume is named after its relevant working group (WG)). The discussion of legal instruments for mitigation in Chapter 13 (IPCC AR4, WGIII, pp. 793-794) notes the existence of human rights litigation, without commentary. Passing references also appear, again without analysis, in IPCC AR4, WGII, Chapter 15, p. 661; Chapter 17, p. 736; and Chapter 20, p. 818. See further below pp. 29-31.

5 The Inuit case is the primary example. See the short discussion in IPCC AR4, WGIII, Chapter 13, and in Chapter III below.

6 These schematic points are not intended as expressions of legal doctrine.

The rights at issue are difficult to enforce. Climate change generally (if not exclusively) affects categories of human rights that have notoriously weak enforcement mechanisms under international law – social and economic rights, the rights of migrants, rights protections during conflicts.[7] Even those rights that have strong protections, such as rights to life and to property, are not subject to their normal enforcement procedures, because the harms caused by climate change can be attributed only indirectly to the identified perpetrators. In the absence of strong enforcement institutions, either at national or international level, it is not immediately obvious what human rights can add to a policy discussion that is already notably welfare-conscious, even if focused on the general good rather than on individual complaints.

Extraterritorial responsibility is hard to establish. Under human rights law, a person's government ordinarily has the primary duty to act when rights are violated. In the context of climate change, however, responsibility for impacts in the most vulnerable countries often lies not with the government nearest to hand, but with diffuse actors, both public and private, many of whom are located far away. Human rights law does not easily reach across international borders to impose obligations in matters such as these.[8]

Local accountability is hard to establish. Although countries that lack economic resources and infrastructure are least likely to be major emitters of greenhouse gases, they are most likely to suffer devastating effects of climate change – effects whose human consequences will be worsened by their low capacity to adapt. Resource constraints inevitably impair a state's ability to provide quality public goods to its population. This problem, which underpins the inadequate

7 Nevertheless, human rights bodies, notably the European Court of Human Rights, have found rights violations due to environmental impacts, including of the right to health. See Shelton, 2001, pp. 225-231; Robb, 2001. In a recent case, *Öneryıldız v. Turkey* (App. no. 48939/99, decision of 30 November 2004), the Court found against Turkey for failing to act on an environmental impact assessment, thereby contributing to deaths caused by a methane explosion at a rubbish tip.

8 Extraterritorial responsibility is a fraught area of international human rights law. Existing case law suggests that states have responsibility for (i) state actions taken in other countries, (ii) human rights protections in countries where they exercise "effective control", and (iii) some violations committed abroad by private actors who fall under their jurisdiction. See, for example, *Lopez Burgos v. Uruguay*, HRC Comm. No. R12/52 (1979), Views of 29 July 1981; *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory*, ICJ Advisory Opinion of 9 July 2004; *Coard et al. v. United States*, IACHR Case No. 10.951, Reports no 109/99, 29 September 1999; *Bankovic v. Belgium* (App. 52207/99, Decision of 12 December 2001). However, the case law is sparse and its applicability to climate-related harms unclear. Alternative mechanisms involving "long-arm" domestic jurisdiction – such as the United States' Alien Tort Claims Act – may be of limited potential value. Although state responsibility for extraterritorial violations of social and economic rights has not been widely discussed, the particular harms caused by global warming may generate plausible claims of this kind. See the discussion below, pp. 70-71.

fulfilment of social and economic rights in some countries, has led to the notion of "progressive realisation" of those rights under international law. Under existing circumstances, however, climate change is likely to lead to a *progressive deterioration* of those same rights. If a government cannot be held accountable for failing fully to protect those rights in the ordinary course, it will surely be even harder to hold it responsible for circumstances it did not create.[9]

Emergency conditions limit the application of human rights law. The most severe climate change impacts will be catastrophic – drought, floods, famines, mass migration, wars – and will affect large numbers of people. In such circumstances, a common response is to declare an emergency. International human rights treaties and most national constitutions typically allow for the suspension ("derogation") of many human rights in times of emergency.[10] Emergency regimes are habitually critical or dismissive of human rights constraints, tending instead to adopt an ends-oriented and charity-centred language of humanitarian relief. Governments are empowered to act expediently, with less regard to individual rights and interests that might act as a brake on achieving the greater good. Human rights, traditionally conceived as a bulwark against expansive state discretion, become less relevant as *legal* tools at such times (although their rhetorical force may increase). Indeed, many human rights traditionalists might be expected to oppose climate change action on precisely the grounds that it will empower government, both nationally and internationally, at the expense of individuals.[11]

Rights may conflict. Human rights protect others besides those who are potentially harmed by climate change. Economic actors are also rights-holders and it is foreseeable that some of them will invoke the human right to property or peaceful enjoyment of their possessions to prevent or reduce action on climate change. The right to property has been given a broad interpretation by international tribunals and could be asserted by those who have been licensed to act in ways that harm the environment. Other human rights claims too – such as to culture, or freedom of religion, or family reunion – may bring individuals into conflict with climate change policies. All of these rights, like other rights, may be limited for the public good, and struggles can be expected over exactly where the line should be drawn in such cases. Adversarialism is, of course, part of the

9 Some vulnerable countries are themselves becoming significant emitters, of course. Examples include China and to a lesser extent India and Brazil. In such cases, the relevance of human rights law will depend increasingly on the legal expression and enforcement capacity of human rights norms in the countries in question.

10 For accounts of the applicability of human rights during emergencies see, Inter-Agency Standing Committee, 2006; and OHCHR, 2003, Chapter 16.

11 It has become increasingly common to adopt the language of emergency when referring not only to climate change effects but to the phenomenon in its entirety. Even if this language is intended to be emotive rather than literal, it tends to remove climate change impacts from the ordinary reach of human rights law, at least rhetorically.

ordinary human rights landscape. As climate change policies will necessarily generate choices about the distribution of costs and benefits, the invocation of human rights can be expected to produce struggles, pitting interest groups against one another in a way that is markedly different from the consensus-building and compromise that has traditionally guided climate negotiations.

The above objections are not negligible. But they nevertheless rely, perhaps excessively, on a *legalist* vision of human rights that, if frequently effective, is not necessarily definitive. Legal scholars will quickly recognise a long-standing dichotomy between formal and substantive justice: the hard rule-of-law formalism of human rights on one hand versus the soft law, policy orientation of the UNFCCC on the other. The ethical language of "equity" and "common but differentiated responsibilities" of the UNFCCC has a quite different texture to the moral certainty and universalism of statements like the Universal Declaration on Human Rights (UDHR) and the international human rights covenants. Indeed "equity", as it appears in the UNFCCC, might be thought difficult to reconcile with the formal equality that underpins human rights law, much as the UNFCCC's distinction between "Annex I" (wealthy or "developed") and "non-Annex I" ("developing") countries seemingly runs counter to the universal obligations held by all countries under human rights law.[12] Fortunately, however, as this report will show, the two approaches are not mutually exclusive.

Possible benefits of a human rights policy orientation

As harms due to climate change are increasingly felt, it is very likely that many of those affected will turn to the hard law language of human rights for protection. Indeed, this is already happening.[13] However, human rights can be articulated in registers other than law. In approaching climate change, a case might be made for a less legalist application of human rights principles to the climate change field, in favour of an approach better suited to the immense policy challenges that lie ahead. Five potential benefits of such a policy orientation are identified below.

Human rights prioritise harms to actual persons. As mentioned, human rights discourse cannot easily sustain discussion of hypotheticals: it reverts quickly to actual facts and outcomes. But this can be an advantage. In a debate necessarily steeped in scenarios and probabilities, human rights law requires that hard lines be drawn where possible. The important questions about impact scenarios would then be: *who*, precisely, is likely to suffer *what* and *why*? Human rights standards provide **thresholds** of minimum acceptability.[14]

12 See Chapter V below.

13 See Chapter III below.

14 The notion of human rights as thresholds is borrowed from the work of Simon Caney. See Caney, 2005, 2006 and forthcoming (2008).

If an effect of climate change is to cause the living conditions of specific individuals to sink *below* these understood thresholds, it might be considered unacceptable (or even unlawful). This approach (discussed in more detail in the following chapter) is more modest than one that argues for equal rights to the atmosphere, or to a given level of aggregate prosperity, or to the notion of "utility maximisation" common in economic analysis. Because it is modest, achievable and fair, and uses a language to which few will object, a policy orientation based on human rights thresholds potentially provides a platform for broad-based dialogue on burden sharing of a kind that has frequently lacked in climate change debates.

Looking forward, mitigation and adaptation policies too might be framed or evaluated by reference to human rights thresholds. Deforestation, biofuel substitution, even emissions trading will all lead to outcomes that, like climate impacts themselves, can be reviewed in advance for their likely human rights effects. If specific policies are forecast to lead to faltering rights fulfilment, they could be altered or rejected. For vulnerable states, a focus on affected populations rather than (or in addition to) environmental damage may prove useful in mobilising international assistance.[15]

Ethical demands translate into legal obligations. Human rights thinking habitually resituates ethical imperatives within a legal framework. Observers of climate change negotiations have long noted that the distribution of climate change impacts is inherently unfair: the costs are carried less by those who created the problem than by innocent others elsewhere. One long-standing ethical worry has been that this original injustice will be reproduced throughout an international climate regime, allowing the beneficiaries of carbon overuse to pass their costs onto others distant in time or space. This hard ethical problem has always been close to the heart of climate change negotiations. It is unlikely that human rights law can resolve it. But human rights values might usefully refocus or perhaps help to ground the debate.

Accountability. The human rights preoccupation with accountability might be helpful in constructing a climate regime. In general, international environmental treaties have been slow to introduce judicial instruments or other mechanisms of direct accountability, preferring to emphasise collaborative action. However, as the climate regime extends, as the urgency of addressing the problem grows, and as the instruments involved increase in complexity, accountability is likely to become more important. Accountability mechanisms of some sort will be needed to underpin any functional climate regime, because compliance will be

15 Thinking of human rights as thresholds also has a bearing on the distribution of responsibilities when addressing climate change. Those who are extremely disadvantaged should not be required to pay the costs when doing so pushes them below a certain threshold.

vital to credibility.[16] This is an area where human rights activists and lawyers have relevant experience – for example, of identifying and endeavouring to mend (albeit with limited success) the institutional gaps that obstruct the prosecution of transnational private actors for human rights violations. The incorporation of human rights assessments in policy projections could also help to determine who is accountable for what, and how accountability should be attributed.

Focus on the most vulnerable. Human rights analysis and advocacy have always paid particular attention to those who are on the margins of society as a result of poverty, powerlessness, or systemic discrimination. It is widely acknowledged that social and economic vulnerability greatly increases the risk of suffering from the impacts of climate change. Those who are less well off often lack the information or resources to make informed choices on adapting to or otherwise avoiding future damages.[17] They are also less likely to have a sustained voice in, or influence over, policy-making, and so in times of crises the vulnerability of marginalised groups can increase dramatically. A human rights focus can redirect attention to people who are otherwise likely to be ignored or unheard. Where communities are already living in precarious circumstances (shanty towns, polluted or otherwise fragile environments), posing human rights questions may help to locate some of the hazards posed by climate change – from desertification, water salination, sea level rise, and so on – as well as those who are most at risk from them. Particularly in countries and societies where poverty is linked to discrimination – ethnic, racial or religious – an analysis sensitive to the dynamics that drive exclusion is likely to foresee future trends and vulnerabilities more clearly.

Procedural guarantees. Various doctrines of procedural or process rights have evolved within human rights law, many of which have been adopted in international environmental law.[18] In principle these can help those harmed by climate change to influence policies that affect them, and can assist policy-makers to understand and take account of public needs. These rights are particularly relevant to adaptation policy and will be discussed further in Chapter IV below.

Taken together, these strengths suggest that human rights could play a valuable role during climate change negotiations and when implementing policies, particularly in ethically fraught areas. Human rights supply not only legal imperatives, but also a set of internationally agreed values around which common action can be negotiated and motivated. They provide a language of

16 See the discussion in Stern, 2006 ("The Stern Review"), Part VI, Chapters 21 and 27.

17 See text at note 2 above.

18 Notably Principle 10 of the 1992 Rio Declaration on Environment and Development, and the 1998 Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters ("Aarhus Convention"), discussed below in Chapter IV.

minimum thresholds, legally defined, about which there is already widespread consensus. They are potentially very relevant where the recent Bali roadmap, for example, speaks of "a shared vision for long-term cooperative action … taking into account social and economic conditions and other relevant factors".[19] The rule-of-law formalism of human rights practice might even provide backbone for the ethical aspirations and policy assumptions embedded in such language.

Rights-based perspectives on climate change

Several attempts have been made to place rights at the centre of the future climate change regime. These have not, however, generally been human rights-focused: they have not been based upon or referred to human rights law, jurisprudence, policy experience or practice. When human rights have been invoked, it has been in a schematic fashion, as a set of background ethical assumptions that, for example, everyone has an equal entitlement to "fair treatment" in a "just" climate change regime, particularly in the context of mitigation options.

A general premise underlying many rights-based approaches to climate change mitigation is the distinction between "luxury emissions" and "subsistence" or "survival emissions" first put forward in 1991 by the India-based Centre for Science and the Environment, and further consolidated by the political philosopher Henry Shue.[20] Rather than assuming that everyone has an equal right to emit greenhouse gases in a world where overall emissions must be limited, the model distinguishes the use of carbon fuels (and other GHG sources) to fulfil *basic human needs* from use to perpetuate luxurious lifestyles. Whereas the former might be regarded as a fundamental (or human) right, the latter cannot be. This intervention has proved helpful by contrasting excess GHG use in some countries with continued need for future GHG use in others. The problem then becomes one of redressing an imbalance, which in turn involves inter-state obligations. This case might arguably be strengthened by linking "subsistence emissions" to the satisfaction of basic human rights, such as to food, health, water and so on – on the grounds that these rights are already widely accepted and governments are already bound by them. There have been curiously few attempts to explore this connection, however.[21]

19 Decision -/CP.13, Bali Action Plan (Advance Unedited Version), Article 1(a). See also the Stern Review, 572-3. The Bali Action plan is online at http://unfccc.int.

20 Agarwal and Narain, 1991; Shue, 1993.

21 A recent exception is the "greenhouse development rights" framework, discussed further below. One reason for caution in reading human (social and economic) rights into any right to "subsistence emissions" might be a concern that obligations would then be deflected from the governments of countries producing excess luxury emissions onto those in low-emission countries, who are less responsible. These issues are treated more fully in Chapters II and V below.

The best known rights-based approach to climate change mitigation is the "contraction-and-convergence" (C&C) framework presented by the Global Commons Institute (GCI) at the second Conference of the Parties in 1996. The idea, very briefly, was to articulate a long-term mitigation regime that, while reducing the overall amount of greenhouse gas in use over time, would *also* equalise greenhouse gas emissions per person on a global scale over time. In such a regime, as overall global emissions dropped, the fall would be more precipitate in wealthy countries, while usage in poorer countries would continue to rise for a period in line with their greater development needs – towards convergence between rich and poor countries at some point in the future. Initially, GCI abjured the term "rights" in reference to C&C – because they regarded the atmosphere as a global commons that "cannot be appropriated by any state or person".[22] Today, however, GCI claim that C&C "establishes a constitutional, global-equal-rights-based framework for the arrest of greenhouse gas emissions".[23] This appears to be in line with a general shift towards the language of rights in the climate change arena.

Whereas the "rights" at issue in models such as C&C amount to speculative universal "rights to emit", with no obvious basis in human rights law, they might be considered to derive from the "right to development", which is mentioned in the UNFCCC.[24] This would depend on demonstrating that "subsistence emissions" were in fact required to achieve basic human rights, a claim that is at least plausible. The right to development has declaratory (non-binding) status under international law, and has been a subject of protracted discussion within the United Nations.[25] Whatever its doctrinal status, discussion of this right has evolved with time, gradually providing elements of a bridge between the languages of development and human rights within the UN. It may therefore be helpful in any investigation of the human rights implications of climate change.

One recent model for GHG mitigation is explicitly based upon the right to development: the "greenhouse development rights" (GDR) framework put forward in 2007 by Tom Athanasiou, Paul Baer and Sivan Kartha.[26] They suggest

22 AGBM/1.9.96/14, "Draft Proposals for a Climate Change Protocol based on Contraction and Convergence: A Contribution to Framework Convention on Climate Change," Ad Hoc Group on the Berlin Mandate, 1996, at www.gci.org.uk/contconv/protweb.html. The authors suggest using "quotas" rather than rights.

23 See www.gci.org.uk.

24 UNFCCC, Article 3(4): "The Parties have a right to, and should, promote sustainable development." In this ambiguous wording, however, the guaranteed right appears to be the state's "right to promote" development.

25 See for example Saloman, 2005. See contributions to Andreassen and Marks, 2006; Alston, 2001, p. 283. The right to development is discussed further in Chapter V below.

26 Baer et al., 2007. The report was co-produced by the Stockholm Environmental Institute, EcoEquity and Christian Aid.

that the climate change regime should give priority to violations of human rights (to food, water, health and shelter) associated with current low levels of development. In terms of allocating rights and duties, the GDR framework is less concerned with convergence towards equivalent emissions than with ensuring that all countries are permitted (and aided, where necessary) to reach a comparable "development threshold" at which basic rights might be fulfilled.[27] The GDR framework offers pointers for determining the level at which different countries should cap their GHG emissions and emphasises the importance of technology transfer, swift and substantial adaptation funding, and other forms of assistance. These require levies on wealthy countries, which the authors calculate on the basis of excess GHG usage.

Finally, a rights-based approach has, in fact, been adopted at the heart of the climate change regime through the emissions market introduced by the Kyoto Protocol. Rights to buy or sell emission reductions amount in effect to rights to emit for those who obtain them. Questions might be raised about the appropriateness of allocating use rights to the atmosphere in an alienable – as opposed to inalienable – guise. As noted above, when rights to the atmosphere were put forward in the early climate change debates, they were consistently treated as fundamental, universal and inalienable. Their legal incarnation, however, has instead taken the form of exclusive tradable commodities. The ease with which this notion passed into international law (in the Kyoto Protocol) arguably demonstrates the comparative facility of establishing new property rights under international law as compared with new human rights.

Even though human rights play an increasingly prominent role in each successive rights-based appraisal of climate change, the latter have remained generally utilitarian, relying on cost-benefit and other economic analyses. They draw on human rights primarily for their normative value, to underpin distributional justice models, and give little weight to their achieved positive status under international law. Existing approaches mobilise human rights rhetoric in the interests of conceiving a just global regime for mitigating climate change, but do not examine specific human rights violations resulting from climate change or consider actions to address it. They speak about human rights as a means to spur climate change mitigation; they do not broach climate change policy in order to mitigate human rights violations that might result from it.[28] To note this is not, of course, to criticise these approaches. It is simply to register how few attempts have been made to apply international human rights tools to address harms resulting from climate change. The remainder of this report suggests what such an application might look like.

27 The "threshold" is schematically set at US$ 9,000 per capita at purchasing power parity.

28 Some organisations have called for adaptation transfers on the basis that adaptation funding should be viewed as "compensation" for harms inflicted by the actions of the rich world. This model too invokes human rights as an ethical rather than a legal imperative. See, for example, Oxfam International, 2007.

Rights, needs, development and the state

This report draws on the vocabularies of two different bodies of policy and law that do not always sit easily side by side. Certain terms familiar from one register sound jarring in the other. Human rights are presumptively universal. There is little obvious space for "equity" or for distinctions between countries along the lines of "developed" and "developing".[29] By contrast, climate change law and policy have striven to avoid absolute claims in favour of a flexible and discretionary "framework" language better suited to guiding compromise and consensus. This short section teases through some definitional issues that arise at the intersection of these discourses.

In this report, the term "human rights" refers to the core set of rights proclaimed under international law on behalf of all individuals, regardless of "race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status".[30] The primary source texts are the 1966 International Covenants on Civil and Political Rights (ICCPR) and on Economic, Social and Cultural Rights (ICESCR), both of which derive from the 1948 Universal Declaration on Human Rights. The two Covenants are legally binding on all states that have ratified them – the vast majority of the world's countries – and are supplemented by further binding treaties that protect the rights of children, migrant workers, and people with disabilities, and that prohibit torture as well as racial and gender discrimination. Regional binding human rights treaties also exist within Africa, the Americas and Europe. All these texts are further supported by the case law of international, regional and national courts, by a body of "soft law" (that is, non-binding resolutions and other texts from international bodies such as the UN General Assembly), and, to a lesser degree, by the doctrinal analyses of international lawyers and scholars.

The human rights laid out in these documents are generally referred to as "civil and political" on one hand and "social, economic and cultural" on the other. The former include rights to life, liberty, property, freedom of expression and assembly, political participation, a fair trial, privacy and home life, and protection from torture. The latter include rights to work, education, social security, to "enjoyment of the highest attainable standard of physical and mental health", and to "adequate food, clothing and housing, and to the continuous improvement of living conditions". Whereas the former rights are typically guaranteed through judicial mechanisms, including at international level, the latter have generally been dependent upon domestic welfare mechanisms in the absence of any dedicated international judicial machinery.[31]

29 See Chapter V below.

30 Common Article 2(1) of the International Covenant on Civil and Political Rights and the International Covenant on Social, Cultural and Economic Rights.

31 Social rights have increasing judicial traction. An Optional Protocol to the ICESCR, currently being developed, would create an international tribunal for these rights.

Human rights therefore capture a range of concerns that are evidently relevant to climate change, including many that are elsewhere framed as "basic needs". For example, the assertion in the first Article of both Covenants that "[i]n no case may a people be deprived of its own means of subsistence" is clearly relevant where a changing climate is having precisely this effect.[32] To speak of basic subsistence needs (water, food, healthcare, shelter and so on) in terms of rights means more than merely to adopt a legal vocabulary in place of a charitable one. It also implies referral to a body of internationally agreed norms that have raised those needs to the level of entitlements for all. Under human rights treaty law, the duty to fulfil these entitlements lies with states (not with private actors or the "international community"). Each state that has ratified the ICESCR has a duty to "respect, protect and fulfil" the rights laid down in that treaty for those coming within their jurisdiction, and these duties have their own specific scope under the treaty. The obligation to *respect* a right means the state must take no steps that would violate that right; the obligation to *protect* requires states act to ensure that other actors, including private and international actors, are not permitted to violate the right; the obligation to *fulfil* requires that states take steps over time to "progressively realise" citizens' rights to food, shelter, health, education and so on.[33] The Committee on Social, Economic and Cultural Rights, which is the UN body that oversees the ICESCR, commonly requests that states demonstrate constant progress in the fulfilment of these rights. The Committee further provides guidelines on how human rights assessment can be integrated into development planning.[34]

States are thus the central actors in both regimes: they carry the primary responsibility for protecting human rights, and this responsibility extends into the negotiation of a solution to climate change. In the latter negotiations, states implicitly set in place global conditions that will affect the protection and fulfilment of human rights for which they are responsible at home. That responsibility should (and does) influence the negotiating positions states take. Poor countries have good reason to fear, for example, that emissions caps will adversely impact their obligation to respect, protect, or fulfil basic social rights. According to the ICESCR, states have an obligation to "undertake steps, individually and through international assistance and cooperation" to fulfil rights, and are required to use "the maximum of its available resources" to that end (Article 2). This would seem to indicate not only that recipient states must

32 ICHRP would like to thank Kate Raworth of Oxfam for this point.

33 See for example UN Docs, E/C.12/1999/5, CESCR General Comment No. 12, The right to adequate food (Article 11) (12/05/99); E/C.12/2002/11, CESCR General Comment No. 15, The right to water (Articles 11 and 12) (2002); E/C.12/2000/4, CESCR General Comment No. 14, The right to the highest attainable standard of health (Article 12) (11/08/2000). There are 149 states parties to the ICESCR. The United States is not among them, having signed but not ratified it.

34 UN Doc. E/C.12/1991/1, Revised general guidelines regarding the form and contents of reports to be submitted by states parties under Articles 16 and 17 of the International Covenant on Economic, Social and Cultural Rights (17 June 2001).

channel international assistance firstly to ends that will alleviate rights deficits, but also that they are obliged, in accepting aid, to refuse "conditionality" that might undermine those rights, including in climate change related funding. Indeed, on these grounds, recipient countries might themselves impose conditions on any funds accepted.

However, while the ICESCR, reinforced by the Committee's commentaries, encourages wealthier states to provide assistance to other states to fulfil social and economic rights, there is no binding obligation upon them to do so. A binding obligation to provide assistance does appear, however, in the climate change regime. As discussed in Chapter V below, the UNFCCC requirement on wealthy states to provide "new and additional" funding for adaptation is arguably stronger than the duty of international assistance under human rights law, and is applicable to broadly similar activities. There is presumably scope for mutual reinforcement between these complementary treaty obligations.

Although social and economic rights are clearly relevant to economic development in "developing countries", the language of rights has only been partially integrated in development discourse. The reasons for this are too complex to enter into here. While a number of bilateral development agencies and development non-governmental organisations (NGOs) have explored a variety of "human rights-based approaches" and UN agencies have "mainstreamed" human rights, in practice their adoption has been uneven and international financial institutions, multilateral development banks and private foreign investors have largely refused to adopt a human rights methodology. Indeed the very applicability of international human rights law to these actors has often appeared uncertain, given that they are neither states nor, so it is argued in some cases, subject to specific territorial jurisdictions. Furthermore, international law provides no clear means to evaluate development activities for their rights outcomes or to hold the principal development actors to account on this basis.[35] The relationship between development and rights remains, as a result, complicated; and their integration in terms of practice is at best a work in progress. This partly explains, no doubt, the relative neglect of human rights in climate change discussions.

The present report follows the UNFCCC in speaking of "developed" and "developing" countries but recognises that these categories are simplistic. Neither category is monolithic: each contains countries that have very different characteristics in terms of those who need most protection from climate change harms and those who bear most responsibility. Similar differences exist within individual countries, both rich and poor. Elite groups in poor countries occupy a disproportionate share of the environmental space as they do in rich countries, and these groups are often allied. Powerful political and economic links exist between "North" and "South"; and the major companies in large developing

35 The literature on the human rights obligations of the main development actors is voluminous. For a good recent overview, see Tan, 2008a.

countries are increasingly significant global producers in their own right. Finally, the responsibility and negotiating stances of outlier countries, particularly those that act with least apparent regard for the shared environment, such as the United States and China, need to be viewed in a distinct and nuanced manner. So whereas the report speaks of "developed" and "developing" countries because the terms are legally significant in the context of the UNFCCC, the language is used for convenience rather than for its precision.

II. HUMAN RIGHTS AS THRESHOLDS: POLICY GUIDANCE FOR MITIGATION AND ADAPTATION PRIORITIES

This chapter argues that closer attention to the foreseeable human rights consequences of climate change, and of the policies to address it, will improve those policies. Drawing on the notion of human rights as "thresholds", it suggests that human rights analysis might add to the knowledge-base upon which climate change predictions rely, and so feed into appropriate policy responses. The chapter examines, first, the need to locate likely human rights harms in order to orient adaptation policies for current and future climate change impacts. Second, it suggests incorporating human rights criteria into longer-term assessments of mitigation strategies, particularly where these will lead to redistribution of resources and where they will affect future development prospects.

Although, as suggested earlier, human rights activists frequently privilege fact over speculation and may harbour a suspicion of "pre-emptive" action, forward thinking is nevertheless fundamental to human rights protection. Law enforcement and judicial systems are themselves deterrence mechanisms, warding off future violations via the threat of punishment. The distinction between facts (in human rights) and probabilities (in climate change) is one of degree: the probability of a given human rights violation taking place can – like a predicted climate change impact – increase or diminish over time according to the relative robustness of the institutions designed to prevent it. Seen from this perspective, a significant portion of human rights advocacy is also concerned with hypotheticals: calling for new laws, reforming judiciaries, training police officers are all means to prevent human rights abuses or at least reduce the *probability* of future occurrence.

But there is a difference. Whereas human rights prevention mechanisms are familiar to lawyers and policy-makers, and can be pictured and planned following known designs, even where they do not yet exist, those needed to prevent damage from climate change are still largely speculative. The means of prevention are as hypothetical as the impacts they must prevent; indeed more so, given the unpredictable feedback effects of many interventions. This has made climate change forecasting highly dynamic, reliant on multiple feedback loops. Predicted impacts are constantly readjusted to take account of varying or changing assumptions. Innumerable mitigation, adaptation and development paths can be designed, each with different baseline assumptions and impact ranges. Tweaking any one aspect of a given input – scientific, economic or social – leads to domino alterations elsewhere. Human rights impacts are a relevant aspect of that dynamism, subject to different levels of protection and fulfilment under different scenarios, but to date they have not been factored explicitly into calculations. To mobilise the policy value, and indeed the legal force, of human rights in the construction of a climate change regime, therefore, requires

the injection of likely human rights impacts and outcomes into the dynamic forecasting that already characterises climate change scenario construction.

Human rights thresholds in practice

Human rights risks will arise when there are reliable expectations that coastal cities will be flooded, or desert regions will suffer drought, or food shortages will become severe, or insect-borne diseases will flourish. If these outcomes result in migration or conflict, further rights are threatened.[36] Even under best case scenarios today, certain impacts cannot be avoided. Their human rights risks and consequences are already being felt. The climate literature now devotes considerable space to evaluating the human impacts of global warming, on food, water and health. Yet climate change scenarios remain broad brush, constrained to take sweeping overviews rather than locating specific harms. Factoring future human rights threats explicitly into climate change scenarios would provide an analytical tool for refocusing climate change impacts more narrowly on their likely human costs. This would in turn help not only to determine whether human rights risk being breached, but also to identify future duty-bearers and the adequacy of response institutions and redress mechanisms.[37]

One way to organise data collection and modelling of this kind might be to think in terms of human rights thresholds: levels of protection for individual rights which can be regarded as the minimum acceptable outcome under a given policy scenario.[38] A policy requirement that basic threshold levels should not be breached – either as an effect of climate change itself or as a by-product of a given mitigation or adaptation policy – ought not to be controversial, especially as such a goal is also a legal requirement for policy-actors. Basic human rights standards are broadly accepted. In addition such a goal is modest. It does not require large-scale social engineering or assume equal and universal access rights to the atmosphere – as contraction and convergence arguably might. Nor does it involve epic calculations across vast datasets. Rather essential needs are identified for attention on the basis of their likely breach, and further resources can be concentrated on assessing and mitigating risk by finding appropriate technological and institutional fixes.

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36 A recent report by the International Organization for Migration attempts to extrapolate likely future migration trends due to climate change on the basis of three different climate scenarios described in IPCC AR4. See IOM, 2007 pp. 27-31.

37 The General Comments of the UN's Committee on Economic Social and Cultural Rights are relevant here. See, for example, UN Doc. E/C.12/2002/11, General Comment No. 15 (2002), The right to water (Articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights), para. 8. This highlights the link between "environmental hygiene", safe drinking water and health, stating among other things that "States parties should monitor and combat situations where aquatic eco-systems serve as a habitat for vectors of diseases…".

38 See Caney, above note 14.

Embedding human rights thresholds into policy objectives might first involve reviewing existing climate change scenarios to identify specific human costs across time and in different places, and then asking how countries – provincial and local governments, and eventually communities – are equipped to respond (socially, financially, technologically and institutionally). Down the road, real-time monitoring would need to be supplemented by predictive forecasting of human rights threshold levels under a series of scenarios.

Such scenario building would help guide both adaptation and mitigation policies. Since it is widely recognised that some impacts are now inevitable, adaptation measures are already required for countries likely to be hardest hit. However existing adaptation plans and funding have run into numerous obstacles and continue to advance with difficulty. Identifying likely transgressions of human rights thresholds would refocus attention on the human priorities that ought to drive debate. At the same time, building human rights assessments into long-term mitigation and adaptation scenarios would refine and improve policies, and provide criteria for their adoption or rejection.

Straightforward as this may sound, it is far from easy. Nothing in human rights reporting compares to the close monitoring and reporting on oceanic and atmospheric changes that has generated more than 50 years of records. Nothing compares either to the panoply of measurements and tools that scientists take for granted – not to mention the complex of tested assumptions, empirical data and computer generated modelling techniques that have been so essential to climate change analysis. Clearly a major investment in information gathering will be needed, especially in countries that are likely to be most affected and least equipped to conduct monitoring of this sort. New tools and techniques will be required, as well as a vast effort in training and capacity building, because so much of the information must be gathered locally at multiple locations. Moreover, although each element appears simple in itself (as does measurement of gas concentrations, ocean temperatures, rainfall, and so on, taken individually), collating such information cogently will be demanding. Yet without such an effort, foreseeing and managing the human consequences of adaptation and mitigation policies will be guesswork at best.[39]

Viewing climate change impacts in terms of human rights thresholds will raise a number of questions that have barely been touched upon to date. Take, for example, the level at which global warming becomes "dangerous".[40] The consensus (until recently) that an average rise of no more than 2°C from preindustrial levels is acceptable may appear reasonable from an aggregate perspective, but will appear much less so to those for whom such an increase involves irretrievable losses to livelihood and culture, or those living in places

39 A useful model here might the French early warning system introduced following the severe heat waves of 2003.

40 See UNFCCC, Article 2.

likely to experience warming at higher levels than average.[41] While a cost-benefit analysis might conclude that hardships in one place can be set off against benefits in another, such calculations are impermissible for human rights, which views each individual harm on its own terms.

Further questions arise once it is acknowledged that average global warming is in fact unlikely to remain below the "dangerous" 2°C.[42] The pool of individuals certain to be affected grows with each incremental increase in the global level of warming. Should all those caught in this pool be compensated? If so, by whom? Will they have viable claims? Or will it make more sense, having identified those most at risk, to channel resources in advance towards actions that will ward off their future predicament? In either case, there is a solid argument for identifying as far in advance as possible the likely victims and the mechanisms needed to protect their rights.

Human rights-centred climate change scenarios would have highly practical applications. Three come immediately to mind. First, human rights language can add considerable normative traction to arguments in favour of strong mitigation and adaptation policies. For human rights groups and activists to argue for an effective climate change regime is a natural fit, given that the consequences of failing to produce one are likely to be catastrophic from a rights perspective. Human rights provide a legitimate set of guiding principles for global public policy because they are widely accepted by societies and governments everywhere. As well as imposing legal requirements, they also provide something approximating an international value system, at both rhetorical and policy level, around which support can be rallied.

Second, human rights principles can strengthen the case for amending and improving relevant areas of international law. Whereas progress on international human rights law has been incremental at best for decades, the scale of the challenge climate change poses to public policy will create increasing pressure to review and reorganise international rights and duties. A research agenda might therefore seek to incorporate human rights language and concerns into upcoming climate change agreements, for example in the post-2012 regime now under discussion.

Third, regardless of whether the relevant law refers explicitly to human rights, the danger will remain that mitigation and adaptation policies may themselves undermine human rights. It will therefore be important to ensure that mitigation

41 It is a further irony that on many predictions, the effects of a rise between 2°C and 3°C, although devastating in some parts of the world, particularly small island states, may actually be beneficial (on balance) in some OECD countries. Such predictions might presumably delay the urgency to act in countries better equipped to handle the rise.

42 See the discussion on pp. 27-28 below.

and adaptation policies take account of human rights consequences from the outset. Today, climate change mitigation and adaptation discourse is largely silent about rights. It may be useful, from the point of view of both climate negotiations and human rights protections to investigate the regimes currently on the table with a view to identifying their strengths and weaknesses from a human rights perspective, and suggest how they might be improved. This is not overly idealistic. As a result of intensive international negotiation and subsequent litigation, established human rights standards are relatively detailed, realistic and practical, fashioned for concrete application by governments.

The following sections concentrate on the third of these applications, principally because it is the most useful, innovative and challenging for both human rights and climate change experts.

The human rights dimensions of adaptation policies

"Adaptation" refers to actions taken to adjust lives and livelihoods to the new conditions brought about by warming temperatures and associated climate changes.[43] It is commonly used in three distinct ways. It refers first to actions that individuals take at their own initiative. Confronted by warmer weather or more severe storms, for example, people may choose to use new materials in home construction or switch crops or livelihoods. It refers second to government measures designed to achieve the same or similar ends (as the Netherlands plans to build sea-walls to protect against rising tides, for example). Third, adaptation has a more technical meaning derived from the UNFCCC and subsequent negotiations. Because the resource imbalance between the perpetrators of climate change and its victims was recognised from the outset, the UNFCCC included a requirement that wealthier countries should provide "new and additional funding" to poorer countries to enable them to address climate change.[44] This funding was to be "additional" to official development assistance (ODA). The practical content of "additionality" (to use the jargon) has remained elusive, however. This is partly because there is no clear baseline, since few wealthy country countries have reached the agreed international aid target of 0.7% of GDP (gross domestic product), and partly because very little adaptation funding has ever materialised. In what follows, adaptation is used in this third sense, to refer to the elaboration of an international policy that will deliver adaptation funding to countries that most need it, and to programmes that such funding might support.

43 The third IPCC Assessment Report defined adaptation as "adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. [Adaptation] refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change". Smit and Pilifosova 2001, pp. 877–912.

44 UNFCCC Article 4 (3). This paragraph, and much of the section, relies on Mace, 2005; Müller, 2006 and 2007.

Extrapolating from existing "climate sensitive" ODA, the World Bank reckons that adaptation is likely to cost anywhere from US$4 billion to $37 billion each year.[45] Yet at present adaptation funding has not reached even close to the lower end of this scale; and what has been pledged has not been committed or spent. Four adaptation funds exist, all managed by the Global Environmental Facility (GEF), which works through implementing agencies (the World Bank, the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP)) to channel multilateral funding for projects related to the principal multilateral environmental treaties.[46] Climate change is one of six GEF focal areas, but adaptation has consistently been a much lower priority for the GEF than mitigation. Finally, to address long-standing criticism of its lack of an effective adaptation policy, the GEF introduced a Special Priority on Adaptation (SPA) in 2005. The SPA (which never graduated beyond a "pilot" phase), was available to developing countries on application, subject to a complex assessment of their capacity. An original allocation of US$50 million to the SPA had not been spent by the end of the initial pilot period, but no further funds were added for the next "replenishment" period (2007-2010).[47] Expenditure has been and remains excruciatingly slow. According to GEF's latest report, for example, only one of 10 GEF-supported climate change projects in financial year 2006-07 concerned adaptation through the SPA, amounting to just US$1 million of a total US$81 million spent on climate change projects.[48] The rest was geared towards mitigation (developing countries do not have mitigation obligations). Application procedures for the SPA are complex and many developing countries are not aware of what is on offer or how to access these funds.

Three other adaptation funds have been created under international instruments; all are moving at an equally slow pace.[49] Adaptation is one of four programme areas of the Special Climate Change Fund (SCCF) created under the UNFCCC and funded by discretionary pledges of developed countries. Funds may only cover adaptation costs that are "additional" to ordinary ODA.[50] Inactive until recently, seven SCCF projects were finally approved in 2006-07 and involved

45 Cited in Stern Review, Part V, Chapter 20, p. 442.

46 See for a good overview, Stern Review, Part VI, p. 557. Known as the Rio Conventions because they were all signed in Rio in 1992, these are the UNFCCC, the UN Convention on Biodiversity and the UN Convention to Combat Desertification.

47 See FCCC/CP/2007/3, Report of the Global Environment Facility to the Conference of the Parties, 13th session Bali, 3–14 December 2007 (27 November 2007), para. 8: "Once the remainder of the initial US$50 million of funds devoted to the SPA is committed to projects, an evaluation will be undertaken to draw initial lessons and to assess the potential for mainstreaming adaptation into GEF's focal areas."

48 Ibid., paras. 16-17.

49 Figures are from ibid, paras. 19-27.

50 US$71.5 million has been pledged to date.

eight countries (there are 121 developing country parties to the UNFCCC).[51] A Least Developed Country Fund (LDCF), also created under the UNFCCC, is likewise managed by the GEF, and funded through discretionary pledges. It has provided US$200,000 apiece for the preparation of National Adaptation Programmes of Action (NAPAs), designed in-country to address urgent and priority adaptation needs (32 have been finished to date). On the basis of NAPAs existing at the time, the Stern Review projected that US$1.3 billion would be required for the "immediate" adaptation needs of the 47 Least Developed countries (LDCs).[52] So far nothing close to this amount is forthcoming.[53] Finally, an Adaptation Fund was created through the Kyoto Protocol, to be replenished from a 2% levy on Clean Development Mechanism (CDM) projects.[54] Procedures for its management were eventually approved at the 13th Conference of the Parties in Bali and involve a Board with strong developing country representation. The GEF acts as the Secretariat of the Board and is to take direction from the Board and the Parties. This is a compromise hard fought for by developing country representatives in agreeing to allow the GEF a further managerial role in adaptation funding, given its poor track record.[55]

It is widely recognised that adaptation funding cannot be delivered effectively until it is known where assistance will bring the most benefit. Unfortunately, it is just this information that is generally lacking. The reason, as with so much in the climate change debate, is resource related. Because expertise and financing are concentrated in wealthy countries, the latter have much more complete information about the likely impacts of climate change and suitable responses to it, compared with sub-Saharan Africa, for example. The IPCC reports cite countless practical examples of adaptation in rich countries, many of which are already underway; forecasts for poorer countries, by contrast, remain vague and sweeping. The Stern Review makes the point as follows:

> Adaptation will depend on comprehensive climate monitoring networks, and reliable scientific information and forecasts on climate change – a key global public good… [D]eveloping-country governments should provide information to their own citizens but currently lack the capacity to do this,

51 These amounted to US$24.4 million of SCCF funds. A further US$92.7 million of funding from other sources was leveraged through these projects.

52 Stern Review, p. 442.

53 By late 2007, US$0.6 million (of a pledged total of US$163 million) had been allocated to preparing NAPA projects in four countries. The GEF notes that "approximately US$150m remains to be programmed to meet the urgent and immediate adaptation needs of the LDCs under the LDCF". FCCC/CP/2007/3, para. 27.

54 For a description of the Clean Development Mechanism, see below, pp. 36-40.

55 The Adaptation Fund is set to become operational in 2008. To these four might be added the World Bank's new Pilot Program for Climate Resilience, one of its Climate Investment Funds introduced in 2008, although it was not created under the UNFCCC and lacks official status or widespread support. For more on this new fund, see http://go.worldbank.org/58OVAGT860. See below, pp. 52-54.

> demonstrated by the shortage of weather watch stations. The international community should therefore support global, regional and national research and information systems on risk, including helping developing-country governments build adequate monitoring and dissemination programs at the national level. Priorities include measuring and forecasting climatic variability, regional and national floods, and geophysical hazards.[56]

The list of priority areas identified in the Stern Review demonstrates the scale of the challenge. Physical science data must necessarily precede, and provide a base for, research on social and rights impacts. But the latter too are critically important, since the primary purpose of policy in this area is to reshape the human, social and economic environment. In this context, human rights thresholds can provide a compass for policy orientation, helping to decide where research should be directed and what policy should prioritise. So while it is vital to know at what temperature increase we might expect severe droughts to occur or sea-levels to rise, for example, it is no less important to learn who these events will affect and where precisely; what institutional or other support is available; and how this support might be strengthened.

These considerations fit naturally within the agenda outlined in the Bali Action Plan of December 2007, which calls for:

> Enhanced action on adaptation, including … International cooperation to support urgent implementation of adaptation actions, including through vulnerability assessments, prioritization of actions, financial needs assessments, capacity-building and response strategies, integration of adaptation actions into sectoral and national planning, specific projects and programmes, means to incentivize the implementation of adaptation actions, and other ways to enable climate-resilient development and reduce vulnerability of all Parties, taking into account the urgent and immediate needs of developing countries that are particularly vulnerable to the adverse effects of climate change, especially the least developed countries and small island developing States, and … countries in Africa affected by drought, desertification and floods.[57]

There is already, therefore, a good basis in the emerging climate change regime for the integration of human rights-focused research into adaptation policy. Human rights organisations have developed considerable expertise in identifying the risks that vulnerable and less visible communities face. Combined with more detailed assessments of physical impact, their methodologies can usefully set social and economic funding priorities for adaptation programmes.

The short-term benefits are evident. Certain climate change impacts are now being felt and others cannot be halted, because of the extent of historical and current emissions and the timelag between emissions and their effects on the

56 Stern Review, Part VI, p. 563.

57 Decision -/CP.13, Bali Action Plan (Advance Unedited Version), Article 1(c)(i).

climate. In the most vulnerable places – Arctic regions, for example, Saharan Africa, and some small island states such as Tuvalu – a human rights optic can help make the case for swift, substantial and directed adaptation funding. Who is at risk and what can be done where crop-based or coastal livelihoods are threatened? What kind of local and international mechanisms exist to handle the practical and legal complexities of relocating threatened island communities from sinking territories? (Such individuals find themselves in the unprecedented situation of being citizens of a state that no longer has territory, and relocating as *de facto* refugees, but outside any existing Convention definition of the term.[58]) How might existing mechanisms in each of these contexts be improved? The moral imperative to act in identifying and treating such cases joins neatly with the legal duty to make adaptation funding available.

Long-term adaptation needs are more complex. Considerable information already exists on the expected human impacts of climate change. Adopting a rights focus would help to orient future research, set priorities, assist in evaluation and galvanise support. Excerpts from the IPCC AR4 and the Stern Review, provided in appendices at the end of this report, outline the expected impacts by affected human right (not Stern's term) and by region. These predictions illustrate both the scale of human rights impacts expected in the short- to middle-term, and the extent to which more information will be required in order to locate affected communities and to provide the institutional support they will need.

Both reports further point out that the effect of climate change impacts in developing countries are exacerbated by the relatively greater dependence of their economies on climatic conditions, on one hand, and by the relatively less comprehensive management of natural resources, such as water, on the other (see the box below). Even where water supplies are predicted to increase, as in South and East Asia, "much of the extra water will come during the wet season and will only be useful for alleviating shortages in the dry season if storage could be created (at a cost)".[59] Furthermore, climate change throws existing development policies off course. In parts of Africa, for example, development scenarios would ordinarily have relied upon future massive irrigation schemes; but as their viability has been undermined by climate change, no obvious alternative strategy has become available.

58 For an informed discussion, see E/CN.4/Sub.2/2005/28, Expanded working paper by Françoise Hampson on the human rights situation of indigenous peoples in States and other territories threatened with extinction for environmental reasons (16 June 2005). A total of just under half a million individuals are likely to be affected, from the islands of Tuvalu, Nauru, Kiribati, Maldives and the Bahamas. Ibid, para. 25.

59 Stern Review, p. 63.

Exacerbating Factors. Stern Review, pp. 93-97 (references excised).

Already fragile environments: Developing countries are especially vulnerable to the physical impacts of climate change because of their exposure to an already fragile environment, an economic structure that is highly sensitive to an adverse and changing climate, and low incomes that constrain their ability to adapt.

Dependence on agriculture: Developing economies are very sensitive to the direct impacts of climate change given their heavy dependence on agriculture and ecosystems, rapid population growth and concentration of millions of people in slum and squatter settlements, and low health levels. Agriculture and related activities are crucial to many developing countries, in particular for low income or semi-subsistence economies. The rural sector contributes 21% of GDP in India, for example, rising to 39% in a country like Malawi, whilst 61% and 64% of people in South Asia and sub-Saharan Africa are employed in the rural sector. This concentration of economic activities in the rural sector – and in some cases around just a few commodities – is associated with low levels of income. The concentration of activities in one sector also limits flexibility to switch to less climate-sensitive activities such as manufacturing and services.

Dependence on vulnerable ecosystems: All humans depend on the services provided by natural systems. However, environmental assets and the services they provide are especially important for poor people, ranging from the provision of subsistence products and market income, to food security and health services. Poor people are consequently highly sensitive to the degradation and destruction of these natural assets and systems by climate change.

Population growth and urbanisation: Developing countries are also undergoing rapid urbanisation, and the trend is set to continue as populations grow. The number of people living in cities in developing countries is predicted to rise from 43% in 2005 to 56% by 2030. In Africa, for example, the 500km coast between Accra and the Niger delta will likely become a continuous urban megalopolis with more than 50 million people by 2020.

Adaptive capacity: People will adapt to changes in the climate as far as their resources and knowledge allow. But developing countries lack the infrastructure (most notably in the area of water supply and management), financial means, and access to public services that would otherwise help them adapt.

Finally, adequate fulfilment of human rights within vulnerable states would itself provide a solid basis for autonomous adaptation (that is, measures spontaneously initiated by citizens in response to climate changes). Local provision of information, guarantees of public participation in government, and freedom of speech and association all provide affected communities with the voice and capacity to force change in their local settings. Economic and social rights also matter. Education is as important as health: a well-educated population is better equipped to recognise in advance the threats posed by a

changing climate and to make preparations. This is one of many areas where ordinary development aid, properly directed, can potentially achieve multiple objectives at once, serving classic development and human rights aims while at the same time contributing to societies' long-term ability to adapt to climate change.

The human rights dimensions of mitigation policies

Perhaps inevitably, the greater part of climate change negotiation is devoted to "mitigation". This term refers to the actions and policies that seek to prevent global warming from causing "dangerous anthropogenic interference" with the climate, as required by the UNFCCC.[60] Although no "dangerous" threshold is mentioned in the treaty, a rise of average global temperatures by no more than 2°C above preindustrial levels was until recently cited in most policy documents (although it now seems increasingly unlikely that it will be achieved). Before investigating the human rights dimensions of mitigation policies, the scientific and policy context is briefly set down in the following two paragraphs.[61]

In the IPCC AR4, greenhouse gas emission levels in the atmosphere were estimated at 455 parts per million of carbon dioxide equivalent (ppm CO2e),[62] almost double preindustrial levels and rising fast. Current concentrations of greenhouse gases have already warmed the globe and will lead to further warming even if all new emissions were stopped immediately. However, high levels of emissions are certain to continue in the short- to mid-term, and discussion has therefore centred on identifying a point at which emissions concentrations might be stabilised in future to keep warming to a minimum. There is little agreement on the appropriate stabilisation level: different studies reach different conclusions, and all are couched in the language of probability. Recent estimates reckon that if emissions levels are stabilised at 445-490 ppm CO2e there will be an even chance (50%) that the average global temperature rise will still exceed 2-2.4°C.[63] At 550 ppm CO2e, the probability of temperatures exceeding 2°C is closer to 80%, and there is an even chance that average global temperatures will rise by 3°C over preindustrial levels.

60 For a discussion, see the Stern Review, Part III, Chapter 13, p. 289.

61 This account relies on IPCC AR4, WGIII, Technical Summary, and on the Stern Review, Part III, especially Chapters 7-10. More detailed information is provided in IPCC AR4, WGIII, Chapters 1-3.

62 The figure of 455 ppm CO2e accounts for the intensity of *all* greenhouse gases in the atmosphere, measured as equivalents of Carbon Dioxide. The amount of Carbon Dioxide itself is estimated at 379 ppm. IPCC AR4, WGIII, Technical Summary, p. 27, which adds: "Incorporating the cooling effect of aerosols, other air pollutants and gases released from land-use change into the equivalent concentration, leads to an effective 311-435 ppm CO2-eq concentration."

63 See Table TS.2 in IPCC AR4, WGIII, Technical Summary, p. 39. Also UNDP, 2007, p. 46.

Keeping emissions to 450 ppm CO2e presents an immense political challenge and few governments are currently aiming at national emissions targets consistent with a peak of 2°C. The consequences of overshooting will be much worse for some than for others, and is likely to destroy life and livelihoods on some small islands and in certain Arctic regions. According to IPCC AR4, however, even the looser target of 490-535 ppm CO2e is formidably daunting. For that, total global emissions must still peak by 2020, and have fallen sharply by 2050, by between 50% and 85% from 2000 levels.[64] Over that same period, the world's population is expected to increase by about 50%, to 9 billion or so, while economic growth, particularly in fast growing economies such as China, drives energy demand ever higher. Viewed in this light, the mitigation task is truly gargantuan. Despite multiple upward pressures – population, economic growth and development – emissions will need to fall dramatically between 2020 and 2050, by at least 85% from 2000 levels in rich countries, given that elsewhere they must initially rise. By 2030 or so it is unlikely that emissions levels can increase anywhere: in developing countries too they will need to have peaked (see below, p. 37).[65]

GHG emissions can be reduced in several ways. At present, negotiations seek to establish global targets. Though these have yet to be agreed, binding national targets were accepted by those developed countries that ratified the Kyoto Protocol.[66] Having accepted commitments, individual countries can meet their obligations in a variety of ways. Mitigation strategies may include fuel switching (to biofuels, renewable energy sources or possibly nuclear), carbon taxes, forestry growth or preservation, and GHG emissions trading.

A widely accepted principle, entrenched in the UNFCCC, is that developed countries – which historically contributed most to the problem – have greater obligations to mitigate than developing countries. The lion's share of emissions reductions must take place in wealthy countries. While there is general consensus that developing countries should not have to compromise their future economic growth, there is little agreement on how sharp global cuts are to be achieved while growth continues. At the same time, it is evident that developing countries too must move towards low-carbon economies in the mid- to long-term. Paradoxically, the cheapest ways to reduce future emissions may

64 Even these figures may be optimistic. Jim Hansen recently claimed that current CO2 levels are already unsustainable: "If humanity wishes to preserve a planet similar to that on which civilization developed and to which life on Earth is adapted, paleoclimate evidence and ongoing climate change suggest that CO2 will need to be reduced from its current 385 ppm to at most 350 ppm [CO2 (not CO2e)]. ... If the present overshoot of this target CO2 is not brief, there is a possibility of seeding irreversible catastrophic effects." See Hansen et al., 2008.

65 IPCC AR4, WGIII, Technical Summary, p. 90.

66 Developed country parties to the Kyoto Protocol agreed to reduce their emissions by varying amounts from 1990 levels by 2012. Not all will succeed. At time of writing, no framework has been agreed for the post-2012 period.

involve actions taken in poor countries today. For example, building non-carbon intensive energy production and transport platforms in developing countries steers them away from "business as usual" development paths that would presumably have been emissions intensive. Forests are another example. Forests act as sinks, absorbing carbon dioxide and so reducing greenhouse gas intensity in the atmosphere. Reducing the rate of deforestation in poor countries is perhaps the cheapest way to push future emissions down, with the result that wealthy countries are keen to limit forest activities abroad. Partly for these reasons, "flexible mechanisms" were introduced in the Kyoto Protocol, allowing high-emitting states to take credit for mitigation actions taken in poorer countries.[67] These mechanisms (the emissions trading market and the clean development mechanism) are described further below (pp. 36-40).

What does the choice of mitigation policies imply for human rights? Human rights fulfilment in any given state depends upon a basic level of economic wherewithal and stable access to resources. However, a mitigation regime – or mix of regimes – will work only if it succeeds in reorienting productive capacities and access to resources on a massive scale. Whatever the mix of mitigation strategies arrived at, if effective it will have two broad effects. It will drastically reduce access to and dependence upon fossil fuels – the most reliable and cost effective fuel source available (in terms of energy yield per unit access cost). And it will curtail the development policy options available to governments everywhere, but especially in those countries that have not yet reached a level of economic growth sufficient to guarantee basic needs. Not only will climate change mitigation policies profoundly influence the allocation and use of scarce resources, they will do so far into the foreseeable future. In short, climate change mitigation efforts will reorient and fix national development paths over the long-term, and these in turn will tend to set limits on countries' capacity to fulfil basic human rights, albeit to different degrees.

This linkage between climate change mitigation, development paths and human rights fulfilment is recognised explicitly in IPCC AR4:[68]

> Development paths underpin the baseline and stabilization emissions scenarios discussed [elsewhere in the report] and are used to estimate emissions, climate change and associated climate change impacts. For a development path to be sustainable over a long period, wealth, resources, and opportunity must be shared so that all citizens have access to minimum standards of security, human rights, and social benefits, such as food, health, education, shelter, and opportunity for self-development.

Ultimately, as the IPCC report acknowledges here (without elaboration), the ability to orient and implement any mitigation policy depends upon identifying

67 Stern Review, Part III, especially pp. 203-205, 239 and 245-246 (on the lock-in effect of capital investment).

68 IPCC AR4, WGIII, p. 696.

and prioritising acceptable social outcomes in advance, human rights among them. Human rights fulfilment depends upon development capacity, and that consideration must in turn guide the choice of paths towards carbon stabilisation. Latent within this view is the understanding that human rights protection is costly.[69] It is not so much a question of a right *to* development (discussed in Chapter V below) but a more basic concern: without development (and, of course, appropriate policies) there can be only limited fulfilment of human rights.[70]

Moreover, although the consensus position is that any mitigation strategy will have distributional consequences, to date these have remained largely underexplored. The fourth IPCC report is explicit on this point too. It suggests that distributional outcomes should be one of four criteria for evaluating mitigation policies, but admits that comparison in terms of this criterion "has proved difficult – and ranking impossible" because, according to the report's authors, assessment is inevitably subjective.[71] This is no doubt true. At the same time, human rights standards and thresholds offer one way to manage the dilemma of subjectivity because they provide benchmarks of acceptable outcomes based on widely-agreed principles and, indeed, on legal stricture. If a global regime proceeds without integrating human rights, it will not only miss an opportunity to promote and fulfil human rights but will also be blind to countless possible harms that might otherwise be foreseen and averted. The guidance provided would necessarily be rough, prone (like much climate-related prediction) to unexpected feedback effects. It would be a set of pointers rather than a formula or social "blueprint"; but would nevertheless provide specific tools for identifying and managing risk.

Those with human rights expertise therefore have good reason to think through the human rights consequences of different mitigation strategies – at national and local, but perhaps especially at international level – given that the effects will be profound, of long duration and probably irreversible. At national level, for

69 For a good account countering the common argument that economic and social rights are inherently more costly than civil and political rights, see Holmes and Sunstein, 1999.

70 See Baer et al., 2007, p. 23:

> [T]here is no road to development, however conceived, that does not greatly improve access to energy services. Yet, as economies are now structured, as development is now envisioned, and as long as we rely on today's energy technologies, this will imply increases in CO2 emissions that are entirely incompatible with a precautionary climate policy. And thus our dilemma: There is simply not enough "environmental space" for the still-poor to develop in the same way – or in anything like the same way – as that which was taken by the already-rich.

71 IPCC AR4, WGIII, p. 752. The other three criteria are environmental effectiveness, cost efficiency and "political acceptability", each of which has a better established role in mitigation choices. All, of course, are "subjective" to some degree.

example, what will be the consequences in human rights terms of large forest conservation efforts, extensive biofuel cultivation for export markets, or nuclear power dependence? Who will be affected and how? Are institutional forms of redress available in cases of rights violations? Can long-term development be maintained if carbon use is restricted? How will hard choices be decided? At international level, how will differential access to the "global carbon dump" affect local development paths?[72] Where the effect is harmful, are compensatory mechanisms available, and are they effective and appropriate? In principle, the likely human rights and developmental consequences of different mitigation strategies should be built into forecast scenarios for comparative purposes, something that has not been done to date.[73]

Any such analysis will need to take account of the particular role developing countries are likely to play in any global mitigation regime. As the Stern review states, "[s]preading the mitigation effort widely across sectors and countries will help to ensure that emissions are reduced where it is cheapest to do so, making policy cost-effective".[74] The review is quick to point out that social and other factors must be taken into account in making decisions about where and how to make cuts. The absence of such data has not stopped a surge in efforts to achieve cuts in developing countries. Deforestation, biofuel cultivation and emissions trading will in different ways each operate to alter the economic stakes and capacities of persons who already, in many cases, lack secure access to basic needs. Assessing the possible human rights impacts of strategic decisions in these areas, though urgent, nevertheless requires considerably more data than is currently available.

By extension, it would be useful to analyse the likely impact of given mitigation strategies on the potential for *alternative* development paths for poorer countries. Is clean technology transfer facilitated? If so, is this done in a sustainable and equitable manner, geared to a country's development needs rather than the economic interests of the exporting country alone? Does the policy mix shift development paths, stimulate wealth creation and *also* consolidate basic threshold rights for all? Clearly such questions go beyond the ordinary scope of human rights inquiry. Clearly too they imply new research.

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72 The term "global carbon dump" captures the notion that the atmosphere can support only a limited amount of greenhouse gases – and so there can be no unrestricted right to send carbon into it. See Lohmann, 2006.

73 Climate change narratives have traditionally focused on *impacts* in developing countries and *mitigation* in developed countries. While this seems sensible, because carbon emissions are concentrated in rich countries while poorer countries suffer the brunt, it leaves one vital issue undiscussed – the future development of poor countries under global emissions constraints.

74 Stern Review, p. 239. See also pp. 245-246: "some countries can cut emissions more cheaply than other countries, so 'what' flexibility is important."

The following sections look briefly at three mitigation strategies that would benefit from human rights review: REDD, biofuels, and emissions trading.[75]

Reduced Emissions from Deforestation and Degradation (REDD)

The decision to proceed with REDD programmes was one of the few breakthroughs at the Conference of the Parties in Bali in December 2007. Recent estimates have concluded that deforestation and land use degradation account for approximately 20% of man-made greenhouse gas emissions, which places some developing countries (notably Brazil and Indonesia) among the world's top greenhouse gas emitters. Forests were barely addressed in the Kyoto Protocol, because there was little agreement at the time on how to measure forest-related emissions or reductions. Technological improvements have since allowed agreement on an international REDD regime. In outline, it is likely that countries will be compensated for retaining forest cover above a baseline "business-as-usual" level.[76] Because avoided deforestation is seen as a low cost way to reduce emissions, the inclusion of a REDD system within a transnational climate regime might sharply reduce the carbon price – an outcome that would make it significantly easier for big polluters (countries and companies alike) to meet reduction commitments. For this reason, interest in REDD projects runs extremely high.

Any internationally orchestrated approach to forestry will have direct impacts on the human rights of some of the world's most vulnerable people. "The World Bank estimates that 90 percent of the 1.2 billion people living in extreme poverty around the world depend on forest resources for some part of their livelihood. In Indonesia, for example, some 6 million poor people live in state forest zones with good forest cover; in the Democratic Republic of Congo, 40 million people rely on forests for food, medicines, energy, and income."[77] There is a long history of abuse of indigenous rights in connection with forest exploitation, by governments asserting claims over lands without formal title, and also by large logging companies, sometimes employing private militia. Government and big loggers have often worked together: the logging industry has a notorious reputation for corrupt practice. Forest conservation has in some cases led to tightened restrictions on indigenous peoples without a correspondingly proportionate restraint of commercial logging.

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75 Other mitigation options would also bear closer scrutiny from this perspective: the imposition of carbon taxes and the possibility of recourse to nuclear power.

76 Among other sources, this section relies in particular on Frances Seymour, "Forest, Climate Change and Human Rights: A Brief Summary of the Issues", a note prepared for an ICHRP roundtable on human rights and climate change of October 2007 and on Marcus Colchester, "Forest Peoples, Customary Use and State Forests: the case for reform" draft paper to the 11th Biennial Congress of the International Association for the Study of Common Property, Bali, Indonesia, 19-23 June 2006.

77 Seymour, 2002; World Bank, 2002.

The key feature of a REDD policy regime is its potential to significantly increase the financial benefits accruing from control over forest resources. These benefits might fall to forest-dependent indigenous populations, which might in turn yield human rights benefits. However, unless human rights safeguards are built into REDD programming from the outset, better established and resourced actors are likely to obtain most of the benefit. Much research and advocacy has already been done to protect indigenous rights in the context of forest usage. REDD adds urgency and a new layer of complexity to such work.

There is also a larger structural concern. The monetisation of carbon credits from the conservation of forests is an apparent boon for developed and developing countries alike. The latter can generate income by leaving a natural resource untouched. The former will be able to buy carbon credits to set against increasingly sharp emissions targets. For developing countries, the scheme nevertheless involves an important trade-off. If credits from avoided deforestation are to offset emissions, host countries too will have to take on targets eventually (otherwise the system cannot lead to global cuts and will fail). When they do so, every carbon credit sold to other countries or industries will represent a foregone opportunity for carbon-based development at home. In principle, revenue from carbon sales can be channelled into clean development or alternative forms of energy. Indeed, some guarantee of this outcome is necessary for such a scheme to be equitable. Revenues would need to be managed and invested wisely, however, to ensure that REDD contributes to, rather than detracts from, long–term development (on which basic human rights fulfilment inevitably depends). Given that emissions rights are a public resource, their sale would need to be overseen by competent public authorities. Otherwise, where governments are corrupt, or merely incompetent, or closely linked to the buyers of credits or other powerful interest groups, the credits and the development potential they represent might both be lost. As the scheme stands, no such safeguards exist. Before developed countries and their companies proceed to buy REDD credits, they should require that solid safeguards are in place to ensure that sales of carbon credits from REDD are in the development interests of the countries concerned.

Biofuels

Although its potential to mitigate climate change has been sharply challenged recently, many countries have started biofuel substitution programmes (the cultivation and conversion of crops such as corn, sugar cane or palm oil into ethanol, for use as fuel rather than food).[78] Both the European Union (EU) and the United States (US) recently approved large increases in biofuel production – rising to 10% of total energy sources by 2020 in the EU and to 132 billion litres

78 Dufey, 2007; COM (2006) 34 final, "An EU Strategy for Biofuels" [SEC (2006) 142], Brussels (8 February 2006); Simon Robinson's Big Biofuels blog (www.icis.com/cgi-bin/mt/mt-search.cgi?tag=EU&IncludeBlogs=3).

by 2017 in the US (where the stated reason is energy security rather than climate change mitigation).[79] The effect has been to encourage farmers to switch from food to biofuel production. At present, crop switching is happening in both poorer and richer countries. In principle, like REDD, it offers greater returns if undertaken in poorer countries because agricultural investment is cheaper.[80] Although agricultural trade protections have limited the extent to which some developing countries can supply these products for Northern markets (tariffs vary widely and many countries are subject to preferential agreements),[81] developing countries (especially the poorest) are being offered incentives to produce biofuels, through programmes such as the EU's Biofuels Assistance Package. These supplement the existing subsidies OECD (Organisation for Economic Co-operation and Development) countries pay their domestic biofuel producers, which reportedly amount to US$11 billion per year (US$6 billion in the US alone) and continue to rise.[82]

Intensive promotion of biofuels has inevitable side effects. Crop switching from food to biofuels can harm food security regardless of location, because it drives up world prices for staples such as corn and rice, and rapidly forces very poor consumers out of the market. To illustrate, US biofuel subsidies replace subsidies traditionally available for corn; in practice the crop simply changed category. The EU is promoting biofuel production in part as a response to a WTO (World Trade Organization) ruling against its sugar subsidies. Under its new biofuel policy, sugar-producing countries are encouraged to switch sugar processing from food to biofuel. (The effect of the category change under international trade law, if any, is still unclear; the status of "environmental goods and services" in the WTO is under negotiation in the Doha round, and biofuels might not, in any case, qualify). The effect of these policies (exacerbated by

79 Energy security is a likely driver of European policy on biofuels too. See, European Commission, 2007, pp. 17-20. By the same token, climate change is a likely co-driver of US biofuel policy.

80 The EU Commission's "strategy for biofuels" puts the situation as follows:

> Biomass productivity is highest in tropical environments and the production costs of biofuels, notably ethanol, are comparatively low in a number of developing countries. Bioethanol produced from sugar cane is currently competitive with fossil fuels in Brazil which is the world's leading producer of bioethanol. Moreover, the fossil energy input for producing ethanol from sugar cane is lower than for ethanol produced in Europe, so the corresponding emission reductions are greater. For biodiesel, the EU is currently the principal producer and there is no significant trade. Developing countries such as Malaysia, Indonesia and the Philippines, that currently produce biodiesel for their domestic markets, could well develop export potential. (COM (2006) 34 final, 6.)

81 The EU, for example, imposes no duties on biofuels from African, Caribbean and Pacific countries, or from least developed countries. It is negotiating tariffs through the WTO Doha Round and a free trade agreement with Mercosur countries, including Brazil. The US imposes tariffs of up to 70% on ethanol from Brazil, the world's largest producer.

82 Global Subsidies Initiative, 2007.

a series of other factors) is to reduce the worldwide supply of food and so increase its cost. According to the Food and Agricultural Organisation:

> Currently 37 countries worldwide are facing food crises… [F]ood security is being adversely affected by unprecedented price hikes for basic food, driven by historically low food stocks, droughts and floods linked to climate change, high oil prices and growing demand for bio-fuels. High international cereal prices have already sparked food riots in several countries.[83]

Rising food prices are particularly problematic when crop switching occurs in countries that already suffer from weak food security, particularly those hit directly by climate change. In Swaziland, for instance, the severe drought that has affected at least 40% of the population is thought to be climate change-related (although there is insufficient data to affirm the cause confidently). At the same time, 500 hectares of land have been turned over to a private company (USA Distilleries) for the production of jatropha, a hardy oil-producing plant, for biofuel export.[84] The extent to which such projects exacerbate the existing food shortage is difficult to gauge. The government blames the food shortage on global, rather than local, biofuel production, claiming that rising wheat prices have pushed bread beyond the reach of ordinary Swazis.[85] (Swaziland has a no-tariffs agreement with the EU.) To this must be added the dangers of cultivating crops that are known, in some cases, to be "invasive species" and may choke or destroy other food sources.[86] What is clear is that a combination of climate change and uncoordinated international mitigation policies can lead to unforeseen effects, on food and water supply and other essential needs. To date little time and few resources have been devoted to predicting what these impacts might be and how they might be averted.

Moreover, as energy-intensive nations seek to overcome their addiction to carbon fuels, they will use their considerable economic power to transform global energy markets, inevitably producing many other knock-on effects. Unless these are actively considered and researched in advance, the effects may be unpredictable and damaging, especially to those less able to offset risk.

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83 "FAO calls for urgent steps to protect the poor from soaring food prices" (17 December 2007), online at: www.fao.org/newsroom/en/news/2007/1000733/index.html.

84 See, for example, "Swaziland: Food or biofuel seems to be the question", 15 October 2007, IRIN news; "SD spots seeds of recovery in bio-fuel plant", 30 July 2007, Biofuel news; Siwa Msangi, "Biofuel revolution threatens food security for the poor", 6 December 2007, SciDev.Net.

85 "Swaziland: Too much bread to buy a loaf", 7 December 2007, IRIN news.

86 See Rosenthal, 2008: "Jatropha, the darling of the second-generation biofuels community, is now being cultivated widely in East Africa in brand new biofuel plantations. But jatropha has been recently banned by two Australian states as an invasive species. If jatropha, which is poisonous, overgrows farmland or pastures, it could be disastrous for the local food supply in Africa, experts said."

Yet the EU's "biofuel strategy" and "biofuel action plan" expect only to monitor "environmental impacts". They make no mention of the possible impacts on food security or human rights. Given the scale of their possible influence, it is surely essential to make sure that such programmes take account of social effects, including effects on human rights.

Food security is not the only human rights risk associated with biofuel production. In Indonesia, a major project to produce palm oil (as a cooking oil for local consumption and a biofuel for the European market), has caused significant forest destruction and violations of customary land rights, prompting a rebuke from the UN's Committee on the Elimination of Racial Discrimination (CERD).[87]

Emissions Trading and the Clean Development Mechanism

The nascent international emissions market is likely to be at the centre of a future global mitigation regime.[88] As emissions trading is potentially both the most far-reaching mechanism, the most speculative in its potential outcomes and the least independent in terms of its broader effects, its human rights impacts are not easy to assess. That said, it is possible to flag some broad concerns to do particularly with market access and the allocation of rights to emit, both discussed below. Before turning to these issues, the following paragraphs briefly describe the trading system.

Under an emissions trading regime, mandatory national emissions reductions are converted into tradable commodities. The principle is to achieve cuts as cheaply as possible by allowing those who are best placed to make cuts the freedom to do so, and permitting others, for whom cuts are too expensive, to buy them instead. Companies that can make cuts cheaply can sell their excess reductions (which amount to rights to emit) to those for whom it is cheaper to buy these rights to emit than to achieve reduced emissions. Again, differences in the relative costs of making reductions makes it attractive to include developing countries within the regime. According to the Stern Review:

> The ability to trade obligations across borders would improve efficiency by ensuring that deployment takes place where it is cheapest to do so. The benefits from this may be significant where there are major differences

87 CERD/C/IDN/CO/3 (15 August 2007), Concluding observations of CERD, para. 17. For background see "Request for Consideration of the Situation of Indigenous Peoples in Kalimantan, Indonesia, under the United Nations Committee on the Elimination of Racial Discrimination's Urgent Action and Early Warning Procedures", submitted by 13 NGOs on the occasion of CERD's 71st session (6 July 2007), especially Appendix B, Oil Palm and Other Commercial Tree Plantations, Mono-cropping: Impacts on Indigenous Peoples' Land Tenure and Resource Management Systems and Livelihoods, UN Permanent Forum on Indigenous Issues Working Paper, E/C.19/2007/CRP.6

88 See IPCC AR4, WGIII, Chapter 13.

between countries in, for instance, the availability of a natural resource such as sunshine, or in lower labour or other costs.[89]

These benefits are already built into the mitigation regime. Companies from Annex I countries are not constrained to make cuts solely at home. Through the Clean Development Mechanism, companies reduce emissions cheaply in developing countries (relative to what would "otherwise" have taken place) and can then trade those reductions on the emissions market (known as CERs or Certified Emission Reductions). By substituting cleaner technologies for dirtier ones, the CDM also aims to facilitate lower carbon development paths in poorer countries. At present, a very limited number of CDM CERs can be traded on the main existing market, the EU's Emissions Trading System (ETS). (Other markets too are being tried and tested.)

The trading system has other objectives. It is intended to spur technological innovation, particularly among institutions and states for whom it will be particularly expensive to achieve future targets. Research into and development of (R&D) clean technologies ought, in principle, to become a better investment for companies over time than repeatedly buying and using rights to emit.[90] Trading also provides a means to set a price on carbon, which is generally acknowledged as vital if the social cost of producing greenhouse gas emissions is to be internalised by companies and other users. (Trading is not the only way of establishing a carbon price, of course: taxes or simple fines would have a similar effect.) In the interests of efficiency, the optimal carbon price should be global – carbon emissions should cost the same everywhere.[91] Trading too, therefore, ought ideally to function globally.[92] The Clean Development Mechanism is a step towards creating such a global system.

Backing up the emissions trading regime are the hard mathematics of long-term stabilisation. As noted above, if average global temperature rises are to be kept below a "dangerous" threshold, *total* global emissions need to have fallen by at least 50-85% from 2000 levels by 2050, which on most accounts means that the heavily polluting OECD countries will need to have reduced emissions by 85-90%. This is well-known. Less often discussed, however, is the arresting fact that, even if this ambitious target is achieved, developing countries will probably have collectively to have cut their emissions by 30-60%

89 Stern Review, Part VI, Chapter 24, p. 529.

90 It is far from clear that these incentives are, in fact, built into the system as currently designed. See Lohmann, 2006, pp. 104-121 and pp. 175-186.

91 Stern Review, Executive Summary, xviii ("Economic efficiency points to the advantages of a common global carbon price: emissions reductions will then take place wherever they are cheapest").

92 In principle, a carbon tax too could achieve a global price if there was international harmonisation. For discussion see Stern Review, Part VI, p. 470. See also Stiglitz, 2006.

(having peaked around 2025).[93] In just a couple of decades, in other words, *no* country will be in a position to *increase* greenhouse gas emissions, not even those that today lack the resources necessary for basic public goods, such as food security, clean drinking water and access to basic health services. The dilemma is well captured in a report recently published by the Heinrich Böll Foundation.[94]

> [I]f we are to [achieve a] plausibly precautionary global pathway, the South's emissions must leave their projected path almost immediately, and be dropping precipitously by 2025. And even [under] optimistic assumptions about both equity and economic growth, many people in the South would still be struggling against poverty when its emissions had to begin this steep decline. Moreover, the less stringent pathways – despite their substantially higher risks of catastrophic climate change – provide only another few extra years of emissions growth.

The problem is that the emissions trading regime now in design, focused as it is on easing cuts in rich countries, has little to say about the vast cuts needed in developing countries, beyond vague promises of cleaner technologies and adaptation funding that has been slow to materialise. As the same report points out, the enormous challenge facing poorer countries can only be met by taking actions to ensure that by 2025 even the poorest countries will be on transition paths to low-carbon economies while continuing a sustained development drive all the while. Fulfilment of developmental needs will depend on the intermediate steps taken by then to ensure that such countries have maximised their limited carbon use or have access to inexpensive low-carbon technologies. So far, no such plan of action exists. Indeed, the trading regime tends to presuppose that carbon allocations of this kind will be *sold on* rather than maximised. It is against this background that questions must be raised about the longer-term human rights implications of the emissions trading regime as currently designed.

Further dilemmas will arise regarding the allocation of emission rights today and equitable access to them in the market and in future. A country's emission cap is the basis for determining its allocation of emission rights. At present only Annex I country parties to the Kyoto Protocol (wealthy "developed" countries) have emission caps. These have mostly been passed onto national private actors in the form of rights to emit, which can then be traded between them.[95]

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93 See Baer et al., 2007, pp. 23-24.

94 Ibid.

95 The principal technique for allocation has been "grandfathering". National emissions caps reflect historical emissions in each country. Emissions permits for individual companies are also based upon current emission levels. When these companies are multinational, they may be able to shift their emissions to countries with lesser or no caps. Furthermore, companies may trade permits internally. They may initiate or negotiate CDM deals abroad. Existing markets, such as the EU's ETS (see p. 37 and p. 58) allow limited interchange between these sources. As new trading regimes emerge and integrate, the emissions rights will become increasingly fungible.

Since developing countries do not have caps, they do not (indeed *cannot*) have emission rights at present, which means, for example, that reductions generated through the CDM can *only* be cashed in by the Annex I-based partner (for whom it is a revenue source additional to any initial project investment). Furthermore, as CDM emission reductions are additional to the caps taken by Annex I countries, they represent a net *increase* in global emissions that cannot be properly factored into the global account.[96] In order to be functional and reliable over time, the emissions trading regime will eventually require the long-term accession of all relevant actors to a system of caps, including CDM host countries.

For middle-income developing countries (Brazil, China, India and some countries of East and Southeast Asia), the scenario just described might not pose a significant problem. They may be able to defer taking on caps (and so joining an international trading regime) until they have reached the point where their economies can manage a low carbon system. This option might not be available to the poorest countries (LDCs), however. So although it may seem wise for such countries not to accept caps at present (indeed they have fought hard to avoid doing so), over time the number of allocations available can only fall, and will do so increasingly sharply. When poor countries enter the game, fewer allocation rights will be available, and they will be more expensive.[97]

Market mechanisms are, of course, premised on discrimination: they discriminate against those who cannot afford to pay, which in this case means the very same countries that have not historically used the carbon dump and have most need of its benefits. By mid-century, fewer emission rights will be available; they are likely to be in high demand and scarce; and wealthy countries will be pushing hard for concessions. A high price will nominally suit countries that cannot, in any case, use up all their allocation;[98] but any benefits from sales would depend on having sound governance, redistribution and investment mechanisms, which many of the countries in question currently lack.

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96 Arguably, since in the long-run emissions from CDM projects must be set against global targets, CERs derived from CDM projects amount to a free gift to rich countries from poor countries. Early discussions as to whether they might be "banked" by host countries came to nothing.

97 In one version, the "contraction and convergence" model proposed allocating emission rights (caps) to developing countries at levels significantly higher than present usage. This would have provided an extra source of income, year on year, that could have been earmarked for technological investment up until convergence. It was not adopted.

98 In principle, emissions allocations will be renewable: targets will be fixed within a period, following which new caps will be set and new allocations made. However, with each step, caps will become tighter than before. For poorer actors, selling may appear profitable even if gains are short-term. Banking will be difficult and purchasing may be impossible.

In effect, regardless of negotiating position, it is extremely unlikely that many of the poorest countries will ever be able to rely on carbon-based energy to fuel the kinds of living standards that would ensure even basic rights guarantees for all. They will therefore have to rely on the appearance of affordable technological fixes. This in turn presumes not only that rich countries will invest seriously in R&D, but also that they will encourage and facilitate the transfer of new technologies, and prevent intellectual property barriers to access. Yet technology transfer has not received the volume of attention devoted to emissions trading. As things stand, the available store of emission allocations will run dry before the poorest countries reach a sustainable level of development. Without robust and detailed policies of technology transfer and adaptation, their development and policy options will steadily shrink, with deleterious effects on basic rights. From a rights perspective, therefore, it will be important to assess the extent to which potential impacts on rights are taken into account when trading regimes are implemented. Where the social consequences are likely to be inequitable, as suggested above, they should be revised.

The above paragraphs are speculative. They name several issues of long-term equity that emissions trading raise, and suggest that the systems now being devised need to be assessed rigorously in terms of their social and developmental consequences, viewed as human rights concerns. In theory, of course, a portion of any country's emission rights might be considered inalienable, or emissions rights might be reallocated to the least developed countries. The adoption of a market mechanism, however, presumes against (if it does not actually preclude) these solutions. That is likely to penalise the very countries that are already most vulnerable to climate change impacts.

A core question raised by the emissions market, then, is whether it will put carbon-based development out of the reach for certain countries, without making any alternative readily available. From this perspective, the human rights impacts of emissions trading can only be properly assessed in the context of other elements of the climate regime, now and in future. These include: robust adaptation policies and programmes; research and development of new technologies, and affirmative approaches to technology transfer; the relaxation of access barriers (to intellectual property for example); and so on. These policy vectors do not necessarily depend on the trading regime and are ordinarily viewed in isolation from it; but they will certainly impact upon it and, if properly organised, might make trading less profitable for current emission rights holders.

III. LITIGATION: A RESPONSE TO POLICY FAILURES

As understanding of climate change increases, as its effects are felt, and as consensus continues to spread that human actions are responsible, litigation is likely to increase. Given the nature of climate change impacts, human rights law will often be invoked. This is proving true already, despite the fact that legal actions in this area confront numerous obstacles to success. Although lawsuits cannot themselves provide long-term or far-reaching solutions to most human rights problems raised by climate change, litigation can still be an effective strategy even when complaints fail. Lawsuits draw attention to harmful effects that might otherwise remain below the public radar, put a name and face to the otherwise abstract suffering of individuals and provide impetus and expression to those most affected by the harms of climate change. They can thus mobilise public opinion in support of policy change.[99]

By raising and sifting through hard questions of fault, liability, standing, jurisdiction, causality, and harms, litigation can help clarify appropriate responses to climate change, and thereby contribute to improved policy-making. In addition, tort litigation can present polluters with costly trials and the uncomfortable prospect of debilitating damages and reputational costs, all of which can encourage behavioural change.

The following chapter looks first at a groundbreaking case brought by a group of Inuit in North America, that illustrates both the potential and the limitations of human rights litigation in the context of climate change. It goes on to examine other options, particularly in the United States, before concluding with some general comments concerning the trend towards litigation in this field.

THE INUIT CASE

Climate change and human rights were first linked explicitly, it seems, in December 2005, when an alliance of Inuit from Canada and the United States led by Sheila Watt-Cloutier filed a petition with the Inter-American Commission of Human Rights. The petition alleged that the human rights of the plaintiffs had been infringed and were being further violated due in large part to the failure of the United States to curb its greenhouse gas emissions. In the words of the petition: "the effects of global warming constitute violations of Inuit human rights for which the United States is responsible."[100] The petition provided a

99 Comments made at the ICHRP roundtable, Geneva, 13 October 2007.

100 Petition to the Inter-American Commission on Human Rights Seeking Relief from Violations Resulting from Global Warming Caused by Acts and Omissions of the United States, Submitted by Sheila Watt-Cloutier, with the Support of the Inuit Circumpolar Conference, on Behalf of All Inuit of the Arctic Regions of the United States and Canada, (7 December 2005, p. 70).

comprehensive list of rights violations, including rights "to enjoy the benefits of their culture", "to use and enjoy the lands they have traditionally occupied", "to use and enjoy their personal property", "to the preservation of health", "to life, physical integrity and security", "to their own means of subsistence", and "to residence and movement and inviolability of the home".

The case was innovative in several respects. It not only confronted an international tribunal with the serious human rights consequences of global warming, but joined up the dots between the "acts and omissions" of the US government (and other emitters) and the suffering of particular peoples located in climate-sensitive territories at a distance. The argument that rights to culture and health (among others) were effectively violated by the actions of polluters – and by extension the government that failed to stop them – plausibly applied the widely accepted human rights norm that governments and private actors have, at a minimum, a *negative* obligation to desist from harmful actions that lead to social and economic rights violations.[101] The case further sought to hold one state responsible for activities undertaken in several different states – applying both criminal law principles of joint liability and, more innovatively, the UNFCCC's own principle of "common but differentiated responsibilities". The plaintiffs claimed that, being a major polluter and Annex I country, the United States arguably bore a special responsibility towards those affected.

While the Commission ultimately did not find the Inuit case admissible, it did invite the petitioners to request a public hearing on the matter, which subsequently took place on March 1, 2007. On that occasion, the Commissioners asked in particular how one state could be held liable for actions also conducted in numerous other states. Martin Wagner, counsel for the petitioners pointed out that posing the question in these terms was "like saying if two people stab a knife into someone together, we have to figure out how much each one is responsible" in order to assign any liability at all. A more correct interpretation, he contended, is that each state is responsible separately as well as jointly.[102] (As of May 2008, the Commission had not issued a report based on the hearing.)

The Inuit case's many potential innovations also constitute possible pitfalls. In seeking to assign liability, courts will need to be persuaded that the plaintiff before them has been directly injured by the actions of the defendant in the suit. In climate change cases, this means establishing first that the plaintiff has in fact been injured by manmade climate change (not just, for example, by freak weather events that might have taken place anyway), and that the defendant in question caused the event or played an indispensable role in it or could

101 See note 8 above for the relevant case law. On the notion that climate change places a negative obligation on governments with regard to social and economic rights, see Sachs, 2006.

102 Statement of Martin Wagner at the IACHR public hearing. The hearing can be heard on the IAHCR website: www.oas.org/OASpage/videosasf/2007/03/CIDH_1.wmv. The issue is discussed in greater detail in Mank, 2005.

reasonably have stopped it. The complex causal chains that underlie climate change harms do not easily fit this model of liability. Yet it is neither unreasonable to assume that certain observed impacts are in fact due to a changing climate, nor that major states could, in fact, have taken earlier and more decisive action to mitigate these impacts (see pp. 65-68 below on state responsibility). Nor is it unreasonable to suppose that major industries, certainly when considered as a group, are directly implicated in climate change harms (see pp. 68-73 below on private liability). Proving liability along such lines will nevertheless require innovation and evolution in the law and case law. Pioneering cases such as the Inuit case will play an important part in creating space for innovation, assisted by a widening understanding of the reality of anthropogenic climate change and its potential to injure.

The Inuit case suggests how human rights tribunals might borrow, as they have done on other issues, from general principles of tort or civil rights litigation. For example, it is common in environmental litigation, where there are numerous polluters, for a court to shift the burden of proof and hold the defendant liable unless he or she can mitigate responsibility by proving the proportional liability of other wrongdoers. Under theories of joint and several liability, each wrongdoer is held responsible for the entire harm in some circumstances. Such doctrines serve to deter pollution by all and ensure greater likelihood of redress for victims.

Massachusetts v. EPA and other actions in the US

In the United States, the federal government has not only failed to initiate comprehensive climate change mitigation policy, it has also placed numerous obstacles in the path of states wishing to take autonomous policy steps. This has sparked much recent litigation, notably between states wishing to regulate and federal regulators attempting to forestall regulation. States seeking stronger regulation have successfully sued two federal regulators – the National Highway Traffic Safety Administration (NHTSA) and the Environmental Protection Agency (EPA) – in federal courts. The NHTSA was sued by California and other states (*Center for Biological Diversity v. NHTSA*) for failing to account for the costs of greenhouse gases emissions in its fuel-efficiency regulations.[103] The Ninth Circuit Court of Appeals ordered the NHTSA to review its rules on fuel standards and assign a cost to the known climate change-related damage of fuel emissions.

A more significant success was achieved in the Supreme Court in April 2007, in the case *Massachusetts v. EPA*.[104] The Environmental Protection Agency

103 *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 508 F.3d 508, 547 (9th Cir. 2007).

104 *Massachusetts v. EPA*, 549 U.S.___,127 S.Ct. 1438 (2007).

had refused to regulate CO2 as a pollutant under the federal Clean Air Act of 1979. Among other assertions, the agency claimed that any attempt to regulate greenhouse gases might impede a "more comprehensive" strategy emanating from the White House. The justices disagreed and ordered the EPA to review a request by the state of Massachusetts for guidelines on regulating CO2.[105] In the course of reaching a conclusion on this fundamentally narrow technical question (whether EPA had the right to refuse a petition to regulate CO2 under a law that does not name CO2 as a "pollutant"), the justices grappled with some of the trickier legal questions that climate change poses when considered from a rights perspective.

The principal argument concerned Massachusetts' standing to bring the case before the court. In general a plaintiff has to demonstrate three things in order to show standing: that an injury of some kind has been suffered, that the injury is caused in some respect by the entity being sued ("causation"), and that a court ruling can bring some relief ("redressability").[106] The court acknowledged that Massachusetts cannot easily show standing. Most harms from climate change lie in the future; the causes are diffuse; and a court's ruling will not, in any case, reverse climate change. Despite these difficulties, the majority concluded that "special solicitude" was required in view of "the unusual importance of the underlying issue" (and the fact that the state was invoking its sovereign rights to preserve its environment on behalf of its citizens). Evidence of sea-level rise, together with credible predictions of future harms resulting from climate change were sufficient, in their view, to show that the injuries in question were "concrete". Given this, EPA's refusal to regulate was a likely cause both of present injuries and of future damages. Although regulation would not *reverse* climate change, the court said, this was not sufficient reason to avoid it: global warming might yet be stopped or slowed. To reach this point, the court did not need to grapple extensively with climate change science; it needed only to accept evidence of scientific consensus, and on that basis judge the credibility of a claim of future harms and the possibility that deliberate action might slow it down.

Other climate change related cases have produced mixed results. When fourteen states, including California, were sued by a group of carmakers for regulating carbon dioxide emissions from automobiles, a Vermont court ruled (in September 2007) in favour of the states.[107] However, introducing the regulations

105 In late 2007, the EPA ordered 17 US states not to introduce fuel efficiency standards for automobiles superior to those mandated by the federal Energy Independence and Security Act of 2007. Echoing its position in *Massachusetts v. EPA*, the regulator again argued that state-level action would impede federal policy. See Broder and Barringer, 2007. As of May 2008, California was suing the EPA.

106 The present discussion raises issues similar to those broadly discussed in the previous section, but there is a distinction: there is a lower bar for establishing causation for purposes of standing than for the merits in a given case.

107 *Green Mountain Chrysler-Plymouth-Dodge et al. v. Crombie et al.* (ruling of 12 September 2007).

in question still depends on a waiver from the EPA, which was denied in late 2007 (for the first time in 50 years).[108] In the same month, California *lost* a case against an alliance of automobile companies who, the state claimed, were causing a "public nuisance" due to the intensive aggregate emissions from the cars they produced. While superficially contradictory, the rulings were in fact quite consistent. In both, the courts chose to conclude that regulation rather than litigation was the appropriate forum for setting policy on an issue as charged as climate change. In the California "public nuisance" case, for example, the court found "that injecting itself into the global warming thicket at this juncture would require an initial policy determination of the type reserved for the political branches of government".[109] In this, the US courts highlighted perhaps the greatest obstacle to climate change litigation: where a highly contentious area of policy is still undecided, the law is necessarily indeterminate.

In such circumstances, human rights considerations may nevertheless prove helpful. This is because regardless of the court's reticence to set climate change policy, there is much less doubt about the need for action and redress in cases of human rights violations. The Supreme Court's reasoning in *Massachusetts v. EPA* takes some steps in that direction. It demonstrates that courts are more likely to step in where harms are already "concrete". While the ruling's impact on federal policy remains unclear,[110] it provides impetus and argument to those wishing to challenge the actions of major emitters in other judicial fora both inside and outside the United States. Once again, however, such cases will be most effective after the fact, when climate change impacts have been felt. Litigation in cases of future harms can only be indirect. They may act as a deterrent if suits against private actors succeed; encourage or oblige states to regulate or pass law where they have not done so; or otherwise clarify complex policy questions by closely examining the justice issues at stake.

International and other fora

The cases examined above all concern the United States and focus primarily on domestic obligations in a national jurisdiction. (A peculiar feature of the Inuit case is that although the plaintiffs hailed from both Canada and the United

108 See note 105 above.

109 *People of the State of California v. General Motors et al.* (ruling of 17 September 2007).

110 The ruling may have contributed to a shift in federal policy, embodied in the Energy Independence and Security Act signed into law on 18 December 2007, which requires increased fuel efficiency in US automobiles by 2020 and mandates large increases in subsidised domestic biofuel production. However, following the passage of the act, the EPA has again sought to limit autonomous state regulation of climate change (see note 105 above).

States, only the United States was named as a respondent in the petition, presumably because it is by far the greater contributor to global warming.[111])

As climate change effects deepen, however, other opportunities for litigation will present themselves. Cases have already been initiated in other fora and jurisdictions; many of them rely on human rights norms. In addition to providing redress for actual human rights harms experienced by individuals and communities as a result of climate change, these cases may also fulfil a number of other roles. They may draw attention to policy gaps; prod states to take action individually or collectively; tease out complex questions of liability and accountability; or provide an opportunity for detailed discussion of the allocation of benefits and burdens under a given climate change policy.

Human rights lawyers (and others) may wish to approach international human rights fora such as the Human Rights Committee, or the Committee on Economic, Social and Cultural Rights. The Committee on the Elimination of Racial Discrimination has already spoken out against violations of the rights of indigenous persons in Indonesia, in the context of large state-driven biofuel plantations.[112] In general, international human rights fora may complement litigation in domestic courts, encouraging or obliging governments to take steps to prevent additional climate change, to compensate those affected, or to implement climate policy in a rights-friendly manner. Outside the United States, climate change-related litigation is also underway in Nigeria (where Shell and the national oil company are being sued for damages associated with gas-flaring, although the suit is not framed as climate change-driven); Germany (where export-credit agency support for fossil fuel related commercial activities have been challenged); and Australia (challenging the use of coal and claims to use "clean coal" in power stations).[113] The Kyoto Protocol itself may provide options for litigation: environmental groups in Canada are suing the government in a Canadian federal court for its stated intention to miss its Kyoto targets.

111 The case is further complicated by the fact that neither Canada nor the United States have ratified the American Convention on Human Rights, which means that the only applicable treaty under the Inter-American system is the softer American Declaration on the Rights and Duties of Man. For an argument that litigation targeting the United States is likely to be neither effective nor strategically helpful against climate change, see Posner and Sunstein, 2007.

112 CERD Concluding Observations on Indonesia, 71st session, CERD/C/IDN/CO/3 (15 August 2007), para. 17. Further background is available in the NGO submission to CERD entitled "Request for Consideration of the Situation of Indigenous Peoples in Kalimantan, Indonesia, under the United Nations Committee on the Elimination of Racial Discrimination's Urgent Action and Early Warning Procedures" (6 July 2007).

113 Documentation on each of these cases can be found on the Climate Law website: www.climatelaw.org.

To assert the *interstate* obligations that arise in the context of climate change – even where human rights violations play a central part – states and activists will most likely turn to fora other than the international human rights machinery. There are many options, foremost among them the International Court of Justice (ICJ). But cases alleging state responsibility for transboundary harms, originally recognised in the pathbreaking *Trail Smelter Case* in the 1930s, will be hard pressed to succeed in the face of the complexities of climate change and the ongoing international quest for a treaty solution.[114] Tuvalu – which is experiencing irreversible damage due to rising sea levels – sought legal advice on who might be held responsible for the imminent loss of homes and lifestyles, but chose not to pursue litigation.[115] The legal options available to small island states facing disappearance at low warming thresholds have been investigated in some detail.[116] Relevant questions concern the rights of "environmental refugees", the status of states whose territory disappears, and the obligations upon other states to receive climate migrants and provide conditions for the continued survival of their cultures. Should negotiations continue to stall, the effects of climate change on societies and public policy is likely to trigger renewed examination of legal options.[117]

There may be scope for interstate litigation elsewhere, for example under the WTO dispute settlement process, where states find themselves disadvantaged by the unwillingness of other states to control the emissions of private actors within their jurisdictions.[118] The failure of some states to honour obligations to prevent climate change under the UNFCCC might be viewed as an effective subsidy. At a minimum, states might justifiably take steps against recalcitrant states such as the United States.[119] Continued subsidies to national fossil fuel industries are also emerging as a likely target. At a minimum, global warming is set to reignite the long-running disputes between environmentalists and trade enthusiasts, played out inconclusively in cases such as *Shrimp/Turtles*.[120]

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114 *Trail Smelter Arbitration (United States v. Canada)*, 3 RIAA 1907 (1941); *Gabcikovo-Nagymaros Project* (Hungary/ Slovenia), Judgment, ICJ Reports 1997, 7. See Sands, 2003, pp. 291-307); Gupta , 2007. See pp. 68-75 below.

115 Okamatsu, 2006; Price, 2002; Ralston et al., 2004; Rinnerberger, 2006.

116 See especially E/CN.4/Sub.2/2005/28 (16 June 2005), above note 58.

117 If so, the work in the UN's International Law Commission on "shared natural resources" (recently moving beyond transboundary groundwater to examine oil and gas deposits) may further buttress the doctrinal weight of such cases. See UN Doc. A/CN.4/580, Fourth Report on Shared Natural Resources: Transboundary Groundwaters, by Mr. Chusei Yamada, Special Rapporteur (March 2007).

118 See IPCC AR4, WGIII, p. 793; Stiglitz, 2006; Cosbey, 2007; New Economics Foundation, 2003.

119 Stiglitz, 2006.

120 WTO Appellate Body Report on US - Import Prohibition of Certain Shrimp and Shrimp Products, WT/DS58/AB/R (12 October 1998). See also Howse, 2002.

Court rulings are clearly no substitute for robust policy on global warming. Indeed where cases have been brought, they have been necessary precisely because of an existing policy vacuum and have served in the main to prod a process slowly forward.[121] Lawsuits will likely be most effective as a stopgap, at national rather than international level, when climate change impacts can be traced to specific policy inaction or failure, to ensure that regulatory and other actors take steps to limit present and future emissions and impacts.

121 Other fora include the international tribunal under the United Nations Convention on the Law of the Sea (UNCLOS), which may provide possible recourse for states that can demonstrate harms resulting from pollution of the marine environment (such as to coral reefs). Burns, 2006. A series of petitions have been filed with UNESCO's World Heritage Committee, which oversees the World Heritage Convention, seeking recognition of the threat to world heritage sites presented by global warming and requesting special protections. See www.climatelaw.org.

IV. PROCEDURAL RIGHTS: VOICE AND PROCESS

This chapter briefly describes how procedural rights and tools can be factored into international, national and subnational policy processes. It relies in particular on the incorporation into recent international environmental law of rights outlined in both the UDHR and ICCPR.[122] These are principally the rights to information, public participation and effective remedy.[123] The first significant source is the 1992 Rio Declaration on Environment and Development, proclaimed by the UN General Assembly at the same time as the UNFCCC was opened for signature, which includes the following principle:

> Environmental issues are best handled with the participation of all concerned citizens… At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided. (Rio Declaration, Principle 10).

Rio Principle 10 received its fullest expression to date in the 1998 Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. This treaty establishes comprehensive and binding standards in each of the three procedural areas of its title.[124] Although Aarhus has a regional (European) basis, it is open for signature to all states, and provides standards that might usefully be drawn upon at international level and by states everywhere faced with the peculiar hazards posed by climate change.

Access to information

Information rights have received special attention under international environmental law. The reason for this is the recognition, indicated in Rio

122 Universal Declaration of Human Rights, Articles 19 and 21; International Covenant on Civil and Political Rights, Articles 19, 22 and 25.

123 For a full account of the history and relevant legal background, including on access to justice (not discussed here), see Shelton, 2001, pp. 194-213 and pp. 218-225.

124 Full text online at www.unece.org/env/pp/documents/cep43e.pdf. The Right to Information also appears in the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC Convention); EC Directive on Combating Air Pollution from Industrial Plants, 84/360/EEC, OJL 188 of 16 July 1984; Directive 90/313/EEC of 27 June 1990 on the Freedom of Access to Information on the Environment, OJL 158 of 23 June 1990. Also WHO European Charter on the Environment and Health. See Shelton, 2001, pp. 200-203.

Principle 10, that effective action on environmental degradation requires the collection of much information – environmental impact assessments, monitoring of toxins and other pollutants, tracking of species populations and so on. At the same time, it has long been recognised that information on the environment should be publicly available, not only as a matter of right, but also to improve policy efficiency. Easy access to information increases the effectiveness of environmental monitoring, by generalising public understanding of a given policy goal. Furthermore, in association with guarantees of effective participation, access to comprehensive, high quality and accessible information is fundamental to democratic process.

Chapter II discussed some of the challenges that policy-makers face because information on the likely effects of climate change is lacking in many countries. The *human right* to information, as commonly codified in national legislation, might not appear at first glance to be of much help faced with these challenges, because it only affirms the general public's right to receive *on request* information *already held* by public authorities. This could not be applied to advance adaptation policy in countries where relevant information has not been collected.

The Aarhus Convention goes beyond the usual wording of freedom of information acts, requiring that states actively compile periodic reports on environmental risks, update them systematically, and make them available to the public proactively (Aarhus, Article 5). On its own, this stipulation is still insufficient to resolve the information dilemmas facing developing countries in the context of climate change. An Aarhus equivalent for African states, for example, would not overcome the resource and capacity gaps that stymie good information gathering in many countries. Nor would it necessarily strengthen the hand of developing country delegates (or civil society groups, journalists or others) at large negotiating events. However, the Aarhus Convention goes still further. Article 3(7) states that:

> Each Party shall promote the application of the principles of this Convention in international environmental decision-making processes and within the framework of international organizations in matters relating to the environment.

This principle is binding on Aarhus parties, including all EU member states (except Ireland). It presumably applies to the international adaptation and mitigation negotiations in which these countries are involved, and must also inform the obligations outlined in the UNFCCC and reiterated and expanded in the Bali roadmap.[125] It is surprising, given the essential role that information and participation must play in developing adaptation policies, that Aarhus 3(7) appears not to have been invoked or insisted upon in those negotiations.

125 Decision -/CP.13, Bali Action Plan (Advance Unedited Version), Article 1(c)(i). See pp. 23-24 above.

The principles of the Aarhus Convention underline the fact that information gathering involves choices and decisions about resource distribution and capacity, about what and how much to gather at what cost, and about who should receive it and how it may be used. How, for example, might the application of Aarhus affect the respective roles of national and international actors in information-gathering, analysis and dissemination for adaptation? Given the recurrent impasse in international adaptation negotiations, such questions merit further investigation and advocacy.

The Aarhus principles are equally relevant to international mitigation policies, particularly given their cooperative dimension. Because emission caps under the Kyoto Protocol are restricted to Annex I countries, discussions of mitigation strategies too have barely involved non-Annex I parties. As a result, the most significant long-term mitigation structures – the emissions markets under construction, including the EU Emissions Trading System – have gone ahead as though they were of limited interest or relevance for non-participating states. They are not, of course, given that the markets in question distribute a (henceforth) strictly limited global commodity. A broad combination of actors from Annex I countries, both public and private, have been actively constructing this market for over a decade, with the result that the trading regime has become increasingly complex, well-resourced and jargon-laden. The immense significance that emissions trading will have for the long-term economic prospects of non-Annex I countries has barely been registered or researched in those countries, with the exception of the larger "middle income" countries whose involvement is critical to the market. Over time, an initial information gap has led to limited participation by LDCs, and diminishing appreciation of finer policy detail for those outside the loop, particular among the general public in those countries. The result is *de facto* exclusion from discussions of carbon trading of very many whose futures will be directly affected.

The Clean Development Mechanism has led to the active involvement of some larger developing countries, such as China, in the trading scheme. Indeed the CDM is the first and most obvious area where an effectively global regime will impact directly upon development in poorer countries. As outlined in Chapter II above, however, depending on how it is ultimately structured, the trading regime may ultimately price the poorest countries out of the market for access to the carbon dump (see pp. 36-40 above). It would seem important to ensure that parties with an interest are adequately informed and equipped for full participation, in order to head off such an outcome. Because developing countries, particularly those with the fewest resources, focus on the immediate threats posed by climate change and the urgency of adaptation, it is essential to ensure that mitigation negotiations are transparent, that information about policies and programmes is properly communicated, and that all parties participate effectively. At present, discussions of emissions trading treat their relevance to non-Annex I countries as a matter of CDM prizes on one hand, and of the eventual universal adoption of emissions caps on the other. Large host countries such as China can enter this trading regime on their own terms,

but for others the stakes of the global market rather concern their long-term development capacity, and this is rarely discussed.

Public participation

Article 7 of the Aarhus Convention concerns public participation:

> Each Party shall make appropriate practical and/or other provisions for the public to participate during the preparation of plans and programmes relating to the environment, within a transparent and fair framework, having provided the necessary information to the public.

Climate change negotiations have long suffered from complications of process and participation, rooted in systemic inequalities.[126] Resource-poor countries in need of adaptation funding often can afford only a few delegates at climate negotiations, where wealthy countries can field hundreds. As a result, those present face inevitable difficulties, given the complexities and inter-dependence of the many themes under negotiation at a given time. In these circumstances, diplomats are unlikely to influence outcomes effectively even when the states they represent have a clear interest.

Not surprisingly, the situation has fuelled distrust, even acrimony, between the parties.[127] Donor countries have been criticised for apparently seeking to avoid a participatory process through the UNFCCC to fund the immense adaptation needs of developing countries. The GEF's core funds have been subject to criteria that, while sensible for mitigation activities, have little to do with adaptation. Projects must contribute to "global environmental benefits" to qualify, whereas adaptation actions will necessarily bring primarily local (rather than global) benefits. Projects are funded on an "incremental costs" basis, which makes sense for mitigation activities, where the GHG emissions of a given project can ordinarily be reduced at an additional cost, but not for adaptation, where costs are likely to be wholly new, like the causes they address.[128] As the World Resources Institute has remarked, this suggests that adaptation is somehow parasitic upon existing development planning, ignoring the unique character of adaptive responses to climate change. "The lack of

126 See generally Mace, 2005.

127 McGray et al., 2007, p. 33.

128 The GEF eventually introduced the notion of "additional" to replace "incremental" costs – the idea being that funding "additional" to ODA would be made available to "add" extra "climate adaptive" components onto existing development projects. McGray et al., p. 33. On the persistence of both "global environmental funding" and "incremental costs", see Mace, 2005, pp. 226-228, p. 244 and pp. 335-336. In addition to these criteria a Resource Allocation Framework created to evaluate funding applications introduced governance criteria requiring indicators that, at the time they were introduced, did not exist for at least 23 of the countries most in need of adaptation funding. Mace, 2005, pp. 243-245.

[adaptation] implementation", they remark, is "largely driven by the conflicts in funding procedures [and] has further exacerbated tensions in the international climate negotiations".[129]

Distrust has continued even where developing countries have participated actively in policy processes, such as in the elaboration of NAPAs for LDCs, and in the composition of the Kyoto-based Adaptation Fund Board, finally agreed in Bali. Donor countries have appeared to wish to assert control over these processes with minimal interference from the "beneficiary" countries. The NAPAs' funding was minimal (US$200,000 for the plans intended to cover the most pressing needs of entire nations).[130] Although 32 NAPAs have so far been elaborated, relatively little has been done to fund their implementation (see Chapter II below). To complicate matters, NAPAs have not generally been integrated with other development processes, such as the Poverty Reduction Strategies put together under the guidance of the World Bank and the International Monetary Fund (IMF).[131] The new Adaptation Fund Board, established to manage the 2% levy on CDM projects expected to produce significant funding for adaptation is considered a success for developing country negotiators. Nevertheless, it was determined at Bali that the Board Secretariat would be placed with the GEF (on an interim basis), and that body swiftly moved to set the new Board's overall agenda and operating principles.[132]

At the same time, the World Bank quickly announced the creation of the "climate resilience pilot program", a new adaptation fund largely sponsored by the United Kingdom that would be attached to the Bank's "climate investment funds". The new fund was constructed without consultation with likely recipient countries and its executive board initially included only donor country representatives. (An immediate outcry forced the Bank to revisit these plans.)[133]

A root cause of tension is the governance structure of the World Bank itself. The Bank acts as a trustee for the GEF as well as an implementing agency and, in addition, frequently co-finances GEF-supported projects. As a result the Bank wields enormous influence over the GEF. However, decision-making at the Bank is weighted in favour of its largest shareholders by financial contribution; this tends to minimise or exclude recipient countries from the

129 McGray et al., 2007, p. 34.

130 For a good synopsis of common criticisms of the NAPAs, see UNDP, 2007, p. 189.

131 McGray et al., 2007, p. 34.

132 For the composition of the Board and the array of documents elaborated for approval by the GEF, acting as secretariat, at the first board meeting, visit the Board's website: www.adaptation-fund.org.

133 Tan, 2008b.

outset.[134] In this context, the emphasis in Aarhus on public participation is again relevant, particularly when read in conjunction with the Article 3(7) requirement regarding international negotiations. For as long as the participation of some relevant actors can be curtailed by channelling decisions through the World Bank, donor countries will continue to exercise undue influence and recipient countries will continue to perceive consultation as merely formal. Since European countries are under a binding obligation under Aarhus Article 3(7) to introduce Aarhus principles into international negotiations on the environment and have recognised the essential role of national leadership over policy formation in the Paris Declaration on aid effectiveness, they might be expected to create appropriately inclusive policy fora. The fact that they have failed to do so in the case of the new Climate Investment Fund (for example) is an obstacle to the development of sound and legitimate policies to address climate change, and this should attract the attention of human rights advocates.

Rights to participation are equally important when adaptation policies are implemented on the ground. Much work has already been done on the role that participation, access to information, and freedom of expression play in sound and accountable decision-making, both nationally and locally. When citizens are not well informed, or are disabled from participating in public discussion, this will affect not only the quality of decisions but also their implementation, because they will command little informed public support. Agreement between state and citizens is especially important if policies involve sacrifice, the allocation of scarce resources, or government interference in the day-to-day dealings of ordinary people. Since climate change will generate policy challenges in all these ways, it is clear that securing public consent for programmes of adaptation or mitigation will be essential if they are to succeed. Human rights provide an internationally-recognised and formally constructed framework, and to some extent a body of practice, that will be helpful when designing consultation and decision-making processes and assessing the quality of public participation in adaptation and mitigation programmes.

134 The five largest shareholders to the IBRD each appoint one of 24 Executive Directors on the Bank's Board (the rest are elected). In December 2007, the top five contributors commanded almost 40% of the Bank's voting powers (they are: France (4.3%), Germany (4.49%), Japan (7.86%), the United Kingdom (4.3%) and the United States (16.38%). See the Bank's website (http://go.worldbank.org/11PWB3RTM0 and http://go.worldbank.org/O9S0U0IOA0).

V. ETHICS AND RIGHTS: CONCEPTUAL CONCERNS

Climate change raises some hard ethical questions, as this report has indicated throughout, many (if not all) of which can be framed as questions of justice. This chapter looks at four such questions. First, it explores four different justice demands that have informed climate change negotiations and that provide the ethical backdrop against which various human rights concerns arise. Second, it examines whether flexible provisions of the UNFCCC, such as *equity* and "*common but differentiated responsibilities*", can provide a framework for addressing human rights violations attributable to climate change. Third, legal responsibility for transnational climate change-related harms is discussed, in relation to states, on one hand, and private actors on the other. Finally, the right to development, still contested in many human right circles, has some standing in the climate change field because of the references to it in both the Rio Declaration and the UNFCCC.

JUSTICE CLAIMS IN THE CLIMATE CHANGE REGIME

The ethical issues raised by climate change are familiar because they were clearly identified from the outset of climate negotiations, and have been repeatedly rearticulated and developed ever since. They are nevertheless complex, because they involve justice claims that are both different in kind and not obviously compatible.

At least four types of justice claim have been raised in the context of climate change. The first and most straightforward arises because the activities of one group of persons – those who overuse the carbon dump – have caused and continue to cause injuries affecting a different (much larger) group, who live in parts of the world likely to be hardest hit by climate change. This claim has the familiar contours of corrective justice. A is engaging in activities that are wrongfully injuring B, so A should (i) desist from these harmful actions and (ii) compensate B for any injuries experienced. Initially, this looks like a human rights problem or at least a tort problem: there are actors and injured parties, perpetrators and victims; the question is what mechanisms will serve to stop the perpetrators from acting in ways that are injurious to the victims and will compensate the latter for harms they have experienced. For reasons discussed in Chapter III above, tort-like litigation is likely to be more fruitful in the national than the international context, and with regard to past rather than future harms. Nevertheless, in part precisely because recourse to litigation is likely to be limited, this background justice claim will continue to influence the evolution of climate change responses.

A second justice claim concerns the loss of future capacity and potential. The solution to climate change is generally acknowledged to require a steep reduction of greenhouse gas emissions globally. Since the path to economic

growth and prosperity (as generally understood) has relied until now on technologies that produce these emissions, a global freeze on their usage will tend to lock in vast wealth disparities between groups in different regions, without offering any obvious or reliable means of reducing the gap in future. This is a *substantive justice* claim, in that it recognises that an injustice has taken place even though there was no relevant law to ward against it, and the relevant actors were probably acting in good faith, at the time they created the problem. As such it amounts to something like the following problem: how can a solution be found that will effectively reduce global dependence upon greenhouse gas emissions without in the process permanently disadvantaging a global majority who were not responsible but who may forfeit their future prosperity? This claim too has been front and centre of much climate change debate.

Third, if climate change is viewed, as it often is, as a "global problem requiring a global solution" (that is, assuming some form of global solidarity) the justice issues again look different. Everyone, after all, is affected by climate change, not just those living in poor countries. The appropriate question is to ask who should pay how much of the cost of dealing with it? How should the burden of solving the problem be distributed? The justice stakes are well described by Henry Shue:

> [F]our questions … are deeply involved in every choice of a plan for action. (1) What is a fair allocation of the costs of preventing the global warming that is still avoidable?; (2) What is a fair allocation of the costs of coping with the social costs that will not in fact be avoided?; (3) What background allocation of wealth would allow international bargaining (about issues like (1) and (2)) to be a fair process?; and (4) What is a fair allocation of emissions of greenhouse gases (over the long-term and during the transition to the long-term allocation)?[135]

It is in the context of a "global community" affected by a common problem that the "polluter pays principle" – which Shue recommends – is applicable.[136] There are two elements to the justice claim presented here. First, because the emphasis is on allocation of costs and benefits, this claim involves "distributional justice". Second, it focuses on procedural justice – on constructing mechanisms that will ensure that a just solution can be reached, that the concerns and interests of different stakeholders are heard fairly, and that steps are taken as a result. Since *each* of the four claims reviewed in this section has distributive (and redistributive) assumptions and consequences,[137] it is the procedural element that is treated as distinctive in this third claim.

135 Shue, 1993, p. 40.

136 Simon Caney draws a distinction between a "beneficiary pays" and a "polluter pays" principle, noting that Shue's formulation tends rather to the former, at least for past pollution. See Caney, 2005.

137 Caney, ibid, contends that because distributional justice saturates the climate change issue it must be viewed primarily through the lens of ethics and rights.

A fourth way to think about climate change is to view it in terms of entitlements derived from prior usage or legitimate expectations. This account, like the second claim above, begins by noting that carbon intense economies have become hazardous to the global environment through no obvious wrongdoing. When those economies emerged, it was not realised that they posed a profound threat to the environment. Given that many livelihoods (indeed hundreds of millions) now depend upon carbon-intensive economies, a legitimate entitlement has been generated among carbon users that cannot be rescinded arbitrarily in favour of a larger policy goal. A persuasive argument might even be made that compensation should be due *to the polluters* if they are to give up their acquired entitlement to the global carbon dump.[138] At the least, they might expect to have a decisive say, or veto, over the form that any solution takes. Paradoxically, the greater the scale of pollution, the stronger is a given polluter's claim to shape the regime. This might be regarded as the *formal justice* perspective on climate change, in that it relies upon a strict reading of existing legal norms even though they may seem ill-suited to the problem at hand. Its strength lies not only in the claim of strict legal rectitude but also in the fact that a greenhouse gas abatement regime is likely to trigger the opposition of these actors, who are generally politically powerful.

Each of these four discourses of justice has been present within the climate change debate from the outset – although, unsurprisingly, different perspectives have been favoured by different actors.[139] No outcome can satisfy every claim, and in some cases the solutions suggested by each will conflict. This is in part because these various visions of justice conceive of the relevant rights- and duty-bearers in different ways. The first two claims clearly affirm that the primary relationship is between states; individuals and other private actors are second-order bearers of rights and duties. The richer states are the primary duty-bearers and the poorer states (potential) rights-bearers. The third claim need not assume that states are the primary actors, but most versions (Shue's paper, for example) do so in practice. Negotiated regimes that allocate burdens and benefits will inevitably impact individuals' rights, but the third scheme assumes these decisions are best made and regulated by means of inter-state negotiation, in which states *represent* (and therefore manage) individual rights within the context of an overriding public interest. By contrast, the fourth vision assumes that the primary right-bearers are *private* actors, though states remain

138 Robert Nozick argued that any distributional outcome must be just if it results from lawful transactions following from an original just allocation or acquisition. Nozick, 1974, p. 151.

139 A fifth justice claim commonly raised is not examined here: that is the claim of future generations to environmental and developmental resources equivalent to, or not significantly worse than, those available to present generations. On "intergenerational equity" (as this claim is generally known in international law) see Brown-Weiss, 1989. The claim is not pursued here under the assumption that, in terms of basic threshold human rights, claims of future generations, viewed locally, are not fundamentally different from those of present generations, viewed globally.

the primary duty-bearers. If states are to mandate emission cuts in the public interest, they must do so while respecting the rights of individuals. All states might, in principle, be duty-bearers, required to agree a scheme globally that will respect private rights locally.

To some extent, each of these justice claims has generated its own climate change solution. First, international funding for the adaptation needs of vulnerable countries appears as a proposed solution to the problem of corrective justice. It can be conceived as compensation owed by those responsible for global warming to parties who are injured by it (even though there has been no acknowledgement of liability). Technology transfer appears intended to help overcome the second, substantive, justice problem of prohibited carbon-intensive growth. Those in poorer countries agree not to compound a problem they have not caused on condition that income inequality is not locked in as a result. The transfer of clean technologies (developed on the basis of prosperity derived largely from dirty technologies) is not merely a condition of their engagement, but a condition of their future growth. The injustice of locked-in inequality is thus potentially avoided. The claim for procedural justice, third, is partially met in the arduous processes of negotiation itself. Indeed, the difficulty of reaching agreement on the appropriate allocation of burdens among states demonstrates the complexity of this task in light of the presence of each of the other claims outlined above. Finally, the desire for formal justice is met by the emissions trading regime established under the Kyoto Protocol, which grants emissions rights to states on the basis of prior usage, and has been elaborated in close consultation with affected private polluters. The trading regime is sensitive to claims that emissions entitlements were legitimately acquired by these actors. It provides them with a voice in the regime and flexibility in deciding how to alter their behaviour. Private actors have the potential to make a profit while making amends, and effectively may even be compensated, so long as emissions permits are given away freely rather than auctioned off.[140]

A number of observations leap out from the above description. First, it is not clear that these different discourses of justice can coexist without generating marked contradictions or inconsistencies, at least in practice. However, the impact of any one claim on the others, if adopted, is not evident, in part because they are discussed by different parties in different venues with relatively little overlap, and in part because the substantive impacts will mainly be felt in the future and cannot easily be predicted. Second, some justice claims have had more practical traction than others. The emissions trading (as exemplified in the EU's ETS), including the Clean Development Mechanism, is at an arguably more advanced stage than international adaptation funding or technology transfer. It appears that the "entitlements" claim, although it does not enjoy universal support, has been more effective than the substantive or corrective justice claims, despite the fact that the latter are widely agreed. This is counterintuitive,

140 See p. 14 above.

given that the other justice claims have received far more public attention. It is perhaps less surprising when it is remembered that the main actors asserting prior entitlements are also leaders in energy production and distribution and so have immense power to shape debates affecting energy futures. Lavanya Rajamani writes "It is indeed curious that international law can be read to endorse claims based on historical entitlements, yet deny claims for rectification of historical wrongs".[141]

While none of the justice claims outlined in this section translates unproblematically into human rights language, they are nevertheless highly relevant to the present investigation for two related reasons. This is, first, because the human rights concerns that have been highlighted elsewhere in this report rely for their force on a breach of background normative propriety – the sense that an injustice has been committed or is continuing to take place. Second, human rights today occupy much of the space of justice discourse, to the extent that injustices that cannot be easily articulated in human rights terms can appear exotic or abstruse. Climate change therefore presents a challenge to the authority of human rights as the dominant language of justice. If human rights law cannot accommodate these important claims, it risks becoming irrelevant in much of the world where their effects will be increasingly suffered. Conversely, if some or all of the justice claims already acknowledged within the climate regime can be refined and successfully channelled through human rights – or if human rights law can provide a basis for choosing among them – both disciplines will be enriched and many individuals stand to benefit. At present, however, it appears that inchoate property rights (to environmental entitlements) are trumping inchoate human rights (to protection from and reparations for environment-related damages).

Equity and "common but differentiated responsibilities"

The international law framework – the UNFCCC – includes language designed to mediate the various justice claims outlined above. Developing countries argued for a treaty that would recognise three fundamental distinctions between wealthier and poorer countries: different historical (and present day) responsibility for climate change; differing likely impacts of climate change, predicted to be far greater in poorer than richer countries; and different capacity to deal with the problems resulting from climate change and to develop non-carbon intensive energy technologies.

These distinctions are central to the "principles" laid out in Article 3 of the UNFCCC:

> In their actions to achieve the objective of the Convention and to implement its provisions, the Parties shall be guided, inter alia, by the following:

141 Rajamani, 2006, p. 143.

> 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. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.
>
> 2. The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing country Parties, that would have to bear a disproportionate or abnormal burden under the Convention, should be given full consideration.

In principle, as attested by the record of negotiations, the language of "equity" and of "common but differentiated responsibilities" was introduced precisely to acknowledge the justice claims of developing countries, and in particular to balance the differences of contribution and capacity.[142] The clauses above appear to promise not only that resources will be made available for redistribution, but that responsibility would be attributed fairly: that those living carbon-intensive lives in richer countries would be held accountable, to some degree, for the catastrophic problems they had caused and continued to fuel, while those in poorer countries, who bore little responsibility and were struggling to deal with the consequences, would be compensated. If that was the promise, however, there is little sign to date that these principles are being fulfilled, or even that they are adequate to translate the ethical imperatives into legal obligations.

Equity appears comparatively rarely in international law, and plays an unusual and ill-defined role. The introduction of "equity" is an implicit recognition that the law is not always ideally formulated to treat every disagreement; and that occasions arise where proper application of formal law would lead to unjust or discriminatory outcomes. The search for "equitable" solutions under conditions of "common but differentiated responsibilities" (CBDR) seems intended to compensate for the shortcomings of formal equality under law by acknowledging the reality that substantive differences exist between equally sovereign states. Equity might be thought to provide a means to reach a decision, given its association with deliberation and fairness (procedural and substantive justice). According to Shelton, "[t]he procedural and substantive dimensions of equity are often perceived as inter-related, based on the assumption that fairer proceedings lead to fairer outcomes."[143] But the two may also exist in tension, insofar as "substantive" justice outcomes are often expected to be redistributive whereas procedures are often designed to entrench formal equality (regardless

142 See generally Rajamani, ibid; on "contribution and capacity", see Rajamani, ibid, pp. 129-133.

143 Shelton, 2007a, p. 640. This section relies heavily on this text and also on Shelton, 2007b.

of wealth distributions).[144] In other words, even if it is reasonably clear that equity is *not* the application of general rules uniformly in all contexts, it is much less clear what it *is*.[145] "[D]ebate exists on the appropriate principles to determine equitable allocation, e.g. whether decisions should be based on need, capacity, prior entitlement, 'just deserts', the greatest good for the greatest number, or strict equality of treatment."[146] Philippe Sands explains further:

> In the absence of detailed rules, equity can provide a conveniently flexible means of leaving the extent of rights and obligations to be decided at a subsequent date … In many respects, UNCED [the 1992 United Nations Conference on Environment and Development at which the UNFCCC was signed] was about equity: how to allocate future responsibilities for environmental protection between states which are at different levels of economic development, which have contributed in different degrees to particular problems, and which have different environmental needs and priorities.[147]

In short, equity appears in the UNFCCC in part because, while there was agreement at the time of its signature that action must be taken, there was much less agreement about who should pay the costs and how. The insertion of equity acknowledges in principle the validity of different justice claims, while postponing any decision on their relative merit.[148] This has been especially true in the climate regime, where the various different justice claims are unusually knotty and interdependent. While not an empty gesture, then, equity does not amount to a redeemable promise in favour of any particular justice outcome.

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144 Shelton, 2007a, p. 640, citing Franck, 1995, pp. 7–9.

145 Equity is therefore an uneasy subject of judicial pronouncement. In *North Sea Continental Shelf Cases* (1982), the ICJ proclaimed that "the justice of which equity is an emanation is ... justice according to the rule of law: which is to say that its application should display consistency and a degree of predictability; even though it looks with particularity to the more peculiar circumstances in an instant case, it also looks beyond it to principles of more general application", *North Sea Continental Shelf Cases* (1982) ICJ Reports 18. Shelton, 2007a, p. 647, notes that in this passage "the court seeks a degree of legal certainty in its choice and application of norms, but it must take into account the facts, the situations, and the specific interests or claims of the parties. Equitable norms themselves provide no guidance in selecting among the various facts or factors that could weigh in the decision. Thus, an element of subjectivity is probably present in all efforts to achieve an equitable result". Commenting on the same case, Sands, 2003, p. 153, finds the court determined that "equity was not an exercise of discretion or conciliation or the operation of distributive justice".

146 Shelton, 2007a, p. 653.

147 Sands, 2003, p. 262.

148 In short, to say that a solution must be "equitable" says little about what that solution should look like. Sands, ibid, p. 152: "in applying equity in [environmental] treaties, it will be proper to establish its meaning in the context of its use in a particular treaty. [H]owever, treaties rarely provide a working definition of equity…".

A second and closely related Article 3 principle, that of "common but differentiated responsibilities", might appear to hold out greater hope. It has a pedigree in international environmental law beginning with the Stockholm declaration of 1972 and continuing through to the declaration of the World Summit on Sustainable Development proclaimed in Johannesburg in 2002. Its definitive expression occurs in the (non-binding) 1992 Rio Declaration on Environment and Development, Principle 7:

> States shall cooperate ... to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

Here is a clear recognition that richer countries are more at fault for "global environmental degradation" and should therefore play a greater role in mitigating the damage elsewhere while also contributing to "sustainable development". Yet much of this language was lost in the transition from the non-binding Rio Declaration to the binding UNFCCC Article 3. Industrial countries worked hard in the negotiations to ensure that these references from Principle 7 were not included, and to introduce amendments that narrowed the scope of Article 3.[149]

As Lavanya Rajamani makes clear, CBDR in the UNFCCC nevertheless entails a positive obligation on wealthier countries to "assist" poorer countries. But the terms are narrow. Industrial countries agree to provide "new and additional financial resources" to developing countries to meet the "agreed full incremental costs" of complying with their commitments and to cover the "agreed full costs" of their reporting obligations.[150] The wording skews contributions towards funding mitigation in developing countries, rather than adaptation (where human rights needs are most urgent) and, as discussed in Chapter II above, its reference to "incremental costs" is inappropriate for adaptation programmes.[151]

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149 For a full account, see Rajamani, 2006, p. 137 and pp. 196-197. Among these was language to ensure the principles were to "guide" (not direct) "parties" (not all states) to the UNFCCC (not in general international law). A footnote was introduced to state that the title ("Principles") was "included solely to assist the reader". In general, prescriptive language ("shall") in the Rio Principles was replaced with soft exhortatory language ("should") in the UNFCCC.

150 Rajamani, 2006, pp. 108-109.

151 The most significant application of the principles of equity and CBDR in the climate regime is in the Kyoto Protocol, in setting emissions caps for developed but not developing countries. Kyoto is unusual in that the key commitments are taken on by only a subset of parties. It is precisely this aspect of the Kyoto Protocol that has fuelled US opposition to ratification. (See in this regard, Weisslitz, 2002; Biniaz, 2002.) But Kyoto's narrow interpretation of CBRD nevertheless leaves other climate change consequences and demands unaddressed.

In sum, whereas the references to equity and CBRD make clear that climate change responsibilities are relative, they are inadequate on their own to ensure that rights violations resulting from climate change can be addressed through the climate change regime. In this context, might human rights law help?

International human rights law presupposes a world of formally equal states. At first glance there is little scope for any arrangement (such as "equity") that would disturb the supposed universality of human rights. Nevertheless, a principle similar to CBDR operates in the International Covenant on Social, Economic and Cultural Rights, which implicitly acknowledges differences in capacity (if not responsibility), when it says that each state is required to take steps "individually and through international assistance and co-operation" with a view to "progressive realisation" of the rights in the Covenant (Article 2(1)).[152] A case might also be made that recent developments in the field of equality and non-discrimination law – emphasising that equal treatment requires treating unalike situations differently as well as like situations uniformly – have embraced the principle of equity and brought the two closer together.

The ICESCR stipulation that developing countries should use international assistance firstly to attend to social and economic needs at home receives support elsewhere in the UNFCCC, in a further application of the CBRD principle found in Article 4(7):

> The extent to which developing country Parties will effectively implement their commitments under the Convention will depend on the effective implementation by developed country Parties of their commitments under the Convention related to financial resources and transfer of technology and will take fully into account that economic and social development and poverty eradication are the first and overriding priorities of the developing country Parties.

This important proviso introduces two key conditions that must kick in before poorer countries undertake caps of their own. First, rich countries have to fulfil their obligation, not only to provide assistance but also to transfer relevant technology. Second, in language that echoes the ICESCR, "economic and social development" and "poverty eradication" are recognised as the "first and overriding priorities" for poor countries. The UNFCCC therefore requires that clean technologies be made available to developing countries to permit them not only to join in the global mitigation effort but also for purposes of adaptation and to ensure that energy transition can be undertaken while respecting and fulfilling social and economic rights in those countries. This requirement fits easily with the corresponding obligation on developing countries to use international assistance to those same ends. Both the UNFCCC and the ICESCR, then, appear to require that international assistance to address climate change

152 See Craven, 1998, pp. 144-152; Rajamani, 2006, pp. 20-24, who also points out that the legality and frequency of reservations to human rights treaties involves a *de facto* licensing of differential treatment under human rights law.

be directed primarily towards social and economic rights fulfilment. And they further appear to support the effective transfer of technologies towards both environmental and development ends.

Overall, nevertheless, the picture is hardly edifying. Even though (i) actions by rich countries resulting in global warming lead to the non-fulfilment or violation of human rights in poor countries of an increasingly severe and extreme nature; that (ii) all states parties to the UNFCCC also have obligations to respect and protect human rights; that (iii) rich countries are obliged by the UNFCCC to assist poor countries to tackle climate change; and that (iv) poor countries are obliged by the ICESCR and by UNFCCC Article 4(7) to channel resources made available by rich countries towards economic and social development first and foremost, the legal obligation on rich countries to desist from actions causing human rights harms in developing countries and to provide redress is extraordinarily elusive. At best, the increasingly clear evidence of harm, including human rights violations, might contribute to the "pressure" on wealthier countries, expressed in Rio Principle 7, to make amends in ways that go beyond the mere encouragement of mitigation measures (in developing countries as well as at home). It presumably requires robust support for adaptation at a minimum, and substantial transfers of relevant technology. Translating these implications in law into practice evidently requires further research and advocacy.

State responsibility and private liability

If my neighbour decided to convert his bungalow into a palace, and in the process directed a channel of toxic sludge through my garden, killing off the livestock and crops upon which I depend for food and income and effectively leaving me and my family destitute, I would have a strong case against her in a court of law. The case would remain strong even if my neighbour could show the splendour of her new life and the difficulty of returning to the cramped space of her original bungalow. It would probably be good enough to ensure that my neighbour took steps to rectify or avoid the situation rather than let it go to court. The questions of justice in this hypothetical example look fairly clear-cut.

Viewed from the perspective of the injured, climate change too looks fairly clear-cut. Yet the international legal system is simply not constructed to deliver justice of this kind. More than most global issues, climate change throws into relief the inadequacies of the international justice system, given the scale and intimacy of global interdependence that drives the problem and must also drive its solutions. The sheer difficulty of locating a judicial venue or attaching responsibility in relation to climate change highlights the inadequacy of the world's institutions. A report such as this cannot propose remedies for these shortcomings. By articulating the issues, however, it can draw attention to the need for further research and advocacy that might eventually make it possible to translate responsibilities into solid legal liability, and ultimately improve accountability for transnational harms.

Human rights litigation (and tort litigation generally) ordinarily works by addressing specific injuries caused by specific perpetrators and experienced by specific victims, who must have standing to bring the case before a competent tribunal. The tribunal must be situated in a state with relevant laws in place and functional judicial and enforcement mechanisms; it must also have jurisdiction over the case in hand.[153] Litigation of harms resulting from climate change is troubled on almost every count. No-one doubts that climate change has victims – specific individuals who undergo suffering by, for example, contracting a tropical disease in northern Italy, or losing a season's (or a decade's) crop to drought. But the events that create such victims result from numerous diffuse acts performed by countless individuals in scores of locations, generally unrelated to one another. And the actual harms experienced are only indirectly linked, at best, to any particular act or person.

Yet, for the individuals involved, things need not be so complex. A given victim of climate change-related harms can usually show a specific injury. The first real dilemma, then, arises in identifying the perpetrator. To take an extreme example, no single act caused the warming temperatures in Rimini that created conditions for tiger mosquitoes to survive winter and breed, contributing to an outbreak of chikungunya there in 2007.[154] One might blame many intermediate actors for having allowed such an outbreak to happen: the passenger on the plane that brought the disease, the airline that allowed her to board, the public authorities in Rimini that allowed the mosquitoes to flourish. But if the real background cause is the fact that winters in Italy are warming, then final responsibility must lie with countless polluters located around the planet whose cumulative actions have led to global warming. This group can hardly be sued.

All the same, specific actors *are* responsible for climate change – namely, those who overuse carbon fuels, albeit in highly varying degrees. Some 20 per cent of the world's population cumulatively overuse the global carbon dump. The question is whether this group can be broken into definite and identifiable parties to whom responsibility can be attributed in a specific and discrete manner. For convenience, we look first at states, then at private parties.

Governments and public actors

Governments represent "the people", who in turn comprise a substantial constituency of polluters. In *Massachusetts v. EPA*, the Environmental Protection

153 The plaintiff will ordinarily need to show that the victim or perpetrator is a national of, or resident in, the state in which the court has jurisdiction, or that the act took place in that state. In states with laws entrenching "universal jurisdiction", the locus of the victim, perpetrator and act may all be unimportant so long as the act amounts to a crime under the court's jurisdiction, usually amounting to egregious human rights violations.

154 Rosenthal, 2007.

Agency (an executive agency) was considered to be the relevant defendant because it was within its power to regulate greenhouse gas emissions, and thereby reduce the amount produced in the US (and thus globally). As the EPA did not act and the federal government did not require it to act (as they could have done), both might be seen as responsible. Had they acted, some injuries, both past and future, might conceivably have been avoided. That, at least, was the Supreme Court's opinion.

In principle, this argument can be applied globally. Governments everywhere can regulate greenhouse gases, and where they fail to do so, resulting in harm, they might be held responsible, by act or omission, for injuries to others.

For such litigation to take place, however, at least two conditions must be fulfilled. First, laws and institutions must exist in the state in question that allow the state or state representatives to be sued in this way. Not every county is in this position. Second, a plausible case must be made that the government could have acted to slow or stop global warming and did not do so. For countries that contribute tiny amounts to global emissions, it is perhaps implausible to suggest they could exert such an influence. Even large emitters, however, can perhaps claim that they *are* acting merely by dint of engaging in prolonged negotiations to regulate emissions. A government could reasonably claim that it would be foolhardy to take steps to reduce emissions without first having the agreement of other states: if it did so, it would lose the benefits of a carbon economy while nevertheless suffering the consequences of climate change.[155] Ultimately, governments must act in the national interest, and this need not always coincide with the global interest.[156]

Assuming these two conditions are met, the plaintiff must still generally have been harmed on the territory of the relevant state. It is not impossible to sue foreign governments or state officials for acts or omissions that have resulted in harms to individuals in other territories, but the barriers to doing so are high. Without very compelling evidence of direct causation and egregious harm, few national courts will accept petitions from victims located abroad against their own or foreign governments.[157]

155 This argument was put forward by the US government in the case *Massachusetts v. EPA* discussed below. The fact that major emitting countries (such as China) were not bound by Kyoto targets meant, so it was claimed, that any US actions would be ineffective as well as painful.

156 Powerful arguments can be made that acting to stop or slow climate change would *not* be in the general interest – or at least in the narrow national interest of states that have much to lose from economic restructuring but little to fear from limited global warming ("the American way of life is not up for negotiation").

157 For such cases in US courts, see Dellapenna, 1988. For egregious harms, the relevant legal framework in national courts is long-arm jurisdiction, where it exists; or at international level, the International Criminal Court. These possibilities are discussed briefly below (p. 71).

Individuals do have standing to sue states before certain international institutions, such as the European Court of Human Rights (ECtHR). Once again, however, a victim would ordinarily need to have been injured on the territory of the state in question in order to bring suit. Otherwise, as a recent treatise on the ECtHR notes: "the case law of the Court demonstrates that its recognition of the exercise of extra-territorial jurisdiction is exceptional: it has done so when the respondent State, through the effective control of the relevant territory and its inhabitants as a consequence of military occupation, or through the consent, invitation or acquiescence of the authorities of that territory, exercises all or some of the public powers normally exercised by the latter."[158] It is unlikely that climate change harms will meet this narrow test, although the law may indeed evolve, given the scale of the unfolding catastrophe that climate change could represent. In general, nevertheless, tribunals like the ECtHR operate rather as courts of final appeal for harms at national level rather than as fora for the arbitration of transnational harms.

Once climate change really gets underway, and produces victims in countries with strong legal redress, such as the United States and some European states, cases by nationals against their own governments are likely to proliferate. Even if such cases are successful, however, they will still have a very limited capacity to address the human impacts of climate change, which will occur on a scale we are only beginning to imagine. For one thing, measures that target governments will have only a limited overall impact on global emissions (for reasons that will be further elaborated below). For another, the main victims of climate change will not be resident in the wealthy polluting countries, but people living in countries responsible for negligible emissions (such as in sub-Saharan Africa), or where the legal system will not support legal action of this kind (such as, for example, China currently). These factors do not undermine the general value of pursuing cases where it is appropriate and possible to do so, but they are a reminder of the limitations of the legal machinery.

In principle, these justice claims are better addressed through the interstate framework. This route is necessarily political, particularly in a matter like climate change, given the immense economic interests involved. It is also closed to individual victims. Although it is well established in international law, the principle that each state has "responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction" has rarely been invoked in cases of unintentional transboundary injuries.[159] After Chernobyl, for example (as Dinah Shelton and Alexander Kiss point out) other harmed states did not sue, and chose not to support the construction of a remedial framework

158 Van Dijk et al., 2006, p. 21.

159 UNFCCC preamble. See also Principle 21 of the 1972 Stockholm Declaration; Principle 2 of the 1992 Rio Declaration; Convention on Biological Diversity, Article 3. See Kiss and Shelton, 2007, p. 2.

for future harms of this kind: "The emphatic preference remains measures of prevention rather than cure."[160]

Strict liability of states, arguably a stronger form of accountability than "state responsibility", appears to have been accepted by states only in "new" and experimental areas of activity, such as space exploration.[161] Otherwise, states have apparently not accepted that they have general liability for environmental harms, at least to the extent that such harms occur lawfully or accidentally, as climate change damages have to date.[162] Indeed, states have preferred to agree only to the civil liability of private entities that operate under their jurisdiction, for certain hazards involving damage to the commons (such as damage to the oceans from oil pollution or hazardous waste).[163] Over time climate change may yet transform the relevant context here too. Having accepted emissions commitments under the Kyoto Protocol, for example, states that have missed their targets (such as Canada), might now risk being charged with having committed "internationally wrongful" acts. The "wrong" to other states represented by such breaches will only increase with future agreements and stricter commitments. If the status of international law remains unclear in this area, it may be that the urgency of climate change threats will force clarification.[164]

Transnational private actors

For a variety of reasons, even if suits against states or state officials were to be successful for particular plaintiffs, they would be unlikely on their own to cause policy changes that would reduce emissions sufficiently to end further harms. One reason for this is that settlements in such cases will usually reflect national rather than global priorities. Since wealthy countries can withstand greater climate pressures (because they are better equipped to adapt), and

160 Ibid, p. 4.

161 Ibid.

162 P. S. Rao, First Report on the Legal Regime for Allocation of Loss in Case of Transboundary Harm Arising out of Hazardous Activities, " UN Doc. A/CN.4/531 (2003) and P.S. Rao, Third Report on the Legal Regime for Allocation of Loss in Case of Transboundary Harm Arising out of Hazardous Activities," UN Doc. A/CN.4/566 (2006), cited in Kiss and Shelton, 2007, pp. 6-7.

163 Pollution in relevant international agreements to date is defined so as to effectively preclude the damage to the atmosphere caused by burning fossil fuels ("loss or damage caused outside the [vehicle] carrying oil by contamination resulting from the escape or discharge of oil from the [vehicle], wherever such escape or discharge may occur".) See Kiss and Shelton, ibid, p. 10.

164 The Draft Articles on the Responsibility of States for Internationally Wrongful Acts, which codifies state practice in this area, were adopted by the International Law Commission in July 2001. The General Assembly "took note" of them in December of that year (UN GA Resolution 56/83), but they do not (yet) have treaty status. For an overview, see the contributions to Provost, 2002.

are mostly, in any case, less vulnerable, their *national* thresholds for tolerating climate change are likely to be higher than those elsewhere and than the global threshold. This means that generating sufficient pressure to reduce the number of likely climate victims in rich countries like the United States might not in itself contribute to lowering global emissions to a point at which victim rates in Africa, for example, might drop.

A second, more significant reason why national-level litigation may have only marginal impact is the fundamentally transnational basis of much GHG *production*. Many of the biggest emitters do not operate in one state: they act globally. The biggest American and European emitters (oil and gas and logging companies) generate many of their emissions abroad, in countries that do not have emissions caps or robust regulation or judicial enforcement. US and European car producers sell cars globally: even if fuel-efficiency regulations are introduced in their home countries, they can still be avoided elsewhere. (Many LDCs rely for transport on discarded fuel-inefficient vehicles from the West.) Airlines and shipping companies escape global emissions accounting altogether, although this is likely to change. Furthermore, if emission levels are evaluated across entire production and supply chains, it is quickly apparent that many of the emissions attributed to developing countries in fact serve to improve the lifestyles of the wealthy.[165] In manufacturing too, companies can source or outsource the most polluting phases of production to other countries. For all these reasons, the most polluting private actors have many means to escape a state-centric emissions accounting regime. Indeed, a perverse effect of CBDR is that firms may seek ways to "dump" emissions in countries that do not have caps.

Private actors might therefore be better targets of litigation than states, given the global reach and impact of their activities.[166] Could they be held liable for human rights harms related to climate change? A growing body of literature on the human rights obligations of non-state actors suggests that the answer is only "maybe".

Transnational private liability for human rights, on one hand, and for environmental harms, on the other, are linked both directly and by analogy. The analogical link consists in the fact that it is difficult to hold transnational private actors to account, in much of the world, for *either* environmental or human rights damages committed by them, or on their behalf, or with their complicity.[167] The

165 For an account of the extent to which emissions are "exported", see Simms et al., 2007.

166 Moreover, governments themselves are not the major producers of greenhouse gases – public sector emissions are less at issue (for public goods such as street-lighting, healthcare and infrastructure building) than state failure to regulate the emissions of private actors.

167 For a full account, see Clapham, 2006.

direct link is that acts harmful to the environment may also result in harms to human rights, and vice versa. The link can clearly be shown when private activity results in polluted water or air, for example in industries such as mining, or radiation in the case of the nuclear industry, or in lost livelihoods (or lives) as a result of large scale logging. In the case of climate change, this link is more nuanced: fossil fuel extraction and deforestation in poorer countries, often subject to fewer social and environmental regulations, contribute directly to global environmental damage that in turn generates human rights violations in the same countries.

In instances of both environmental and human rights harms, liability is weak because effective jurisdiction has been historically difficult to establish in cases of these kinds. The "transnationality" of private actors is a key source of difficulty: large companies may be incorporated in multiple jurisdictions through subsidiaries or affiliates or shell companies established for tax or banking purposes. Companies may also outsource key parts of their supply chains across borders while still controlling them. Often a large company operating across different jurisdictions will choose to apportion its various legal obligations among them, in each case choosing the legal regime most beneficial to the company's interests.

Added to this, the capacity of judicial systems to enforce environmental or human rights protections is uneven. Plaintiffs often lack the means to pursue cases through the courts. Local law may be unclear or may not cover an adequate range of environmental harms; local courts may be weak, lack independence or corrupt.[168] The great importance of large foreign companies to some small developing economies also increases their operational licence.

For all these reasons, companies that cause harm abroad may not face effective sanctions. Even if cases succeed, damages are often relatively small and insufficient to cause a company to desist from harmful behaviour. Given that most of the companies in question are based in rich countries and that most of their products and profits return to such countries, it might seem that protection of rights too would fall to rich country courts and governments. This has not generally been the practice.

Large companies are often difficult to pursue in their home countries too (when one can be identified), due to a variety of legal obstacles, such as the doctrine of *forum non conveniens*.[169] The handful of legal instruments generally noted

168 For an overview, see Open Society Justice Initiative, 2006.

169 The doctrine of *forum non conveniens* is often invoked by corporations in US and other courts to fend off claims based on actions in foreign territories; the essence of the claim is that a foreign court is the better location to hear such a suit. *Forum non conveniens* was famously invoked effectively in a New York court by Union Carbide in the Bhopal case. See Amnesty International, 2004

in this context typically include: the International Criminal Court (ICC) Statute, which allows for prosecutions in that court against private persons (although not against legal persons); long-arm domestic jurisdiction for grave breaches of international criminal law, introduced in many countries on ratification of the ICC Statute; and, in the United States, the long-arm jurisdiction provided by the Alien Tort Claims Act (ATCA) and Torture Victims Protection Act (TVPA).[170] Although these instruments are increasingly invoked, they have so far had little success in court claims against corporate entities or their representatives. From a climate change perspective, a further significant difficulty is that they apply only to egregious violations, usually international crimes, and breaches of "the law of nations" – such as genocide, crimes against humanity, war crimes, slavery, torture and piracy.

Extreme climate change harms are likely to include death or starvation resulting from drought or water salination, destruction and loss or property, shelter and livelihoods, the spread of fatal diseases, and exposure to war. It is far from clear that, even in the extreme forms they are likely to take, such outcomes will amount to breaches of international criminal law or the "law of nations", or torture (or "cruel, inhuman and degrading treatment"). Given the difficulty of attributing blame to any single actor in the case of climate change, notions of complicity, joint enterprise and aiding and abetting may be useful in such cases. All of these possibilities warrant further research, including whether liability might be attributed among multiple companies (jointly and severally), or among companies and governments.

Where caps do not exist in wealthy countries, major polluters are free to generate as many greenhouse gases as they wish at home – but they might still be pursued in domestic courts for the human harms this behaviour causes elsewhere. Class actions might be conceivable in some contexts against major car or oil companies, for example. Climate change cases would differ from typical ATCA cases in that the acts in question would have taken place on US territory – only the victim would be located on foreign soil. (Whether this avoids or exacerbates the obstacle of *forum non conveniens* would still need to be determined.) In US and other courts, it may be possible to sue companies for misleading the public, using the sorts of arguments successfully invoked against tobacco companies. Certain companies appear to have funded the production and dissemination of false information regarding climate change, thereby delaying public action and so worsening the overall damage caused.[171]

The very fact that such strategies would be innovative and somewhat conjectural indicates the difficulty of demonstrating liability for harms of this

170 See Clapham, 2006, pp. 244-246 (on the ICC), pp. 252-263 and pp. 441-450 (on ATCA). On TVPA, see Fitzmaurice, 2004, pp. 205-206. On extraterritorial jurisdiction for grave breaches of international law, see Ramasastry and Thompson, 2006.

171 For background, see Wallace, 2002.

kind. The entrenchment of human rights norms in international law has not so far provided clear answers in such cases, in part because corporations have not been recognised as subjects of international law (except in the very limited case of crimes against humanity) and can plausibly argue that they have few direct obligations to ensure human rights fulfilment.[172] In a perfect world where every state had the capacity and will to apply international law according to common standards, this would hardly be a problem. Failing that, however, attempts to expand international law to cover private actors directly have so far resulted in soft law "compacts", an expanding CSR (corporate social responsibility) industry and private law arrangements. These are important developments, bringing incremental but substantial improvements in behaviour and accountability, through practices that may eventually coalesce into hard law. But they do not yet provide the legal security necessary to ensure protection against human rights harms.[173]

This problem is well-known and often discussed in legal and human rights circles.[174] Its relevance has not, however, so far been discussed in the context of climate change. One reason for this may be that the international climate change regime has accommodated corporate involvement far more than human rights law has done. Companies have long been engaged in shaping the climate regime, and there has been near universal recognition that, if any regime is to work, it must eventually tie in private actors. By contrast, in the human rights domain, the question of whether human rights norms should be *legally* binding on companies acting transnationally has been a source of contestation. Even on this point, nevertheless, the issues are perhaps not as far apart as they first appear. In both cases a functional regime ultimately depends upon obligations becoming binding to some degree, and in both, the true contest is rather over "how binding": what limits should be set, and how they should be monitored and enforced. In both environmental and human rights cases, for a variety of systemic reasons, obligations are likely to have greater (binding) force in wealthier than in developing countries – and in both, the possibility arises that a company can avoid or reduce its obligations where all or part of its operations are based in developing countries.

This last problem is arguably worsened under the climate change regime, where disparity is built explicitly into the system. As it currently operates, the principle of "common but differentiated responsibilities" offers transnational companies

172 See Nollkaemper, 2004, pp. 224-227; and Bekker, 2004, p. 210.

173 See for an overview Clapham, 2006, pp. 195-237. The principle instruments are the OECD Guidelines for Multinational Enterprises, the UN Global Compact, and the Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with regard to Human Rights adopted by the UN's Sub-Commission on the Promotion and Protection of Human Rights.

174 See, for example, contributions to Kamminga and Zia-Zarifi, 2000; International Council on Human Rights Policy, 2002.

space to exploit differences of standards between states. Regardless of how emissions are reduced, companies may find ways to avoid restrictions by moving operations into non-Annex I countries. Indeed, the Kyoto Protocol, as currently constructed, creates conditions that are peculiarly beneficial for carbon-intensive companies acting transnationally. When a company starts a new project in a developing country, and can demonstrate some "additional" GHG reductions from a notional "business-as-usual" development baseline, it is entitled to use those reductions to offset the cuts it would otherwise need to have made by law in its home country.[175] In such a scenario, the company will (a) produce a net increase in emissions (in cases where the new project represents a development initiative additional to anything already in existence); (b) avoid limits set on its home operations; and (c) stand to make an additional profit on any excess "reductions" it may be able to sell afterwards.

The CDM has not yet operated on a scale large enough to produce this problem and it is possible that a post-Kyoto regime will include safeguards against abuse. Nevertheless, the scenario described is merely an extreme illustration of a problem that will arise due to the principle of CBDR itself because, as currently conceived, it is based on a rich/poor differential between states but not between private actors. If CBDR is truly to promote development, it will need to identify *who benefits* from the looser regime in developing countries. If emissions capacity is simply handed back to rich countries, allowing companies that operate internationally to emit GHGs in developing countries but send the profits and finished products home, little will have been achieved.[176] Further research is needed here.

The right to development

The right to development is frequently raised in the context of climate change, partly because the preamble of the UNFCCC makes an ambiguous reference to it.[177] It is mainly relevant, however, because climate change poses a profound threat to development as well as human rights, and in a manner that highlights the links between them. Some participants in the climate change debate have wielded the right to development as a rhetorical device to advance their development objectives. However, the right to development is not an easy tool

175 Some companies have introduced internal trading regimes that would allow different subsidiaries and national branches to trade emissions reductions with one another with a view to interchange within an international regime.

176 An increasing number of transnational companies originate in and operate out of developing countries. The relevant assessment therefore is not where a company is domiciled, but where the benefits of its emission-producing activities are ultimately consumed.

177 The immediate precursor is Principle 3 of the Rio Declaration, which invokes the "right of development" as a means of "equitably" meeting the developmental and environmental needs of future generations.

to grasp and use. Though many references have been made to it in a variety of international law documents, its status under international law remains ambiguous and its content contested. It is not even clear who is the subject of the right to development. Individuals are, to be sure, but the implication that the corresponding obligation extends beyond a given state to the "international community" as a whole suggests that the state is a corporatised bearer of the right – if only as mediator between the individual and the world. Paradoxically, it is just this inchoate status of the right to development that underpins its relevance to climate change.

The fraught history of the right to development has been well documented.[178] It is enough to note here that, as originally affirmed in the Declaration on the Right to Development passed by the United Nations General Assembly in 1986, the right contained a number of clauses and ideas that were toxic to wealthier countries at the time.[179] Scholars also criticised the Declaration on a variety of grounds.[180] The right was nevertheless referenced in a number of subsequent international documents.[181] After 1993 in particular it was reopened by the UN High Commissioner for Human Rights, leading to discussion of the subject between her Office and the principal international financial institutions, the establishment of a working group on the subject, and ultimately the appointment of a Special Rapporteur, Arjun Sengupta.[182]

Sengupta produced four reports progressively redefining the right to development. Showing a clear debt to Amartya Sen's notion of "freedom as

178 See, for example, Orford, 2001; Salomon, 2005.

179 These included an assertion of "the inalienable right of peoples […] to full sovereignty over all their natural wealth and resources" (Article 1(2)), that revived long-running conflicts within the UN over "permanent sovereignty". The notion that "[a]ll human beings have a responsibility for development, individually and collectively" (Article 2(2)), appeared to fuse or confuse individual and collective rights and responsibilities. The Declaration gave states "the right and the duty to formulate appropriate national development policies that aim at the constant improvement of the well-being of the entire population" (Article 2(3)), introducing ambiguity about the apportionment of rights and duties among states and individuals. Finally, the document called for "effective international co-operation […] in providing [poor] countries with appropriate means and facilities to foster their comprehensive development" (Article 4), which wealthy states disliked.

180 For contemporary criticisms, see Ghai, 1989; and Donnelly, 1984.

181 Examples include: UN Doc. A/CONF.157/23, *Vienna Declaration and Programme of Action*, 12 July 1993; ASEAN Working Group on Human Rights, Asia Intergovernmental Meeting, Bangkok, 29 March - 2 April 1993, Bangkok Declaration; and UN Doc. A/RES/55/2, United Nations Millennium Declaration, 18 September 2000.

182 UN Doc. E/CN.4/1997/17, Report of the Secretary-General pursuant to Commission on Human Rights Resolution 1996/12, 30 December 1996; UN Doc A/51/539, Report of the Secretary-General, 23 October 1996; Robinson, 2001.

development",[183] he focused on the 1986 declaration's statement that the "human person is the central subject of development" (Article 2(1)), and on this basis elaborated the right as a composite "vector" of all other human rights (economic, social, cultural, civil and political).[184] Actions taken to promote or fulfil one right that had a deleterious effect on another could be viewed as inconsistent with the right to development. Sengupta's principal goal appears to have been to make development processes, and international development agencies in particular, more attentive to the rights of individuals.[185] Although his favoured innovation ("development compacts" to be associated with Poverty Reduction Strategy Papers)[186] was not adopted, Sengupta's general concern with using the right to "mainstream" rights awareness in development activities reflected a larger shift in the same direction within the United Nations.

Today the Working Group continues to meet and is supplemented by a High-Level Task Force that brings together a distinctive group of academics, state representatives (North and South), developmental economists and representatives of international financial institutions. Although the right to development is today no closer to functioning as a legal doctrine, or even an operational guideline, discussion continues in the midst of an explosion of efforts to integrate human rights within development programming (which generally make no reference to the right). Its discussion is largely confined to professionals and diplomats in Geneva and New York. As such, it has provided a rarefied forum, away from the fray, in which conflicting principles, aims and methods associated with development can be articulated, evaluated and renegotiated, and in which Northern and Southern governments have made slow and tentative steps towards resolving their differences.[187]

Bearing the above in mind, work on the right to development might be relevant to climate change in two respects. First, it affirms several relevant links between human rights and development: that rights taken together reflect more than the

183 Sen, 2000.

184 UN Doc. E/CN.4/WG.18/2, Third report of the independent expert on the right to development, Mr. Arjun Sengupta, submitted in accordance with Commission Resolution 2000/5, 2 January 2001.

185 UN Doc. E/CN.4/2002/WG.18/2/Add.1, Addendum to the fourth report of the independent expert on the right to development, Mr. Arjun Sengupta, submitted in accordance with Commission resolution 2001/9, February 2002.

186 See Alston, 2001, pp. 281-283.

187 Salomon, 2005, p. 410, describes the positions as follows: "While most if not all States agree that the right to development has both national and international dimensions, Northern States tend to place considerable emphasis on the fulfillment of human rights, including good governance and anti-corruption measures, in developing countries, while Southern countries emphasise the need for an international economic environment conducive to being able to develop economically, socially and culturally."

sum of their parts; that economic growth must be viewed as a means to an end, not an end in itself; and that economic progress can, as a matter of policy, be managed towards the goal of achieving human rights ("growth with equity").[188] Its language has also been hard won: were climate change negotiators to use it, they would know it had survived years of diplomatic argument between governments of North and South.

Climate change throws up difficult questions about the prioritisation of resources under conditions of strain. The right to development might provide a framework for addressing such issues, and ready-made language for negotiating the contrasting interests of North and South. It might provide compromise solutions for at least some of the disagreements that have stalled climate change policy at global level, or language and principles around which agreement might more easily be reached. In addition, it could add vocabulary and to some extent policy tools for the translation of global policies into regional and local programmes of action.

The right to development might prove useful and beneficial in a second way. Echoing the current development paradigm, it emphasises that sustainable and authentic development depends on a three-way relationship between individuals, the state and the international community.[189] Whereas the importance of this triangular relationship has always been understood in development circles, it is absent from international human rights law, which imagines instead a world in which monadic states have bilateral relationships with abstract individual citizens. This is no doubt one reason why development and human rights thinking have been slow to converge.

Reframing rights within this three-way relationship shifts the focus somewhat from liability and responsibility, towards principles of due diligence, accountability, social impact measurement and indicators of effective cooperation.[190] If principles such as these are applied with the objective of assessing the human rights impacts of international assistance across a range of economic activities, they will also be relevant to assessment of climate change impacts and policy. A good example is the Task Force's efforts to evaluate the Millennium Development Goals (MDGs) in terms of human rights, drawing on the opinions of UN human rights treaty bodies.[191] It is already clear that fulfilment of the MDGs is threatened by climate change, which threatens food and water supplies and health prospects, all of which are MDG priorities. Mitigation policies are likely to depress development prospects too, which will also jeopardise achievement of MDG targets. Finally, MDG 8, which affirms

188 Ibid, p. 412 and pp. 427-428.

189 Ibid, pp. 413-414.

190 Ibid, pp. 417-427.

191 Ibid, p. 418.

the need for international cooperation and assistance, will presumably need to be reviewed in light of the additional demands for assistance that adaptation programmes will require, taking account of the ICESCR and UNFCCC 4(7). The continuing low-key work on the right to development may, in each case, provide a useful handle for many who, under the advancing shock of climate change, will turn to the language of rights for the first time.

CONCLUSION

Climate change is already threatening livelihoods and food and water security across the globe. It will pose an immense challenge to the development aspirations of the world's poorest countries. The scale and urgency of the problem are beyond past challenges: treating it will mean destabilising and reorienting current global economic growth patterns. For all these reasons, it cannot be presumed that governments and other implicated actors will quickly muster the political will required to head off "dangerous" anthropogenic interference with the atmosphere.

Climate change throws up significant questions of justice and distribution that do not sit easily within the existing human rights framework. Though a short report cannot give these issues the attention they deserve, the many areas of infirmity it has identified underline the inadequacy of old habits of thought. Negotiators and policy-makers will need both to overcome these and reach for new solutions. There is an acute need for intelligent collective action.

In this respect, the report suggests that human rights imperatives might help generate some forward momentum. They can do so by returning a policy focus to the human suffering that climate change is causing and will continue to cause. They can provide clarity and direction by recognising the moral link between local causes and distant effects. For example, is climate change relevant to the "responsibility to protect", which has been under discussion in diplomatic and human rights circles since the General Assembly adopted it in 2005? When it comes to climate change harms, "protection" across borders can be achieved without ever leaving home. In addition, human rights provide a shared and legally codified moral language around which consensus can be built. This is relevant when it comes to finding solutions, both at international level, where binding agreement must be reached, and at intra- and transnational levels, where many of the causes of climate change lie.

As a matter of law, the human rights of individuals must be viewed in terms of state obligations. It is the state that is responsible for human rights fulfilment. This assignation of responsibility may seem inadequate in the context of climate change, where social and economic rights in poor countries are threatened primarily by actions undertaken elsewhere. Nevertheless, when they adopt negotiating positions that defend their "right" to development, poor countries are acting in accordance with their obligations to protect and fulfil social and economic rights domestically. Since every state is under a prior obligation to "take steps… to the maximum of its available resources" to fulfil those rights, they are logically obliged to ensure that, insofar as they can influence international assistance and cooperation, the latter contribute to fulfilment of their citizens' social and economic rights and do not undermine them.

The special responsibility of wealthy countries to mitigate climate change remains – and is widely accepted. In practice this requires not just cutting emissions at home, but aiding in the timely delivery of adaptation solutions abroad. This too is widely accepted but has not so far been achieved. Whereas wealthy states are exhorted by human rights law, rather than obliged, to help underwrite the protection and fulfilment of the human rights of citizens in poorer countries, they arguably do have such an obligation under the climate change treaty regime. Human rights considerations are clearly relevant to adaptation policies and technology transfer, both areas where wealthy countries are under a duty of international assistance. The present report suggests that climate change responses can be made more effective if policy-makers include human rights criteria (or thresholds) when they assess future harms, identify areas of likely vulnerability and evaluate comparatively the various policy measures available for treating identified challenges.

The report suggests a number of specific areas where policies can benefit from applying human rights thresholds (defined as minimum acceptable levels of protection). Such thresholds would clarify assessment of threats to basic social rights – water and food security, exposure to diseases, access to housing, shelter and land, availability of resources on which livelihoods depend. In each of these areas, human rights-sensitive climate change scenarios can help to locate risks and to assess the existing base of institutions and resources for mitigating those risks. They can suggest how best to head off threats in advance. The extensive information needs for sound adaptation policy are well-known; in addressing them, a human rights focus can be critical in orienting research to the most useful ends.

Human rights thresholds are also relevant to global and local mitigation policies. Where fuel substitution is contemplated, for example – such as switching to biofuels or nuclear power – policy guidance will be improved through attention to the likely human rights outcomes. In this context, environmental impact assessments should be distinguished from the assessment of human rights impacts (an intervention can have harmful human rights effects even if its overall environmental impact is good). Mitigation policies too, such as REDD programmes, must be seen in their local context. The commodification of forest preservation bestows new opportunities and resources upon particular groups in particular places. Resource redistribution of this kind is not automatically benevolent, however, and needs to be evaluated in terms of actual and predictable impacts. Finally, overarching global schemes, such as an emissions trading market and the clean development mechanism, involve considerable transfers of development potential, including use rights to the atmosphere, much of it from public into private hands. These regimes must be investigated for their long-term effects, particularly in countries most in need of development capacity.

Beyond this, rich states must ensure that the equitable provision of "common but differentiated responsibilities" does not work only to enrich companies that can profitably switch operations to countries with low or no emissions caps. The companies in question are primarily large emitters that have significant presence (and political influence) in poor countries: oil, gas and other extractive and energy companies; manufacturers reliant on high-carbon production processes; loggers and industrial farmers who generate or benefit from other greenhouse gas emissions (such as methane or the elimination of carbon sinks); vehicle producers and other companies reliant on carbon-based energy distribution systems. These companies should not find it possible to shift their emissions burdens to poor countries (with low or no caps) while redirecting the benefits of those emissions to rich country consumers (in the form of finished products and profits), an outcome that would certainly distort the intent of the UNFCCC's differential regime. Human rights concerns also arise where companies (including mining or private water companies) rely on or control basic resources, such as water, that will be rendered scarce by climate change. In all these areas of concern, the well-known weaknesses of the international human rights legal framework, as well as the recent history of attempts to overcome them, may hold lessons and cautions for those developing the climate change regime.

Over the long-term, private companies have other distinctive responsibilities. Some play a key role in consolidating development paths in many countries, because they drive energy distribution and use patterns, and generate the technological innovations on which economies are built. Where poorer countries are not yet locked into carbon intensive economies, technical innovation and transfer must be initiated immediately, to make possible and to promote alternative development paths. The patents and investment on which innovation depends are often controlled privately. Being at once private and international, companies may escape obligations here too, by capitalising on the differential treatment of national (public) entities. Richer states will need to ensure that this area of policy is properly and equitably regulated.

Finally, the rights to information and participation are relevant. Many states, particularly in Europe, are obliged to inform their citizens about environmental threats; to compile information in a proactive way; and to ensure that takeholders are proactively consulted about public policies that affect them. Furthermore, parties to the Aarhus Convention are obliged to promote the same principles of access to information and public participation when they are involved in international negotiations. On these grounds, the policies governing information distribution and participation in the international climate change regime might be revisited, particularly where decision making is channelled into international financial institutions, such as the World Bank, with narrow executive constituencies.

If conditions are to be created to control climate change and foster a sustainable world for everyone – including those most at risk – states everywhere will need to accept and actively implement mutual obligations that go well beyond the narrow ambit of many current negotiating positions. In doing so, they will need to remain attentive to their own obligations, to the development and human rights needs of the people whose lives climate change will affect most, and to the incidental and accidental regulatory failures that have left too many individuals exposed to date.

APPENDICES

I: FUTURE RESEARCH AND ADVOCACY AGENDAS

The following summary conclusions gather the principal areas for further work that are raised and recommended in the report. They do not detail specific rights affected by climate change, such as rights to food, water, shelter, and health; or rights associated with gender, indigenous peoples, non-discrimination, migration and conflict – though all these issues evidently require more research. Rather, like the report itself, the following synopsis suggests cross-cutting research and advocacy agendas that will be relevant to all or many human rights.

ADAPTATION

Forecasting human rights impacts. The report concludes that efforts to assess the human impacts of climate change can be improved by applying human rights tools and principles. This would require refining methods for forecasting the social impacts of expected physical and meteorological changes on individuals and communities. This in turn implies first identifying threats to rights (likely breaches of human rights thresholds) and those persons and communities who are particularly vulnerable. It involves, second, assessing the presence or absence of safeguards, the availability of climate change–related information and public access to it, and the capacity of institutions to manage each of these concerns.

Local monitoring and forecasting. Climate change is measured at macro level, but will be experienced locally. There is an enormous need to improve the ability to monitor local social and economic impacts, including their rights implications. It will not be possible to operationalise or finance adaptation or compensation programmes equitably or effectively in the absence of much more detailed information about local impacts on livelihoods and vulnerability, and about how different groups of people will be affected. It will be necessary to develop methodologies for tracking impacts on specific rights (food, health, water, shelter, property, and so on) and more general vulnerability. This work too will require research into institutional capacity and the robustness of process rights (such as access to information).

Adaptation funding and programming. There is widespread agreement that the amounts needed for effective adaptation are far in excess of current funds. Research into expected human rights impacts will help to clarify the appropriate scale and orientation of adaptation funding, as well as operationalising its expenditure in ways that are accountable, transparent and effective. More accurate forecasting of the human rights impacts of climate change will not only help mobilise international funds, it will assist local planners to set priorities for adaptation programmes.

The right to information as a policy tool. Much of the extensive and nuanced information required to prepare sensibly for future climate change harms is still

lacking. The most affected persons are often not well informed either about likely climate changes, or their effects, or the availability of adaptation funding. This simultaneously affects their rights and detaches policy-makers from some the best sources of local information. A sound and proactive approach to information-gathering and dissemination (as recommended in the Aarhus Convention), including burden sharing where needed, will help.

Mutually reinforcing obligations under the UNFCCC and the ICESCR. States' obligations under the ICESCR and the UNFCCC overlap: both prioritise respect for and fulfilment of social and economic rights through development and poverty eradication. Under the ICESCR, states' primary obligations are to those under their jurisdiction, whose rights they are required to support using "the maximum of available resources" including "through international assistance and cooperation". With similar objectives, the UNFCCC also includes obligations between states, to provide international support for adaptation and technology transfer programmes. Together, the two treaties create a matching architecture of rights and duties between states, citizens, and the international community – but more research is needed to clarify their content.

Technology transfer. This is relevant both to adaptation (irrigation, seawalls, crop selection, desalination and so on) and longer-term mitigation (renewable energies, other climate-friendly technologies). Although transfer of technology is entrenched in the UNFCCC and is considered to be a condition of developing country participation in addressing climate change, progress has been slow. If new and existing technologies are not made available where they are needed, there will be direct human rights consequences. This is true not only for those who are most vulnerable but also for whole societies, as they will soon be unable to rely for development on outmoded and carbon-intensive technologies. Attention to human rights priorities can help inform and guide evolving policies for the appropriate transfer of technology, by identifying pressing needs and potential solutions.

Adaptation governance. The 1998 Aarhus Convention on Access to Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters contains exemplary provisions on proactive information collection and distribution, and the involvement of affected persons in regimes that will affect them. The Convention imposes an obligation on signatory states (so far exclusively European) to apply its provisions in international negotiations. This is highly relevant to climate change negotiations, and in particular to the governance of adaptation funds, which is systemically skewed towards developed countries.

Mitigation

"Dangerous" global warming. Until recently, international policy was converging on a greenhouse gas stabilisation target that would keep global warming to

2°C above preindustrial levels. Such a target already carries significant human rights consequences, because some areas will be affected much more severely than others, directly harming the lives and livelihoods of many thousands. Although these costs have not yet been calculated adequately, some actors are nevertheless now abandoning the 2°C target as "unrealistic". A human rights analysis requires taking stock of the full human costs of any chosen path of action and setting policy accordingly. It will be critical to gather sound information about the specific human rights consequences of any suggested stabilisation target.

Biofuels. Biofuel production has recently surged, contributing to rising food prices in a number of countries, many of which are already vulnerable to the likely future impacts of a changing climate. Given the scale and influence of biofuel investment (assuming it presents a climate-friendly alternative to carbon fuels), it is essential to ensure that programmes take account of social and human rights impacts.

Reduced Emissions from Deforestation and Degradation. A key feature of the nascent REDD regime is its potential to increase the financial benefits accruing from control over forest resources. These might fall to forest-dependent peoples, which might in turn yield human rights benefits. Unless human rights safeguards are built into REDD programming from the outset, however, better established and resourced actors are likely to obtain most of the benefit.

Forecasting long-term impacts on development. Globally, greenhouse gas reduction will require alternative development paths, particularly in poorer countries. These paths will have consequences for human rights protection and fulfilment. What steps should be being taken to ensure that human rights protection does not diminish, but increases, as development paths shift? Will technology transfers advance or impede human rights protection? Will they reflect a country's development needs rather than the economic interests of exporting countries?

The long-term effects of a global emissions market. The immense influence that emissions trading will have on the long-term economic prospects of non-Annex I countries has barely been registered, let alone researched, in many of the poorest countries. In the mid- to long-term, the market might conceivably have the paradoxical effect of prohibiting those most in need of carbon-based development from being able to afford it, to the detriment of human rights fulfilment. For this and related reasons, the scope and likely distributive effects of carbon markets should be closely scrutinised. Forward research into appropriate and meaningful transfer of technologies would also help.

The role of private companies in the context of "common but differentiated responsibilities". Under any post-Kyoto arrangement, different countries will accept different emissions caps. Quite properly, many states will not have caps for the moment. However, companies that face penalties if they emit greenhouse

gases in wealthy countries will have an incentive to shift operations to developing countries. Such an outcome would distort the intent of the UNFCCC's differential regime, because it would transfer the emissions burden to poorer countries with low or no caps. This would result in only minor development dividends in host countries, while the benefits of emissions are redirected to rich country consumers, in the form of finished products and profits. Research is needed to establish the likelihood of this outcome, identify measures to prevent it, and provide incentives for more equitable investment that would in turn strengthen human rights protections.

Other mitigation strategies. It would be useful to analyse the likely human rights impact of other proposed strategies, not broached in the present report, including carbon taxes or nuclear energy. Where countries are weighing up different mitigation options, human rights might help comparative evaluation.

Legal and ethical research agendas

The report outlines several conceptual, ethical and legal questions that are relevant to the impact of climate change on human rights. The following issues merit further investigation:

- State responsibility for climate change harms, to other states and to the individuals harmed.
- Liability of private actors for their role in harms caused at a distance.
- The conflicts and confluences between different justice claims in a future climate regime.
- Comparison of the entrenchment of new alienable emissions rights, rather than human rights, under international law.
- As understanding improves and injuries deepen, consideration of climate change as a crime rather than a tort?

Advocacy

Inserting human rights sensitivity into a post-Kyoto regime. Given the relevance of human rights to so much of the climate change problem – to its impacts but also to the policies being prepared for treating it – it would seem valuable to recognise and reference human rights principles within the climate change regime. Treaties under the UNFCCC umbrella could usefully note that actions taken in the context of adaptation, mitigation and technology transfer should respect human rights. This would underline legal obligations; redirect attention to where harms will be worst felt; and help to set programme priorities.

Mainlining climate change into human rights advocacy. Few if any human rights organisations have begun to talk seriously about climate change. The subject no doubt appears complex. Because the worst injuries are forecast to occur in future, they do not provide an obvious handle for human rights advocacy agendas. Yet climate-related harms are increasingly inevitable and are likely to be severe. In addition, climate change will ultimately have an impact on the protection and fulfilment of numerous human rights for vast numbers of people. Human rights activists should therefore engage with climate change and develop strategies to lessen the harms it is likely to cause.

Mobilising and targeting adaptation and technology transfer. Human rights advocates can help to flesh out adaptation agendas in particular countries and identify how transfers of technologies can help alleviate climate-related suffering and head off future global warming. This would assist in-country policy-makers, and provide leverage at international level where adaptation funding and technology transfer have been slow in coming. Robust legal tools (under human rights and climate change law) can be used to press governments to create policies and provide funding for addressing climate change impacts, locally and internationally.

Mitigation regime construction. Mitigation policies have clear human rights dimensions. On one hand, any strategy (or mix of strategies) that is successful at global level will tend to determine the long-term access that many millions of people will have to basic public goods. On the other, choices made in the shorter-term – such as whether and where to cultivate biofuels or preserve forests – will affect food, water and health security, and by extension cultures and livelihoods throughout of the world. Over time, however, an initial information gap between poorer and richer countries has meant that the former have participated relatively little in defining the key mitigation regimes, such as the emissions market. If this trend continues, it will exclude many of the least resourced countries from shaping a global carbon trading regime that will directly affect their futures.

Litigation. As long as effective policies are not in place to slow or stop climate change, creative and strategic litigation is likely to flourish. Several areas are likely to appear promising, depending on jurisdiction:

- Cases, including class actions, targeting high emission industries for human rights harms.
- Cases, including class actions, targeting high emission industries for misleading the public.
- Cases targeting public officials and government regulators for harms due to failure to regulate or seeking injunctive relief.
- The World Bank Inspection Panel may be prodded to examine Bank subsidies to high emission industries.

- Export credit agencies, banks or investors in any country may be targeted for financing high emission industries.
- Trade treaties may be applied where countries have failed to impose the costs of climate pollution on domestic industry, amounting to a form of protectionism.

The right to development and the MDGs. For many of those involved in climate change negotiations, the right to development brings together the human rights and developmental concerns that climate change raises. The right to development is not an easy tool to grasp or use, but given the profound threat that climate change poses to the MDGs, on one hand, and the gradual progress that has been made over the years in achieving agreement on the content of the right to development, on the other, it may be worth investigating the contribution it might make to climate change discussion.

II: EXPECTED CLIMATE CHANGE IMPACTS

Human rights impacts of climate change by region

Excerpts from: IPCC AR4 WGII, *Summary for Policymakers*, pp. 13-15, pp. 59-63; Stern Review, pp. 103-105 (references excised).

Africa

From IPCC AR4:

- By 2020, between 75 million and 250 million people are projected to be exposed to increased water stress due to climate change. If coupled with increased demand, this will adversely affect livelihoods and exacerbate water-related problems.

- Agricultural production, including access to food, in many African countries and regions is projected to be severely compromised by climate variability and change. The area suitable for agriculture, the length of growing seasons and yield potential, particularly along the margins of semi-arid and arid areas, are expected to decrease. This would further adversely affect food security and exacerbate malnutrition in the continent. In some countries, yields from rain-fed agriculture could be reduced by up to 50% by 2020.

- Any changes in the primary production of large lakes are likely to have important impacts on local food supplies. For example, Lake Tanganyika currently provides 25 to 40% of animal protein intake for the population of the surrounding countries, and climate change is likely to reduce primary production and possible fish yields by roughly 30%. The interaction of human management decisions, including over-fishing, is likely to further compound fish offtakes from lakes.

- Local food supplies are projected to be negatively affected by decreasing fisheries resources in large lakes due to rising water temperatures, which may be exacerbated by continued overfishing.

- Towards the end of the 21st century, projected sea-level rise will affect low-lying coastal areas with large populations. The cost of adaptation could amount to at least 5-10% of GDP. Mangroves and coral reefs are projected to be further degraded, with additional consequences for fisheries and tourism.

- New studies confirm that Africa is one of the most vulnerable continents to climate variability and change because of multiple stresses and low adaptive capacity. Some adaptation to current climate variability is taking place; however, this may be insufficient for future changes in climate.

From Stern Review:

Africa will be under severe pressure from climate change. Many vulnerable regions, embracing millions of people, are likely to be adversely affected by climate change, including the mixed arid-semiarid systems in the Sahel, arid-semiarid rangeland systems in parts of eastern Africa, the systems in the Great Lakes region of eastern Africa, the coastal regions of eastern Africa, and many of the drier zones of southern Africa.

Tens of millions of additional people could be at risk of malaria by the 2080s. Previously unsuitable areas for malaria in Zimbabwe could become suitable for transmission with slight temperature and precipitations variations, whist in South Africa the area suitable for malaria may double with 7.8 million people at risk by 2100.

Water pressures may be intensified as rainfall becomes more erratic, glaciers retreat and rivers dry up. While there is much uncertainty about flow of the Nile, several models suggest a decrease in river flow, with nine recent climate scenario impacts ranging from no change to more than 75% reduction in flows by 2100. This will have a significant impact on the millions of people that have competing claims on its supplies.

Many large cities in Africa that lie on or very close to the coast could suffer severe damages from sea level rise. According to national communications to the UNFCCC, a 1 meter sea-level rise (a possibility by the end of the century) could result in the complete submergence of the capital city of Gambia, and losses of more than US$470 million in Kenya for damage to three crops (mangoes, cashew nuts and coconuts).

Asia

From IPCC AR4:

- Climate change is projected to impinge on the sustainable development of most developing countries of Asia, as it compounds the pressures on natural resources and the environment associated with rapid urbanisation, industrialisation, and economic development.

- Endemic morbidity and mortality due to diarrhoeal disease primarily associated with floods and droughts are expected to rise in East, South and South-East Asia due to projected changes in the hydrological cycle associated with global warming. Increases in coastal water temperature would exacerbate the abundance and/or toxicity of cholera in South Asia.

- A 1 m rise in sea level would lead to a loss of almost half of the mangrove area in the Mekong River delta (2,500 km2), while approximately 100,000 ha of cultivated land and aquaculture area would become salt marsh. Coastal

areas, especially heavily populated megadelta regions in South, East and South-East Asia, will be at greatest risk due to increased flooding from the sea and, in some megadeltas, flooding from the rivers. For a 1 m rise in sea level, 5,000 km2 of Red River delta, and 15,000 to 20,000 km2 of Mekong River delta are projected to be flooded, which could affect 4 million and 3.5 to 5 million people, respectively.

- Glacier melt in the Himalayas is projected to increase flooding, and rock avalanches from destabilised slopes, and to affect water resources within the next two to three decades. This will be followed by decreased river flows as the glaciers recede. Tibetan Plateau glaciers of under 4 km in length are projected to disappear with a temperature increase of 3°C and no change in precipitation. … If current warming rates are maintained, Himalayan glaciers could decay at very rapid rates, shrinking from the present 500,000 km2 to 100,000 km2 by the 2030s.

- Around 30% of Asian coral reefs are expected to be lost in the next 30 years, compared with 18% globally under the IS92a emissions scenario, but this is due to multiple stresses and not to climate change alone.

- It is estimated that … 120 million to 1.2 billion and 185 to 981 million people will experience increased water stress by the 2020s and the 2050s, respectively. The per capita availability of freshwater in India is expected to drop from around 1,900m3 currently to 1,000m3 by 2025 in response to the combined effects of population growth and climate change. More intense rain and more frequent flash floods during the monsoon would result in a higher proportion of runoff and a reduction in the proportion reaching the groundwater.

- Freshwater availability in Central, South, East and South-East Asia, particularly in large river basins, is projected to decrease due to climate change which, along with population growth and increasing demand arising from higher standards of living, could adversely affect more than a billion people by the 2050s. Agricultural irrigation demand in arid and semi-arid regions of East Asia is expected to increase by 10% for an increase in temperature of 1°C.

- It is projected that crop yields could increase up to 20% in East and South-East Asia, while they could decrease up to 30% in Central and South Asia by the mid-21st century. Taken together and considering the influence of rapid population growth and urbanisation, the risk of hunger is projected to remain very high in several developing countries.

- The frequency and extent of forest fires in northern Asia are expected to increase in the future due to climate change and extreme weather events that would likely limit forest expansion.

From Stern Review:

Temperatures will increase for all months. Consequently, during the dry premonsoon months of April and May, the incidence of extreme heat is likely to increase, leading to greater mortality. … Changes in the intensity of rainfall events, and the … cycles of the monsoon – combined with an increased risk of critical temperatures being exceeded more frequently – could significantly change crop yields. For example, mean yields for some crops in northern India could be reduced by up to 70% by 2100. This is set against a background of a rapidly rising population that will need an additional 5 million tons of food production per year just to keep pace with the predicted increase in population to about 1.5 billion by 2030.

Latin America

From IPCC AR4:

- In the future, the frequency and intensity of hurricanes in the Caribbean Basin are likely to increase.
- As a result of climate change, rice yields are expected to decline after the year 2020, while increases in temperature and precipitation in south-eastern South America are likely to increase soybean yields if CO2 effects are considered.
- The number of additional people at risk of hunger under [one] emissions scenario is likely to attain 5, 26 and 85 million in 2020, 2050 and 2080, respectively, assuming little or no CO2 effects. Cattle productivity is very likely to decline in response to a 4°C increase in temperatures.
- By mid-century, increases in temperature and associated decreases in soil water are projected to lead to gradual replacement of tropical forest by savanna in eastern Amazonia. Semi-arid vegetation will tend to be replaced by arid-land vegetation. There is a risk of significant biodiversity loss through species extinction in many areas of tropical Latin America.
- In drier areas, climate change is expected to lead to salinisation and desertification of agricultural land. Productivity of some important crops is projected to decrease and livestock productivity to decline, with adverse consequences for food security. In temperate zones soybean yields are projected to increase.
- Sea-level rise is projected to cause increased risk of flooding in low-lying areas. Increases in sea surface temperature due to climate change are projected to have adverse effects on Mesoamerican coral reefs, and cause shifts in the location of south-east Pacific fish stocks.
- Changes in precipitation patterns and the disappearance of glaciers are projected to significantly affect water availability for human consumption,

agriculture and energy generation. … By the 2020s between 7 million and 77 million people are likely to suffer from a lack of adequate water supplies, while for the second half of the century the potential water availability reduction and the increasing demand, from an increasing regional population, would increase these figures to between 60 and 150 million.

- Some countries have made efforts to adapt, particularly through conservation of key ecosystems, early warning systems, risk management in agriculture, strategies for flood drought and coastal management, and disease surveillance systems. However, the effectiveness of these efforts is outweighed by: lack of basic information, observation and monitoring systems; lack of capacity building and appropriate political, institutional and technological frameworks; low income; and settlements in vulnerable areas, among others.

From Stern Review:

Countries in Latin American and the Caribbean are significantly affected by climate variability and extremes…. The region's economy is strongly dependent on natural resources linked to climate, and patterns of income distribution and poverty exacerbate the impacts of climate change for specific subregions, countries and populations. … Living conditions and livelihood opportunities for millions of people may be affected. By 2055 subsistence farmers' maize production (the main source of food security) in the Andean countries and Central America could fall by around 15% on average … The potential die-back, or even collapse, of the Amazon rainforest … presents a great threat to the region. The Amazonian forests are home to around 1 million people of 400 different indigenous groups, and provide a source of income and medical and pharmaceutical supplies to millions more.

Middle east and north africa

From Stern Review:

The region is already very short of fresh water and faces difficulty meeting the needs of fast-growing populations. Most if not all the region may be adversely affected by changing rainfall patterns as a result of climate change. An additional 155 to 600 million people may be suffering an increase in water stress in North Africa with a 3°C rise in temperature according to one study. Yemen is particularly at risk given its low income levels, rapidly growing populations and acute water shortages today. Competition for water within the region and across its borders may grow, carrying the risk of conflict.

Reduced water availability combined with even modestly higher temperatures will reduce agricultural productivity and in some areas may make crops unsustainable. Maize yields in North Africa, for example, could fall by between 15-25% with a 3°C rise in temperature according to one recent report.

Some parts of the region – notably the Nile Delta and the Gulf coast of the Arabian peninsula – are in addition vulnerable to flooding from rising sea levels which could lead to loss of agricultural land and/or threats to coastal cities. Others are vulnerable to increased desertification.

Small islands

From IPCC AR4:

- Small islands, whether located in the tropics or higher latitudes, have characteristics which make them especially vulnerable to the effects of climate change, sea-level rise and extreme events.
- Deterioration in coastal conditions, for example through erosion of beaches and coral bleaching, is expected to affect local resources, e.g., fisheries, and reduce the value of these destinations for tourism.
- Sea-level rise is expected to exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities.
- Climate change is projected by mid-century to reduce water resources in many small islands, e.g., in the Caribbean and Pacific, to the point where they become insufficient to meet demand during low-rainfall periods.
- International airports on small islands are mostly sited on or within a few kilometres of the coast, and the main (and often only) road network runs along the coast. Under sea-level rise scenarios, many of them are likely to be at serious risk from inundation, flooding and physical damage associated with coastal inundation and erosion.
- Without adaptation, agricultural economic costs from climate change are likely to reach between 2-3% and 17-18% of 2002 GDP by 2050, on high terrain (e.g., Fiji) and low terrain (e.g., Kiribati) islands ...
- Outbreaks of climate-sensitive diseases such as malaria, dengue, filariasis and schistosomiasis can be costly in lives and economic impacts. Increasing temperatures and decreasing water availability due to climate change is likely to increase burdens of diarrhoeal and other infectious diseases in some small-island states.
- Studies so far conducted on adaptation on islands suggest that adaptation options are likely to be limited and the costs high relative to GDP. Recent work has shown that, in the case of Singapore, coastal protection would be the least-cost strategy to combat sea-level rise under three scenarios, with the cost ranging from US$0.3-5.7 million by 2050 to US$0.9-16.8 million by 2100.

Climate change impacts by affected human right

Excerpts from IPCC AR4 *WGII Technical Summary*, pp. 44-47; and Stern Review, pp. 62-76 (references excised).

Right to water

From IPCC AR4:

- Water volumes stored in glaciers and snow cover are very likely to decline, reducing summer and autumn flows in regions where more than one-sixth of the world's population currently live.
- Drought-affected areas will probably increase, and extreme precipitation events, which are likely to increase in frequency and intensity, will augment flood risk. Increased frequency and severity of floods and droughts will have implications for sustainable development.
- Up to 20% of the world's population live in river basins that are likely to be affected by increased flood hazard by the 2080s in the course of global warming.
- Many semi-arid areas (e.g., Mediterranean Basin, western USA, southern Africa and north-eastern Brazil) will suffer a decrease in water resources due to climate change.
- The number of people living in severely stressed river basins is projected to increase from 1.4-1.6 billion in 1995 to 4.3-6.9 billion in 2050, [according to one] scenario.
- Sea-level rise will extend areas of salinisation of groundwater and estuaries, resulting in a decrease in freshwater availability for humans and ecosystems in coastal areas.
- Groundwater recharge will decrease considerably in some already water-stressed regions, where vulnerability is often exacerbated by the rapid increase in population and water demand.
- Higher water temperatures, increased precipitation intensity and longer periods of low flows exacerbate many forms of water pollution, with impacts on ecosystems, human health, and water system reliability and operating costs.
- Areas in which runoff is projected to decline will face a reduction in the value of services provided by water resources. The beneficial impacts of increased annual runoff in other areas will be tempered by the negative effects of increased precipitation variability and seasonal runoff shifts on water supply, water quality and flood risks.

From Stern Review:

People will feel the impact of climate change most strongly through changes in the distribution of water around the world and its seasonal and annual variability … Areas that are already relatively dry, such as the Mediterranean basin and parts of Southern Africa and South America, are likely to experience further decreases in water availability, for example several (but not all) climate models predict up to 30% decrease in annual runoff in these regions for a 2°C global temperature rise and 40-50% for 4°C…

The effects of rising temperatures against a background of a growing population are likely to cause changes in the water status of billions of people. Considerably more effort and expense will be required on top of existing practices to meet people's demand for water.

Climate change will have serious consequences for people who depend heavily on glacier meltwater to maintain supplies during the dry season, including large parts of the Indian sub-continent, over quarter of a billion people in China, and tens of millions in the Andes. In the Himalaya-Hindu Kush region, meltwater from glaciers feeds seven of Asia's largest rivers, including 70% of the summer flow in the Ganges, which provides water to around 500 million people. In China, 23% of the population (250 million people) lives in the western region that depends principally on glacier meltwater. Virtually all glaciers are showing substantial melting in China, where spring stream-flows have advanced by nearly one month since records began. In the tropical Andes in South America, the area covered by glaciers has been reduced by nearly one-quarter in the past 30 years. Some small glaciers are likely to disappear completely in the next decade given current trends. Many large cities such as La Paz, Lima and Quito and up to 40% of agriculture in Andean valleys rely on glacier meltwater supplies. Up to 50 million people in this region will be affected by loss of dry-season water.

Right to food

From IPCC AR4:

- Future climate change is expected to put close to 50 million extra people at risk of hunger by 2020 rising to an additional 132 million and 266 million by 2050 and 2080 respectively.

- Projected changes in the frequency and severity of extreme climate events, together with increases in risks of fire, pests and disease outbreak, will have significant consequences on food and forestry production, and food insecurity, in addition to impacts of projected mean climate.

- Smallholder and subsistence farmers, pastoralists and artisanal fisherfolk will suffer complex, localised impacts of climate change.

- Global food production potential is likely to increase with increases in global average temperature up to about 3°C, but above this it is very likely to decrease.

- Local extinctions of particular fish species are expected at edges of ranges. [Stern Review: "About one billion people worldwide (one-sixth of the world's population) rely on fish as their primary source of animal protein."]

- Food and forestry trade is projected to increase in response to climate change, with increased food-import dependence of most developing countries.

- In mid- to high-latitude regions, moderate warming benefits cereal crops and pasture yields, but even slight warming decreases yields in seasonally dry and tropical regions. Further warming has increasingly negative impacts in all regions.

From Stern Review:

Around 800 million people are currently at risk of hunger (~ 12% of world's population), and malnutrition causes around 4 million deaths annually, almost half in Africa. … Once temperatures increase by 3°C, 250-550 million additional people may be at risk – over half in Africa and Western Asia, where (1) the declines in yield are greatest, (2) dependence on agriculture highest, and (3) purchasing power most limited.

In tropical regions, even small amounts of warming will lead to declines in yield. In higher latitudes, crop yields may increase initially for moderate increases in temperature but then fall. Higher temperatures will lead to substantial declines in cereal production around the world ….

By 4°C, entire regions may be too hot and dry to grow crops, including parts of Australia. Agricultural collapse across large areas of the world is possible at even higher temperatures (5 or 6°C) but clear empirical evidence is still limited… The impacts will be strongest across Africa and Western Asia (including the Middle East), where yields of the predominant regional crops may fall by 25-35% … or 15-20% … once temperatures reach 3 or 4°C. Maize-based agriculture in tropical regions, such as parts of Africa and Central America, is likely to suffer substantial declines …

Right to health

From IPCC AR4:

- The projected relative risks attributable to climate change in 2030 show an increase in malnutrition in some Asian countries.

- Later in the century, expected trends in warming are projected to decrease the availability of crop yields in seasonally dry and tropical regions. This will increase hunger, malnutrition and consequent disorders, including child growth and development, in particular in those regions that are already most vulnerable to food insecurity, notably Africa.

- By 2030, coastal flooding is projected to result in a large proportional mortality increase; however, this is applied to a low burden of disease so the aggregate impact is small. Overall, a two- to three-fold increase in population at risk of flooding is expected by 2080.

- Estimates of increases of people at risk of death from heat differ between countries, depending on the place, ageing population and adaptation measures in place. Overall, significant increases are estimated over this century.

- Mixed projections for malaria are foreseen: globally an estimated additional population at risk between 220 million and 400 million has been estimated. In Africa, estimates differ from a reduction in transmission in south-east Africa in 2020 and decreases around the Sahel and south-central Africa in 2080, with localised increases in the highlands, to a 16-28% increase in person-months of exposure in 2100 across all scenarios. For the UK, Australia, India and Portugal, some increased risk has been estimated.

- By 2030 an increase in the burden of diarrhoeal diseases in low-income regions by approximately 2-5% is estimated. An annual increase of 5-18% by 2050 was estimated for Aboriginal communities in Australia.

- In eastern North America under the [one] climate scenario, a 4.5% increase in ozone-related deaths is estimated. A 68% increase in average number of days/summer exceeding the 8-hour regulatory standard is projected to result in a 0.1-0.3% increase in non-accidental mortality and an average 0.3% increase in cardiovascular disease mortality.

- By 2085 it is estimated that the risk of dengue from climate change increases to include 3.5 billion people.

From Stern Review:

Climate change will amplify health disparities between rich and poor parts of the world. The World Health Organization (WHO) estimates that climate change since the 1970s is already responsible for over 150,000 deaths each year through increasing incidence of diarrhoea, malaria and malnutrition predominantly in Africa and other developing regions. … Just a 1°C increase in global temperature above pre-industrial could double annual deaths from climate change to at least 300,000 according to the WHO. At higher temperatures, death rates will increase sharply, for example millions more people dying from malnutrition each year.

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