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Article: Avoiding Adaptation Apartheid: **Climate Change** Adaptation and Human Rights **Law**

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 **LEXISNEXIS SUMMARY:**

 ... However, multiple actors have begun to close this analytical gap: small island states and indigenous populations have claimed in a variety of international fora that **climate change** has threatened the human rights of their people; an increasing number of academic commentators have worked to explain how **climate change** issues implicate human rights **law;** and in 2009, the Office of the High Commissioner for Human Rights (OHCHR) issued the first UN report addressing the links between **climate change** and human rights. ... **Climate change** also will have a significant effect on human health, especially in developing countries. ... For example, developing countries have already complained about the slowness and bureaucracy of the centralized distribution of adaptation funding and project implementation through the Global Environmental Facility (GEF), desiring more control over and involvement in adaptation projects funded through this source. ... Adaptation practices can anticipate an expected, but as yet unrealized, level of **climate change** (proactive adaptation practices), or they can respond to an already-realized level of **climate change** that is affecting human communities or biological or geographic systems (reactive adaptation practices). ... Any one of these types of projects could potentially influence individuals' rights at the planning, implementation, or execution stages, and it is for this reason that we must be cognizant of the human rights implications of adaptation practices. ... Sub-Saharan Africa produces less than four percent of GHG emissions; yet, the region already experiences effects of changing weather and rainfall patterns, food and water scarcity, and internal displacement of persons, among other impacts, and it can expect more deleterious consequences in years to come. ... As governments make and institute policies and allocate resources to adapt to **climate change,** the legal community should apply - and reconsider - domestic and international legal frameworks to evaluate states' resource-allocation decisions and other adaptive responses. ... Distinguishing the adaptation responsibility of developing countries from the mitigation and adaptation responsibility of developed countries when considering the intersection of **climate change** and human rights requires framing human rights claims based on adaptation decisions under traditional, vertical human rights **law,** while acknowledging that mitigation-based claims may need to be conceived diagonally. ... And these human rights considerations are especially relevant to adaptation, as adaptation efforts "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."

**HIGHLIGHT:** No community with a sense of justice, compassion or respect for basic human rights should accept the current pattern of adaptation. Leaving the world's poor to sink or swim with their own meager resources in the face of the threat posed by **climate change** is morally wrong. Unfortunately ... this is precisely what is happening. We are drifting into a world of "adaptation apartheid."

- Cape Town Archbishop Emeritus, Desmond Tutu n1

 **TEXT:**

 **[\*310]**

I. Introduction

 There is now little doubt that humans will be forced to adapt to the impacts of a warming world. There is also little doubt that the poorest people in the poorest countries will bear most of the burden of adapting to climate consequences they had almost no role in creating. n2 As the United Nations Development Programme (UNDP) has explained, "In the Netherlands, people are investing in homes that can float on water. The Swiss Alpine ski industry is investing in artificial snow-making machines," but "in the Horn of Africa, "adaptation' means that women and young girls walk further to collect water." n3 In the Ganges and Mekong Deltas, "people are erecting bamboo flood shelters on stilts" and "planting mangroves to protect themselves against storm surges." A final adaptation strategy in the Mekong? "Women and children are being taught to swim." n4

Despite these sobering realities, the question of whether **climate** **change** implicates human rights **law** at all has been relatively unexplored until recently. n5 In 2007, for example, the Fourth Assessment Report of the Intergovernmental Panel on **Climate** **Change** (IPCC) - the primary report from the United Nations-chartered body responsible for reviewing and assessing information on **climate** **change** - scarcely mentioned human rights in nearly 3,000 pages of analysis. n6 However, multiple actors have begun to close this **[\*311]** analytical gap: small island states and indigenous populations have claimed in a variety of international fora that **climate** **change** has threatened the human rights of their people; n7 an increasing number of academic commentators have worked to explain how **climate** **change** issues implicate human rights **law;** n8 and in 2009, the Office of the High Commissioner for Human Rights (OHCHR) issued the first UN report addressing the links between **climate** **change** and human rights. n9

The increasing incorporation of human rights **law** in **climate** **change** analysis is important, and the efforts to link **climate** **change** and human rights **law** have shifted from asking whether there is such a connection to examining the implications of the relationship. This recognition that **climate** **change** implicates human rights is significant because it provides a tangible legal framework for analyzing state actions that lead to **climate** **change.** Indeed, because the primary blame for **climate** **change** lies with the developed states that have caused the problem, n10 and because human rights analyses are typically centered on state action, human rights provides a lens through which to analyze developed countries' culpability.

Analyzing **climate** **change** through a human rights lens is also appropriate because, in the worst-case scenario, **climate** **change** spells human catastrophe - rising seas, the spread of disease, and ecosystem collapse - particularly for the most vulnerable persons in the global community. Human rights analyses can frame proactive strategies to try to preempt human harm as well as to respond to such catastrophic events ex post.

Hence, commentators, nongovernmental organizations (NGOs), and international governance bodies have started to investigate the relationship between **climate** **change** and human rights. So far, however, this discussion has largely focused on issues such as the international mechanisms for reducing greenhouse gas (GHG) emissions, n11 climate justice and state interest in such **[\*312]** reductions, n12 and impacts on communities that are likely to be entirely destroyed or forced to resettle. n13 Indeed, in this rights-focused discourse, mitigation - or reducing GHG emissions to reduce the extent of **climate** **change** - has largely taken center stage. Human rights commentators have expended significantly less effort analyzing the legal framework for, or implications of, the process of adaptation to **climate** **change** - in other words, responding to actual or expected human and environmental consequences of a changing climate to minimize the harm from such change. n14 In the coming years, states and communities will have to adapt to irreversible **climate** **change** due to cumulative GHG emissions to date, as well as to additional **climate** **change** that will occur absent significant action by the international community. Thus, the recent discourse linking human rights and **climate** **change** has largely overlooked a major component of the human rights issues created by **climate** **change.** It is important to explore differences between mitigation and adaptation from a human rights perspective; indeed, adaptation policies will immediately impact many people who stand to suffer **climate** **change**-related human rights violations. Further, discourse on adaptation in the legal arena has lagged significantly behind discussion of adaptation in other fields - biology, economics, and geography, to name only a few - in which robust debates regarding adaptation have been occurring for years. n15

 **[\*313]** As Archbishop Tutu and the UNDP have made clear, there are compelling reasons to explore the legal - not to mention moral and ethical - implications of adaptation. In this Article, therefore, we argue that as legal discourse evolves to analyze the human rights implications of **climate** **change** and the duties of states to protect and fulfill those rights - duties oriented vertically, horizontally, and diagonally - it is important both analytically and normatively to separate discussions of mitigation from those of adaptation. Beginning such an analysis in this Article, we demonstrate that although the distinction between policies and projects related to mitigation rather than adaptation is functional rather than formal, the two types of policies and projects implicate human rights differently. n16 As such, our first claim is that future work of international bodies, NGOs, and commentators must be more rigorous in recognizing and discussing the legal doctrinal differences between the human rights issues in **climate** **change** mitigation and those in **climate** **change** adaptation. n17

Setting up this distinction between the differing human rights implications of the two frameworks allows us to make a second claim about human rights **law** and its potential to shape adaptation policy. Our human rights argument is that the conventional, mitigation-centric account of the relationship between human rights and **climate** **change** - which applies a rigid human rights framework to the management-based problem of **climate** **change** - is, even if normatively desirable, akin to fitting a square peg in a round hole. Such management-based problems frequently involve technical experts, policy analysts, and policymakers who collectively negotiate and design long-term, coordinated solutions to a particular problem; in the case of **climate** **change,** these solutions require coordinated action at the international level to regulate public actors and the private sector alike. n18 That human rights are often incongruous with such a complex management-based approach is widely recognized. n19 But although the human rights account of **climate** **change** has been riddled with conceptual tensions in the mitigation context (because **climate** **change** is unlikely to be stopped or fully mitigated), a human rights approach is far more able to address adaptation. n20 While bringing human rights claims against a state for its failure to mitigate can be conceptually problematic, particularly in terms of attaching liability to a legal duty-holder, bringing similar claims because of a state's failure to adapt is more conceptually sound. n21 We demonstrate that the prevailing mitigation-based approaches are **[\*314]** not ideally suited to the **climate** **change** problem because they contain a rigid state actor requirement and because they lack a multiscalar approach - which considers actors from the international level down to the community level - necessary to address **climate** **change.** n22

In turn, human rights may be a powerful tool for helping to organize and unify adaptation efforts. Thus, in addition to countering several of the logistics-based objections to applying a human rights framework to **climate** **change,** an adaptation framework can incorporate important human rights considerations, which we argue is currently not taking place on a broad enough scale. Moreover, such policies can better moderate - if not avoid altogether - the growing threat of "adaptation apartheid." n23

Building on our discussion of various adaptive practices and policies, n24 we focus on adaptation as a critical step in addressing the human effects of **climate** **change.** Although we rely on a burgeoning and important body of literature that links human rights and **climate** **change** broadly, n25 most scholars have given insufficient weight to the distinction between mitigation and adaptation. n26 To date, commentators have not offered a detailed discussion of adaptation-specific issues - as distinct from mitigation issues - through a human rights lens. n27 This Article thus fills a gap in the literature by providing the first detailed discussion of why a human rights approach to adaptation is less conceptually problematic than a human rights approach to mitigation (or to **climate** **change** more generally). It also presents the first in-depth analysis of what such a human rights approach to adaptation will require.

The Article proceeds in four parts. In Part II, we lay the groundwork for our argument, summarizing the challenge that **climate** **change** poses to people and communities and the recent history of the theory, policies, and projects of **[\*315]** **climate** **change** adaptation. In Part III, we move to a discussion of the linkages between **climate** **change** and human rights, particularly for already-vulnerable residents of developing countries, examining some of the legal limitations in applying human rights to **climate** **change** when the problem is narrowly framed to encompass only mitigation. Part III nonetheless highlights the potential of human rights as a tool to mobilize action in response to **climate** **change.** In Part IV, we examine the application of human rights **law** to adaptation. We contend that claims under human rights instruments based on a state's failure to adapt sufficiently to **climate** **change** are less problematic than claims related to a state's causing and then failing to mitigate **climate** **change,** because adaptation more easily fulfills human rights' rigid state-actor and causation requirements than does mitigation. A human rights approach is especially well-suited for considering adaptation, and we argue that previous commentators have been insufficiently rigorous in parsing human rights **law's** respective relationships with **climate** **change** mitigation and **climate** **change** adaptation. Finally, Part V examines the implications of incorporating human rights **law into the law** and policy of adaptation. It provides a normative vision of how a human rights-informed view of adaptation can mobilize the international community politically and help guide the distribution of limited adaptation funding to better meet individuals' most pressing needs. We conclude that there is value in considering human rights principles in adaptation policies and projects and explore a number of policy areas in which a human rights framework could be particularly beneficial.

II. Adapting to **Climate** **Change:** The Current Landscape

 For decades, political efforts to address **climate** **change** focused exclusively on efforts to "mitigate" the phenomenon - to slow, stop, or reverse **climate** **change** by reducing the GHG emissions that cause it. Mitigation efforts have typically taken place at the international and state levels and have been aimed at lessening the necessary conditions for **climate** **change.** However, as we explain, the consensus is now that human populations will have to do more than mitigate **climate** **change;** they also must adapt to the effects of **climate** **change** - primarily global warming and the many expected adverse effects of that change. "Adaptation" thus entails designing and instituting policies and programs to respond to the inevitable effects of **climate** **change.** n28 Whereas mitigation centers on shaping human behavior to minimize the level and cause of **climate** **change** (namely GHG emissions), adaptation efforts rely upon the ability of species, ecosystems, and socio-ecological systems to respond to ongoing alterations in climate conditions and to reduce the effects of **climate** **change.** n29

 **[\*316]** With these definitions in mind, this Part begins with a primer on **climate** **change.** Next, we turn to a discussion of adaptation and how it differs from **climate** **change** mitigation. Finally, we conclude this Part with a discussion of how the global community - and the community of multilateral donors in particular - is beginning to fund adaptation plans and projects, especially in the least developed states.

A. The Challenge of **Climate** **Change**

 Physicist Niels Bohr famously proclaimed, "Prediction is very difficult, especially if it's about the future." n30 Bohr's cautionary statement is important to heed in discussions of **climate** **change.** The scientific consensus n31 is that over the coming decades **climate** **change** will cause a steady increase in human exposure to serious climate events such as droughts, floods, and storms, with extreme weather events becoming more frequent and more intense. n32

The magnitude of **climate** **change** and its impacts will depend in large part on the increasing concentrations of GHGs in the atmosphere. Atmospheric concentrations of CO<2> are increasing by approximately 1.9 parts per million (ppm) every year, whereas in the 8,000 years prior to industrialization, atmospheric CO<2> increased by a total of 20 ppm. n33 If emissions continue to rise **[\*317]** consistent with the current trend, there will be not only an increase in total emissions but also an increase in the rate at which emissions are increasing, perhaps by 4 to 5 ppm per year by 2035 - almost double the current rate. n34

Low-income countries worldwide have one-third of the world's residents and yet contribute only seven percent of total global emissions; wealthy countries, by contrast, have contributed seventy percent of all CO<2> emitted since the dawn of the industrial era. n35 In the cases of Britain and the United States, historic emissions amount to approximately 1,100 tons of CO<2> per capita, compared to sixty-six tons per capita for China and twenty-three tons for India. n36 The world's past trends of carbon use are increasingly recognized as unsustainable. As Mahatma Gandhi presciently noted at the time of India's independence, and decades before the modern environmental movement began, "It took Britain half the resources of this planet to achieve its prosperity. How many planets will India require for development?" n37 In all likelihood, then, emission levels will continue to rise for the foreseeable future as emerging economies engage in rigorous development activities.

Scientific consensus overwhelmingly supports the link between emissions and rising global temperatures. Research reveals that temperatures in the past fifty years are likely the highest they have been in any similar length of time since at least the eighth century. n38 According to the IPCC's estimates, baseline temperatures around the world are already around 1.33 degrees Fahrenheit higher than in earlier years and will continue to increase, even with aggressive mitigation efforts. n39 Evidence that the climate is warming is now unequivocal. n40

The expected change in the climate will have a variety of consequences for human health, security, and stability. The consequences may be most pronounced for poorer developing countries because of their geographic characteristics (in many cases), their low incomes, and their greater reliance on climate-sensitive sectors such as agriculture. Notably, **climate** **change** will have a particularly significant effect on water resources in dry regions at the mid- **[\*318]** latitudes and mid-tropics. n41 **Climate** **change** also will have a significant effect on human health, especially in developing countries. Diarrhea, respiratory diseases, and vector-, food-, and water-borne illnesses are expected to increase as a result of the manifestations of **climate** **change,** as are related deaths. n42 Increased variability in climate will also lower food production, especially in the developing countries least able to modify agricultural techniques to deal with climate-based changes. n43

The degree to which **climate** **change** will increase natural disasters is somewhat less clear, though the general prognosis is poor. Although direct linkages may be difficult to identify in many cases, **climate** **change** creates systemic conditions for more frequent and more extreme weather events. n44 Some of **climate** **change's** most acute challenges will fall on coastal and island nations, which likely will have to respond to sea-level rise, erosion, damage to their fishing and tourism economies, and salt water encroachment on fresh water, all with a deleterious effect on livelihoods and living conditions. n45

Other consequences will likely include an increase in large storms threatening human security and an increase in ground instability in mountain and permafrost regions. n46 Finally, **climate** **change** will also likely lead to increasing regional and intrastate conflicts and instabilities, with concomitant expense to government and private industry, as well as new, large-scale problems such as "climate refugees" - refugees displaced from their homes by **climate** **change.** n47

The descriptions above are primarily environmental accounts of the effects of unmitigated GHG emissions. In large part, the actual toll of **climate** **change** on humans will depend on how communities are able to adapt to the changes already underway. If the current emissions trajectory remains unchecked, there is a very high probability of dangerous **climate** **change** outcomes, with a toll that "would provide a continuum from near-term human development setbacks to long-term ecological disaster." n48 There is no clear line separating "safe" **climate** **change** from "dangerous" **climate** **change.** Scientific consensus has coalesced around the idea that the risk of massive human **[\*319]** development setbacks increases substantially beyond 3.6 degrees Fahrenheit of temperature change over historic levels, a degree of change which current emissions trajectories will well exceed. n49 Adapting to such changes will be a significant and important endeavor - and one that is quite distinct from the parallel task of continuing to mitigate further **climate** **change.**

B. Adaptation Versus Mitigation in **Climate** **Change** Response

 Although the international community has increasingly recognized that mitigating **climate** **change** is a distinct endeavor from adapting to **climate** **change,** human rights practitioners, scholars, and policymakers have yet to capture fully the legal relevance of the distinctions between the two activities. To date, legal scholars and practitioners analyzing **climate** **change** have typically discussed mitigation, whether they have considered actions the United States should take to address **climate** **change,** n50 or more international responses to **climate** **change** such as the Kyoto Protocol, n51 emissions debates leading up to and following the Copenhagen and Cancun negotiations, n52 incentives to reduce Chinese emissions, n53 and climate justice and emissions limits, n54 to name only a few. Where commentators have started to discuss adaptation, most only mention in passing that their theses apply to both mitigation and adaptation **[\*320]** issues or implicitly group mitigation and adaptation issues together as "**climate** **change**" n55 without exploring the distinct characteristics of the two activities. Further, scholars have not fully explored adaptation's disproportionate effects on marginalized persons and groups and the related human rights implications. n56 In this Article, we now elucidate unique features of each, before examining the relationship between **climate** **change** adaptation and human rights **law.** n57

1. Distinguishing Adaptation from Mitigation

 Although both mitigation and adaptation are critical components of a **[\*321]** comprehensive **climate** **change** response, in certain respects, adapting to **climate** **change** is more complex than mitigating it. Discussing adaptation versus mitigation in the domestic context, Robin Kundis Craig has explained that despite the incredible difficulty and complexity of reducing GHG emissions, the foundational regulatory mechanisms available to accomplish the goal are somewhat limited in number, essentially consisting of cap-and-trade programs, carbon taxes, mandated changes in manufacturing processes, or some combination of these. n58 "**Climate** **change** adaptation **law** will be dealing with complexity at another order of magnitude because," Professor Craig argues, "the effects of **climate** **change** will themselves be complex - ever-changing, often unpredictable, and subject to feedback mechanisms that may not be completely understood and that may change over time." n59 As such, there is likely no one adaptation program to undertake over time; rather, adaptation approaches must be flexible and, as the name itself suggests, adaptive.

Adaptation responses can be thought of as either proactive or reactive (or a mix of the two), with proactive responses addressing anticipated impacts from **climate** **change,** and reactive responses addressing climate-related harms that already have impacted people or ecosystems. n60 And "adaptation **law** will have to cope with multiple layers of governmental interest, since many adaptation strategies will have to be intensely local in implementation, while adaptation principles and goals may need to operate on a larger scale," regionally, nationally, or internationally. n61 Successful adaptive measures must map onto the complicated landscape of governmental and nongovernmental entities that must cooperatively work on adaptation. Lastly, human rights approaches to adaptation face the complex task of connecting adaptation strategies with a narrow and limited pool of rights created to serve a different set of purposes.

To begin, there are a number of features that distinguish adaptation practices from mitigation practices; importantly for our purposes here, these distinctions have implications for applying a human rights approach to **climate** **change.** First, adaptation and mitigation practices are generally undertaken on different geographic scales, with mitigation practices more global or continental in nature than adaptation practices. Mitigation efforts begin in state-level talks that lead to international agreements. n62 Federal governments and national policymakers in each state typically implement mitigation agreements. By contrast, during the debates in Copenhagen over adaptation funding, it was clear that, in part because adaptation involves more localized work, developing countries wanted greater control of adaptation policies within their territory. n63 **[\*322]** Nongovernmental entities such as bilateral and multilateral donors also play a critical role in adaptation funding. The localized nature of adaptation can be seen in the workings of the Adaptation Fund. Its funding and governance structure integrally involve developing countries; the Fund operates on a local scale by providing funding directly to certified national implementing entities. n64 The funds are then distributed locally, or in some cases, local or regional groups apply for funding directly and engage in personal or local projects in capacity building or agriculture management, rather than national-scale mitigation projects that are focused on an entire state's emissions. n65

Second, different levels of government play different roles in the two facets of **climate** **change,** with mitigation engaging more international and national governance structures and adaptation engaging these structures together with regional, state, tribal, aboriginal, and local structures. The international approach to mitigation has primarily followed the management approach used for other complex environmental problems. n66 This style is reflected in the growth, focus, and character of the **climate** **change** secretariat in Bonn, Germany, which is a collection of technical experts, climate scientists, and policy analysts, who together form a large-scale bureaucracy for setting and managing the foundation of the market for carbon. n67 The secretariat's primary role is to address mitigation: it collects and exchanges data detailing GHG emissions, mitigation efforts, and the general effectiveness of efforts to date. n68 This top-down, technically focused regime may ultimately have a counterpart as the adaptation regime matures and becomes more metric-centered, but adaptation is still likely to be addressed in a less centralized manner.

In the long-term there might be a need for international-scale adaptation projects, but for the foreseeable future, adaptation will consist of community-based projects aimed at local interventions. Governmental decisions regarding funding, designing, and implementing these projects, along with adaptation policies more broadly, will likely be more decentralized than the decisions regarding mitigation policies. For example, developing countries have already complained about the slowness and bureaucracy of the centralized distribution of adaptation funding and project implementation through the Global **[\*323]** Environmental Facility (GEF), desiring more control over and involvement in adaptation projects funded through this source. n69

Finally, mitigation and adaptation have different relationships to the concept of development. Despite any rhetoric to the contrary, broad-based **climate** **change** mitigation is often antithetical to development in the short-and medium-terms. n70 Although technologies and policies are in the pipeline to reverse the trend, so far human history has seen a positive correlation between social and economic development and GHG emissions. n71 Thus, mitigation typically runs at cross-purposes to development - no country has developed without significant reliance on processes that emit GHGs. At least for the near term, mitigation efforts would slow development as the concept has traditionally been understood.

Adaptation practices, on the other hand, have many similarities to development work that is already underway. Although adaptation practices will often require outlays of large sums of money for nonproductive assets, the costs of adaptive practices likely outweigh the costs of harm from failure to adapt. In this sense, investing in adaptation in the immediate term makes long-term economic sense and helps to advance a country's social and economic development.

An example helps elucidate how adaptation practices can contribute to development. **Climate** **change** will slow the progress of human development by decreasing agricultural productivity because of storm damage to seeds, changed patterns of crop pests, and diseases. n72 A government might respond to these challenges by promoting sustainable land development - it might create topsoil erosion reduction programs and promote crop rotations that maximize agricultural yield. The government's efforts in this respect could be viewed as a development project, an adaptation practice, or both. n73 In the broad sense, the adaptation practices are a form of economic and social development, particularly when evaluated against the counterfactual scenario - a failure to act and the consequent human, economic, and environmental toll of decreased agricultural production.

Development and adaptation efforts will thus need to be mutually **[\*324]** reinforcing as neither is likely to succeed without the other. n74 This counsels international and financial coordination of development and adaptation programs and funding, as well as collective planning for local-level project implementation. In other words, "pro-poor adaptation strategies cannot be developed in isolation from wider policies aimed at reducing poverty and overcoming inequality." n75 From a purely economic perspective, directing limited funding to human development and adaptation projects makes sense. Describing adaptation investment in Bangladesh, the UNDP noted that coordinating adaptation and development strategies, and directing them toward the most marginalized communities, was compelling from a cost-benefit perspective because the estimated return on investment in development and protection was around three to one. n76 In addition, notions of equity bolster the benefit of focusing on the most marginalized group, as providing an additional dollar of funding to the income of one of Bangladesh's poorest households should have a higher weight from a normative, moral, and equitable standpoint than providing an additional dollar to higher-income households. n77

2. Limitations of Parsing Adaption from Mitigation

 Three additional points about the distinction between adaptation and mitigation are worth making. First, the distinctions between adaptation practices and mitigation practices that we describe are, to some degree, overly generalized. For example, individuals may engage in personal mitigation efforts, and adaptation finance often occurs on an international scale. However, the distinctions we note are broadly representative of the differences between adaptation and mitigation practices and help conceptualize the linkages between human rights and **climate** **change.**

Second, our framing of **climate** **change** efforts as either "adaptation" practices or "mitigation" practices is meant to be functional, not formal. The goal of our endeavor is not to look at a policy framework or a project and label it as one targeted at either "mitigation" or at "adaptation." Rather, our argument is that adaptation practices, as compared to mitigation practices, have the potential to infringe on particular rights in particular ways, implicating unique and corresponding human rights duties. As we will argue, on account of these differences, human rights analysis can better address issues related to adaptation than it can issues related to mitigation.

Third, despite the distinctive traits of adaptation and mitigation, there are a number of areas in which it is productive to apply a human rights lens to both adaptation and mitigation. We do not explore those areas in great detail, but we provide a few cursory examples here. Even through the narrow frame of socio- **[\*325]** economic rights, which have traditionally weak enforcement, human rights require some state action to progressively realize rights. In other words, human rights approaches do not permit pure inaction or maintenance of the status quo. n78 The ability to engage in both adaptation and mitigation practices often correlates with socioeconomic capacity. n79 And the ability to introduce new institutional or governmental actors to improve the efficiency of decisionmaking practices n80 raises similar issues (which likely require similar responses) to the procedures through which mitigative and adaptive responses can themselves be incorporated into **climate** **change** regimes. n81 Our thesis retains force despite these overlaps because there are several reasons why a human rights framework is more compelling when applied to adaptation than it is when applied to mitigation.

C. Adaptation to **Climate** **Change:** International Efforts Underway

 With these distinctions between mitigation and adaptation in mind, we now describe international efforts to finance adaptation programs and projects to date, as well as local projects needed - and those currently underway - to adapt to **climate** **change.** Such an analysis is particularly important in light of the realization that the costs of adapting to large-scale **climate** **change** will be significant. The World Bank recently estimated that the cost of adapting to **climate** **change** in developing countries will be $ 75-$ 100 billion per year for the period 2010 to 2050. n82 In Africa, for example, toward the end of the twenty-first century, the cost of adaptation across the continent could amount to five to ten percent of GDP. n83 Hence, at all levels, from the international level to the community level, those persons providing and receiving funding should prioritize their investments in adaptation practices.

 **[\*326]** The IPCC describes brick-and-mortar projects to address the impacts of **climate** **change** - for example sea walls - as "adaptation practices," a term we use throughout this Article. n84 In addition, "changes in decision environments" that might make development projects downstream more resilient to climate risks are a policy component of adaptive response and also included in the definition of adaptation practices. n85 Adaptation practices can anticipate an expected, but as yet unrealized, level of **climate** **change** (proactive adaptation practices), or they can respond to an already-realized level of **climate** **change** that is affecting human communities or biological or geographic systems (reactive adaptation practices). Examples of proactive projects are crop and livelihood diversification, famine early-warning systems, and water storage creation projects. n86 Reactive adaptation practices include emergency response, post-disaster recovery, and relocation efforts. n87

The range of adaptation practices is thus incredibly broad, and the ability of an individual or community ability to engage in adaptation practices varies widely. The capability to engage in an adaptive response is often discussed in terms of "adaptive capacity," which the IPCC defines as "the ability or potential of a system to respond successfully to climate variability and change, and includes adjustments in both behavior and in resources and technologies." n88 Adaptive capacity is a necessary precondition for designing and implementing effective adaptation strategies to reduce the likelihood and magnitude of harmful **climate** **change**-induced outcomes. n89

A snapshot of internationally funded adaptation practices underway is important for our argument. Those projects are enabling states to adapt to **climate** **change** and reduce potential human rights infringements resulting from **climate** **change.** n90 Further, complaints relating to allocation processes, or any particular action, inaction, or failed action in these projects, may give rise to human rights claims related to adaptation practices.

Structurally, adaptation has played an increasingly prominent role in international negotiations and agreements on **climate** **change.** Several of the provisions of the United Nations Framework Convention on **Climate** **Change** (UNFCCC) - the international treaty resulting from the 1992 United Nations Conference on Environment and Development - address adaptation. Article IV, for example, requires parties to "cooperate in preparing for adaptation to the impacts of **climate** **change.**" n91 Adaptation has also become a more prominent **[\*327]** issue at each Conference of the Parties (COP), the annual meeting among the UNFCCC members that has taken place since the UNFCCC entered into force in 1994. For example, Article 12 of the Kyoto Protocol - the principal update to the UNFCCC, which was created at COP 3 in 1997 and commits the signatories to GHG emissions reductions - requires reserving a share of proceeds of the Clean Development Mechanism (CDM) for assisting developing countries with the costs of adaptation. n92 In the fifteen years since COP 3, parties have made significant progress in advancing adaptation efforts among industrialized nations (known as Annex I countries) and non-Annex I developing countries. n93 At COP 16 in Cancun in 2010, the parties established the Cancun Adaptation Framework, which includes mechanisms for non-Annex I countries to create adaptation plans, a sixteen-member Adaptation Committee to promote the implementation of adaptation practices, and a work program to weigh approaches for addressing loss and damages resulting from **climate** **change.** n94 Most recently, at COP 17 in Durban, the parties launched the Adaptation Committee, which will meet for the first time in 2012. The Committee holds the potential to generate significant expertise and develop soft regulation through, for example, norm creation and peer marketing. n95 Despite nearly failing to do so, n96 the parties at COP 17 also launched the Green Climate Fund (also sometimes referred to as the "Green Fund"), which will oversee some of the $ 100 billion that developed countries have promised to make available by 2020, to cut GHG emissions and adapt to **climate** **change.** n97

 **[\*328]** Funds for adaptation are currently available both inside and outside the UNFCCC context. The main funders behind the current adaptation funds are international donors whose donations are channeled through bilateral agencies or multilateral institutions, n98 the most important of which are the Adaptation Fund, the Global Environment Facility, and the World Bank. n99 The Adaptation Fund in particular may become a key funding organization in coming years. Although it has taken a long time for the Fund to begin financing projects, n100 it could become particularly important because it financially supports adaptation practices through a two-percent levy on the CDM, which could raise $ 400-$ 600 million in the medium term for adaptation practices. n101

While local or piecemeal adaptation practices have been in progress for a number of years, adaptation projects supported by the funds mentioned above have been implemented only quite recently. For example, in June 2010 the Adaptation Fund board approved the first proposals for "concrete adaptation projects," totaling $ 21.8 million. The Fund's projects include one by a "national implementing entity," which fits into a category of projects awarded directly to implementing states and intended to facilitate access to the funds and thereby to avoid the perceived delays for which the Global Environment Facility (GEF) has been criticized. n102 The Fund chose four projects to finance: reducing risks and vulnerabilities from glacier lake outburst floods in northern Pakistan; n103 protecting people, dwellings, and farmlands from coastal erosion **[\*329]** and salination in fragile rice-growing areas in Senegal; n104 building institutional capacity for water resource management and reducing risks and vulnerabilities from floods and droughts in a flood-prone watershed in rural Nicaragua; n105 and enhancing the ability of communities to adapt to temperature and rainfall changes' adverse effects on the agricultural sector and food security in the Solomon Islands. n106

These Adaptation Fund projects are similar to other adaptation projects sponsored by various financing mechanisms and organizations. In Bangladesh, for example, local and foreign NGOs, funded in part through the Canadian International Development Agency, have engaged in projects assisting freshwater shrimp farmers to adopt more saline-resistant crab farming because saltwater intrusion has affected farmers' ability to raise shrimp. n107 The government in Nepal, assisted by international donors, has taken proactive steps to reduce the risk of a catastrophic glacial lake outburst flood from a lake that is rising because of glacial retreat by creating a channel in the dam and lowering the level of the lake. n108 An often-cited example of proactive adaptation in the developed world is the construction of the Deer Island Bridge in Canada, which was redesigned and built higher than currently necessary to accommodate sea level rise over the one-hundred-year lifespan of the bridge. n109 Any one of these types of projects could potentially influence individuals' rights at the planning, implementation, or execution stages, and it is for this reason that we must be cognizant of the human rights implications of adaptation practices. n110

We now turn to a general overview of the human rights implications of **climate** **change,** particularly for the world's most vulnerable citizens, before articulating why human rights can and should illuminate adaptation programs.

III. **Climate** **Change** and Human Rights

 With an ever-increasing body of evidence on the mounting and likely discriminatory toll of **climate** **change,** private and public actors have worked in recent years to bring insights from human rights **law** to bear on the problem of **climate** **change.** Such a human rights framework holds particular normative appeal given that persons already vulnerable to human rights infringements based on factors such as poverty, geography, gender, ethnicity, disability, and age will likely also suffer the most deleterious **climate** **change** consequences. **[\*330]** As we explain below, some commentators debate the wisdom of applying a human rights framework to **climate** **change,** or at least debate the practical utility of such an effort given the costs of and political resistance to many efforts to address **climate** **change.** n111 Nevertheless, we find the arguments for applying a human rights framework to **climate** **change** more powerful - and less easily criticized on political grounds - when focusing on adaptation rather than mitigation.

Thus, in advancing our claim that a human rights approach can improve the understanding of and response to the need for **climate** **change** adaptation, we use this Part to provide a brief background on the linkage between human rights and **climate** **change** more generally. Conceptualizing **climate** **change** from a human rights perspective requires focusing on those people who will suffer the most from a changing climate, with a long-term goal of creating the political will to address large-scale injustice. n112

Our description of how adaptation implicates human rights builds from the wealth of scholarship that has connected environmental protection to human rights, as well as from efforts to establish a right to a clean and healthy environment. n113 The core international human rights treaties n114 do not provide for an express right to a safe and healthy environment. n115 Nonetheless, there is international consensus that a clean and healthy environment can impact persons' rights. n116 Moreover, the UN human rights treaty bodies all recognize **[\*331]** an intrinsic connection between protecting the environment and fulfilling a wide spectrum of human rights, such as the rights to life, health, water, food, and housing. n117 For example, the Convention on the Rights of the Child calls on state parties to take appropriate measures to combat disease and malnutrition by providing adequate food and clean drinking water, while taking into account the dangers and risks that environmental pollution poses to such endeavors. n118 Aside from their normative appeal in this context, human rights have prompted action in the environmental protection arena and, more recently, in the **climate** **change** arena.

A. Human Rights Implicated by the Effects of **Climate** **Change**

 Earlier in the Article, we outlined the exacting and unequivocal human toll of **climate** **change:** disease, food shortages, water scarcity, displacement of persons from their homes and communities, and potentially the loss of life, dignity, personhood, and self-determination. n119 International human rights **law** speaks resonantly about such harms, bestowing global citizens with legal rights in this respect and nation-states with legal duties to fulfill these rights. Although we will later discuss the usefulness of employing human rights to address these harms, n120 here we briefly outline a nonexhaustive list of the variety of interrelated human rights that **climate** **change** implicates. Under international **law** all human rights - whether civil-political rights such as the rights to life and equality before the **law;** socioeconomic rights such as the rights to health, water, education, and work; or collective rights such as the right to development - are indivisible, interdependent, and interrelated. n121

First, **climate** **change** poses risks to the human right to life as a result of mounting global natural catastrophes. n122 A variety of international treaties and covenants safeguard the right to life. n123 The Stern Review, a formative study examining the economics of **climate** **change,** found that **climate** **change** will **[\*332]** affect the basic elements of life for people around the world, as hundreds of millions of persons suffer from hunger, water shortages, heat stresses, disease burdens, and permanent displacement on account of **climate** **change,** with particularly pronounced effects for women. n124 The right to life is considered "basic to all human rights." n125 It is also a right that states parties must take affirmative steps to protect. This can include efforts to reduce malnutrition, epidemics, and infant mortality. n126 Unlike certain other human rights that may be derogated from in times of public emergency (potentially including emergencies posed by natural disasters), the right to life is a nonderogable right that the government must always protect. n127

As **climate** **change** threatens global food supplies with irreparable damage, with one estimate projecting that an additional 600 million persons will suffer from malnutrition on account of **climate** **change,** n128 it dramatically implicates the right to food safeguarded under international **law.** n129 For example, the ICESCR provides that, with regard to persons' right to food, states parties are required to take necessary actions to alleviate hunger including during natural or other disasters. n130 **Climate** **change** also clearly impacts the right to water as it may exacerbate existing burdens on limited global water resources. It may also interact with a range of other causes of water stress, including poverty and inequality, population growth, environmental degradation, and poor management of water resources. n131 Restricted access to clean water runs afoul of the right to clean water as codified in various international human rights instruments. n132

**Climate** **change** also threatens the right to health, n133 which incorporates underlying determinants of health including adequate food and nutrition, housing, safe drinking water, adequate sanitation, and a healthy environment. n134 **[\*333]** Poor health decreases vulnerable individuals' ability to adapt to **climate** **change** events, making the sickest global citizens most likely to suffer the greatest effects of **climate** **change;** from a human rights perspective, focusing on these individuals and taking concerted steps to improve their health is a central means of reducing the health impacts of **climate** **change** events. n135

As sea-level rise and storm surges impact many coastal settlements, individuals in those communities will confront threats to their right to adequate housing. n136 This right is codified in several international human rights instruments: its most comprehensive articulation is under the ICESCR, which considers the right to adequate housing an essential element of the right to an adequate standard of living. n137

**Climate** **change** also starkly implicates the global migration and displacement of persons. n138 As flooding threatens low-lying communities, persons increasingly will migrate from rural to urban communities - exacerbating the physical and resource strain on urban slums and informal settlements, which themselves remain vulnerable to **climate** **change.** n139 Many informal urban settlements are built illegally and without formal planning, and when rural residents migrate to these informal urban areas, there is a greater risk of disease, insufficient water, and even social unrest. n140

Lastly, in this brief overview of potential rights infringements, **climate** **change** poses undeniable risks to persons' right to self-determination, a fundamental principle of international **law** enumerated in both civil-political and socioeconomic rights instruments. n141 The right to self-determination is a collective, group-based right. Its collective realization, however, is a prerequisite to the fulfillment of the variety of individual human rights guaranteed under international treaties and covenants. n142

While the aforementioned rights violations will be cross-cutting in their **[\*334]** effect, there is little doubt that the most dramatic effects of **climate** **change** will be borne by persons who are vulnerable due to factors like poverty, gender, age, minority status, and disability. n143 International human rights **law** mandates that States address such vulnerabilities in accordance with the principle of equality and nondiscrimination. n144 Specialized human rights treaties like the CRC and the CEDAW specifically focus on the needs of disadvantaged, marginalized, and vulnerable groups and thereby privilege these groups with focused consideration. n145

Recently, international actors have formally recognized the relationship between **climate** **change** and human rights. This connection has been increasingly acknowledged in diplomatic, nongovernmental, and academic efforts analyzing the effects of a changing climate. n146 For example, in March 2008, the UN Human Rights Council adopted Resolution 7/23, which was the first UN resolution to recognize that **climate** **change** poses an immediate threat to people and communities around the world and has significant implications for the enjoyment of human rights. n147 Although this may have stated the obvious, n148 this recognition from the Human Rights Council was an important step in making concrete the connection between **climate** **change** and human rights. The resolution called on the OHCHR to prepare a "detailed analytical study on the relationship between **climate** **change** and human rights." n149 The OHCHR released its study in January 2009. n150 Focusing on the implications of **climate** **change** for the enjoyment of a number of specific rights, such as the rights to life, health, water, food, housing, and the right to self-determination, n151 as well as the implications for vulnerable people such as women and indigenous people, n152 the report demonstrated the Human Rights Council's intention to ensure that UN human rights institutions remain a critical part of **[\*335]** the **climate** **change** debate and solution. n153

With its bold pronouncements about the multiple human rights implications of **climate** **change,** the OHCHR Report "marked a definitive break with arguments about whether there is indeed a relationship between **climate** **change** and human rights." n154 Instead, the Report pointed to "a new debate on the implications of and necessary responses to that relationship." n155 Because **climate** **change** indirectly undermines human rights through environmental degradation, the OHCHR Report addresses the analytical gap caused by the lack of an express right to a healthy environment. It does this by drawing on the Stockholm Declaration, which "reflects a general recognition of the interdependence and interrelatedness of human rights and the environment," as well as the analytical fact that "United Nations human rights treaty bodies recognize the intrinsic link between the environment and the realization of a range of human rights." n156

Yet, despite its many triumphs and breakthroughs, the OHCHR Report, like most analyses of **climate** **change** to date, provided only a cursory discussion of the ways in which adaptation to **climate** **change** is implicated by, and in turn impacts, human rights. The Report noted that "irrespective of the scale of mitigation measures taken today and over the next decades, global warming will continue due to the inertia of the climate system and the long-term effects of previous greenhouse gas emissions. Consequently, adaptation measures are required to enable societies to cope with the effects of now unavoidable global warming." n157 While representing a step in the right direction, the Report fell short of examining the nuanced ways in which adaptation can and should benefit from a human rights approach and considering how human rights can provide leverage in responding to adaptive needs. It also failed to explore deeply how **climate** **change** adaptation raises significant issues of equity, since the most disadvantaged global citizens stand to suffer the greatest consequences from **climate** **change.**

B. Adaptation Apartheid: **Climate** **Change** in the Developing World

 Adaptation - much like other persistent issues in environmental justice n158 - will often be an intensely local and even personal phenomenon. Within even the poorest countries, there will be elites who possess the resources to adapt; of course there will also be individuals in even the richest **[\*336]** societies who have insufficient capacity to adapt to **climate** **change.** n159 Yet generally speaking, adaptive capacity tends to correlate with general capacity on regional, national, local, group, and individual levels. In this respect, **climate** **change's** consequences for human health, security, and stability are particularly grave for developing countries and their residents because of these countries' geographic characteristics, already-low incomes, and heightened reliance on sectors sensitive to **climate** **change** such as agriculture. n160

Residents of already vulnerable regions and communities confront a range of stresses that affect their sensitivity to **climate** **change** events as well as their ability to adapt. n161 These stresses include poverty, inadequate access to basic resources, food and water insecurity, high incidences of diseases such as HIV/AIDS, and conflict. n162 Within a particular region, there is significant risk of "adaptation apartheid" for groups with diminished adaptive capacities. Empirical work has demonstrated that in addition to disparities in **climate** **change** vulnerability, access to resources that correlate with adaptive capacity can be distributed unevenly along the lines of age, class, ethnicity, gender, and religion. n163 Poverty, inequality, power imbalances, and discrimination make certain groups particularly vulnerable to interrelated human rights infringements from **climate** **change.** n164 Women, children, the elderly, those in rural areas, internally displaced persons, disabled persons, ethnic minorities, persons lacking access to healthcare and to health pre-determinants such as water and sanitation, and poor persons already living at the margins of survival will likely suffer disproportionate impacts of **climate** **change** and thus more severe human rights infringements. n165

In the analysis below, we focus on sub-Saharan Africa and its women, providing a cross-cutting lens into how **climate** **change** profoundly threatens certain regions', groups', and individuals' human rights, creating an ever-present risk of adaptation apartheid. We could have focused on many other regions, groups, and peoples already suffering discrimination in the fulfillment of their human rights and who stand to suffer even more pronounced consequences due to **climate** **change.** n166

As one particularly poignant example of disparate adaptive capacity at the **[\*337]** regional level, sub-Saharan Africa already confronts significant human consequences from **climate** **change.** Sub-Saharan Africa produces less than four percent of GHG emissions; yet, the region already experiences effects of changing weather and rainfall patterns, food and water scarcity, and internal displacement of persons, among other impacts, and it can expect more deleterious consequences in years to come. n167 In 2011, a devastating drought hit the Horn of Africa, affecting eleven countries and twelve million persons. n168 Droughts have had especially disastrous human consequences for residents of sub-Saharan Africa; the drought beginning in the Sahel in the late-1960s killed more than 100,000 people and effectively demolished farming economies. n169 The Sahel and Africa's other dry areas can expect to experience more drought in upcoming years. n170 With a third of persons in Africa already residing in drought-prone regions, by one estimate, additional climate alteration may put another 75 to 250 million persons' lives at risk. n171 Moreover, areas in sub-Saharan Africa already prone to floods may experience more frequent flooding due to changing rainfall patterns. n172 In responding to droughts and floods alike, governments and donors will have to divert limited resources from regional and national development projects to emergency relief projects. n173

The increased variability in climate will, in turn, lower food production in sub-Saharan Africa. The region heavily relies on agriculture for household income and livelihood, and climatic conditions greatly affect agricultural output. As one commentator has predicted, **climate** **change** "could mean disaster on a continent where 70 per cent of workers are employed on farms and farming is often the engine for national economies - generating export earnings and inexpensive food." n174

Significantly, residents of the sub-Saharan region have diminished adaptive capacity to respond to such shocks. They often have crops that are less diverse and resilient, a heavy reliance on rain-fed irrigation, and limited money and expertise to cope with damaging changes by modifying their agricultural techniques. n175 In sub-Saharan Africa, the staple crops such as maize and millet have a strong association with year-to-year climate variability. n176 One NGO, **[\*338]** Eco-Watch Africa, expects productivity in harvesting such staple crops in southern Africa to drop by twenty to fifty percent in years with extreme climate conditions, creating food shortages. n177 In aggregate, Eco-Watch Africa predicts that in sub-Saharan Africa, farmers will harvest as little as fifty percent of their current yields by 2080. n178

The consequences for women will be particularly dramatic. Although the nature of women's vulnerability varies considerably, existing patterns of inequality and vulnerability will be exacerbated by the effects of **climate** **change.** n179 Many poor women already suffer from restrictions on their rights, access to resources, mobility, and voice in making decisions that impact their lives. n180 For instance, women in Africa are the main producers of climate-sensitive staple crops. n181 Women are also often the last to receive food and other household resources. n182 Hence, food shortages not only infringe women's right to food, but **climate** **change**-induced food shortages will in turn increase women's daily workload as women struggle to ensure food security. As women's daily workload increases, women will have diminished opportunities for other educational, economic, social, and political engagement. In this sense, **climate** **change** magnifies the range of various human rights infringements to which women are already vulnerable.

Water shortages will also have a disproportionate, compounded effect on women. In the developing world women generally bear the responsibility for the time-consuming task of gathering and transporting water. n183 According to one study, women performed ninety-one percent of the work in fetching water for domestic consumption in a Zimbabwean household. n184 As water becomes scarcer, women will have to travel farther distances to search for it. n185 One study found that women in developing countries already spend an average of 134 minutes per day collecting water for their households. n186 In aggregate, women in sub-Saharan Africa spend an estimated 40 billion hours per year collecting water - an amount equal to a year's worth of labor by France's workforce. n187 In urban areas that suffer from water scarcity, women and girls will likely spend more time queuing to access intermittent and limited water supplies. n188 When women must walk farther to secure water for their household, they become more likely to drop out of school and experience a **[\*339]** reduction in other opportunities for activities that would empower them. n189

**Climate** **change** also will have a significant effect on individual health in developing countries, since diarrhea, respiratory diseases, and a range of illnesses are expected to increase, as are related deaths. n190 Again, for a range of complex and interrelated reasons, women are particularly at risk of having their right to health infringed. For example, since women and girls play a more significant role in performing household chores and collecting water than do men and boys, they are also more susceptible to water-borne diseases such as diarrhea and cholera, which are likely to increase on account of **climate** **change.** n191

Gender also plays a prominent role in migration behaviors in the sub-Saharan Africa region. Gender dynamics are particularly pronounced in household migration from rural to urban areas. n192 Men will often move to urban areas to seek out other work, while women remain behind in strained rural settings, managing a heightened set of responsibilities for producing food and caring for the household and children. n193 As a consequence of this heightened burden, women may be further deprived of education, employment, political participation, and other activities that international human rights **law** guarantees to them.

We briefly highlight these two lenses - the sub-Saharan Africa regional lens and a gendered lens - to show the potentially disproportionate impacts of **climate** **change** on certain groups of individuals, who are also likely to be least adaptive to change. Effective adaptive policies must understand regional and group disparities - for example, they should recognize intra-household dynamics and how gender influences accessibility to a range of interrelated and interdependent rights. n194 Adaptive policies that ignore these realities - for example, by distributing adaptation funding exclusively to male leaders in a community - will likely only reinforce at least some of the disparities in adaptive capacity. n195 In contrast, adaptation funding that is spent wisely and in a manner sensitive to status and capacity disparities can help mitigate discriminatory impacts of **climate** **change** - and may help alleviate discrimination more widely. In the case of distributing adaptation funding, donors and governments can purposefully target women with their funding, also ensuring that women have a voice in designing adaptation programs that meet their needs. Communications technologies may play an important role in promoting equity in expenditures of adaptation funding - such technologies can **[\*340]** track and report on how specific funding is being used. On a more pragmatic level, communications tools may help ensure more reliable and predictable access to limited water resources. The World Bank has started funding a range of tools that help women and communities better manage their water resources, including open data platforms, sensors, and mobile phones that can communicate quotas of irrigation water that farmers can use for a particular day. n196 To the extent that these tools help communities ensure a more reliable and predictable supply of water, and save time in the process, they will have a disproportionately positive impact on many women, enabling them to pursue other activities. Indeed, adaptation funding can play a critical role in narrowing or expanding the range of human rights that particular persons or groups enjoy - further reason to discuss adaptation, at least in part, using the language of human rights.

C. Applying Human Rights to **Climate** **Change:** Theory and Practice

 In light of the disproportionate impact of **climate** **change** on vulnerable groups such as women, human rights can serve as a pragmatic and powerful tool to vindicate rights. After all, human rights analysis focuses particularly on the most disadvantaged persons and their needs. As a legal and practical matter, human rights can hold state actors accountable. Human rights are legal rights codified in a range of legal instruments at the international, regional or national level. In the case of the United Nations international human rights treaties, these instruments establish legal duties of states that are enforceable by individuals, groups of individuals, and their representatives before international tribunals. n197 Each UN treaty has a monitoring system that allows for review of ratifying state actions on a periodic basis and, where necessary, a call for a State party to change its **laws,** policies and programs in order to fulfill its legal obligations. n198 Each UN treaty also has a treaty monitoring body that consists of a panel of independent experts with the mandates to monitor government efforts to fulfill the rights guaranteed under the treaty; to clarify and interpret rights under the treaty by offering general comments or recommendations; and, in certain instances, to review complaints from individuals or groups within a particular state that allege certain rights violations. Given the formal legal means for reviewing states' actions, persons concerned about and impacted by **climate** **change** - including those in vulnerable states, nongovernmental organizations, and indigenous groups - should consider using human rights to bolster their cause. n199

An example helps elucidate how the human rights reporting system works in practice. The formative legal challenge addressing the human rights **[\*341]** consequences of **climate** **change** was the 2005 petition to the Inter-American Commission on Human Rights by a group of Inuit from the United States and Canada who alleged that the failure to reduce GHG emissions violated their human rights. n200 The petition, filed on behalf of all Inuit from the United States and Canada, alleged that global warming infringed on many of the Inuit's rights, including the right to enjoy the benefits of their culture, the right to traditional lands, the right to prosperity, the right to health, the right to life, the right to physical integrity, and the right to security. n201 The Commission reviewed the Inuit's petition, ultimately rejecting it without prejudice. However, the Commission subsequently invited the Inuit group to provide testimony on the connections between **climate** **change** and human rights. n202 Since the Inuit petition, small island states have used various fora in the UN legal system to elucidate the connection between **climate** **change** and human rights and have invoked human rights language in UNFCCC negotiations. n203

There are several prominent reasons why it is normatively and legally desirable to apply a human rights framework to **climate** **change.** First, **climate** **change** is an international problem with human consequences that are likely to unfold on an international scale, and to require international solutions, making international **law** an appropriate means of promoting accountability for **climate** **change.** Second, **climate** **change** will result in infringements of human rights, so it makes normative sense to consider **climate** **change** via a human rights framework. Third, as a practical matter, human rights **law** provides a framework in which tribunals have a history of balancing human needs with limited government resources. Fourth, the human rights framework already includes tools for monitoring and enforcement. Fifth, human rights **law** may encourage coherence in adaptation policy, or international standards for adaptation practices at multiple levels.

Yet there are well-documented challenges to making human rights have practical significance in the lives of the persons they are meant to protect. There is widespread skepticism about the efficacy of human rights treaties and instruments. n204 Critics point to substantive and procedural weaknesses in human rights treaties that undermine their effectiveness. First, most international treaties contain substantive provisions - limitation clauses that **[\*342]** allow governments to curtail or not grant rights or freedoms on the basis of national security, public order, morality, and health - that undermine the full, unhampered implementation of the treaties. n205 State parties can further limit obligations under human rights instruments through formal reservations - "a claim to exclude or to modify the legal effect of certain provisions of the treaty in their application to that state." n206

Next, most human rights treaties lack a rigorous enforcement regime. The success of the treaty body monitoring system depends upon a range of factors, including whether states submit adequate reports on time; whether the treaty body committee has sufficient time and expertise to review the report and question state representatives; whether NGOs have access to information on the State's fulfillment of human rights to submit to the committee members for consideration; the quality of the treaty body committee's concluding observations; the ability of the treaty body committee to follow up on inadequate reports; and the extent of media attention. n207 The process falters at many stages. An estimated forty-five to eighty percent of states parties to six UN treaties have overdue reports, with approximately sixty percent of states parties to six UN treaties having five or more overdue reports. n208 Many treaty body committees have a tremendous backlog in processing overdue reports. By one estimate, if all the overdue reports were submitted simultaneously to their respective treaty body committees, it would take the treaty bodies approximately eight years to process the backlog. n209 In addition to these concerns, other critics have worried that human rights **law** may be overly prescriptive, may establish a "lowest common denominator approach" that trends towards the least progressive solutions to pressing problems, and may limit the space for creative, locally appropriate solutions. n210

Those well-documented deficiencies exist when applying human rights **law to climate change** as well. Although we consider the question of whether **climate** **change** implicates human rights to be closed, academics and commentators have yet to fully resolve exactly how human rights can protect **[\*343]** against the consequences of **climate** **change.** Put another way: although **climate** **change** poses "an enormous threat to human rights," it is much more difficult to determine "what legal duties arise as a result." n211 The challenges in applying human rights **law to climate change** have been particularly pronounced. Human rights **law** has so far been unable to prompt effective state action on **climate** **change** because it is difficult to establish that a state's action - or inaction - caused a particular harm, as human rights only impose legal duties "vertically" against states. n212

First, it is challenging to establish liability for **climate** **change** harms because there are evidentiary hurdles to establishing that particular acts or failures to act specifically caused a **climate** **change** injury. As the OHCHR Report explained, "the physical impacts of global warming cannot easily be classified as human rights violations, not least because **climate** **change**-related harms often cannot clearly be attributed to acts or omissions of specific States." n213 Drawing a causal connection between GHG emissions and specific human rights harms is challenging, in part, because it is difficult to trace governments' failures to mitigate to specific **climate** **change** injuries that those decisions have caused. Even establishing the existence and level of injury poses challenges, given that **climate** **change** harms are not always overt or recognizable. n214

After causation, human rights' state actor requirement poses an obstacle to establishing liability. Marc Limon has noted that "even if responsibility and harm could be established, existing human rights **law** is concerned primarily with how a government treats its own citizens and others living within its territory and under its jurisdiction." n215 The state actor requirement poses another significant hurdle to human rights approaches to **climate** **change** - if a particular state did not cause **climate** **change,** or at least contribute to it in some measurable way, how can it be held accountable for the human consequences of **climate** **change** within its territory? Those attempting to bring the **law** of human rights to bear on the impacts of **climate** **change** "face[] a formidable obstacle" because for domestic environmental issues, "deference to a state's decision as to how much environmental harm to allow is justifiable because the benefits and the costs of the actions causing the harm are felt within a single polity." n216 International human rights **law** was developed in the context of addressing harms that neither occur outside the responsible state's borders nor cross interstate boundaries. n217

 **[\*344]** Looking to international **law,** Knox sees significant challenges in developing a framework to resolve this tension, although he points to states' duty to cooperate as the best legal basis for "extending" human rights **law** to states' actions or inactions with respect to **climate** **change.** n218 The duty to cooperate originates from Article 56 of the UN Charter, which requires members to cooperate in the promotion of "universal respect for, and observance of, human rights and fundamental freedoms for all," undertaken by the United Nations in Article 55. n219 The duty to cooperate is also expressly outlined in the ICESCR, which requires state parties to take steps not just individually, but also "through international ... co-operation" toward the progressive realization of the rights guaranteed under the Covenant. n220 **Climate** **change** is precisely the sort of challenge that requires the international cooperation envisioned in the UN Charter and in the Covenant. Yet Knox recognizes that this is not necessarily a forceful basis on which to impose duties on a state. n221

Under international human rights **law,** legal duties are oriented vertically. States have the primary responsibility to protect persons within their boundaries. Beyond those boundaries, states may be unable or unwilling to fulfill broader obligations in responding to **climate** **change;** more significantly, one state could not effectively mitigate **climate** **change** alone given the cross-territorial, global nature of **climate** **change.** n222 In response, some commentators, again Knox prominently among them, have presented a way to conceive of human rights "diagonally" - held by citizens of one state against governments of other states. n223 This conception would hold developed states responsible to persons in developing states who are suffering harms due to a failure to mitigate **climate** **change.** n224 Thus, the duty to cooperate (which provides relatively weak protections to persons) and conceiving human rights diagonally (which is far from universally accepted) are the leading analytical frameworks that can be used to argue that human rights **law** requires mitigation - which leaves international **law** at least temporarily ill-suited to achieve mitigation.

We posit that human rights can and should serve as a key tool in prompting international action on **climate** **change** and on adaptation in particular. Human rights hold a normative appeal in that they address the deleterious effects of **climate** **change** on humans, and in particular on **[\*345]** vulnerable individuals who played a negligible role in contributing to the global problem. Indeed, advocates have invoked a moral imperative to address **climate** **change** harm through a human rights framework. Unlike harms resulting from a failure to mitigate, which may be best understood as violations of diagonal rights, it is easier to understand harms from a failure to adapt as violations of vertical rights. By understanding mitigation and adaptation separately, we can avoid disrupting longstanding assumptions of human rights **law.**

In short, we consider the question of whether **climate** **change** implicates human rights to be closed. n225 As Kyung-wha Kang, Deputy UN Commissioner for Human Rights, stated in 2007, "any strategy to deal with **climate** **change,** whether in terms of adaptation or mitigation, must incorporate the consequences for humans, as individuals and communities, and the human rights framework is the most effective way to do so." n226 But establishing causation and state responsibility under international human rights **law** has proven analytically intractable when the analysis is limited to mitigation. We proceed to describe how human rights **law** can effectively address **climate** **change** harms by beginning with the adaptation obligation.

IV. Adaptation Through the Lens of Human Rights **Law**

 Considering the many rights that will be affected by **climate** **change** and by the nature of the response, it is critical to look more narrowly at the human rights implications of adaptation - or, more aptly, the human rights implications of a failure to adapt sufficiently to a changing environment. Irrespective of future international efforts to mitigate **climate** **change,** should states and those that fund them fail to adapt to **climate** **change,** human rights consequences such as those articulated above will be inevitable. The success of states' and funders' adaptation efforts will, in turn, affect the level and pervasiveness of violations of human rights like the rights to health, adequate shelter, self-determination, and, at the most basic level, the right to life. n227

In this Part, we posit that human rights analysis to date has largely ignored the adaptation component of **climate** **change** response - a component that is better suited to human rights analysis than is mitigation. A number of commentators have concluded that human rights **law** is unable to address the effects of **climate** **change** since it does not provide a straightforward means for apportioning blame for events such as flooding and natural disasters. We view such conclusions as too broad. Indeed, human rights may be more easily applied to state actions or inactions specifically related to adaptation. In particular, adaptation-related claims can meet the state actor and causation requirements of human rights **law** - the two hurdles that often prevent **[\*346]** successful litigation or advocacy around mitigation-centered human rights campaigns. Furthering our argument is a consideration of developing states' resource constraints and culpability in **climate** **change.** We view it as normatively preferable to require developing states to adapt than to require that they mitigate harms that they did not cause; the latter would unfairly burden comparatively low-emitting developing states, and might be pointless, as successful mitigation cannot take place without concerted efforts from the highest emitting states. n228

Recognizing that adaptation-based claims more easily lend themselves to human rights remedies both rehabilitates human rights (to the extent such rights have been ineffectual when applied to **climate** **change** issues) and provides insight into ways in which conventional understandings of human rights **law** must adapt if human rights is ever to provide tenable legal relief in addressing **climate** **change** harms. Finally, we discuss ways in which potential claimants could seek remedies for adaptation-related human rights violations.

A. Adaptation's Role in the Human Rights/**Climate** **Change** Disconnect

 The heightened emphasis on mitigation in **climate** **change** discussions to date is not entirely problematic. Concentrating on the role of the largest GHG emitters may help motivate state actors to move against their political self-interest, or at least to incorporate massive, long-term externalities into a state's political calculus. Efforts on the mitigation front by the highest emitting states are the most important piece of the **climate** **change** puzzle. Without such action, **climate** **change** will cause increasing harm. The primary responsibility, normatively, legally, and financially, lies with the states that have caused the problem. Moreover, the general concept of mitigating harms is a common legal doctrinal principle, holding wrongdoers accountable for minimizing damages. n229

There are many other questions that get lost when the debate is focused on emitters. For example, governments of states hit hardest by **climate** **change** may face near-term economic and political consequences for their inaction. What are their duties, not just morally, but legally? In other words, what, if anything, should the international community and human rights **law** require of the least developed countries as they are forced to adapt to a warming climate? That a government did not cause a particular harm is not an excuse for its failure to act in the face of it. n230 Developing countries will have to adapt to **[\*347]** climate challenges. And all too often, under-resourced, ineffectual, or simply corrupt governments in the developing world have avoided delivering on human rights commitments to their citizens. Direct aid, capacity-building, and other efforts from developed countries play an important role in addressing these deficiencies, but individual state accountability for actions or inaction with respect to **climate** **change** is important as well. n231

As governments make and institute policies and allocate resources to adapt to **climate** **change,** the legal community should apply - and reconsider - domestic and international legal frameworks to evaluate states' resource-allocation decisions and other adaptive responses. Put another way, human rights **law** itself will have to adapt to adaptation (and **climate** **change** more broadly), as lawyers and policymakers reevaluate a number of doctrines to account for the reality of **climate** **change.** n232 As Limon put it: can developed countries really tell people in small island nations, for example, "that their human rights have not been violated because it is difficult to apportion responsibility?" n233 He argues that "perhaps we must, but that is surely because the **law** is wrong, rather than because our instincts of fairness, equity, and justice are wrong." n234 The ICHRP has similarly noted that "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." n235 Human rights **law** emerges as rigid, and somewhat simplistic, in addressing **climate** **change**-related issues. Our goal throughout this Part, then, is to further the discussion on the role of human rights **law** in recognizing **climate** **change** harms generally, and to begin a discussion about human rights' recognition of adaptation-related claims in particular.

 **[\*348]**

B. Human Rights **Law** Applied to Adaptation: Establishing Liability and Accountability

 Although human rights **law,** at least as it is conventionally understood, does not neatly accommodate issues relating to "**climate** **change,**" n236 these deficiencies are at least partly cured when adaptation is separated from a broader discussion of **climate** **change.** This is significant for those whose rights would be violated by states' actions in implementing particular adaptation projects - or, more likely, failing to implement projects. Those individuals may have legal recourse, and states may have enforceable obligations to their citizens in this respect.

1. States' Liability for Adaptation-Related Human Rights Violations: Overcoming Causation and the State Actor Problem

 As described earlier, conventionally understood human rights **law** provides no true (or at least no robust) liability or remedial framework for addressing the largely transnational causes and concomitant harms of **climate** **change.** n237 While these human rights limits are daunting when analyzing **climate** **change** mitigation, human rights **law** can and does provide a workable framework for approaching adaptation. Adapting or failing to adapt can more discernibly cause human rights violations than can decisions regarding mitigation practices. As we have described above, adaptation decisions are likely made closer, in terms of geography and time, to those affected by the policies. n238

A hypothetical helps to illustrate how a government could be held accountable under a human rights framework for an adaptation-related claim. Over time, states will be faced with rising sea levels and increased flooding, n239 and many of the adaptation projects already underway relate to minimizing impacts from flooding. n240 Suppose a government receives adaptation funding that it then squanders, despite warnings that a dam will fail if not repaired, causing mass flooding to an adjacent low-lying subsistence farming community, and possibly loss of life. Can legal advocates wield human rights **law** to hold the government liable for its actions? Yes, albeit likely after the harm from those abuses has occurred. Under the "progressive realization" doctrine surrounding socioeconomic rights, if a government has available resources but does not prioritize an action, and there is a breach of human rights as a result, one can make a colorable claim for government redress before **[\*349]** an international, or in certain instances, a domestic, tribunal. n241 States must act to the extent their resources allow in order to fulfill socioeconomic rights progressively and continuously, and this legal doctrine can extend readily to state inaction towards adaptation. n242 As such, this ex post remedy, if robust in nature, might moderate government intransigence in the future. n243

Complete inaction despite available funding, like discriminatory action, is simple to understand through a human rights perspective - it is not allowed. But government action to spend limited adaptation funding and implement adaptation projects has the potential to raise more nuanced challenges. Another hypothetical demonstrates the complexity inherent in identifying a precise set of policies or projects that comports with human rights. Suppose when confronted with the looming dam breach described above, the government decides to require the relocation of two small communities rather than the move of a large mining company that employs several hundred people across the country and contributes substantially to the country's tax base. The government implements a cursory program for assuaging threats to the soon-to-be-displaced community members' homes, livelihoods, health, and lives - a small stipend for each family to cover the basic costs of relocating and finding new land elsewhere. Would a human rights approach permit such an exercise? It is unclear. As former Justice Albie Sachs from the Constitutional Court of South Africa has explained, balancing and apportionment are inherent in the exercise of progressively realizing rights in resource-constrained settings. n244 The Constitutional Court's jurisprudence reflects such balancing. n245 One may easily identify certain procedural deficiencies in this scenario - for example, participation is a fundamental principle in human rights approaches but lacking here - suggesting that the government's approach may fall short of what human rights **law** requires.

Further, one could imagine how a cash payment could fail in other ways. For example, cultural norms could require women to give cash to men in the community, and the women could effectively be left even more vulnerable, without housing or with other unmet needs. Since human rights approaches pay special attention to the needs of a state's most vulnerable citizens, a human rights approach should closely examine how adaptation decisions impact these citizens. At times there is no clear "best" human rights approach, and human rights may point to a "second best" alternative, or a range of alternatives, that **[\*350]** optimizes outcomes given a variety of pragmatic constraints.

Similarly, adaptation-related claims could also raise issues concerning how to resolve conflicts when a state's existing human rights obligations to its citizens clash with issues related to **climate** **change** adaptation. In developing nations, one would expect that the overlap could be considerable. Suppose a state was forced to choose between providing clean water to seventy-five percent of its population or protecting ten percent of its population from the high probability of **climate** **change**-induced flooding. n246 From a political and policy perspective, the former option likely would be the nation's highest priority, but the prioritization question poses challenges - can the decision to prioritize provide a state an affirmative defense to claims of human rights violations? Furthermore, as the World Bank has noted in discussing the connection between adaptation and traditional development projects, "there are numerous "low-regret' actions - typically policies that would be priorities for development even without **climate** **change** - especially in water supply and flood protection." n247 Low-regret options are those "actions that are robust under most climate scenarios," and especially those that provide benefits even outside the **climate** **change** context. n248 Arguably, such options should be given high priority.

2. States' Accountability for Adaptation-Related Human Rights Violation

 Liability is a legal question; accountability is a more normative consideration. Liability describes whether individuals or communities can prevail on human rights charges against states arising from **climate** **change**-related impacts. Causation is generally a mandatory element of establishing liability; under human rights **law,** a party needs to be shown to have caused the harm to be held liable for the remedy. n249 By contrast, accountability questions ask whether the individuals or communities should be able to bring human rights claims arising from **climate** **change**-related injuries.

Accountability is an important consideration in addition to liability because of the limited vertical nature of human rights, which have traditionally been regarded as running between an individual and the state. n250 Yet commentators disagree about the degree to which developing countries should be held accountable for human rights violations due to **climate** **change.** n251 Some of the difficulty in resolving this question can be removed by segregating discussions of mitigation from those of adaptation.

With mitigation, there are significant equitable issues in holding **[\*351]** developing countries accountable for reducing emissions. Certainly, there is broad consensus that developed countries are primarily responsible for GHG levels and thus for the mitigation practices that can (partially) ameliorate their effects. Individuals in developing countries claiming human rights violations by developed states will confront problems in their legal challenges because, under traditional conceptions of human rights **laws,** other governments who primarily caused **climate** **change** are not their governments and therefore are not legally accountable to them. Some commentators have argued that developing countries should not be held accountable for human rights violations resulting from **climate** **change** - or at least that developed states should be held more accountable. n252 Their argument maintains that in the vertically organized world of human rights, the typical "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." n253 As previously described, John Knox has discussed this issue as part of his advancement of "diagonal human rights" and proposals of fora through which individuals could assert these rights. n254

Yet, developing states should be held accountable for human rights violations stemming from adaptation decisions because, fair or not, **climate** **change** imposes duties on low-emitting states, particularly those that have committed to advancing socioeconomic rights. n255 The OHCHR has advanced a similar view, stating that "irrespective of the additional strain **climate** **change**-related events may place on available resources, States remain under an obligation to ensure the widest possible enjoyment of economic, social and cultural rights under any given circumstances." n256 As an important part of this obligation, the OHCHR explained, "States must, as a matter of priority, seek to satisfy core obligations and protect groups in society who are in a particularly vulnerable situation." n257 Another way to phrase this position would be that when developing countries adopt negotiating positions defending the "right" to development, they must nonetheless adhere to their obligation to protect the fulfillment of human rights domestically. n258 Developing countries need not fulfill these rights exclusively through their own funding, but they remain accountable for whatever funds they receive and expend. After all,

 **[\*352]**

Since every state is under a prior obligation to "take steps ... to the maximum of its available resources' to fulfill those rights, they are logically obliged to ensure that, insofar as they can influence international assistance and cooperation, the latter contribute to fulfillment of their citizens' social and economic rights and do not undermine them." n259

 Limon has taken issue with the OHCHR's view and criticized its understanding of human rights and **climate** **change** policy because it "seems perverse from the perspective of small vulnerable countries, which are, in effect, being told to take additional strain so as to honor their obligations in the face of a phenomenon (**climate** **change)** for which they bear almost no responsibility." n260 As our discussion illustrates, Limon's objection seems sensible when examining **climate** **change** response overall, and particularly sensible when discussing mitigation. For adaptation, however, it may be less perverse to hold developing states to a human rights standard. Particularly if developed states begin providing significant financial assistance to developing states, some accountability for that funding seems both practically necessary and normatively desirable. n261 A human rights framework provides one tool to enable community members to insist upon government accountability in the expenditure of these funds. n262

Our argument is that these competing conceptions regarding the responsibility (or lack of responsibility) of developing states need not be in conflict. By distinguishing adaptation from mitigation more rigorously, Annex I countries may be held responsible for mitigation while all countries, including non-industrialized countries, are held responsible for adaptation. In other words, it may be normatively desirable to hold only, or mostly, Annex I states responsible for mitigation, while asking comparatively more of developing countries with respect to adaptation. n263 As the UNDP has argued, with responsible state action ex ante, "not every drought is the prelude to famine, malnutrition or educational privation. And not every climate shock gives rise to the distress sale of assets, long-run increases in vulnerability or the spread of **[\*353]** low human development traps." n264 Governments play a critical role in reducing the effects of these events, and they will have to adapt their policies as **climate** **change** increases the frequency of such events. n265

Large emitting states' accountability for human rights violations is not, however, the primary focus of this Article. Other authors have addressed that question, and there plainly are compelling reasons to find large emitters responsible for much of the **climate** **change** response. However, such responsibility is difficult to determine precisely, resisted by large-emitting states, and may not be a legally sufficient basis for near-term human rights decisions. Sidestepping such a discussion in this Article is not to absolve large emitters for a problem that is almost entirely of their making; that would be irresponsible, unfair, and misguided. Yet it is important to consider accountability for reducing emissions and adapting to the impact of **climate** **change** separately because of the vertical and diagonal legal relationships discussed above. Distinguishing the adaptation responsibility of developing countries from the mitigation and adaptation responsibility of developed countries when considering the intersection of **climate** **change** and human rights requires framing human rights claims based on adaptation decisions under traditional, vertical human rights **law,** while acknowledging that mitigation-based claims may need to be conceived diagonally.

C. Adaptation and Human Rights Remedies

 Even if it is possible to establish causation, there are still hurdles to vindicating a particular human right. For example, an injured person can often identify and even establish liability for a human rights violation yet be unable to achieve a remedy. n266 The problem of remedying identified human rights violations is hardly new. One of the most powerful examples demonstrating the importance of remedies for human rights violations is the case of Irene Grootboom. In Government of the Republic of South Africa v. Grootboom, the Constitutional Court of South Africa affirmed the government's constitutional responsibility to respect the right to housing and to enact and fund policies designed to realize that right. n267 The decision was hailed around the world as the leading socioeconomic rights decision from any nation's high court. n268 Cass **[\*354]** Sunstein described Grootboom as an "extraordinary decision" that "carries some significant lessons for the future" because the decision was "the first time in the history of the world [that] a constitutional court has initiated a process that might well succeed in the endeavor of ensuring [socio-economic rights'] protection without placing courts in an unacceptable managerial role." n269 But to much less notice, in August 2008, eight years after Ms. Grootboom vindicated her right in her nation's highest court, she died in her forties, "homeless and penniless." n270

As difficult as achieving a human rights remedy is, it likely will be even more challenging in cases arising out of claims related to **climate** **change.** The ICHRP, for one, has noted that the implications of **climate** **change** will be felt most strongly in "the world's poorest countries, where rights protections are often weak." n271 Whether suing in domestic courts or bringing claims in international tribunals, the argument goes, there is not a realistic way for parties to seek remedies for their claims even if they can establish causation and, more broadly, liability. In turn, where remedies are not available, the very existence of the right is called into question.

Differentiating the subset of adaptation claims from the broader group of **climate** **change** claims may lessen this concern. Eric Posner, for example, has argued that neither international environmental **law,** nor human rights **law** - which he notes is a more robust legal framework - provides a useful context for litigating claims. n272 He has argued that in addition to problems with national litigation, "the weakness of the **law** also makes litigation before international tribunals largely pointless, except, perhaps, as a way of attracting attention." n273 But if causal links and liability are connected to narrower geographic, governmental, and temporal ranges in the context of adaptation, perhaps national-level litigation is not "mostly useless." This is especially likely in countries such as South Africa or India that include socioeconomic rights in their constitutions, making it possible to bring individual claims based on alleged rights violations. n274

Tribunals presented with adaptation-related human rights claims might also have flexibility to fashion creative remedies. Even if a remedy cannot **[\*355]** completely respond to a particular claim presented to the tribunal, it could begin to fulfill human rights and address climate-related concerns. For example, pursuant to the UNFCCC, developing countries are creating National Adaptation Programmes of Action (NAPAs) that "identify priority activities that respond to their urgent and immediate needs to adapt to **climate** **change** - those for which further delay would increase vulnerability and/or costs at a later stage." n275 A tribunal could, perhaps, recognize that a state has limited resources to comply with an order that would completely remedy an adaptation-related human rights claim. It could then order a progressive injunction commanding the relevant government authority to review regularly and modify its NAPA in a certain way, in order to prioritize the problem underlying the claim before the tribunal.

Finally, recent developments in socioeconomic rights may facilitate adaptation-based human rights claims at the international level. The Optional Protocol to the ICESCR recently entered into force and may be a promising avenue by which to bring **climate** **change**-related claims linking adaptation and human rights. n276 Tribunals, in adjudicating individual human rights complaints, can develop a common **law** regarding environmental protection and adaptation. As John Knox has argued, such rulings have the potential to complement environmental regulations in the same manner that nuisance and other common **law** tort doctrines complement state-level regulatory environmental **law.** n277

V. Toward a Human Rights Approach to Adaptation

 In the discussion above, we argued that applying a human rights framework to adaptation and mitigation separately - and focusing on adaptation - makes **climate** **change** more amenable to human rights analysis. In this Part, we demonstrate how a human rights approach can be particularly relevant to adaptation policy and projects.

Although states, international bodies, and commentators have made a variety of objections to applying human rights **law to climate change,** as stated above, we join a number of observers who view the issue of whether **climate** **change** implicates human rights as settled. n278 Nevertheless, some of the stated objections do raise significant questions about whether human rights **law** can have any practical effect in the **climate** **change** debate. n279 As we explain in this **[\*356]** Part, however, the objections to the application of human rights to **climate** **change** are less relevant when one considers adaptation in isolation from the broader set of challenges raised by **climate** **change.**

Focusing a human rights lens on adaptation is a useful endeavor for many reasons. Several of the benefits of the human rights approach are uniquely helpful in the context of adaptation; some also counter the often-cited reasons for why a human rights approach to **climate** **change** generally will be ineffectual. For one, because of the more local community level on which adaptation practices take place, a human rights approach would emphasize the rights of smaller communities of persons, which may be easier to assess accurately than those of large, more diverse communities or of entire states, which involve broad generalizations. Moreover, a human rights approach to adaptation can assist policymakers in setting priorities for spending adaptation funds, which will likely be more limited than resources for mitigation. In addition, because adaptation measures tend to impact communities on a more human scale than do mitigation practices, and hence have a closer connection to the fulfillment of human rights articulated in a range of legal instruments, adaptation practices may more effectively mobilize the political support necessary to address **climate** **change.** Finally, adaptation projects can be designed and implemented proactively to safeguard human rights in procedural and substantive manners.

As we consider why applying human rights to **climate** **change** adaptation is particularly useful, we explore some of the consequences of that argument. Once we understand how human rights are particularly relevant to adaptation, we ask how adaptation policymakers can incorporate human rights concepts and thresholds into adaptation practices. As the UNDP has noted, "the world's poor cannot adapt their way out of dangerous **climate** **change,**" but "the impacts of global warming can be diminished through good policies." n280 Thus, our **[\*357]** discussion includes some initial suggestions for ways in which adaptation policies at the community, national, and international levels could incorporate and benefit from the application of a human rights approach.

A. Adaptation Decisionmaking

 As an initial matter, it is important that international, state, and local governments begin to incorporate human rights considerations in decisionmaking on adaptation practices. As many of the least-developed states' NAPAs demonstrate, the first step in implementing an adaptation plan often is to create a framework through which a state or local government can make structured decisions on adaptation policy. n281 If human rights are to be protected in the face of **climate** **change,** decisionmaking processes should take into account human rights norms and protections.

Human rights **law** focuses on individuals and communities, and, accordingly, a human rights approach to adaptation would emphasize collecting local-level information to support adaptation efforts. **Climate** **change** analysis generally remains aggregated at the continental or subregional level, a practice that is logical for mitigation since GHGs cross borders, but does not lend itself to understanding the human implications of adaptation decisions. n282 For example, in the context of U.S. environmental **law** and adaptation, Robin Kundis Craig has noted the need to "monitor and study everything all the time." n283 In other words, it is not possible to deliver adequately adaptation funding without sufficient local knowledge, which is lacking, particularly - and most tragically - in the resource-poor areas that need adaptation funding the most. n284 Adaptation policymakers and planners should, therefore, collect more information on individuals and communities, drawing in part on the knowledge that human rights workers have regarding local conditions. To the extent that this information gathering has begun to occur through the least developed states' NAPAs, n285 such an effort is a positive development. Moreover, because so many adaptation projects are small-scale, community-based endeavors, it is likely that information sharing across regions and project types is sparse at best. An international effort - ideally within the UNFCCC framework - to establish **[\*358]** information sharing and transfer on adaptation projects would help monitor and evaluate efforts to secure human rights and share lessons learned. Such information sharing can also ensure good governance and transparency in decisions about the distribution and use of adaptation funding. n286

Beyond information gathering, human rights can and should inform substantive adaptation decisionmaking from international funding decisions to local project implementation. Human rights standards and thresholds can provide benchmarks that are based on widely agreed upon principles. Admittedly, as the ICHRP has noted, such guidance is rough and (like much climate-related prediction) prone to continual revision. It consists of sets of pointers rather than a formula or social "blueprint"; but could nevertheless provide "specific tools for identifying and managing risk." n287 For example, Angola's NAPA highlights that country's "National Strategy for food and nutritional security and its Plan of Action," which "recognises the right to food as fundamental and aims to create conditions to guarantee that every Angolan citizen has lasting food security." n288 The NAPA demonstrates awareness that this human rights-based benchmark relates to adaptation, explaining that to respond to **climate** **change** while furthering the right to food and nutritional security, the state must support "increasing and diversifying agricultural, livestock and fishery production in a sustainable way," while also "creating and [sic] inter-sectoral platform for coordinating policies and actions in matters of food and nutritional security, with participation from civil society." n289

In addition to inputting information into adaptation decisionmaking, human rights should also play a role in the procedural aspects of adaptation decisionmaking. For example, in the United States, several commentators have called for a rethinking of domestic structures to allow agency discretion in implementing adaptation policies. n290 Procedurally, human rights standards call for information sharing and participation of those affected by policies; government transparency, public participation, and rational decisionmaking are paramount. n291 Indeed, the international community acknowledged in the preamble of Human Rights Council Resolution 10/4 that human rights principles, including access to information, decisionmaking, and provision of a **[\*359]** judicial remedy, might improve policymaking in the area of **climate** **change.** n292 As procedural structures for raising and allocating adaptation funding become more developed, and likely bureaucratic, it is critical to integrate human rights into these procedures. Such human rights-informed procedures are particularly important for adaptation decisions, which permanently commit funds to a particular adaptation program or course of conduct at the exclusion of others, and can themselves affect substantive rights. n293

B. Human Rights as an Adaptation Prioritization Tool

 Inputs aside, as a larger and more practical example of how human rights can inform adaptation **law** and policy, human rights should guide international prioritization of adaptation strategies. n294 In most countries, adaptation is not treated as an integral part of development strategy. "Both donors and national governments are responding to the adaptation challenge principally through project-based institutional structures operating outside planning systems for budgets and poverty reduction strategies." n295 Nor do most states' adaptation plans typically include any reference to a consideration of human rights. n296 Incorporating human rights safeguards into adaptation **law** and policy likely would improve human rights outcomes. It would also establish common ground in often-contentious funding debates by framing adaptation practices in terms of universal norms.

Differences in policy approaches to adaptation and mitigation also counsel in favor of using human rights to prioritize adaptation projects. While mitigating **climate** **change** is an immense challenge, there is some agreement that it is one that must be met, and states and international actors have set degree-targets for tolerable global warming. n297 In other words - putting aside for a moment how (un)successful mitigation efforts have been or will be - there is an effort in mitigation policy to work backwards from the answer, setting the level of acceptable warming and then trying to craft international GHG emissions policies to achieve that level of warming. Adaptation policy has tended to work differently. While there are estimates of how much global adaptation may cost, most observers would concede that there is even less confidence about the amount of money needed for successful adaptation policy **[\*360]** than about the GHG emission reductions necessary for successful mitigation policy. n298 In reality, adaptation finance will likely follow a strategy of simply raising as much money from the developed world as is politically and economically possible. n299

The result of this policy approach is likely to be a structural deficit in adaptation funding that will leave policymakers with insufficient resources to cover all worthy projects. There are innumerable ways to tell the story of the adaptation deficit. For example, the UNDP estimates that "at least $ 40 billion will be needed by **2015** to strengthen national strategies for poverty reduction in the face of **climate** **change** risks." n300 However, although the UNFCCC obligates developed country governments to support adaptation efforts in developing countries, financial support for adaptation programs as of November 2011 has so far amounted to just $ 255 million. n301

This adaptation deficit will result in difficult policy choices of a different nature than the tough policy choices encountered in mitigation efforts. If GHG emissions are set at the international level, state-level policymakers will have individual GHG emissions targets and policymakers will debate how best to distribute those costs between firms and individuals whose consumption or production leads to GHG emissions. For U.S. mitigation decisions, for example, once the GHG emissions level (or tax) is set, taxing producers or allocating a cap-and-trade scheme may not have significant human rights implications. A state-level adaptation policymaker, by contrast, may have a list of worthy projects and will have to choose which ones to prioritize in the face of limited funds. Choosing to fund or not fund certain projects may have immediate or longer-term human rights implications. National or local adaptation policies, therefore, can benefit from a human rights focus more than the equivalent decisions in mitigation policy.

Applying human rights to adaptation policies can also help prioritize and frame responses in emergency or disaster settings. A general objection to linking human rights and **climate** **change** holds that emergencies or natural disasters limit the application of human rights **law** because either the rights are temporarily derogated or the emergency regime simply ignores them. The argument is that catastrophic drought, floods, or famine will result in large- **[\*361]** scale rights infringement with no accompanying recourse. Adaptation provides space for human rights to inform policymaking in this area. For example, in one of the few commentaries specifically linking adaptation and human rights, David Hunter argues that the generally accepted right to housing suggests that individuals have a right to temporary shelter while their homes are being repaired following a disaster. n302 Therefore, "providing basic shelter to the victims of natural disasters," Hunter argues, "could arguably be a higher priority than other adaptation expenses." n303 As an example, he notes that in the domestic context, victims of Hurricane Katrina "would stand higher in the queue for adaptation funds than would those whose vacation homes in Miami Beach are threatened by coastal sea level rise." n304 Similar - albeit more difficult - choices could be made about obligations to fulfill rights to food or water, ensuring that fundamental human needs, those generally protected by human rights **law,** are met first in creating adaptation policies or designing and implementing adaptation projects. n305

Moreover, some of these decisions are already being made on a statewide basis and within the UNFCCC. Beginning with Mauritania's NAPA submission in 2004 n306 and continuing through Angola's submission in December 2011, n307 the NAPAs that developing countries are creating "contain a list of ranked priority adaptation activities and projects, as well as short profiles of each activity or project, designed to facilitate the development of proposals for implementation." n308 Yet, even as planners make decisions regarding which adaptation projects and policies are more worthy than others, the NAPAs typically have not incorporated human rights considerations. n309 Although it may not be too late to incorporate human rights considerations as plans become realized, human rights seem more likely to be protected if they are incorporated during states' early stages of planning adaptation. n310

 **[\*362]** Angola, unlike many other poorly developed countries, included human rights in its NAPA. As discussed above, Angola's NAPA recognizes the right to food and explains that one of the responses the government should take in fulfilling this right is to "create and implement[] national and local rapid warning systems, monitoring systems for food and nutritional security." n311 Just as providing basic shelter after a natural disaster could be prioritized above other adaptation expenses, food security, in the form of emergency aid or otherwise, could require government prioritization in the face of a climate-related disaster. Over a longer time horizon, governments could recognize that to the extent **climate** **change** destroys certain agricultural economies, ensuring that the population of those areas has basic nutritional security should be prioritized over adaptation projects that do not achieve human rights goals. Angola's NAPA, therefore, although it contains only a short reference to the interplay of adaptation and basic human rights, is an important development for the advancement of human rights considerations in adaptation policy strategies.

Finally, human rights have an immediate role to play in adaptation policy at the international level. At least one commentator has argued that the "foremost challenge facing the contemporary human rights-**climate change** agenda" is how to resolve the "fundamental disconnect" between acknowledging the relationship between **climate** **change** and human rights and acting on this understanding in **climate** **change** negotiations. n312 In part, this challenge may be so vexing because the international actors involved have typically focused **climate** **change** discussions on mitigation. As the discussions have increasingly considered adaptation alongside mitigation, it is easier to envision how human rights could begin to play a concrete role in climate negotiations - for example, by encouraging the recognition of **climate** **change** refugees.

In short, a rights-based approach to adaptation that sounds in the language of human rights is more "achievable and fair" than a similar discourse regarding mitigation. n313 It "potentially provides a platform for broad-based dialogue on burden-sharing of a kind that has frequently lacked in **climate** **change** debates." n314 Adopting a human rights focus to long-term adaptation needs also "would help to orient future research, set priorities, assist in evaluation and galvanise support." n315

C. The Impact of Adaptation on Political Mobilization

 A human rights-based approach to adaptation would be useful not only as a basis for developing and prioritizing policy, but also in expressing internationally agreed-upon values that can form the basis for increased **[\*363]** common action towards adaptation. n316 To this end, commentators discussing the linkages between human rights and **climate** **change** have often discussed the ethical or moral power of **climate** **change** to mobilize political action, encouraging policymakers to adopt "robust, effective, and sustainable" policies. n317 Some commentators have argued that recognizing how **climate** **change** implicates human rights is a necessary first step in mobilizing political support to combat the problem. n318 For example, as David Hunter argues, "the right to food, water, and shelter after a natural disaster may generate demands for humanitarian response." n319 Moreover, recognizing such infringements before, during, and after the disaster could place political and legal pressure on developing countries to respond in a non-discriminatory, human rights-sensitive manner to the extent of the available resources. In addition, recognizing that such infringements could have been avoided in the past and could be averted in the future with proper adaptation practice may result in pressure on industrialized countries to provide increased funding for fair and human rights-sensitive adaptation. n320

While the ethical power of **climate** **change** could motivate either mitigative or adaptive action, adaptation practices may be more effective in mobilizing the political support necessary to address **climate** **change,** because adaptation practices tend to be on a more human and local scale. More so than mitigation, adaptation projects call for an added emphasis on the individuals and communities affected. n321 If a rights-based approach to climate policy generally has the advantage of giving a human face to the **climate** **change** challenge - because it "focuses on excluded and marginalized groups, encourages accountability and transparency in policy decisions, encourages participatory and democratic processes, and provides sustainable outcomes by building on the capacity of key stakeholders" n322 - this is likely even more true for adaptation projects, which typically work at the community, household, or individual level. Focusing on the human rights implications of a government's failure to adapt, inability to adapt, or refusal to consider the perspectives of those affected by its policy decisions may be more effective than focusing on global environmental harms resulting from a state's refusal to meet its GHG emission reduction obligations.

D. Proactive Policymaking

 Finally, human rights can also help facilitate more proactive adaptation **[\*364]** policymaking. Ira Feldman and Joshua Kahan have described reactive adaptation as the "ability to react to and deal with **climate** **change** after an event and impacts have occurred." n323 This is as opposed to proactive adaptation, which "is represented in the act of anticipation, taking action to prevent and/or reduce future impacts." n324 Because it is often easier to make policy decisions once a crisis has occurred rather than when it is only anticipated, n325 policy choices have historically amounted to reactive adaptation. n326 Consequentially, these policy efforts have only been able to use present resources to address present problems, which may sometimes be insufficient. Yet both proactive and reactive adaptation responses are necessary to effectively address adaptation to **climate** **change.**

Interestingly, proactive versus reactive adaptation is one area in which introducing human rights concerns seems to complicate the analysis. Reactive responses, when not combined with proactive adaptation practices, "tend to have higher long term costs because the low costs of preventive action, or anticipative adaptation, are likely to dominate the higher costs of deferred action, or reactive adaptation, appropriately discounted." n327 Thus, without the perspective of human rights, proactive adaptation policies would clearly be more efficient. However, because there likely will not be sufficient resources to fully adapt to **climate** **change,** n328 considering human rights may move the calculus more toward reactive adaptation policies in the wake of disasters, at least when compared to proactive projects with uncertain value. Of course, when the probability of a particular climate-related human rights breach approaches one, proactive policies targeting these anticipated harms will trump because of their value in protecting rights ex ante, as well as their overall lower costs.

Feldman and Kahan have rejected this "degree of uncertainty" calculus, noting that "even without precise knowledge of future events, proactive policy planning for **climate** **change** adaptation improves the overall preparedness by integrating adaptation considerations into the decision-making process." n329 We do not discuss the degree of uncertainty as an excuse for lessening the size of the pie or slowing adaptation practices; instead we note it as a consideration in the overall distributive calculus. And we agree with Feldman and Kahan that "decision makers must realize that adaptation to **climate** **change** is a manifestation of systems thinking and a process of active learning; we need to **[\*365]** appreciate both proactive and reactive responses as we learn the new rules of the game." n330 But, given the adaptation deficit, it is at least worth asking if Feldman and Kahan have overstated the benefits of proactive adaptation and if a human rights balancing process would tip the scales more in favor of reactive policies in a world of limited funds. n331

Human rights have importance far beyond reactively punishing wrongdoing or seeking redress for harms, although they can be instrumental in such endeavors. Human rights also enable a range of proactive measures, including human rights-informed policy decisions. In the context of **climate** **change,** for example, human rights can be "a forward-looking means of encouraging the evolution of, and providing a qualitative contribution to, robust, effective, and sustainable policy responses at both the national and international level, across mitigation and adaptation." n332 And these human rights considerations are especially relevant to adaptation, as adaptation efforts "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." n333

VI. Conclusion

 The world must adapt to rising temperatures, rising seas, and rising climate vulnerabilities by charting a common and aggressive course that includes policymakers, NGOs, and residents of the global community. The moral and legal duty to do so effectively is paramount if the world is to avoid the growing risk of adaptation apartheid. Many commentators and international bodies have recognized that applying human rights norms to **climate** **change**-related injuries could prove normatively beneficial, particularly since it is likely that the most disadvantaged and least-prepared global citizens will suffer the greatest consequences of a warming climate that they played a negligible role in creating. Nonetheless, reconciling this justice-based position within an oftentimes rigid human rights framework has proven challenging. It is difficult to frame doctrinally sound legal claims that can address those actors that caused and should be held accountable for **climate** **change.** Considering **climate** **change** adaptation more specifically, however, is both normatively desirable and more legally tenable. Adaptation-related human rights claims - together with **[\*366]** analyses of diagonally conceived human rights - can help afford global citizens a more robust international legal framework within which to address **climate** **change.** Moreover, insights drawn from human rights should begin to play a larger role in formulating adaptation policy and projects since these projects will undoubtedly have human implications and a disproportionate impact on vulnerable persons. A human rights approach to adaptation requires flexibility, creativity, and temerity, and the **law** should evolve together with the strategies for adapting to **climate** **change.** Finally, legal commentators should discuss how climate adaptation connects with other areas of **law** that we have not considered in detail, such as Alien Tort Claims Act cases, insurance liability, property rights, and important procedural doctrines in international **law.** n334 Understood in this way, our discussion of adaptation and human rights is one of many steps in understanding the impact of **climate** **change** on domestic and international legal regimes and the rule of **law** more generally.

**Legal Topics:**

For related research and practice materials, see the following legal topics:

Energy & Utilities LawAdministrative ProceedingsGeneral OverviewEnvironmental LawClimate ChangeInternational LawSovereign States & IndividualsHuman RightsGeneral Overview

 **FOOTNOTES:**

n1. U.N. Dev. Programme, Human Development Report 2007/2008, Fighting **Climate** **Change:** Human Solidarity in a Divided World 47-48, available at http://hdr.undp.org/en/media/HDR\_20072008\_EN\_Cxyzomplete.pdf [hereinafter UNDP, Human Development Report 2007/2008].

n2. Intergov'tal Panel on **Climate** **Change, Climate Change** 2007 Synthesis Report 19 (2007) [hereinafter IPCC, Synthesis Report].

n3. UNDP, Human Development Report 2007/2008, supra note 1, at 13.

n4. Id.

n5. Of course, "**climate** **change**" itself does not violate human rights. As this Article explains, human rights **law** only holds states accountable for violations of human rights through their action or inaction. Hence, states themselves may violate human rights **law** in causing and responding - or failing to respond - to **climate** **change.**

n6. See Intergov'tal Panel on **Climate** **Change,** Fourth Assessment Report (Rajendra K. Pachauri & Andy Reisinger eds., 2007); Int'l Council on Human Rights Policy, **Climate** **Change** and Human Rights: A Rough Guide 3 (2008), available at http://www.ichrp.org/files/summaries/35/136\_summary.pdf [hereinafter ICHRP, **Climate** **Change** and Human Rights].

n7. 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 (Dec. 7, 2005) [hereinafter IAC, Inuit Petition], available at http://www.inuitcircumpolar.com/files/uploads/icc-files/FINALPetitionICC.pdf; Submission of the Maldives to the Office of the High Commissioner for Human Rights (Sept. 25, 2008) [hereinafter OHCHR, Maldives Submission], available at http://www2.ohchr.org/english/issues/climatechange/docs/submissions/Maldives\_Submission.pdf; see John H. Knox, Linking Human Rights and **Climate** **Change** at the United Nations, 33 Harv. Envt'l. L. Rev. 477, 479-80 (2009) [hereinafter Knox, Linking Human Rights].

n8. See, e.g., David B. Hunter, Human Rights Implications for **Climate** **Change** Negotiations, 11 Or. Rev. Int'l L. 331, 332 (2009); John H. Knox, **Climate** **Change** and Human Rights **Law,** 164 Va. J. Int'l L. 163, 168 (2009) [hereinafter Knox, **Climate** **Change**]; Hari M. Osofsky, Is **Climate** **Change** "International"? Litigation's Diagonal Regulatory Role, 49 Va. J. Int'l L. 585, 598-99 (2009).

n9. See Office of the U.N. High Comm'r for Human Rights, Rep. of the Office of the U.N. High Comm'r for Human Rights on the Relationship Between **Climate** **Change** and Human Rights, at 5, U.N. Doc. A/HRC/10/61 (Jan. 15, 2009) [hereinafter OHCHR Report].

n10. Texas (population 23 million) emits more carbon dioxide than all of sub-Saharan Africa (population 720 million). UNDP, Human Development Report 2007/2008, supra note 1, at 43.

n11. E.g., Charlotte Streck, Expectations and Reality of the Clean Development Mechanism: A Climate Finance Instrument Between Accusations and Aspirations, in Climate Finance: Regulatory and Funding Strategies for **Climate** **Change** and Global Development 67, 67-75 (Richard B. Stewart et al. eds., 2009); Jonathan B. Wiener, Property and Prices To Protect the Planet, 19 Duke J. Comp. & Int'l L. 515 (2009). See generally Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and Beyond (David Freestone & Charlotte Streck eds., 2009) (discussing carbon trading inside and outside the Kyoto framework as well as the future of carbon markets).

n12. E.g., Jody Freeman & Andrew Guzman, **Climate** **Change** and U.S. Interests, 109 Colum. L. Rev. 1531 (2009); Cass R. Sunstein, The World vs. The United States and China? The Complex **Climate** **Change** Incentives of the Leading Greenhouse Gas Emitters, 55 UCLA L. Rev. 1675 (2008); see also Ann Prouty, The Clean Development Mechanism and Its Implications for Climate Justice, 34 Colum. J. Envtl. L. 513 (2009) (discussing a "climate justice" rationale for mitigating GHG emissions).

n13. E.g., Bonnie Docherty & Tyler Giannini, Confronting a Rising Tide: A Proposal for a Convention on **Climate** **Change** Refugees, 33 Harv. Envtl. L. Rev. 349 (2009).

n14. Articles primarily devoted to **climate** **change** adaptation (as opposed to mitigation) have appeared in the literature only very recently. See, e.g., Alejandro E. Camacho, Adapting Governance to **Climate** **Change:** Managing Uncertainty Through a Learning Structure, 59 Emory L.J. 1 (2009); Daniel H. Cole, **Climate** **Change,** Adaptation, and Development, 26 UCLA J. Envtl. L. & Pol'y 1 (2008); Robin Kundis Craig, "Stationarity is Dead" - Long Live Transformation: Five Principles for **Climate** **Change** Adaptation **Law,** 34 Harv. Envtl. L. Rev. 9 (2010); J.B. Ruhl, **Climate** **Change** Adaptation and the Structural Transformation of Environmental **Law,** 40 Envtl. L. 363 (2010) [hereinafter Ruhl, **Climate** **Change** Adaptation]; J.B. Ruhl, General Design Principles for Resilience and Adaptive Capacity in Legal Systems: Applications to **Climate** **Change** Adaptation **Law,** 89 N.C. L. Rev. 1473 (2011) [hereinafter Ruhl, General Design Principles]; J.B. Ruhl & James Salzman, Gaming the Past: The Theory and Practice of Historic Baselines in the Administrative State, 64 Vand. L. Rev. 1, 49-55 (2011).

n15. See, e.g., Jon Barnett, Adapting to **Climate** **Change** in Pacific Island Countries: The Problem of Uncertainty, 29 World Dev. 977, 980-81 (2001); Barry Smit et al., An Anatomy of Adaptation to **Climate** **Change** and Variability, 45 **Climate** **Change** 223, 223-25 (2000); Emma L. Tompkins & W. Neil Adger, Does Adaptive Management of Natural Resources Enhance Resilience to **Climate** **Change?**, Ecology & Soc'y, Oct. 15, 2004, at 13-15. Like the evolving scholarship on reducing the extent of **climate** **change,** the scant legal adaptation scholarship that does exist has not addressed human rights. See generally Cole, supra note 14, at 2-4 (making the case for discussing adaptation and focusing on the moral obligation of developed countries to assist developing countries); Craig, supra note 14, at 14-17 (discussing the need for U.S. environmental **law** to evolve and address **climate** **change** adaptation).

n16. For a more detailed discussion of these concepts, see infra Section II.B.

n17. See infra Section III.B.

n18. Hunter, supra note 8, at 339.

n19. See, e.g., John H. Knox, Diagonal Environmental Rights, in Universal Human Rights and Extraterritorial Obligations 82, 82, 101-02 (Mark Gibney & Sigrun Skogly eds., 2010).

n20. See infra Section III.B.

n21. See infra Section IV.B (discussing the reduced causation problems that typically exist in applying human rights to "**climate** **change**" when human rights are applied only to adaptive aspects of **climate** **change)**.

n22. See infra Section II.B.

n23. See infra Section II.C.

n24. See infra Section II.B.

n25. See, e.g., sources cited supra note 8.

n26. See infra notes 54-55.

n27. Some authors have discussed the legal implications of (or questions raised by) adaptation but have not taken a human rights approach. See, e.g., Cole, supra note 14, at 3, 7-9 (calling for a focus on adaptation and arguing for an emphasis on strengthening adaptive capacity of least-developed countries); Daniel A. Farber, Adapting to **Climate** **Change:** Who Should Pay, 23 J. Land Use & Envtl. L. 1, 2-3 (2007) (exploring issues of who should pay for the spectrum of adaptation costs); Ruhl, General Design Principles, supra note 14; see also Elizabeth C. Black, **Climate** **Change** Adaptation: Local Solutions for a Global Problem, 22 Geo. Int'l Envtl. L. Rev. 359, 364-82 (2010) (focusing on municipal efforts to include adaptation in planning decisions); Orr Karassin, Mind the Gap: Knowledge and Need in Regulating Adaptation to **Climate** **Change,** 22 Geo. Int'l Envtl. L. Rev. 383, 388-89 (2010) (describing different national-level regulatory efforts to incorporate adaptation in developed states); Armin Rosencranz, Dilpreet Singh & Jahnavi G. Pai, **Climate** **Change** Adaptation, Policies, and Measures in India, 22 Geo. Int'l Envtl. L. Rev. 575 (2010) (reviewing adaptive capacity and particular adaptation projects in India); Lindsay F. Wiley, Moving Global Health **Law** Upstream: A Critical Appraisal of Global Health **Law** As a Tool for Health Adaptation to **Climate** **Change,** 22 Geo. Int'l Envtl. L. Rev. 439 (2010) (discussing the linkages between **climate** **change** and health **law** and policy); cf. Ruhl, **Climate** **Change** Adaptation, supra note 14, at 406-09 (noting the "human rights dimension of **climate** **change** adaptation policy" but focusing on domestic issues and U.S. climate justice).

n28. Intergov'tal Panel on **Climate** **Change, Climate Change** 2007: Impacts, Adaptation, and Vulnerability 6 (M.L. Parry et al. eds., 2007) [hereinafter IPCC, Adaptation Report] ("Adaptation is the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.").

n29. Craig, supra note 14, at 21; see also ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 21 (""Adaptation' refers to actions taken to adjust lives and livelihoods to the new conditions brought about by warming temperatures and associated **climate** **changes.**"); OHCRH Report, supra note 9, at 6 ("Adaptation aims to strengthen the capacity of societies and ecosystems to cope with and adapt to **climate** **change** risks and impacts."); U.S. Global Change Research Program, Global **Climate** **Change** Impacts in the United States 11 (2009) ("Adaptation refers to changes made to better respond to present or future climatic and other environmental conditions, thereby reducing harm or taking advantage of opportunity."); Walter Vergara, World Bank, Adapting to **Climate** **Change** 18 (2005) (Adaptation is "(a) adjustments to the pace of use or access to the natural resource base in order to maintain reliable services from the affected ecosystem, or (b) reorganization to reduce exposure to loss or to exploit new opportunities from the affected resource.").

n30. David Orrell, The Future of Everything: The Science of Prediction 1 (2009).

n31. This Article does not aim to engage the debates surrounding the existence of human-induced **climate** **change.** That debate is beyond our expertise and, regardless, a **law** journal is not the forum for it. However, a brief background in the implications of **climate** **change** is necessary to understand the interplay between **climate** **change** adaptation and human rights. According to the UNDP, for example, "understanding the scientific evidence on **climate** **change** is a starting point for understanding the human development challenges of the 21st Century." UNDP, Human Development Report 2007/2008, supra note 1, at 31. Nor is our purpose to debate the IPCC's Fourth Assessment Report. See Keith Johnson, Panel on Climate Faces Challenges, Wall St. J. (Feb. 23, 2010), http://online.wsj.com/article/SB10001424052748704197104575051620263103684.html. Hundreds of scientists have gone on the record in defense of the IPCC's "excellent performance for accurately reporting the state-of-the-science" and its "very low rate of error." Open Letter from Scientists in the United States on the Intergovernmental Panel on **Climate** **Change** and Errors Contained in the Fourth Assessment Report: **Climate** **Change** 2007 (Mar. 12, 2010) (Gary W. Yohe et al.), available at http://www.**law.**upenn.edu/academics/institutes/regulation/papers/YoheOpenLetter.pdf.

n32. UNDP, Human Development Report 2007/2008, supra note 1, at 90. Most dramatically, although perhaps overstating the level of complete accord, one scholar has stated that "the occurrence of global **climate** **change** is no longer challenged." Sumudu Atapattu, Global **Climate** **Change:** Can Human Rights (and Human Beings) Survive This Onslaught?, 20 Colo. J. Int'l Envtl. L. & Pol'y 35, 37 (2008).

n33. See Intergov'tal Panel on **Climate** **Change, Climate Change** 2007: The Physical Science Basis 131, 460 (Susan Solomon et al. eds., 2007). Ice-core evidence shows current atmospheric CO<2> concentrations exceeding the natural range of the last 650,000 years. Id. at 447.

n34. UNDP, Human Development Report 2007/2008, supra note 1, at 34.

n35. Id. at 41-42.

n36. Climate Analysis Indicators Tool, World Res. Inst., http://www.wri.org/climate/project\_description2.cfm?pid=93 (last visited Mar. 21, 2012). The cumulative effect of emissions - i.e., the "historic emissions" - matters because past emissions drive current **climate** **change,** and the envelope for absorbing tomorrow's emissions is a residual function of emissions in the past. UNDP, Human Development Report 2007/2008, supra note 1, at 41. For example, even with immediate reductions, contraction of the Greenland ice sheet would likely lead to sea level rise continuing after the year 2100. IPCC, Synthesis Report, supra note 2, at 12.

n37. UNDP, Human Development Report 2007/2008, supra note 1, at 47-48.

n38. Id. at 31. Most evidence suggests that this worrisome trend is accelerating, with eleven of the twelve warmest years since industrialization occurring between 1995 and 2006. IPCC, Synthesis Report, supra note 2, at 2. Even worse, on a decade-to-decade comparison, linear warming for the past half-century is nearly twice that of the past 100 years. UNDP, Human Development Report 2007/2008, supra note 1, at 31.

n39. IPCC, Synthesis Report, supra note 2, at 5-7. Even the most stringent mitigation steps will be unable to materially affect average temperature before the 2030s at the earliest, and temperatures under this scenario will not peak until 2050. UNDP, Human Development Report 2007/2008, supra note 1, at 2-3.

n40. IPCC, Synthesis Report, supra note 2, at 1.

n41. See Mark Davies et al., **Climate** **Change** Adaptation, Disaster Risk Reduction and Social Protection (2009), available at http://oecd.org/dataoecd/63/10143514563.pdf.

n42. See Jesse Jenkins, Warnings from a Warming World: World Meteorological Organization Reports on Extreme Weather Events, It's Getting Hot In Here (Aug. 7, 2007), http://itsgettinghotinhere.org/2007/08/07/warnings-from-a-warming-world-world-meteorological-organization-reports-on-extreme-weather-events/.

n43. William James Burroughs, **Climate** **Change:** A Multi-Disciplinary Approach 132 (2001).

n44. UNDP, Human Development Report 2007/2008, supra note 1, at 77.

n45. See Knox, **Climate** **Change,** supra note 8, at 479-80.

n46. IPCC, Synthesis Report, supra note 2, at 2.

n47. See, e.g., Docherty & Giannini, supra note 13, at 349 (advocating for a new international treaty on climate refugees).

n48. UNDP, Human Development Report 2007/2008, supra note 1, at 31. There are also events that can be predicted to occur with a given warming level but at an unknown time or magnitude, such as reversal of the meridional overturning circulation, which is the massive conveyor of warmer water through the Atlantic toward Europe. See IPCC, Synthesis Report, supra note 2, at 12, 14.

n49. UNDP, Human Development Report 2007/2008, supra note 1, at 6-7.

n50. See, e.g., Freeman & Guzman, supra note 12, at 1531; Jason Scott Johnston, **Climate** **Change** Confusion and the Supreme Court, 84 Notre Dame L. Rev. 1 (2008); Sunstein, supra note 12, at 1678; see also Massachusetts v. EPA, 549 U.S. 497 (2007) (concerning a suit brought by states and localities against the EPA to force it to mitigate the effects of GHGs); Teresa B. Clemmer, Staving Off the Climate Crisis: The Sectoral Approach Under the Clean Air Act, 40 Envtl. L. 1125, 1138-56 (2010) (advocating using the Clean Air Act to achieve emissions reductions in order to address **climate** **change)**; Daniel A. Farber, The Case for Climate Compensation: Justice for **Climate** **Change** Victims in a Complex World, 2008 Utah L. Rev. 377, 380 (discussing the United States' moral responsibilities for **climate** **change** and a concomitant compensation scheme for developing states).

n51. The Kyoto Protocol was not silent on adaptation. See Kyoto Protocol to the United Nations Framework Convention on **Climate** **Change** art. XII, P 8, Dec. 10, 1997, U.N. Doc. FCCC/CP/1997/L.7/Add.1(1998), reprinted in 37 I.L.M. 22 (1998) [hereinafter Kyoto Protocol]. However, the focus of the Kyoto Protocol and the analysis of its creation, implementation, and effects have unquestionably dealt with mitigation. See, e.g., Eric Shaffner, Repudiation and Regret: Is the United States Sitting Out the Kyoto Protocol to its Economic Detriment?, 37 Envtl. L. 441, 446-57 (2007).

n52. See, e.g., Daniel Bodansky, The Copenhagen Climate Conference: A Postmortem, 104 Am. J. Int'l L. 230, 231-34 (2010) (discussing the evolution of the **climate** **change** debate by describing steps that countries have taken to reduce GHG emissions and establish carbon intensity targets, but failing to acknowledge any role of adaptation in the evolutionary process).

n53. See, e.g., Michael P. Vandenbergh, **Climate** **Change:** The China Problem, 81 S. Cal. L. Rev. 905, 905 (2008) ("The central problem confronting **climate** **change** scholars and policymakers is how to create incentives for China and the United States to make prompt, large emissions reductions.").

n54. See, e.g., Edith Brown Weiss, 9 Vt. J. Envtl. L. 615, 622-27 (2008) (discussing normative principles of intergenerational equity for developing enforceable international norms to address **climate** **change)**; Maxine Burkett, Just Solutions to **Climate** **Change:** A Climate Justice Proposal for a Domestic Clean Development Mechanism, 56 Buff. L. Rev. 169, 171-73 (2008) (highlighting the harmful effects of cap-and-trade emissions policies on marginalized communities and proposing use of adaptation funds to minimize harm); Mark A. Drumbl, Poverty, Wealth, and Obligation in International Environmental **Law,** 76 Tul. L. Rev. 843, 862-86 (2002) (discussing "shared compacts" between developing states seeking technical and financial assistance and developed states that want developing states to enter global environmental governance).

n55. Kyung-wha Kang, Deputy High Comm'r for Human Rights, Office of the U.N. High Comm'r for Human Rights, Address at the Conference of the Parties to the UNFCCC and its Kyoto Protocol (Dec. 14, 2007), available at http://www.maldivesmission.ch/fileadmin/Pdf/Environment/DHC\_Statement\_Bali\_Final.pdf ("Any strategy to deal with **climate** **change,** whether in terms of adaptation or mitigation, must incorporate the consequences for humans, as individuals and communities, and the human rights framework is the most effective way to do so."); see Brooke Ackerly & Michael P. Vandenbergh, **Climate** **Change** Justice: The Challenge for Global Governance, 20 Geo. Int'l Envtl. L. Rev. 553, 555 (2008); Atapattu, supra note 32, at 37, 39; Deepa Badrinarayana, Global Warming: A Second Coming for International **Law,** 85 Wash. L. Rev. 253, 288 (2010); William Boyd, **Climate** **Change,** Fragmentation, and the Challenges of Global Environmental **Law:** Elements of a Post-Copenhagen Assemblage, 32 U. Pa. J. Int'l L. 457, 462 (2011); Jonathan C. Carlson, Reflections on a Problem of Climate Justice: **Climate** **Change** and the Rights of States in a Minimalist International Legal Order, 18 Transnat'l L. & Contemp. Probs. 45, 46-47, 52 (2009); Paul G. Harris, The European Union and Environmental Change: Sharing the Burdens of Global Warming, 17 Colo. J. Int'l Envtl L. & Pol'y 309, 318, 345 (2006); Paul L. Joffe, Conscience and Interest: **Law,** Rights, and Politics in the Struggle To Confront **Climate** **Change** and the New Poverty, 6 Rutgers J. L. & Pub. Pol'y 269, 272-75 (2009); Stephen L. Kass, Integrated Justice: Human Rights, **Climate** **Change,** and Poverty, 18 Transnat'l L. & Contemp. Probs. 115, 137-39 (2009); Knox, **Climate** **Change,** supra note 8, at 208, 213-14; Knox, Linking Human Rights, supra note 7, at 477; Timo Koivurova, International Legal Avenues To Address The Plight of Victims of **Climate** **Change:** Problems and Prospects, 27 J. Envtl. L. & Litig. 267 (2007); Marc Limon, Human Rights and **Climate** **Change:** Constructing a Case for Political Action, 33 Harv. Envtl. L. Rev. 439, 440 (2009); Siobhan McInerney-Lankford, **Climate** **Change** and Human Rights: An Introduction to Legal Issues, 33 Harv. Envtl. L. Rev. 431, 435-36 (2009); Osofsky, supra note 8, at 598-99; Amy Sinden, **Climate** **Change** and Human Rights, 27 J. Land Resources & Envtl. L. 255, 263-70 (2007); Rebecca Tsosie, Sustainability: Moving From Theory to Practical Application, 4 Envtl & Energy L. & Pol'y J. 188, 202 (2009); Sara C. Aminzadeh, Note, A Moral Imperative: The Human Rights Implications of **Climate** **Change,** 30 Hastings Int'l & Comp. L. Rev. 231, 259 (2007).

n56. See, e.g., OHCHR Report, supra note 9, at 6; Jennifer K. Barcelos, Gregory A. Hicks & Jennifer Marlow, The Three Degree Conference: One Year Later, 85 Wash. L. Rev. 193, 195-96 (2010) (explaining, in a symposium's introductory article, how a human rights framework can be applied to on-the-ground adaptation work); Ira R. Feldman & Joshua H. Kahan, Preparing for the Day After Tomorrow: Frameworks for **Climate** **Change** Adaptation, 8 Sustainable Dev. L. & Pol'y 61, 67 (2007) (noting the need to move toward implementing adaptation strategies as a matter of policy rather than research). But see ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 21-27; Hunter, supra note 8, at 359-61 (differentiating between human rights **law's** respective application to mitigation and adaptation, but engaging in a limited discussion of adaptation).

n57. We recognize that mitigation efforts remain crucial to addressing **climate** **change.** As the IPCC has noted, "unmitigated **climate** **change** would, in the long term, be likely to exceed the capacity of natural, managed and human systems to adapt." IPCC, Synthesis report, supra note 2, at 19 (emphasis omitted). Rights-based approaches to adaptation are potentially worthless if progress is not made on mitigation. Yet, the UNDP has cited the unequal distribution of the effects of **climate** **change** as one of the most important reasons to take action to reduce carbon emissions, UNDP, Human Development Report 2007/2008, supra note 1, at v, and the IPCC has explained that "adaptation is necessary in the short and longer term to address impacts resulting from the warming that would occur even for the lowest stabilization scenarios assessed," IPCC, Synthesis report, supra note 2, at 19.

n58. See Craig, supra note 14, at 28-31.

n59. Id. at 29.

n60. See discussion infra Section III.D.

n61. Craig, supra note 14, at 29.

n62. See Heather McGray, From Copenhagen to Cancun: Adaptation, World Res. Inst. (May 13, 2010), http://www.wri.org/stories/2010/05/copenhagen-cancun-adaptation.

n63. See Adaptation Fund Board, Project/Programme Proposal for Senegal, AFB Doc. AFB/PPRC.1/3 (May 26, 2010), available at http://adaptation-fund.org/system/files/AFB.PPRC\_.1.3%20Technical%20Review%20of%20Project%20Concept%20AFB\_NIE\_Coastal\_2010\_1\_Senegal.pdf.

n64. Benito Muller, Oxford Inst. for Energy Studies, The Reformed Financial Mechanism of the UNFCCC 34-35 (2010).

n65. Writing in 2007 when the GEF essentially held a monopoly on distributing adaptation funding, the International Council on Human Rights complained that the "GEF's core funds have been subject to criteria that, while sensible for mitigation activities, have little to do with adaptation." ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 52. For example, to qualify for these GEF funds, projects must contribute to "global environmental benefits," but "adaptation actions will necessarily bring primarily local (rather than global) benefits." Id.

n66. Hunter, supra note 8, at 339.

n67. Id. at 339-40.

n68. Id.

n69. See McGray, supra note 62 (describing three different adaptation funds to watch and maintaining that developing countries need to have direct access to projects with less central bureaucracy).

n70. See, e.g., Seetanah Boopen & Sannassee Vinesh, On the Relationship between CO2 Emissions and Economic Growth: The Mauritian Experience (Aug. 22, 2011) (unpublished manuscript), available at http://www.csae.ox.ac.uk/conferences/2011-EDiA/papers/776-Seetanah.pdf.

n71. Bert Metz & Marcel Kok, Integrating Development and Climate Policies, 8 Climate Pol'y 99, 99 (2008) (noting that "paradoxically, social and economic development is the very driver of **climate** **change**").

n72. See, e.g., Democratic Republic of Timor-Leste, National Adaptation Programme of Action 27 (Sept. 2011), available at http://unfccc.int/essential\_background/library/items/3599.php?such=j&symbol=TLS/NAPA/1%20E#beg.

n73. See, e.g., Angola, National Adaptation Programme of Action 85 (2011), available at http://unfccc.int/resource/docs/napa/ago01.pdf.

n74. See UNDP, Human Development Report 2007/2008, supra note 1, at vi.

n75. Id. at 176; see also World Bank, Economics of Adaptation to **Climate** **Change,** at xv (2010) (noting that "similar measures often promote development and adaptation," though adaptation "cannot be development as usual").

n76. UNDP, Human Development Report 2007/2008, supra note 1, at 176.

n77. Id. at 176-78.

N78. See, e.g., International Covenant on Economic, Social, and Cultural Rights art. 2, Dec. 16, 1966, 993 U.N.T.S. 3 [hereinafter ICESCR] (imposing a duty on a State Party to take steps "to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized in the present Covenant by all appropriate means"), available at http://www.oecd.org/dataoecd/32/54/2510070.pdf.

n79. See, e.g., Mohan Munasinghe, Env't Directorate/Dev. Co-operation Directorate, Working Party on Global and Structural Policies/Working Party on Development Co-operation & Env't, Org. for Econ. Co-operation & Dev't, Analysing the Nexus of Sustainable Development and **Climate** **Change:** An Overview PP 3.3-3.4 (noting that the availability and distribution of economic resources affect countries' abilities to mitigate and adapt to **climate** **change)**.

n80. See Hunter, supra note 8, at 354-58, 360.

n81. See ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 20-21.

n82. See Martin Parry et al., Assessing the Costs of Adaptation to **Climate** **Change:** A Review of the UNFCC and Other Recent Estimates 8, 14-16 (2009), available at http://www.iied.org/pubs/pdfs/1150IIED.pdf (concluding that a previous study that estimated the costs of adaptation at $ 49-$ 171 billion per year by 2030 was "optimistic," resulted in "under-estimation," and likely "omitted" costs that could be "very substantial"); World Bank, The Costs to Developing Countries of Adapting to **Climate** **Change:** New Methods and Estimates: Consultation Draft 1 (2010), available at http://siteresources.worldbank.org/EXTCC/Resources/EACC-june2010.pdf (assuming a world that is approximately two degrees warmer). See generally European Envtl. Agency, **Climate** **Change:** The Cost of Inaction and the Cost of Adaptation (2007) (discussing the cost of adaptation with a particular focus on methodological issues), available at http://www.eea.europa.eu/publications/technical\_report\_2007\_13/at\_download/file.

n83. IPCC, Synthesis Report, supra note 2, at 11.

n84. IPCC, Adaptation Report, supra note 28, at 720.

n85. Id. Climate risk screening guidelines provide an example of such a change in decision environment. Id.

n86. Id. at 721.

n87. Id.

n88. Id. at 727.

n89. Id.

n90. See infra Part III for a more detailed discussion of these human rights infringements.

n91. Kyoto Protocol, supra note 51, art. IV, P (1)(e). Article IV specifies that this cooperation includes a commitment to "develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods." Id. Article III uses the language of adaptation in declaring that "the parties ... should promote ... sustainable economic growth and development in ... developing country Parties, thus enabling them better to address the problems of **climate** **change.**" Id. art. III, P 5.

n92. Id. art. XII, P 8.

n93. At COP 15 in Copenhagen in 2009, negotiators were unable to agree to an updated approach to adaptation. Annex I countries generally preferred a "framework" to support collaboration while leaving the details of financing to the Parties, but non-Annex I countries preferred an adaptation "program" that would define clearly what adaptation activities the fund would support and the specific sources of funding. See McGray, supra note 62. However, Copenhagen was not a complete failure in terms of adaptation because the Copenhagen Accord included adaptation more prominently than did previous **climate** **change** agreements. See United Nations Framework Convention on **Climate** **Change,** Conference of the Parties, 15th Sess., Report of the Conference: Copenhagen Accord, PP 1, 3, 8, 10-11, Copenhagen, Den., Dec. 7-19, 2009, U.N. Doc. FCCC/CP/2009/L.7 (Mar. 30, 2010).

n94. United Nations Framework Convention on **Climate** **Change,** Draft Resolution, Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action Under the Convention, Cancun, Mex., Nov. 29-Dec. 10, 2010, U.N. Doc. FCCC/AWGLGA/2010/6.7 (Dec. 10, 2010).

n95. See Nathan Hultman, Remarks at The Brookings Institution Conference on **Climate** **Change** Adaptation in a Post-Durban World 26 (Jan. 6, 2012), available at http://www.brookings.edu/events/2012/0106\_**climate**\_**change\_**adaptation.aspx.

n96. See Alex Morales & Kim Chipman, UN's $ 100 Billion Green Climate Fund Stalled by U.S., Saudi Arabia, Bloomberg, Dec. 1, 2011, available at http://www.bloomberg.com/news/2011-11-30/u-s-says-un-green-climate-fund-needs-small-changes-in-structure.html (noting the "raised ... risk that the [Green Climate Fund] won't be finished in time for the Dec. 9 conclusion of the UN global warming talks in Durban").

n97. See U.N. Framework Convention on **Climate** **Change,** Durban, S. Afr., Nov. 18. 2011, Rep. of the Transitional Committee for the Design of the Green Climate Fund, Note by the Co-Chairs of the Transitional Committee, U.N. Doc. FCCC/CP/2011/6, available at http://unfccc.int/files/meetings/durban\_nov\_2011/decisions/application/pdf/cop17\_gcf.pdf.

n98. World Bank, World Development Report 2010: Development and **Climate** **Change** 262 (2010), available at http://siteresources.worldbank.org/INTWDR2010/Resources/5287678-1226014527953/WDR10-Full-Text.pdf.

n99. Benito Muller, No Trust Without Respect: Adaptation Quick Start Funding at the Cross Road, Oxford Inst. For Energy Stud., at 3 (Mar. 2010), available at http://www.oxfordclimatepolicy.org/publications/documents/comment\_01\_03\_10.pdf. The Global Environment Facility is, perhaps, the third adaptation fund to watch since it is the traditional repository of funds associated with the UNFCCC. McGray, supra note 62.

n100. Established under the Kyoto Protocol, the fund was conceived at COP 4 in Buenos Aires, where the parties decided to implement "adaptation response measures." United Nations Framework Convention on **Climate** **Change,** Review of the Implementation of Commitments and of Other Provisions of the Convention, Decision II, P 1(a), Buenos Aires, Arg., Nov. 2-14, 1998, U.N. Doc. FCCC/CP/1998/16/Add.1. This led to COP 6 and 7, which in turn created the Adaptation Fund. See United Nations Framework Convention on **Climate** **Change,** Rep. of the Conference of the Parties on its Fourth Session, Part Two: Action Taken by the Conference of the Parties at its Fourth Session, at 4, Bonn, Ger., July 16-27, 2001, U.N. Doc. FCCC/CP/2001/L.7; United Nations Framework Convention on **Climate** **Change,** Rep. of the Conference of the Parties on its Seventh Session, at 52, Marrakesh, Morocco, Oct. 29-Nov. 9, 2001, U.N. Doc. FCCC/CP/2001/13/Add.1.

n101. World Bank, supra note 98, at 262-63. Moreover, at COP 15 the parties pledged to establish "new multilateral funding for adaptation ... through effective and efficient fund arrangements." United Nations Framework Convention on **Climate** **Change,** Copenhagen Accord, P 8, Copenhagen, Den., Dec. 7-18, 2009, U.N. Doc. FCCC/CP/2009/L.7. At COP 16, the parties continued this goal of adaptation financing as part of the Cancun Adaptation Framework, but again provided no adaptation-specific funding target. See United Nations Framework Convention on **Climate** **Change,** Outcome of the work of the Ad Hoc Working Group on long-term Cooperative Action under the Convention, Draft Decision, PP 11-35, Cancun, Mex., Nov. 29-Dec. 10, 2010, U.N. Doc. FCC/AWGLGA/2010/L.7.

n102. The Adaptation Fund Board Approves Adaptation Project Concepts for Financing, Adaptation Fund (June 24, 2010), http://adaptation-fund.org/node/561; see McGray, supra note 62.

n103. Adaptation Fund, Project/Programme Proposal for Pakistan, Doc. No. AFB/PPRC.1/8 (June 2, 2010).

n104. Adaptation Fund, Project/Programme Proposal for Senegal, Doc. No. AFB/PPRC.1/3 (May 26, 2010).

n105. Adaptation Fund, Project/Programme Proposal for Nicaragua, Doc. No. AFB/PPRC.1/7 (May 26, 2010).

n106. Adaptation Fund, Project/Programme Proposal for Solomon Islands, Doc. No. AFB/PPRC.1/9 (May 26, 2010).

n107. Jennifer Pouliotte et al., Livelihoods in Rural Bangladesh, 59 Tiempo 18, 20-21 (2006).

n108. IPCC, Adaptation Report, supra note 28, at 723.

n109. Id. at 724.

n110. For a discussion of human rights that may be implicated by states' adaptation responses, or lack thereof, see infra notes 122-145 and accompanying text.

n111. See supra Section III.C.

n112. See Hunter, supra note 8, at 332.

n113. McInerney-Lankford, supra note 55, at 431-32; see U.N. Convention on the Rights of the Child art. 24, Nov. 20, 1989, 1577 U.N.T.S. 3 (signed but not yet ratified by the United States) [hereinafter CRC]; Convention Concerning Indigenous and Tribal Peoples in Independent Countries arts. 4, 7, 15, June 27, 1989, Int'l Labour Conference, 28 I.L.M. 1382; Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social and Cultural Rights art. 11, adopted Nov. 17, 1988, 28 I.L.M. 156; African Charter on Human and Peoples' Rights art. 24, June 27, 1981, 21 I.L.M. 58; Human Rights Approaches To Environmental Protection (Alan E. Boyle & Michael R. Anderson eds., 1996); Linking Human Rights and the Environment (Romina Picolotti & Jorge Daniel Taillant eds., 2003); John Lee, The Underlying Legal Theory To Support a Well-Defined Human Right to a Healthy Environment as a Principle of Customary International **Law,** 25 Colum. J. Envtl L. 283 (2000); Dominic McGoldrick, Sustainable Development and Human Rights: An Integrated Conception, 45 Int'l & Comp. L.Q. 796 (1996).

n114. There are nine core international human rights treaties: (i) International Convention on the Elimination of All Forms of Racial Discrimination, Dec. 21, 1965, 660 U.N.T.S. 195 [hereinafter ICERD]; (ii) ICESCR, supra note 78; (iii) International Covenant on Civil and Political Rights, Dec. 19, 1966, 999 U.N.T.S. 171 [hereinafter ICCPR]; (iv) Convention on the Elimination of All Forms of Discrimination Against Women, Sept. 30, 1981, 1249 U.N.T.S. 13 [hereinafter CEDAW]; (v) Convention Against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment, Dec. 10, 1984, S. Treaty Doc. No. 100-20 (1988), 1465 U.N.T.S. 85 [hereinafter CAT]; (vi) CRC, supra note 113; (vii) International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families, Dec. 18, 1990, 2220 U.N.T.S. 3; (viii) Convention on the Rights of Persons with Disabilities, Dec. 13, 2006, 2515 U.N.T.S. 3 [hereinafter CRPD]; and (ix) International Convention for the Protection of All Persons from Enforced Disappearance, G.A. Res A/RES/61/177, U.N. Doc. A/HRC/RES/2006/1 (Dec. 20, 2006); see Olivier De Schutter, International Human Rights **Law** 18-19 (2010).

n115. OHCHR Report, supra note 9, P 18.

n116. The Declaration of the United Nations Conference on the Human Environment (the "Stockholm Declaration") provides that persons have the right to "adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being." United Nations Conference on the Human Environment, Stockholm, Swed., June 5-16, 1972, princ. 1, Declaration of the United Nations on the Human Environment, U.N. Doc. A/CONF.48/14/Rev.1 (1973). The Declaration of the United Nations Conference on Environment and Development (the "Rio Declaration") provides that "human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature." United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3-14, 1992, Rio Declaration on Environment and Development, princ. 1, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. I), Annex I (Aug. 12, 1992) [hereinafter Rio Declaration].

n117. Rio Declaration, supra note 116. Note that certain regional human rights instruments, such as the African Charter on Human and Peoples' Rights and the San Salvador Protocol to the American Convention on Human Rights, do recognize the right to live in a healthy or satisfactory environment. See id.

n118. CRC, supra note 113, art. 24, P 2(c).

n119. See supra Section II.A.

n120. See infra Section III.C.

n121. See OHCHR Report, supra note 9, PP 6-7.

n122. See id. PP 22, 24. The Report emphasized that the "protection of the right to life, generally and in the context of **climate** **change,** is closely related to measures for the fulfillment of other rights, such as those related to food, water, health and housing." Id. P 24.

n123. See, e.g., ICCPR, supra note 114, art. 6; CRC, supra note 113, art. 6.

n124. See Nicholas Stern, The Economics of **Climate** **Change,** in The Stern Review 563 (2007); Press Release, Office of the High Comm'r for Human Rights, The Human Rights Impact of **Climate** **Change,** Bali **Climate** **Change** Conference (Nov. 2009).

n125. Human Rights Comm. General Comment 6, P 1, U.N. Doc. HRI/GEN/1/REV. 9 (Vol. 1) (1982); General Comment No. 14, P 1, U.N. Doc. HR1/GEN/1/REV. 9 (Vol. I) (1984).

n126. See, e.g., Human Rights Comm., General Comment 6, supra note 125, P 5.

n127. See id.; General Comment 14, supra note 125, P 1.

n128. See UNDP Human Development Report 2007/2008, supra note 1, at 9.

n129. See ICESCR, supra note 78, art. 11; CEDAW, supra note 114, art. 14, P (h); CRC, supra note 113, art. 24(c); CRPD, supra note 114, arts. 25(f), 28(1); ICERD, supra note 114, art. 5(e).

n130. CESCR General Comment 12, Right to Adequate Food (art. 11), P 6. This requirement of State parties recently has become enforceable by individuals against states through the Optional Protocol to the ICESCR. See discussion infra notes 276-277 and accompanying text.

n131. See OHCHR Report, supra note 9, P 29 (referring to statements in the UNDP Human Development Report 2006).

n132. See CESCR, General Comment 15, Right to Water (arts. 11 and 12), P 2; CEDAW, supra note 114, art. 14, P 2(h); CRPD, supra note 114, art. 28, P 2(a); CRC, supra note 113, art. 24, P 2(c).

n133. See, e.g., ICESCR, supra note 78, art. 12; CEDAW, supra note 114, arts. 12, 14(2)(b); ICERD, supra note 114, art. 5(e)(iv); CRC, supra note 113, art. 24; see also CESCR, General Comment 14, Right to Highest Attainable Standard of Health (art. 12). The right to health implies the enjoyment of, and equal access to, appropriate health care services, as well as to goods, services and conditions that enable a person to live a healthy life. CESCR, General Comment 14, Right to Highest Attainable Standard of Health (art. 12)

n134. See CESCR General Comment 12, P 8, supra note 130.

n135. See id. PP 32-33.

n136. See OHCHR Report, supra note 9, P 36 (citing data from Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on **Climate** **Change:** Impacts, Adaptation and Vulnerability 333 (2007)).

n137. See id.; ICESCR, supra note 114, art. 11; see also CEDAW, supra note 114, art. 14, P 2; CRC, supra note 114, art. 27, P 3; ICERD, supra note 114, art. 5(e)(iii); Universal Declaration of Human Rights, art. 25, P 1.

n138. See Docherty & Giannini, supra note 13, at 349 (articulating a model for an international convention to address the challenge of **climate** **change** refugees before the situation reaches a crisis stage).

n139. See OHCHR Report, supra note 9, PP 36-37. As of early 2009, an estimated one billion persons were living in urban slums on unstable hillside terrains or riverbanks vulnerable to flooding. See id. (citing UNDP Human Development Report 2007/2008, supra note 1, at 9).

n140. See Davies et al., supra note 41, at 202.

n141. Common Article 1, Paragraph 1, of the ICESCR and the ICCPR establish the right of self-determination, by which people may "freely determine their political status and freely pursue their economic, social and cultural development." ICESCR, supra note 114, art. 1(1); ICCPR, supra note 114, art. 1(1). The right to self-determination is also contained in Articles 1 and 55 of the Charter of the United Nations, and also contained in the Declaration on the Right to Development, art. 1, P 2, and the United Nations Declaration on the Rights of Indigenous Peoples, arts. 3 and 4. OHCHR Report, supra note 9, at 939 n.60.

n142. See OHCHR Report, supra note 9, P 39.

n143. See id. P 42.

n144. See id.

n145. Note, however, that the United States, the world's largest GHG emitter, is one of only two states (the other is Somalia) that has not ratified either treaty. See Office of the United Nations High Comm'r for Human Rights, Status of Ratification of Human Rights Instruments (Sept. 30, 2011), http://www2.ohchr.org/english/bodies/treaty/docs/HRChart.xls.

n146. Male' Declaration on the Human Dimension of Global **Climate** **Change,** adopted Nov. 14, 2007, available at http://www.ciel.org/Publications/Male\_Declaration\_Nov07.pdf; Knox, **Climate** **Change,** supra note 8, at 477. Marc Limon has summarized other analytical steps to articulate the link between **climate** **change** and human rights taken by, inter alia, the Maldives and other small island states, the International Council on Human Rights Policy, the Organization of American States, Oxfam International, Mary Robinson's Realizing Rights, Kofi Annan's Global Humanitarian Forum, and the UNDP. Limon, supra note 55, at 442-43. The United Kingdom has gone as far as suggesting an international agreement to address specifically the human rights components of **climate** **change.** Submission of the United Kingdom to the OHCHR under Human Rights Council Res. 7/23, at 3 (2008) http://www2.ohchr.org/english/issues/climatechange/docs/submissions/UK.pdf [hereinafter United Kingdom Res. 7/23 Submission].

n147. U.N. Human Rights Council Res. 7/23, U.N. Doc. A/HRC/7/78 (Mar. 28, 2008).

n148. Limon, supra note 55, at 444.

n149. U.N. Human Rights Council, supra note 147.

n150. See OHCHR Report, supra note 9.

n151. Id. PP 20-41.

n152. Id. PP 45-54.

n153. Hunter, supra note 8, at 338.

n154. Limon, supra note 55, at 445.

n155. Id.; see also ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 1 (claiming that "few dispute" that "**climate** **change** is already undermining the realization of a broad range of internationally protected human rights").

n156. OHCHR Report, supra note 9, PP 6-7; see also Limon, supra note 55, at 446.

n157. OHCRH Report, supra note 9, P 15.

n158. See Paul Hawken, Blessed Unrest: How the Largest Movement in the World Came into Being and Why No One Saw It Coming 256 (2007).

n159. IPCC, Adaptation Report, supra note 28, at 719.

n160. See Davies et al., supra note 41.

n161. See Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on **Climate** **Change:** Summary for Policymakers 19 (2007) available at http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-spm.pdf.

n162. See id.

n163. See Press Release, Office of the High Comm'r for Human Rights, supra note 124.

n164. Id.

n165. See id. For example, elderly persons can suffer pronounced impacts from **climate** **change**-related events like heat stress and malnutrition. They also may be particularly vulnerable if they have to travel long distances to access health care. See Davies et al., supra note 41, at 203.

n166. The Pacific islands and Caribbean islands provide two more powerful examples of regions likely to be hardest hit by **climate** **change,** amplifying their already relatively low levels of development. See Inst. of Dev. Stud., Overcoming the Barriers: Mainstreaming **Climate** **Change** Adaptation in Developing Countries PP 5.1-5.2 (2006).

n167. See Michael Fleshman, **Climate** **Change** and Africa: Stormy Weather Ahead, Africa Renewal, United Nations, http://www.un.org/ecosocdev/geninfo/afrec/newrels/**climate-change**-1.html (last visited Mar. 21, 2012).

n168. See **Climate** **Change** Brings Opportunity Alongside Challenges for Africa, World Bank (Nov. 21, 2011), http://climatechange.worldbank.org/content/**climate-change**-brings-opportunity-alongside-challenges-africa.

n169. Burroughs, supra note 43, at 131.

n170. See Fleshman, supra note 167.

n171. Id.

n172. Id.

n173. Id.

n174. Id.

n175. See Burroughs, supra note 43, at 132; Jouna Paavola, Justice in Adaptation to **Climate** **Change** in Tanzania, in Fairness in Adaptation to **Climate** **Change** 201-02 (2006).

n176. See Eco-Watch Africa, Submission to U.N. Comm'n on the Status of Women, Emerging Issues Panel: Gender Perspectives on **Climate** **Change,** at 2-3 (Feb. 25-Mar. 7, 2008) [hereinafter Eco-Watch Africa].

n177. See id. at 4.

n178. See id. at 3.

n179. See U.N. Dev. Program, Resource Guide on Gender and **Climate** **Change,** at iii, U.N. Sales No. S.08.III.B.22 (2009).

n180. See id.

n181. See id.

n182. See Eco-Watch Africa, supra note 176, at 2-3.

n183. Id. at 4.

n184. Id.

n185. Id.

n186. Id.

n187. See U.N. Dev. Program, supra note 183, at iii.

n188. See Eco-Watch Africa, supra note 176, at 2-4.

n189. See id. at 4.

n190. Jenkins, supra note 43; see World Bank, **Climate** **Change** Strategy Report: Executive Summary, PP 7, 10, 53 (2010).

n191. See Eco-Watch Africa, supra note 176, at 5.

n192. See id. at 6.

n193. See id.

n194. See id. at 2-3.

n195. See generally IPCC, Adaptation Report, supra note 28, at 731 (explaining that "some adaptations that address changing economic and social conditions may increase vulnerability to **climate** **change,** just as adaptations to **climate** **change** may increase vulnerabilities to other changes").

n196. See World Bank, supra note 168.

n197. See Knox, **Climate** **Change,** supra note 8, at 166.

n198. See World Health Org., Women's Health and Human Rights: Monitoring the Implementation of CEDAW 2-3 (2007).

n199. See supra note 146 and accompanying text.

n200. See IAC, Inuit Petition, supra note 7, at 70. In 2007, the UN Security Council addressed **climate** **change** for the first time. Press Release, Security Council, Security Council Holds First-Ever Debate on Impact of **Climate** **Change** on Peace, Security, Hearing Over 50 Speakers; Some Delegations Raise Doubts Regarding Council's Role on Issue, While Others, Particularly Small Island States, Welcome Council's Considerations, U.N. Press Release SC/9000 (April 17, 2007), available at http://www.un.org/News/Press/docs/2007/sc9000.doc.htm.

n201. See IAC, Inuit Petition, supra note 7, at 74-91.

n202. Limon, supra note 55, at 441.

n203. See, e.g., Abdulla Shahid, Foreword to OHCHR, Maldives Submission, supra note 7, at 4; see also U.N. Framework Convention on **Climate** **Change, Climate Change:** Small Island Developing States 1-3 (2005), available at http://unfccc.int/resource/docs/publications/cc\_sids.pdf (advocating for international action on behalf of small island developing states, who are the most vulnerable to the effects of **climate** **change)**.

n204. See Andrew K. Woods, A Behavioral Approach to Human Rights **Law,** 51 Harv. Int'l L.J. 51, 70 (2010).

n205. Int'l **Law** Ass'n Comm. on Int'l Human Rights **Law** and Practice, Report on the UN Human Rights Treaties: Facing the Implementation Crisis (1996), available at http://www.bayefsky.com/reform/ila.php. There are limitations surrounding the use of reservations. The Human Rights Committee has emphasized that the reservations cannot undermine the "object or purpose" of a legal instrument, since this would be an inappropriate gesture for a State party to take with respect to a human rights treaty.

n206. The United Nations Human Rights Treaties: How To Complain About Human Rights Treaty Violations The Basic International Rules, http://www.bayefsky.com/complain/4\_rules.php (last visited April 17, 2012); Comm. on the Elimination of Discrimination against Women, Working Paper on Reservations in the Context of Individual Communications, PP 5-6, U.N. Doc. CEDAW/C/2008/II/WP.2 (May 20, 2008).

n207. See Int'l **Law** Ass'n Comm. on Int'l Human Rights **Law** and Practice, supra note 205.

n208. Id.

n209. Id.

n210. See, e.g., Bruno Simma, Consent: Strains in the Treaty System, in The Structure and Process of International **Law** 485, 494 (R. St. J. Macdonald & Douglas M. Johnston eds., 1983); Katharine G. Young, The Minimum Core of Economic and Social Rights: A Concept in Search of Content, 33 Yale J. Int'l L. 113, 147-48 (2008).

n211. Knox, **Climate** **Change,** supra note 8, at 165.

n212. See, e.g., Eric A. Posner, **Climate** **Change** and International Human Rights Litigation: A Critical Appraisal, 155 U. Pa. L. Rev. 1925, 1927-31 (2007).

n213. OHCHR Report, supra note 9, at 30.

n214. See Eric Biber, **Climate** **Change,** Causation, and Delayed Harm, 37 Hofstra L. Rev. 975, 977-78 (2009) (noting that such "latent harms," similar to those posed by chemical exposure, pose challenges under traditional tort **law)**.

n215. Limon, supra note 55, at 458.

n216. Knox, **Climate** **Change,** supra note 8, at 167.

n217. Id.

n218. Id. at 168.

n219. See U.N. Charter arts. 55-56. Article 56 requires members' "joint and separate action in co-operation with the Organization for the achievement of the purposes set forth in Article 55." Id. art. 56.

n220. See ICESCR, supra note 114, art. 2(1).

n221. See Knox, **Climate** **Change,** supra note 8, at 213-14.

n222. See, e.g., Vikram Kolmannskog, Norwegian Refugee Council, Dignity in Disasters and Displacement - Exploring **Law,** Policy and Practice on Relocation and Return in the Context of **Climate** **Change** (2009).

n223. See Knox, supra note 19, at 82. Other commentators have employed the term "diagonal" to describe cross-cutting rights, duties, and power in somewhat different contexts, including foreign relations and federalism. Osofsky, supra note 8, at 591 n.20 (collecting uses of the term).

n224. See Knox, supra note 19, at 82-83.

n225. See OHCRH Report, supra note 9, at 23 ("There exists broad agreement that **climate** **change** has generally negative effects on the realization of human rights."); supra notes 146-222 and accompanying text.

n226. Kang, supra note 55.

n227. See McInerney-Lankford, supra note 55, at 436.

n228. See infra notes 267-271 and accompanying text.

n229. Sue Farran & Jennifer Corrin Care, Towards a Pragmatic Approach to the Contract or Tort Debate in the South Pacific, 4 J. S. Pac. L. (2000), http://paclii.org/journals/fJSPL/vol04/8.shtml (comparing the mitigation required under English tort and contract **law** that applies in the South Pacific); Michael G. Faure & Ton Hartlief, The Netherlands, 2008 Tort & Ins. L.Y.B. 461, 473 (discussing the duty to mitigate under Dutch tort **law)**; Charles E. Gluckstein, The Duty to Mitigate: Does the Claimant Have a Duty To "Get Better"? 1 (Aug. 13, 2002) (unpublished conference speaker notes), available at http://www.gluckstein.com/uploads/pdfs/TheDutyToMitigate.pdf (discussing mitigation under Canadian tort **law)**.

n230. See, e.g., ICESCR, supra note 114, art. 2 (imposing a duty on a state party to take steps "to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized in the present Covenant by all appropriate means, including particularly the adoption of legislative measures"). But see Stockberger v. United States, 332 F.3d 479 (7th Cir. 2003) (setting forth, in an opinion by Judge Posner, the general common **law** rule against affirmative duties and explaining that such broad duties to act in the absence of causing harm would be difficult to manage); Jed Handelsman Shugerman, Affirmative Duties and Judges' Duties: United States v. Stockberger, 120 Harv. L. Rev. 1228 (2007).

n231. See, e.g., Edward Cameron, The Human Dimension of Global **Climate** **Change,** 15 Hastings W.-Nw. J. Envtl L. & Pol'y 1, 13-14 (2009) (recognizing that "if a direct link can be established between **climate** **change** impacts and the enjoyment of rights this could ... impose a duty on states to focus their adaptation measures on the most vulnerable communities within their jurisdiction").

n232. See, e.g., Knox, supra note 19, at 82 (noting that "international **law** has not adopted a comprehensive, uniform approach to [diagonal] rights," but that international environmental **law** and human rights **law** has "begun to develop some possible bases for diagonal environmental rights").

n233. Limon, supra note 55, at 468-69.

n234. Id. at 469.

n235. ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 20 ("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.").

n236. See, e.g., ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 3-6; Knox, **Climate** **Change,** supra note 8, at 165-68; Limon, supra note 55, at 458; Posner, supra note 212, at 1935-38.

n237. Limon, supra note 55, at 458.

n238. See supra notes 65-64 and accompanying text.

n239. UNDP, Human Development Report 2007/2008, supra note 1, at 90.

n240. See supra notes 103, 105, 108 and accompanying text.

n241. OHCRH Report, supra note 9, P 75.

n242. See ICESCR, supra note 78, art. 2, P 1.

n243. Of course, a different complication would arise if the same state had not received adaptation funding and the same dam had failed, inundating the same low-lying farming community. In such an altered hypothetical, the "to the maximum of its available resources" savings clause of the ICESCR may absolve the state of some human rights obligations, but it is more challenging to determine what the state's obligations would be as to nonderogable rights, such as the right to life. See Human Rights Committee, supra note 125, P 1; General Comment No. 14, supra note 125, P 1.

n244. See World Bank Institute, First Regional Latin American Symposium on Right to Health and Health Systems Meeting Report 6-7 (June 23-24, 2011) (on file with Authors).

n245. See id.

n246. Thanks to Robin Kundis Craig for pointing out this issue.

n247. World Bank, supra note 75, at xvi.

n248. Id. at xxviii.

n249. See OHCHR Report, supra note 9, at n.24.

n250. ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 76.

n251. See infra notes 256-261 and accompanying text.

n252. See, e.g., ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 80 (stating that "the special responsibility of wealthy countries to mitigate **climate** **change** remains - and is widely accepted"); Eric Neumayer, Commentary, In Defence of Historical Accountability for Greenhouse Gas Emissions, 33 Ecological Econ. 185, 187-88 (2000) (arguing for historical accountability for GHG emissions, though not discussing human rights); Oliver C. Ruppel, Environmental Rights and Justice Under the Namibian Constitution, 327 n.29 (2010) (noting the "special responsibility of wealthy countries" to address **climate** **change** in the face of human rights violations related to **climate** **change)**, available at http://www.kas.de/upload/auslandshomepages/namibia/constitution\_2010/ruppel.pdf.

n253. ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 76.

n254. See Knox, supra note 19, at 82.

n255. See, e.g., S. Afr. Const., 1996, arts. 26-29.

n256. OHCRH Report, supra note 9, at 25.

n257. Id.

n258. ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 11.

n259. Id.

n260. Limon, supra note 55, at 458 n.105.

n261. See Transparency Int'l, Policy Position: Monitoring Climate Adaptation Financing to Ensure Effectiveness (Mar. 2011) (highlighting the need for transparency and accountability in the delivery and spending of funds).

n262. For example, outside of the **climate** **change** context, the International Council on Human Rights Policy and Transparency International have explained how corruption, embezzlement, and misappropriation of state resources can lead to actionable human rights violations and how such concerns should be addressed in part through monitoring government contracting and international aid. See Int'l Council on Human Rights Policy & Transparency Int'l, Corruption and Human Rights: Making the Connection 74-76, 89-90 (2009), available at www.ichrp.org/files/reports/ 40/131\_web.pdf.

n263. See Nancy Birdsall, President, Ctr. for Global Dev., Remarks at The Brookings Institution Conference on **Climate** **Change** Adaptation in a Post-Durban World 20-22 (Jan. 6, 2012) (discussing the need for increased accountability for developing states' use of adaptation funding than has traditionally been required in the international aid community), available at http://www.brookings.edu/[#x7E]/media/Files/events/2012/0106\_**climate**\_**change\_**adaptation/20120106\_**climate**\_**change\_**adaptation.pdf.

n264. UNDP, Human Development Report 2007/2008, supra note 1, at 89.

n265. Id. at 172.

n266. In addition, the difficulty of achieving a remedy can often limit the very nature of the right itself. See Margaux J. Hall & David C. Weiss, Human Rights and Remedial Equilibration: Equilibrating Socio-Economic Rights, 36 Brook. J. Int'l L. 453, 455 (2011) (explaining that in "human rights cases (and socio-economic rights cases in particular), the very nature of the right at issue is a product of tangible, practical concerns about implementation of attendant remedies").

n267. 2000 (1) SA 46 (CC) (S. Afr.).

n268. See, e.g., Mark S. Kende, The South African Constitutional Court's Embrace of Socio-Economic Rights: A Comparative Perspective, 6 Chap. L. Rev. 137 (2003); Sandra Liebenberg, The Right to Social Assistance: The Implications of Grootboom for Policy Reform in South Africa, 17 S. Afr. J. on Hum. Rts. 232 (2001); Kameshni Pillay, Implementation of Grootboom: Implications for the Enforcement of Socio-Economic Rights, 6 L., Democracy & Dev. 255 (2002) (noting that Grootboom "has been hailed as a milestone victory for homeless and landless people of South Africa" although raising doubts as to the implementation of its results); Pierre de Vos, Substantive Equality After Grootboom: The Emergence of Social and Economic Context as a Guiding Value in Equality Jurisprudence, 2001 Acta Juridica 52.

n269. Cass R. Sunstein, Designing Democracy: What Constitutions Do 221-22 (2001).

n270. Pearlie Joubert, Grootboom Dies Homeless and Penniless, Mail & Guardian Online (Aug. 8, 2008), http://www.mg.co.za/article/2008-08-08-grootboom-dies-homeless-and-penniless.

n271. ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 76; see also supra notes 133, 137, 141 and accompanying text.

n272. Posner, supra note 212, at 1927.

n273. Id.

n274. See, e.g., Khosa v. Minister of Social Development 2004 (6) BCLR 569 (CC) (S. Afr.); People's Union for Civil Liberties v. Union of India, Writ Petition (Civil) No. 196 of 2001 (India) (Nov. 28, 2001, interim order) (establishing a constitutional right to food).

n275. U.N. Framework Convention on **Climate** **Change,** Rep. of the Conference of the Parties On Its Fourth Session, Part Two: Action Taken by the Conference of the Parties at Its Fourth Session, at 4, Bonn, Ger., July 16-27, 2001, U.N. Doc. FCCC/CP/2001/L.7 (July 24, 2001).

n276. Optional Protocol to the International Covenant on Economic, Social and Cultural Rights, G.A. Res. 63/117, at 2, U.N. Doc. A/RES/63/117 (Dec. 10, 2008) [hereinafter Optional Protocol]; see Press Release, United Nations New Optional Protocol on Economic, Social and Cultural Rights and "Rotterdam Rules' Signed by Nearly 50 States During 2009 Treaty Event, U.N. Press Release L/T/4418 (Sept. 30, 2009), available at http://www.un.org/News/Press/docs/2009/Lt4418.doc.htm (last visited Jan. 28, 2010).

n277. Knox, supra note 19, at 85.

n278. See OHCHR Report, supra note 9, at 5; supra Part III.

n279. The United States, for example, has spoken out against such efforts. In the U.S. submission to the OHCHR, the United States argued that "moving toward a human rights-based approach to climate protection would be impractical and unwise," United States of America, Submission to OHCHR, Human Rights Council Res. 7/23, P 17 (2008) [hereinafter United States Res. 7/23 Submission], available at http://www2.ohchr.org/english/issues/climatechange/docs/submissions/USA.pdf, because "[a] complex global environmental problem with these characteristics does not lend itself to human rights-based solutions." Id. at P 23. It continues, "[a] central purpose of human rights **law** ... is providing remedies for the victims of specific rights violations... . This framework requires identifiable violations, and identifiable harms attributable to the violations." Id. P 23-24. This stance by the United States was primarily based on a remedial view of human rights in which they are designed to create an opportunity for individuals and communities to seek remedies from the government whose jurisdiction they are under. Knox, Linking Human Rights, supra note 7, at 490. As the United States argued, "It will be difficult and problematic to identify any particular party as being uniquely responsible for any particular impairment of the enjoyment of human rights caused by **climate** **change** or even any particular harm as being proximately caused by a particular act or omission by any particular government or governmental actor." United States Res. 7/23 Submission, supra, P 25. While the United States has likely been the state most strongly opposed to viewing **climate** **change** in a rights-based context, there has been only tepid support by other states for such an approach. As Knox has described in discussing the OHCHR submissions, "although the United Kingdom seemed to support a role for human rights in considering **climate** **change,** it made clear that it did not regard **climate** **change** as a human rights violation, and even the Maldives and the Marshall Islands did not press for that conclusion." Knox, Linking Human Rights, supra note 7, at 490 (internal citation omitted).

n280. UNDP, Human Development Report 2007/2008, supra note 1, at 167.

n281. See, e.g., Republic of Guinea-Bissau, National Adaptation Programme of Action, 46-50 (Feb. 2008), available at http://unfccc.int/resource/docs/napa/gnb01.pdf; Government of Rwanda, National Adaptation Programme of Action, 41-48 (May 2007), available at http://unfccc.int/resource/docs/napa/rwa01e.pdf; Republic of Vanuatu, National Adaptation Programme of Action, 28-32 (Dec. 2007), available at http://unfccc.int/resource/docs/napa/vut01.pdf.

n282. ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 4.

n283. Kundis Craig, supra note 14, at 40-43.

n284. See Stern, supra note 124.

n285. See, e.g., Government of Nepal, National Adaptation Programme of Action, 24-28 (Nov. 2010), available at http://unfccc.int/resource/docs/napa/npl01.pdf; Republic of Yemen, Environment Protection Authority, National Adaptation Programme of Action, 5-7 (Apr. 2009), available at http://unfccc.int/resource/docs/napa/yem01.pdf; Government of Sierra Leone, Ministry of Transport and Aviation, National Adaptation Programme of Action, 16, 37, 77, 79, 82-84 (Dec. 2007), available at http://unfccc.int/resource/docs/napa/sle01.pdf; Republic of the Maldives, National Adaptation Programme of Action, available at http://unfccc.int/resource/docs/napa/mdv01.pdf (Dec. 2006).

n286. See Transparency Int'l, supra note 261, at 1 (noting that the volume of adaptation funding is "unprecedented and underscores the need for transparency, accountability and equity" in delivery of funds).

n287. Id.

n288. Angola, National Adaptation Programme of Action, supra note 73, at 77-78.

n289. Id.

n290. See, e.g., Kundis Craig, supra note 14, at 67.

n291. See, e.g., ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 8; Svitlana Kravchenko, Right to Carbon or Right to Life: Human Rights Approaches to **Climate** **Change,** 9 Vt. J. Envtl. L. 513, 541-47 (2008) (discussing access to information and public participation). In addition, Article 7 of the Aarhus Convention addresses 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." Transparency Int'l, supra note 261, at 2 (emphasizing the importance of appropriate governance over adaptation funds).

n292. Limon, supra note 55, at 452.

n293. See Kundis Craig, supra note 14, at 68.

n294. See Hunter, supra note 8, at 360.

n295. UNDP, Human Development Report 2007/2008, supra note 1, at 196.

n296. See, e.g., Lao People's Democratic Republic, National Adaptation Programme of Action (Apr. 2009), available at http://unfccc.int/resource/docs/napa/laos01.pdf; The Federal Democratic Republic of Ethiopia, National Adaptation Programme of Action (June 2007), available at http://unfccc.int/resource/docs/napa/eth01.pdf; Royal Government of Bhutan, National Adaptation Programme of Action (May 2006), available at http://unfccc.int/resource/docs/napa/btn01.pdf. But see Afghanistan Global Environment Facility, National Capacity Needs Self-Assessment for Global Environmental Management (NCSA) and National Adaptation Programme of Action, at 29, 77 (Feb. 2009), available at http://unfccc.int/resource/docs/napa/afg01.pdf (mentioning human rights).

n297. E.g., Anthony Giddens, The Politics of **Climate** **Change** 22, 81-83 (2008).

n298. See, e.g., Naomi Oreskes, David A. Stainforth & Leonard A. Smith, Adaptation to Global Warming: Do Climate Models Tell Us What We Need To Know?, 77 Phil. of Sci. 1012, 1025-26 (2010) (noting the extreme unknowns surrounding the cost of adaptation).

n299. See Afr. P'ship Forum, Financing **Climate** **Change** Adaptation and Mitigation in Africa: Key Issues and Options for Policy-Makers and Negotiators 4-6 (May 2009), available at http://www.odi.org.uk/resources/download/3486.pdf (discussing several adaptation funding proposals that focus on transferring money from the developed to the developing world through a variety of tax, subsidy, or other funding mechanisms).

n300. UNDP, Human Development Report 2007/2008, supra note 1, at 15.

n301. Adaptation Fund, Climate Funds Update, http://www.climatefundsupdate.org/listing/adaptation-fund (last visited Apr. 1, 2012). Although this level of funding results in a staggering adaptation deficit, it is a significant improvement over the $ 26 million that had been provided as of 2008. See UNDP, Human Development Report 2007/2008, supra note 1, at 15 (noting that the amount of funding available for adaptation was, as of 2008, equivalent to the United Kingdom's weekly spending on flood defense programs).

n302. Hunter, supra note 8, at 360.

n303. Id.

n304. Id. at 361.

n305. Id. at 360-61.

n306. Angola National Adaptation Programme of Action, supra note 73.

n307. Islamic Republic of Mauritania, National Adaptation Programme of Action (Nov. 2004), available at http://unfccc.int/resource/docs/napa/mau01e.pdf.

n308. See NAPA Priorities Database, United Nations Framework Convention on **Climate** **Change** (Mar. 29, 2012), http://unfccc.int/cooperation\_support/least\_developed\_countries\_portal/napa\_priorities\_database/items/4583.php.

n309. The Gambia, National Adaptation Programme of Action (Nov. 2007), available at http://unfccc.int/resource/docs/napa/gmb01.pdf; Republic of Cape Verde, National Adaptation Programme of Action (Dec. 2007), available at http://unfccc.int/resource/docs/napa/cpv01.pdf; People's Republic of Bangladesh, National Adaptation Programme of Action (Nov. 2005), available at http://unfccc.int/resource/docs/napa/ban01.pdf; see also supra note 296 (citing examples of states' NAPAs that fail to incorporate human rights considerations).

n310. An attainable starting point from a broader legislative perspective might be for states to move quickly to enact legislation, such as the 1990 U.S. statute that provides temporary protected status to persons in the United States if "there has been an earthquake, flood, drought, epidemic, or other environmental disaster in the state resulting in a substantial, but temporary, disruption of living conditions in the area affected." 8 U.S.C. ß 1254a(b)(1)(B)(i) (2006). Although not enacted for the purpose of addressing climate adaptation, such legislation could allow persons facing **climate** **change**-related injuries to seek protection in other states.

n311. Angola National Adaptation Programme of Action, supra note 73, at 77-78.

n312. Limon, supra note 55, at 466.

n313. ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 7.

n314. Id.

n315. Id. at 25.

n316. See Kang, supra note 56.

n317. Limon, supra note 55, at 458.

n318. See Kravchenko, supra note 291, at 514.

n319. Hunter, supra note 8, at 360.

n320. Id.

n321. See, e.g., Cameron, supra note 231, at 5 (noting that "the world's most vulnerable people ... are also least likely to be the beneficiaries of climate funds, most of which gets spent on mitigation (particularly energy projects) rather than adaptation").

n322. Atapattu, supra note 32, at 45.

n323. Feldman & Kahan, supra note 56, at 67 (citation omitted).

n324. Id.

n325. Frank Lecocq & Zmarak Shalizi, Balancing Expenditures on Mitigation of and Adaptation to **Climate** **Change:** An Exploration of Issues Relevant to Developing Countries 7 (World Bank Group, Policy Research Working Paper No. 4299, 2007), available at http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2007/08/02/000158349\_20070802095523/Rendered/PDF/wps429.pdf.

n326. Feldman & Kahan, supra note 56, at 67.

n327. Id. at 68.

n328. See supra notes 300-301 and accompanying text (describing the adaptation deficit).

n329. Feldman & Kahan, supra note 56, at 68.

n330. Id.

n331. Of course, not every **climate** **change** impact will be properly defined as a "crisis," and dealing with these impacts before they get to crisis stage is likely to be cheaper and more effective in the long run. See, e.g., Adaptation Working Group, Adapting to **Climate** **Change:** Why Adaptation Policy Is More Difficult than We Think (And What To Do About It), Wisconsin Initiative on **Climate** **Change** Impacts 10 (Oct. 2010) (citing stormwater planning standards as an example of an adaptive strategy that has higher short-term costs but may result in significant long-term savings), available at http://itep68.itep.nau.edu/itep\_downloads/ClimateAdaptation\_Resources/WICCI\_CCAdaptationReport.pdf.

n332. Limon, supra note 55, at 458.

n333. ICHRP, **Climate** **Change** and Human Rights, supra note 6, at 80.

n334. See, e.g., Massachusetts v. EPA, 549 U.S. 497 (2006) (discussing the role of U.S. standing doctrine in one form of **climate** **change** litigation); Posner, supra note 212, at 1928-29 (arguing that vindicating **climate** **change**-based claims through the Alien Tort Claims Act, or other types of litigation, is normatively undesirable).