8 Towards a binding adaptation regime

Three levers and two instruments

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Introduction

Adaptation to climate change impacts, as one of the two planks of addressing the problem (mitigation being the other), has come a long way since the inception of the international policy regime – the United Nations Framework Convention on Climate Change (UNFCCC) – in 1992. In the original Convention and its Kyoto Protocol successor, mitigation was given overwhelming focus, while adaptation was regarded as an "afterthought." Some argued that it was immoral or un-strategic to discuss adaptation, when mitigation was the only way to avoid the terrible outcomes of climate change. However, with observed evidence of increasing climate impacts by the successive reports of the Intergovernmental Panel on Climate Change (IPCC), the adaptation agenda has moved to the fore at an accelerating pace. The 17th Conference of the Parties (COP17) in Durban, South Africa held in December 2011 saw the collective take important initiatives to operationalize an agreed "Adaptation Framework." The 2009 Copenhagen Accord, upon which the Cancun and Durban Agreements subsequently have been built, stipulates the need for "enhanced action and international cooperation on adaptation . . . aimed at reducing vulnerability and building resilience in developing countries" (UNFCCC 2010 FCCC/CP/2010/7/Add.1 Art. II: Par. 11).

The reality of global action on adaptation, meanwhile, appears quite different from these urgent proclamations, suggesting that we have a growing "responsibility deficit" on the issue. There have been multiple statements of urgency and cooperation and promises of "new and additional" funding to help developing countries adapt to climate change, but none of the agreements and statements has been binding, and as a result the phrase has been quite opportunistically interpreted by contributor nations. Our goal here is to lay out a series of arguments on how and why an emerging adaptation treaty can, and must, be a binding one on its Parties. We argue that, without a binding adaptation regime, other efforts at "successful adaptation" will be vastly underfunded and unsupported by key international and national agencies. Wealthy and self-interest-driven countries in general will not voluntarily line up to do so, so a regime has to be constructed that compels them to do so.

A yawning gap of global inequality makes creating a binding adaptation regime

a daunting challenge. This is not a negotiation among equals: rather, powerful nations have driven the negotiations from the beginning, keeping core issues and principles of equity from gaining full consideration (e.g. Roberts and Parks 2007). Further, climate impacts are being experienced more severely by the world's poorest nations, and they bring the fewest resources to bear in coping with them (Kasperson and Kasperson 2001; IPCC 2001, 2007; Roberts and Parks 2007). Several studies document an increasing number of adaptation initiatives in the wealthy countries (Bauer *et al*. 2011; Biesbroek *et al.* 2010; EC 2009; Tompkins *et al.* 2010). While billions in climate finance were promised to developing countries since Copenhagen in 2009, very little has been delivered, and amounts are far from estimated levels of need (Ciplet *et al.* 2011). This has led Nobel Prize winner Desmond Tutu to describe an emerging "adaptation apartheid" between industrial countries and the most vulnerable poor countries (Tutu 2007).

Still the voices of the most vulnerable countries continue to be ignored in the "power politics" among high emitters in the climate negotiations. Why do industrial countries not feel obligated to assist in adaptation at the scale needed? An inherent feature of the problem is its global dimension: diffuse sources of emissions create impacts on a global scale. Therefore, climate change is a "global public bad" (the opposite of a universally desired global public good), but there is not a plainly evident compulsion for global cooperative action on this bad, as there is on reducing greenhouse gas (GHG) emissions. The irony is that the *consequences* of the continued undersupply of the global good of emissions reductions are creating devastating climate change impacts on low-income countries are seen as only local public bads. We argue that the failure to develop a binding regime for adapting to climate change is a failure to see the issue globally – as one of protecting a global public good.

Fifty years of experience with conventional development aid show that voluntary contributions are not predictable and sustainable, nor fairly governed (e.g. UNDP 2011). Still, there are provisions in the UNFCCC that stipulate the principles of "equity and common but differentiated responsibilities based on respective capabilities," and that the industrial countries "shall assist the developing country parties that are particularly vulnerable to the adverse effects of climate change in meeting the costs of adaptation to those adverse effects" (Articles 3.1 and 4.4). After persistent efforts by the Association of Small Island States (AOSIS) since 1991, the agenda agreed at the UNFCCC negotiations in 2010 added a new dimension to the debate on adaptation: compensation for "loss and damage." This may become an important part of future negotiations.

Climate deliberations have given no attention to conceptualizing an adaptation framework at a strategic level, such that it commands a robust political response towards a global regime formation. For an adaptation regime to be sustainable and scalable, there is a need for appropriate levers that can stimulate global cooperation in a binding manner. We seek here to uncover a set of levers that may be influential. These are the "double exposure" of poor nations, the human and global security issues that not assisting them with adaptation creates, and the rights-and-justice-based discourse that is emerging inside the climate negotiations,

and beyond. In addition, we describe two pivotal instruments, because they create the precedents that could create sustained and binding financing for climate adaptation. The first is the Polluter Pays Principle, and the second is the issue of "loss and damage," which may create liability mechanisms that would drive action by wealthy nations. We begin with a review of how adaptation got left behind in the early negotiations, and why it has risen to the very top of the agenda.

Adaptation as a second-class issue in climate negotiations

In the early days of climate policy, adaptation was seen as a "dirty word" (Anderson 1997: 13; Sanderson and Islam 2007). Adaptation to the impacts of climate change was regarded as an afterthought in the Convention and the Kyoto Protocol (Young 2010; Burton *et al.* 2006). However, by the late 1990s, many members of the Group of 77 and China (G77), particularly the 43-member AOSIS and the 49-member Least Developed Country Group (LDC), pressed for more focus on adaptation. But the wealthy countries initially resisted this attempt, perhaps believing that a focus on adaptation might be an acknowledgment of responsibility and liability, since they were mainly responsible for global warming (Gupta 1997; Okereke 2008).

Adaptation also continued to be held back by intra-G77 disunity (Depledge 2008; Vihma *et al.* 2011; Ciplet *et al.* 2012). Based on Article 4(8) of the UNFCCC, the Oil Producing and Exporting Countries (OPEC), led by Saudi Arabia, continued to demand compensation for the economic and social consequences of a likely reduction in oil sales. It was argued that compensation from the wealthy nations for investment in diversifying their oil-dependent economies should be regarded as an adaptation strategy. Finally, the Bali Action Plan (BAP) adopted at the 13th Conference of the Parties (COP13) in 2007 broke this impasse, moving the impact of "response measures" for mitigation under the pillar of mitigation (BAP, paragraph 1bvi).

Between 2001 – the COP7 in Marrakech – and COP17 in 2011 in Durban, there has been substantial progress in building the adaptation regime language, but not in making it binding on wealthy Parties. Some of the key pieces have been provisions for establishing and operationalizing an "Adaptation Framework," an Adaptation Committee, several work programs, and the creation of an Adaptation Fund, whose revenue seemed secure. For developing countries, gaining some monetary concessions and UN technical support were viewed as more "winnable" fights (Ciplet *et al*. 2012).

The non-binding 2009 Copenhagen Accord pledge of US$30 billion as "Fast Start Finance" over three years (2010–2012) and "scaling up" to US$100 billion a year from 2020 onward included a promise for "balanced allocation" of funds between adaptation and mitigation. Our analysis through the end of 2011 shows that less than one-quarter of the delivered money has gone for adaptation (Ciplet *et al.* 2011). Bilateral funding for adaptation is estimated to be below US$1 billion through 2009 (Ciplet *et al.* 2012). Even funds created in 2001, such as the LDC

Fund, had disbursed only US$18 million by the beginning of 2010 (USCAN 2010). But to date, little attention has been directed to conceiving of justice as it relates to who should pay for adapting, and how it should be governed and allocated (Ciplet *et al.* 2012; Grasso 2010, citing Jagers and Duss-Ottesträm 2008: 577).

Finally, countries such as the UK, Germany, Japan and the US have already started "relabeling" their overseas development assistance towards climate finance, often renaming past pledges as commitments to Fast Start Finance (WRI 2010; Adam 2010). This approach undermines the credibility of financial pledges made at the international level and damages the trust in the process (WBGU 2010: 179). Stern (2009) emphatically argued that "to say we cannot afford it is non-sense." Further, he emphasized that the returns in terms of climate security from this global danger compare very favorably with the security benefits provided by defense budgets, which typically run at ten times the amount needed for reaching a climate deal. So Stern concludes that "the claim 'we cannot afford it' is not very different from 'we are not sufficiently bothered to deal seriously with climate change'" (*ibid*.: 178; similar arguments are advanced by Young 2010: 108). What are required are levers to pull and instruments to implement that can gain traction in creating a binding international adaptation regime. We begin with our three proposed levers.

Three levers towards a binding adaptation regime

The lens of human and global security

The landmark report *Our Common Future* of the Brundtland "World Commission on Environment and Development" in 1987 was the first authoritative source that broached the idea of a linkage between security risks and environmental degradation. The first major global conference on climate change, held in June 1988 in Toronto, was titled "The Changing Atmosphere: Implications for Global Security." The climax of such concern found its expression at the highest policy level when the UK initiated a day-long debate in April 2007 at the UN Security Council on the interface between climate change and security (UNSC 2007).

Many analysts (e.g. Schneider 2010) argue that sea-level rise, which is already evident (IPCC 2007; Arctic Council 2004), and increasingly intense climate disasters (IPCC 2007, 2012) will create millions of environmental refugees, with potential for spill-over effects beyond state borders (Biermann and Boas 2010; Warner 2010). Tutu warned that "as climate change destroys livelihoods, displaces people and undermines entire society and economic systems, no country – however rich or powerful – will be immune to the consequences" (2007: 166).

However, there are different perspectives on this relationship. From a conventional perspective, some argue that inclusion of environmental degradation and resource conflicts into security thinking would drain security of its analytical usefulness, because resource wars have been addressed within the existing security concepts (Deudney 1999).

Those interested in linking climate to security argue differently (Homer-Dixon 1999; Barnett 2001; Paris 2001; O'Brien 2006; Dalby 2009; Detraz 2011). Detraz usefully analyzes two very different perspectives that get lumped under "climate security." One she calls "environmental conflict," the other "environmental security." She argues that the former links environmental problems to traditional, state-centric *military security*. Environmental security, she says, is concerned with the negative impacts of environmental degradation or climate impacts on human welfare, i.e. *human security* (O'Brien 2006). Key policy-making circles already link climate and security (Brown and Crawford 2009; AusDoD 2009). To some, climate change is a "multiplier" of other threats and security-related social and political trends (CNA 2007; USDoD 2006).

Some analysts have proposed allocation of climate refugees to countries on the basis of their cumulative emissions or developing a contingent permit that would result in a compensation fund under specific climate scenarios (Byravan and Rajan 2005; Adamson and Sagar 2002). The Pacific Access Category as an immigration arrangement between New Zealand and its small island neighbors might open the way for a new kind of immigration.

It is clear that, whichever way the linkage of security and environmental degradation/climate change is conceptualized, climate change is emerging as a human and global security issue. The need to plan for and respond to climate disasters in ways that do not destabilize governments is a powerful lever that is shifting perceptions of adaptation costs and resilience-building from being only a local to being a public common good.

The lever of double exposure

The double exposure lens (Leichenko and O'Brien 2008) emphasizes that there are multiple types of interactions between the two global processes of economic globalization and climate impacts. Nations who are highly dependent upon the export of a small number of products, especially raw materials, have often suffered substantially in the era of globalized markets and production chains (e.g. Roberts and Parks 2007). If prices of their primary exports collapse, these nations are often unable to shift to others; they also have little ability to stabilize social spending if their revenues drop precipitously. There is positive correlation between the level of vulnerability to climate impacts and vulnerability to uneven globalization. This group of countries suffers from both the direct hazards of climate impacts, and they are unable to respond effectively to globalization because of their history of colonization and uneven development (Yohe and Tol 2002; Roberts and Parks 2007).

Even when the global economy accelerated in the first decade of the new millennium, many LDCs were caught in a vicious cycle of deficient food production, subsistence agriculture, low levels of productivity, declining investment, increasing scarcity of land and water, and rising rates of urbanization (UNCTAD 2010). Lacking substantial investment capital, these countries lack the ability to reorient their economies. Goldin and Reinert (2012) argue that huge

agricultural subsidies in the OECD countries contribute to the impoverishment of Southern farmers.

This double exposure affects the most vulnerable nations across the world. Caribbean islands are doubly exposed by the convergence of weak economies and greater vulnerability to hurricanes strengthened by climate change (Grogg 2012). In Asia, El Niño Southern Oscillation (ENSO) events have contributed to increased water shortages, and a 6–10 per cent increase in water demand for irrigation is expected to result from a 1°C rise in temperature by the 2020s (Cruz *et al.* 2007: 469–506). Several studies (O'Brien *et al.* 2004; Sen 1999; Gulati and Kelly 1999) already show that Indian agriculture in some regions has been negatively affected by climate impacts and the policies related to liberalization since 1991. This list could be much longer, but it shows that even major developing economies are not immune from double exposure.

Some empirical studies in different regions are showing the correlation between a rise of 1°C warming and loss in agricultural productivity or national revenue (Kurukulasuriya and Mendelsohn 2008; Seo and Mendelsohn 2008; Wang *et al.* 2008). Both the IPCC (2007) and Stern (2007) reports argue that climate change impacts will reinforce global inequality. Even climate change mitigation actions in some rich countries, such as massive expansion in biofuel production, which contributed largely to the rapidly rising food prices in 2008, are pushing millions into food insecurity, in some cases inciting food riots (Mitchell *et al.* 2008).

In view of the above realities, the Istanbul Declaration adopted at the fourth decadal UN Summit meeting of the LDC group in May 2011 called for an integrated approach to trade, investment, climate change, and capacity building. Its leaders have called for enhancing the share of aid from the existing 0.15 per cent to 0.2 per cent of OECD GDP for the LDCs. In their Istanbul Programme of Action for 2011–2020, adaptation has also been prioritized for implementation. The experience of double exposure, and the linking of climate and globalization risks by G-77 countries, shows that major goals of the world's most powerful nations (such as trade agreements) are at risk if climate adaptation is not supported.

The lever of rights and justice

In historical perspective, political, civil, economic, social, and cultural rights have proceeded in stages, as evidenced by the adoption of global conventions on different aspects of human rights. At present, there is already a strong movement for realization of a third generation of human rights, which includes the right to a safe environment. Former UN High Commissioner for Human Rights Mary Robinson argues that the Universal Declaration of Human Rights (UDHR) "and the legal documents that stemmed from it, have helped us combat torture, discrimination and hunger. And now these venerable documents should guide us in the fight against one of the greatest challenges ever to face humankind: climate change" (UN OHCHR 2008)

A human rights lens to climate change, both in its prevention and adaptation aspects, is already evident in the scientific literature, in advocacy circles, and in

climate negotiations (Rajamani 2010). This "climate justice frame" is gaining a growing number of adherents, and their voices are growing louder (e.g. Climate Justice Now! 2012; Amnesty International 2009; Chawla 2009). The Maldives and other small island states are actively working to reframe climate-related claims and, at their insistence, the UN Office of the High Commissioner for Human Rights prepared a report in January 2009 explicitly affirming the relationship between human rights and climate.

Rajamani (2010) argues that climate change impacts documented by the IPCC are likely to undermine the realization of a range of protected human rights, such as the rights to life, liberty, security, and livelihoods. A compelling case for environmental rights follows from Henry Shue's pioneering work on "subsistence rights" and his differentiation between basic and non-basic rights (Shue 1993, 1999). The former, Shue suggests, "specify the line beneath which no one is to be allowed to sink," and so it constitutes "everyone's minimum demand upon the rest of humanity." Shue argued that a stable climate is a basic right, as its destruction interferes with development rights of others (see also Raworth 2012).

More than 100 countries recognize environmental rights in their national constitutions (see e.g. the Constitution of South Africa 1996). Nations also have signed the core corpus of human rights treaties, such as the International Covenant on Civil and Political Rights and International Covenant on Economic Social and Cultural Rights (ICESCR). The right to a safe environment can be derived in law from existing human rights to health, water, food, and an adequate livelihood (ICESCR, Articles 1, 11, 12, and 25). Explicit rights supporting environmental protection also exist in various regional forums. Article 11 of the Additional Protocol to the American Convention on Human Rights states that, "Everyone shall have the right to live in a healthy environment and to have access to basic public services". Article 24 of the African Charter reads: "All peoples shall have the right to a general satisfactory environment favorable to their development" (see: http://www.africafiles.org/article.asp?ID=26087). So the right to a safe environment is widely regarded as a legally valid concept.

The concept of equal rights is particularly relevant for common pool resources that exist outside the legal control of individuals or nation states (Baer *et al.* 2000). For example, based on the notion of common heritage of mankind, the UN Convention on the Law of the Sea codified common ownership of deep-sea resources for the benefit of all humanity. Baer *et al.* (2000) cite the precedent that governments have adopted egalitarian principles in allocating resource rights (e.g. the Public Trust Doctrine) even in cases where there were large pre-existing claims.

This discourse has entered into climate negotiations as well. Rajamani (2010), in her analysis of submissions of UNFCCC parties from 2008 to 2010, found that Argentina, Bolivia and Chile, Thailand, Iceland, and the LDCs explicitly argued for the relevance of a human rights approach. They proposed the insertion of a human rights perspective in the negotiation texts since the 2007 Bali COP13. Therefore, a band-wagoning of the climate debate with the human rights and justice perspective appears to be a productive lever to bring to bear on the negotiations (Nicholson and Chong 2011). This is especially true when it is combined

with the ideas of double exposure, climate refugees, and human security. Plus there are two widely used principles that can be brought to bear.

Two principles to ensure reliable adaptation funding

Application of the Polluter Pays Principle

Since the sink capacity of the atmosphere is already overwhelmed (IPCC 2007), it makes sense to put a price on its use. In response to the first UN Conference on Environment and Development in Stockholm in 1972, the Polluter Pays Principle (PPP) was first adopted by the OECD (the Organisation for Economic Cooperation and Development) in the early 1970s. Third-party liability under the Convention on Transboundary Movement of Hazardous Waste strengthened the PPP. Moreover, Principle 16 of the 1992 Rio Declaration states that: "Nations should endeavor to promote internalization of environmental costs . . . That the polluter should, in principle, bear the cost of pollution." These examples show that the PPP has been formulated in recommendatory rather than mandatory terms. Still the global community has accepted this.

"Superfund" legislation in the US held that polluters are liable for cleanup costs of hazardous sites, even if dumped materials were not known at the time to be harmful (Brennan 1993). Having polluters pay is efficient, since it puts formerly externalized costs back on them, which should inspire their cleanup (Woerdman *et al.* 2007). Former President of the UNFCCC Yvo de Boer argues that, "If companies had to pay for the full costs of their activities, they would have lost 41 cents out of every $1 earned in 2010" (Lovell 2012). So the application of the PPP to climate change seems logical.

Young (2010) very cogently rationalizes the application of the PPP for a "progressive development" of the post-2012 climate regime: while industries pay for managing solid wastes, GHG emissions does not require full-cost accounting, and this presents a serious anomaly. Having the PPP codified internationally would mean that polluters causing climate change have to pay those who suffer from the impacts, and who are forced to undertake expensive adaptation measures. In negotiations, some countries and groups like AOSIS, Bangladesh, Pakistan, Switzerland, and Ghana have argued for the application of the PPP in emission management and making it a guiding principle of the post-2012 climate regime. A human rights approach to climate change reinforces the application of the PPP.

However, applying the PPP globally would be problematic. In fact, Brazil's proposal to apply PPP as compensation for historical emissions (see UNFCCC 1997) was rejected by the Annex 1 countries in Kyoto in 1997. There are several procedural problems in its application to account for historical emissions (Caney 2010; Posner and Weisbach 2010). Posner and Weisbach (2010) argue that the responsibility argument in PPP is backward-looking, focusing on wrongful behavior of the past, when the wrongs were not known. And many of those who emitted GHGs are no longer alive. Caney (2010) suggests that payment for emissions should be made at least since the time harm is known. This means the Annex 1

countries should pay since the 1980s or 1990 at the latest. Calculations by the MATCH research group (2007) show that moving the baseline year by a few decades does not dramatically shift levels of historical responsibility. For example, shifting the first year of counting emissions all the way from 1890 to 1990 decreases the contribution of OECD Europe from 14 to 11 per cent.

Finally, Caney proposes as complementary to the PPP the "ability to pay principle" (APP), which can take care of emissions of past generations and legitimate emissions of the disadvantaged countries and groups of people. He calls the latter poverty-sensitive PPP. A strict application of PPP also will affect major developing countries such as China and India, since PPP is not based on capability, but payment for using the ecosystem services of the atmosphere. While PPP is a market principle, APP is a principle of justice. The model of Greenhouse Development Rights (Baer *et al.* 2008), which links the problem of climate change to a responsibility and capacity index, with a universal development threshold, appears more appropriate, in terms of justice and fit with the Convention process (Müller *et al*. 2007). That polluters should pay the costs of dealing with their pollution reflects the most fundamental principles of justice and responsibility. Thus, the rich not making adaptation resources available to the poor avoids remedying a global public bad.

New instruments of liability

After many years of effort particularly by the AOSIS, COP16 in 2010 finally endorsed the agenda of "loss and damage" from climate impacts for negotiations, and a work program was expected to be adopted at COP18 in Doha in 2012. The Durban agreement (at www.unfccc.int) invited proposals from Parties on the work program, which is likely to focus initially on advancing the state of knowledge on the issue and what role the Convention process can play in this regard.

Since negotiations within the UNFCCC proceed at a glacial pace, another instrument has been initiated in the last few years beyond the Convention process. This new instrument is about establishing liability and initiating litigation for compensation, particularly for harms caused by climate impacts and for meeting the costs of adaptation (Verheyen 2005). The Convention stipulates two kinds of obligations for developed countries: general ones (Articles 4.1, 5, 6 and 12.1) and specific commitments, which *oblige* developed countries to reduce CO_2 emissions (Article 4.2) and provide "new and additional," "adequate" and "predictable" financial assistance (Articles 4.3 and 4.4). Article 4.1 obliges all parties to plan and undertake appropriate adaptation measures to prevent damage from climate change. But the UNFCCC does not regulate residual damage, compensation, or liability. The only provision available to tackle such issues is Article 4.8, which includes a mandate of providing insurance against adverse impacts. For the last few years, UNFCCC parties have been debating about an appropriate insurance scheme, particularly for the LDCs and AOSIS countries (Khan and Islam 2009).

The principle of "common but differentiated responsibilities" mainly structures commitments and rights of nations in environmental treaty negotiations.

Accordingly, UNFCCC provides a legal basis to claim support for damage prevention measures (both for adaptation and mitigation; Verheyen 2005: 107). The no-harm rule enshrined in Principle 21 of the Stockholm Declaration of 1972 and Principle 2 of the Rio Declaration of 1992 urges states not to cause damage to areas beyond national jurisdictions. Article 194.2 of the UN Convention on the Law of the Sea implicitly prohibits states from creating unlimited emissions and, in case of failure, Article 235 obligates states to assume responsibility and liability. Further, Principle 22 of the Stockholm Declaration and Principle 13 of the Rio Declaration talk of cooperation for development of international and national laws regarding liability and compensation for the victims of environmental damage. These ideas have been embodied in Paragraph 8 of the UNFCCC Preamble.

Further, the principle of "do no harm" is a sufficient justification for a stringent mitigation policy, because, as a universally held value, a right to not be harmed implies a duty not to impose risk of harm on others. The principle presents a hierarchy of harm, in which death, injury, and physical suffering should take priority over economic costs or deprivation of property (Baer and Sagar 2010). With a complex atmospheric system and a diffuse set of contributors to climate change, the challenge is how to establish this right, without attribution of specific harm to one specific source.

Because of the difficulty of proving their causation, there are contrasting opinions about forcing states to comply with state responsibility for climate-related harms caused beyond their territories (Boyle 1997; Penalver 1998; Grossman 2003). In the context of the US tort law, both Penalver and Grossman argue that emitters can be held liable when applying modern causation theories in terms of both "cause in fact" and "normative causation." The "cause in fact" denotes that an act is an indispensable condition of a consequence, and "normative causation" points to non-scientific ascription of causation, where there are multiple actors and multiple consequences. These situations do not need to specify exactly the contributions of each and every actor. Cases of multiple cause-effect relationships such as climate change may be considered both ways (Verheyen 2005).

IPCC assessments of increasing impacts are of a general nature, but there are already attempts in specifying attributions. For example, Scott *et al.* (2004) have argued that one can attribute the European heat wave of 2003 that caused the deaths of several thousand people to human "forcing" of the climate system. Heat waves are one of the climate impacts with the most solid scientific basis for assigning attribution to human-release greenhouse gases (IPCC 2012). Another such attempt is more specific: Nolt (2011) admits that the estimate is crude, but that the average American is responsible, through their GHG emissions, for the suffering and/or death of one or two people. Some plaintiffs' lawyers in the US have started to think of proving concrete injury by showing that their clients' insurance premiums have increased as a direct result of climate change (Hurley 2011). We view this as just a beginning of efforts to address the requirements of adjudication.

An increasing number of climate change-related court cases now span subnational, national, and international scales (Burns and Osofsky 2009). In one

prominent national lawsuit in the US – Massachusetts vs. US Environmental Protection Agency (EPA) – the Supreme Court's decision forced the EPA to regulate GHG emissions under the 1990 Clean Air Act. In the case concerning Shell and the Ogoni people, the African Commission on Human and People's Rights found Nigeria in violation of rights to life, health, food, property, and a healthy environment (Burns and Osofsky 2009: 106). More recently, the African Commission found Kenya in violation of rights to freedom of religion, property, health, and natural resources and right to development in the case concerning the Endorois Peoples (*ibid*.: 107). The European Court of Human Rights increasingly recognizes that environmental harms lead to human rights violation (*ibid*.: 108).

Among the transnational cases, the Inuit lawsuit in 2005 is the most prominent. Though it did not succeed, these initiatives are contributing to strengthening the perception of liability for climate damages both in civil law and in the court of public opinion. Besides, once litigation manages to successfully establish liability and realization of compensation, states as well as private agents will have to accept both control of GHG emissions (at least minimizing known endangerment of others) and also meeting the costs of adaptation (compensating victims). A frequent outcome of lawsuits, of course, is settlement through negotiations, which is usually substantially cheaper, faster, and lower risk than through adjudication. Annex 1 countries may have agreed to discuss the agenda of "loss and damage" after so many years largely because of the fear of future litigation. Hunter cogently expresses the big picture: "The entire world is at once simultaneously both a potential plaintiff and a defendant" (2009: 358). However, some countries stand much more on the side of potential defendant, and to a rising tide of litigation from an increasing number of actors and of an exponentially complex nature. Reducing this risk of lawsuit is a strong motivation for countries to see secure financing of climate adaptation as a global public good.

Conclusion

We began with the accepted idea that human-induced climate change itself is a global public bad, a negative externality of human activities. This should lead the *impacts* of this public bad to be treated the same way as mitigation. The main groups who are not perpetrators but almost only victims of the impacts, imposed from beyond, are the citizens of the LDCs and small island states, who also lack much capacity to undertake aggressive adaptation actions. As a result of this responsibility deficit, an "adaptation apartheid" is emerging. This is because, as these two negotiating groups pushed the issue of adaptation funding on the UNFCCC negotiating agenda, Annex 1 countries feared questions of responsibility, the application of the Polluter Pays Principle, and legal liability for damages. The direct incentives for Annex 1 countries to provide assistance for adaptation need to be clarified and their legal basis strengthened. We advanced five sets of arguments on how to justify a binding adaptation regime, without which any effort at "successful adaptation" will be underfunded and unsupported by key agencies.

The first set included three levers to induce global cooperation for a binding adaptation finance regime: global and human security, the double exposure, and issues of rights and justice. Of the second set focused on mechanisms to generate reliable funding, we cite the Polluter Pays Principle and emerging liability mechanisms. These levers and instruments are interdependent and mutually reinforcing. Most of the countries and peoples experiencing the negative impacts of climate change simultaneously experience the negative effects of globalization. This makes them "double losers" in an uneven world. Obviously, increasing vulnerability to climate change and lack of adaptive capacity are likely to generate problems of instability and insecurity at national, regional, and global levels, and the signs are already emerging of climate worsening conflicts.

Obviously, responsibility and assistance for adaptation are likely to become an increasing source of friction in future treaty negotiations, particularly if mitigation efforts continue to stumble and if there is resistance to a binding adaptation regime. Most observers do not believe that the near future will bring an effective agreement on a mitigation regime, even after the Durban Platform of a universal global regime. The UNFCCC and the Kyoto Protocol, even though they are founded on neoliberal economic principles, have provisions of state responsibility for adaptation funding by OECD countries. The levers and principles we have discussed here point to climate change impacts as threats to global collective goods and national security, ultimately even of the wealthiest nations, and thus have the potential to serve as both deterrence and incentive for action. Beyond clarifying how national self-interests require a functional and adequate binding adaptation regime, these levers and principles have strong moral and legal force. Identifying these kinds of levers and principles, and developing effective language to frame them, is exactly what has allowed international treaties in all kinds of difficult issue areas to overcome inertia and narrowly conceived self-interests. Without a well-justified binding adaptation regime, we will continue to come up short on support for successful adaptation.

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