Litigating Climate Change Adaptation: Theory, Practice, and Corrective (Climate) Justice

by Maxine Burkett

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Summary

The Supreme Court's decision in *American Electric Power v. Connecticut* appeared to affirm what many legal scholars have argued: that tort law is not a suitable or effective means to address climate change. While it did close a valuable door for plaintiffs seeking to advance the "carbon tort," it did not represent the end of tort law's role in providing relief for those whom climate change impacts now and into the future. Tort law can address climate impacts directly, by spurring compensation for harms incurred, and indirectly, by galvanizing both mitigation and adaptation measures to avoid the threat of liability. The key is finding the appropriate defendants—ones with whom the common law is quite familiar. Particularly for the most vulnerable, the virtues of corrective justice and civil recourse—core goals of tort law—are especially meaningful and are key first steps in more transformative legal approaches to the climate crisis.

The U.S. Supreme Court's 2011 decision in *American Electric Power v. Connecticut* (*AEP*)[1] appeared to be another nail in the coffin for climate change tort litigation.[2] The prominent tort cases brought under public nuisance theory[3] were derisively dubbed the "carbon tort,"[4] as the defendants were major fossil fuel companies and utilities—all significant emitters of carbon dioxide (CO_2) and other greenhouse gases (GHGs) at the root of increasingly destructive climate change. Reasoning that the federal common law was displaced by regulatory action commenced by the U.S. Environmental Protection Agency (EPA),[5] the *AEP* Court substantially limited pursuit of public nuisance claims in the federal courts,[6] and at the same time mirrored a more widespread skepticism and fatigue with complex climate litigation expressed by many lower courts.[7] The skepticism regarding the viability of these claims was prevalent amongst many legal scholars as well,[8] even if those scholars expressed deep interest

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1. 131 S. Ct. 2527, 41 ELR 21202 (2011).
2. *See* Maxine Burkett, *Climate Justice and the Elusive Climate Tort*, 121 Yale L.J. Online 115 (2011), http://yalelawjournal.org/2011/09/13/burkett.html (last visited Oct. 26, 2012) (arguing that the *AEP* decision foreclosed significant possibilities for redress—particularly vital to the most vulnerable).
3. *See, e.g.*, Native Village of Kivalina v. ExxonMobil Corp., 2012 WL 4215921; Comer v. Murphy Oil USA, Inc., 607 F.3d 1049, 40 ELR 20147 (2010); California v. GM Corp., 2006 WL 2726547 (N.D. Cal. 2006) (voluntarily dismissed June 2009).
4. *See, e.g.*, *The New Climate Litigation*, Wall St. J., Dec. 28, 2009, http://online.wsj.com/article/SB10001424052748703478704574612150621257422.html (last visited Oct. 26, 2012).
5. These actions resulted from a finding of endangerment to public health and welfare under the Clean Air Act (CAA), 42 U.S.C. §§7401-7671q, ELR Stat. CAA §§101-608, and were pursuant to the Court's earlier holding in *Massachusetts v. EPA*, 549 U.S. 497, 497, 37 ELR 20075 (2007).
6. At least for the time being, *AEP* still leaves open two key questions: the fate of state common-law claims; and claims for damages, rather than injunction. For a brief discussion of the implications of the Court's decision, see Hari Osofsky, AEP v. Connecticut*'s Implications for the Future of Climate Change Litigation*, 121 Yale L.J. Online 101 (2011), http://yalelawjournal.org/2011/09/13/osofsky.html (last visited Oct. 26, 2012). *AEP* also leaves open for resolution the nationwide atmospheric trust litigation, particularly at the state level, based on the public trust doctrine. *See generally* Our Children's Trust, Legal Action, http://ourchildrenstrust.org/page/31/legal-action (last visited Oct. 5, 2012); *see also* Sanders-Reed v. Martinez, No. D-101-CV-2011-1514 (N.M. 2012) (Order Granting in Part and Denying in Part Defendants' Motion to Dismiss), Bonsor-Lain v. Texas Commission on Environmental Quality, No. D-1-GN-11002194 (Tex. 2012) (Final Judgment); *but see* Alec L. v. Jackson, No. 1:11-cv-02235 (D.D.C. 2012) (granting Defendants' Motion to Dismiss).
7. Connecticut v. AEP, 406 F. Supp. 2d 265, 35 ELR 20186 (E.D.N.Y. 2005); Native Village of Kivalina v. ExxonMobil Corp., 663 F. Supp. 2d 863, 39 ELR 20236 (N.D. Cal. 2009).
8. Benjamin Ewing & Douglas A. Kysar, *Prods and Pleas: Limited Government in an Era of Unlimited Harm*, 121 Yale L.J. 350, 369 (2011) (stating at the outset that they acknowledge that the fit between climate change and tort law seems poor); Michael Gerrard, *What Litigation of a Climate Nuisance Suit Might Look Like*, Yale L.J. Online (Sept. 2011); Douglas A. Kysar, *What Cli-*

in aggressive emissions-reductions overall. In particular, the complex web of claims and defendants would make pretrial litigation, alone, unwieldy.[9] Further, meeting each element of the tort of negligence—duty, breach, cause, and damages—would be a difficult task for any plaintiff,[10] with establishing the causal link between a defendant's emissions and the alleged harms as the most challenging.[11] While claimants seeking tort remedies from GHG emitters have been stripped of a major avenue through which to pursue their claims, tort law still can do a great amount to tackle the challenge of climate change.

In this Article, I argue that exploring the liability of local governments and developers for harms suffered by coastal landowners reveals the potential for tort law to directly address climate impacts by providing a means of compensation for plaintiff's losses. While this is not the first Article to contemplate liability for alternative defendants, in particular local governments,[12] it is the first to situate this kind of liability in the goals of tort law and advocate for widespread use of adaptation liability as a means for individual redress and societywide protection from numerous climate-related harms. The threat of liability can also have the indirect effect of galvanizing measures to reduce emissions and spur more aggressive and comprehensive adaptation at the local level. To be sure, what the law of negligence vis-à-vis development planning, permitting, and construction counsels with regard to emerging climate risks is uncertain in some instances. The increasing ability to attribute, at least in part, certain extreme weather events to climate change, however, suggests that finding negligence on the part of major actors that continue to put individuals in harm's way may be viable today and increasingly so into the future.

Further, litigation based on the failure to adapt may be a much easier road than the mitigation-oriented carbon torts filed in the last several years.[13] A plaintiff, for example, would only need to prove the unreasonableness of defendant's actions in light of the well-established science of climate change—still a formidable task, though far less so than proving the causal link between a given climate impact and a distant entity's emissions. Further, even if establishing the causal link between a flooding event and climate change remains necessary to prove legal cause, advances in the ability to attribute a given impact to global warming is improving—at least enough to threaten more widespread civil liability. Indeed, local governments and developers are only two of the many viable defendants that can address the impacts of climate change presently,[14] allowing for greater possibility for individual redress as well as greater opportunities to provoke climate-appropriate actions.

To develop the argument for expanding climate torts, I look specifically at the impacts of sea-level rise (SLR) on coastal communities. SLR is an unquestionable byproduct of global warming. The SLR forecast is based on current observation of increased sea level as well as sound projections as to an increased rate of rise as we approach the middle and end of the century. With the growing knowledge of the dangers to U.S. coastlines, reasonable decisionmaking would militate in favor of changed management and development practices at the coastline to adapt appropriately. In the absence of such changed behavior, the potential for liability should likewise increase.

Exploring these alternative climate torts allows greater opportunities for individual recompense. This is significant. Corrective justice at its core seeks to facilitate the making whole of the wrongfully injured—and it does so with the starting assumption that the arbiter is deciding among equals. The ability for plaintiffs to pursue their claims on equal footing and have their injury redressed has real as well as romantic resonance with the most vulnerable, generally speaking.[15] It may also deliver tangible benefits for the climate-vulnerable,[16] who must continue to look to the courtroom for recourse.[17] Climate torts based on responding to impacts may incite widespread change in behavior for those defendants who would, in response, incorporate that risk into their decisionmaking. Further, as we learn of the most severe consequences to which it will be harder to adapt, increased threats of liability might induce more aggressive carbon-reduction measures.

In Part I, I argue that tort law has already proven that it is relevant to addressing climate change. I first discuss the importance of swift and appropriate climate change adaptation, despite the lesser attention it has received relative

mate Change Can Do About Tort Law, 41 Envtl. L. 1, 6 (2011) (concluding that climate change tort suits are unlikely to prevail on the merits).

9. Gerrard, *supra* note 8.
10. Ewing & Kysar, *supra* note 8, at 370 n.64 ("Indeed, at virtually every stage of the traditional doctrinal analysis, climate change plaintiffs will need to invoke novel, rare, or otherwise exceptional tort doctrines in order to pursue their claims.").
11. The causal link is becoming clearer, however. *See* discussion *infra* Part II. Further, some claims are far more straightforward. *See generally Kivalina*.
12. *See, e.g.*, James Wilkins, *Is Sea Level Rise "Foreseeable"? Does It Matter?*, 26 J. Land Use & Envtl. L. 437 (2011).
13. It might even be easier than comprehensive regulation or legislation from EPA and the U.S. Congress, respectively.
14. Plaintiffs may also target emergency planners, engineers, and other infrastructure owners and operators. *See generally* Jan McDonald, *Paying the Price of Adaptation: Compensation for Climate Change Impacts*, *in* Adaptation to Climate Change Law and Policy (Tim Bonyhady et al. eds., 2010).
15. *See, e.g.*, Luke Cole, *Environmental Justice Litigation: Another Stone in David's Sling*, 21 Fordham Urb. L.J. 523 (1994).
16. The term "climate-vulnerable" describes those individuals, communities, or nation-states that have a particularly acute exposure to present and forecasted climatic changes and are generally the least responsible for the anthropogenic GHG emissions at root. *See generally* Burkett, *supra* note 2.
17. The domestic and international political landscape has not been fruitful. Indeed, civil recourse is arguably the greatest promise of tort law, more so than corrective justice. *See* discussion *infra* Part I.B.1.; *see generally* Benjamin C. Zipursky, *Civil Recourse, Not Corrective Justice*, 91 Geo. L.J. 695 (2003).

to efforts for mitigation through litigation.[18] I then discuss the goals and mechanisms of tort law and argue that tort law is still quite relevant to climate action, despite the courtroom setbacks and general skepticism about its efficacy and relevance. In fact, I suggest that if tort litigation moves beyond the *Plaintiff v. Emitter* paradigm, it might be an effective vehicle for individual claimants as well as the adaptation endeavor generally.

In Part II, I survey the current law regarding local government and developer liability vis-à-vis coastal hazards. Here, I summarize the current understanding of SLR, which, based on the historical trend of the law regarding development, planning, and coastal hazards, should incite changed action on the part of local governments and developers. I also consider the impact climate forecasts might have on accelerating claims by coastal property owners, for example, as well as producing better informed judicial interpretations of reasonable activity along the coastline.

Finally, in Part III, I conclude with a discussion of the climate tort's larger significance. Like its conceptual predecessor, environmental justice,[19] climate justice must look to critical "footholds" to succeed in the larger effort toward fair and ambitious responses to both the causes and consequences of climate change. By providing several avenues for action using established tools, litigating climate change adaptation can secure a foundation in the present while allowing for upward momentum in the future.

I. What Tort Law Can Do About Climate Change Adaptation

A. *Climate Change Adaptation*

Like climate change adaptation generally, the potential for litigation related to adaptation has received far less attention than mitigation. Yet, tort law is well-equipped in both purpose and function to address the challenges of adapting. Pursuing tort litigation can have the effect of minimizing the devastation of climate impacts while fortifying currently vulnerable individuals and communities. A survey of climate change cases filed through the end of 2009, however, demonstrated that no claims involving adaptation had been filed during the time that climate change-related litigation multiplied exponentially.[20] And that absence appears unchanged.[21] While cases brought by large nongovernmental organizations (NGOs) against federal and state governments were typical in the survey, causes of action to require new or more-extensive adaptation actions, like building a seawall, were not on the "litigation radar screen."[22] Further tort actions, along with those concerning contract or property rights claims, were few. The handful of tort actions tackled emitters using public nuisance theory. They were quite public, spurring copious law review articles,[23] discussions in more popular media,[24] and the anticipated 2011 Supreme Court decision in *AEP*. The courts, however, have effectively slowed momentum for this kind of climate tort progressing to the merits phase.[25]

There is increasing interest in understanding the potential liability of local governments and other entities for acting or failing to act in response to climate change impacts.[26] When damage from climate-related events occur or the need for preventive works becomes undeniable, the question of who will cover the substantial costs arises. In Australia, another common-law country, local and state governments have started to express concerns about exposure to compensation claims.[27] These bodies have demonstrated reluctance to approve new developments without taking into account planning benchmarks for impacts such as SLR, all the while calling for increased attention to compensation and liability issues.[28] As one local council stated: "If current climate change predictions are realized . . . [i]t is inevitable that some property owners will look for compensation . . . it is critical that planning for the financial implications of climate change, in terms of property compensation, commence without delay."[29] Indeed, there are numerous adaptation-related claims that are increasingly timely, and there is emerging evidence, from both climate scientists and engineers, that this should be a present-day concern for decisionmakers and developers alike.

18. This compounds the lesser focus it receives in other venues as well, including domestic policymaking and international negotiation.
19. *See* Maxine Burkett, *Just Solutions to Climate Change*, 56 Buff. L. Rev. 169, 188-92 (2008).
20. *See* David Markell & J.B. Ruhl, *An Empirical Survey of Climate Change Litigation in the United States*, 40 ELR 10644, 10650 (July 2010) (defining climate change litigation as any piece of federal, state, tribal, or local administrative or judicial litigation in which the party filings raise issues of fact or law regarding the substance or policy of climate change causes and impacts and providing a chronicling of every climate change case filed through December 31, 2009). A recent review of the Columbia climate change chart suggests that there have still been no claims explicitly involving adaptation filed to date. *See* http://www.climatecasechart.com (last visited Oct. 12, 2012).
21. A review of Columbia's climate case chart, a comprehensive survey of national and international climate change cases filed, did not yield any cases that fit the bill. *See* http://www.climatecasecchart.com. It is possible that these cases are hidden elsewhere because they are either filed or classified as nonspecific property damage claims brought for unattributed weather events.
22. Markell & Ruhl, *supra* note 20, at 10651. The authors explained that no case involved a claim regarding substantive adaptation measures, whereas over 40% of the cases focused on substantive mitigation measures.
23. *See, e.g.*, Douglas Kysar, *What Climate Change Can Do About Tort Law*, 41 Envtl. L. 1 (2011); Randall S. Abate, *Public Nuisance Suits for the Climate Justice Movement: The Right Thing in the Right Time*, 85 Wash. L. Rev. 197 (2010); Jonathan Zasloff, *The Judicial Carbon Tax: Reconstructing Public Nuisance and Climate Change*, 55 UCLA L. Rev. 1827 (2008).
24. Lawrence Hurley, *Impact of Supreme Court's Greenhouse Gas Ruling Likely to Be Felt in Other Cases*, N.Y. Times, June 21, 2011, http://www.nytimes.com/gwire/2011/06/21/21greenwire-impact-of-supreme-courts-greenhouse-gas-ruling-41463.html (last visited Oct. 26, 2012).
25. *See AEP*, etc. *But see Kivalina* (claims including conspiracy and damages).
26. Anecdotally, as the Director of the Center for Island Climate Adaptation and Policy (*see generally* http://www.islandclimate.org), one of the questions I received frequently from planners and environmental NGO staff, among others, was whether or not local governments might be held liable for their failure to build adaptive capacity in their communities. For a comprehensive discussion of increasing interest in potential liability in Australia, see McDonald, *supra* note 14.
27. McDonald, *supra* note 14, at 235.
28. *Id.*
29. Byron Shire Council, Submission 43, at 9, U.S. House of Representatives Standing Committee on Climate Change, *cited in* McDonald, *supra* note 14, at 235.

Possible adaptation-oriented actions are legion—from claims for failing to increase the height of seawalls to actions relating to inadequate flood-hazard mapping and inadequate government-owned infrastructure, such as dams and levees.[30] In addition to lawyers engaging in affirmative adaptation planning, such as the development of real estate disclosure obligations, Prof. Michael Gerrard has identified many other adaptation mechanisms deserving more legal attention. Reflecting areas for concern that engineers identified as early as 1997, these adaptation measures include, among other things: flood protection; protecting buildings and infrastructure for rising water tables; strengthening structures to withstand higher wind loads; and modifying heating, ventilation, and air conditioning systems to withstand the worst heat waves.[31] The threat of tort liability may incite decisions to engage in this kind of planning and development, with expert execution. At the same time, poorly conceived adaptation policies themselves might cause damage for which decisionmakers would wisely anticipate tort litigation.[32]

Ultimately, tort litigation has the power to determine the course of climate adaptation. Both acts and omissions in response to climate change impacts entail liability risks. As Ben Schueler explains:

> If the liability standards for failure to act imply higher risk than the standards applying to action, the system will stimulate the development of appropriate adaptation policies. If, on the other hand, the risk is higher for actions than it is in case of not acting, the system will discourage the taking of adaptation measures.[33]

With the potential for tort law to steer the direction of climate preparedness, in all directions, those seeking to advance greater safety and well-being would do well to harness tort liability to stimulate more affective and aggressive capacity-building. Tort law has the ability to fill the vacuum that most public and private entities in the United States create by failing to engage responsibly in mitigation and adaptation, particularly at the nation's coastlines.[34]

B. *The Form and Function of Tort Law*

Despite its familiarity with "complex, sprawling litigation,"[35] many deem tort law and climate change an uncomfortable fit. Given the proper scope, however, tort law is perhaps uniquely prepared to do the most for substantial advancement in climate change action. Although it is often limited to the present tense and binary—that is, addressing present harm between plaintiff and defendant[36]—its reach is often far beyond the finite parties named.[37] Indeed, the primary goals of tort law suggest that its virtues are based in its ability to resolve disputes between individuals while galvanizing changed behavior amongst communities. In this section, I briefly discuss the goals of tort law, the mechanisms that allow tort law to address concerns from the atomized to the holistic, and I elaborate on its potential for significant impact in the climate arena.

Two of the most-cited goals of tort law are compensation and deterrence.[38] Compensation is generally backward-looking, aiming to place the claimant in the position she/he would have been in absent the tort. This is also understood as the corrective justice goal of tort law. Deterrence is forward-looking and oriented toward the many who constitute society-at-large.[39] The aim is to prevent the named defendant as well as others similarly situated from engaging in the harmful activity. Tort liability, therefore, may trigger behavioral change that curbs the harm-producing, antisocial activity. In combination, the threat of liability with the accompanying responsibility for compensation should motivate actors to make the right, lawful decisions.[40]

1. Function—Corrective Justice and Other Virtues of Tort Litigation

Though subject to much greater nuance, corrective justice, broadly, is the rectification of a harm wrongfully caused by one to another through a transfer of resources from the wrongdoer to the injured.[41] In other words, individuals who are responsible for losses wrongfully incurred have a duty to repair those losses.[42] Aristotle first defined it as a "transactional justice" that deals with the fairness between two indi-

30. *See, e.g.*, In re Katrina Canal Breaches Litigation, 2012 WL 4343775.
31. Michael B. Gerrard, *What the Law and Lawyers Can and Cannot Do About Global Warming*, 16 Southeastern Envtl. L.J. 1, 53 (2007) (Gerrard derived this list from research conducted for engineers, who themselves are considering potential options to reduce the social and environmental threats climate change introduces. *See* Engineering Response to Global Climate Change: Planning a Research and Development Agenda (Robert G. Watts ed., CRC Press 1997)).
32. Ben Schueler, *Governmental Liability: An Incentive for Appropriate Adaptation?*, *in* Climate Change Liability (Michael Faure & Marjan Peeters eds., Edward Elgar 2011).
33. *Id.* at 238.
34. There are, of course, exceptions to the rule. *See, e.g.*, PlaNYC, http://www.nyc.gov/html/planyc2030/html/home/home.shtml (last visited Sept. 6, 2012). And there are real political hurdles in some states. *See* discussion of North Carolina's SLR bill, *infra* Part II.
35. Ewing & Kysar, *supra* note 8, at 370.
36. *See, e.g.*, Kysar, *What Climate Change Can Do About Tort Law*, *supra* note 8, at 11 (discussing then-Judge Benjamin Cardozo's account of tort law in *Palsgraf* [Palsgraf v. Long Island Railroad Co., 162 N.E. 99 (N.Y. 1928)].
37. *See, e.g.*, *id.* at 12 (discussing Judge William S. Andrew's account of tort law in *Palsgraf* and stating that the enduring resonance of *Palsgraf* has much to do with the fact that both of its contrasting approaches remain alive and at work within tort jurisprudence, "to the great frustration of law students and scholars who seek doctrinal uniformity"). *Id.* at 15.
38. David A. Grossman, *Warming Up to a Not-so-Radical Idea: Tort-Based Climate Change Litigation*, 28 Colum. J. Envtl. L. 1, 4 (2003). Other goals of tort law and loss-allocation systems generally include loss-spreading, the concept of just desserts, and distributive justice. *See* Daniel A. Farber, *Adapting to Climate Change: Who Should Pay*, 23 J. Land Use & Envtl. L. 1, 19 (2007). Perhaps most important to the intention of this Article, tort litigation may achieve regulatory change. *See* Giedré Kaminskaité-Salters, *Climate Change Litigation in the UK: Its Feasibility and Prospects*, *in* Climate Change Liability, at 170 (Michael Faure & Marjan Peeters eds., Edward Elgar 2011) and discussion *infra* Part I.B.1.
39. *See* Kaminskaité-Salters, *supra* note 38.
40. *See* Schueler, *supra* note 32, at 237.
41. Ronen Perry, Corrective and Distributive Justice: From Aristotle to Modern Times *by Izhak Englard*, 23 Can. J.L. & Juris. 233, 233 (2010).
42. Allan Beever, *Corrective Justice and Personal Responsibility in Tort Law*, 28 Oxford J. Legal Stud. 475, 477 (2008) (discussing Jules Coleman's definition of corrective justice).

vidual and *equal* persons.[43] He observed that, "the law looks only to the distinctive character of the injury, and treats the parties as equal, if one is in the wrong and the other is being wronged, and one inflicted injury and the other has received it."[44] Corrective justice assumes an initial equality between the parties and aims to restore that equality whenever it is upset by a wrongful act.[45] Litigation places two parties—even with substantially different power and capacity in other arenas—on equal footing[46] to address harms incurred by, for example, climate-related impacts. Importantly, losses to the integrity of property or the physical body are the clearest case for duty of repair and corrective justice and are especially present in the climate adaptation context.[47]

In practice, the defendant would be held liable because fairness between the parties requires that the losses fall on the defendant rather than the claimant, irrespective of defendant's moral culpability.[48] In other words, the defendant's liability does not necessarily indicate moral failure on his or her part. Moral failure may or may not have occurred, but it is irrelevant. Instead, fairness and justice as between the two parties militate in favor of defendant repairing victim's losses by virtue of their relationship to one another and the rights and duties that inhere—not to some other subjective (ethical) standard.[49] This is very compelling, as it suggests that to hold a defendant developer responsible for a landowner's losses she/he need not be as morally culpable as a GHG emitter, for example, nor morally culpable at all.[50] Given the developer's construction expertise relative to the landowner—again, as an example—fairness would require that she/he make the plaintiff whole for injuries defendant caused.

Central to the application of corrective justice, therefore, is causation of the harm.[51] Simply, was defendant's wrongful conduct both a cause-in-fact and proximate cause of plaintiff's losses?[52] This analysis would be a significant feature of adaptation litigation that departs from tort litigation concerned with emissions reduction. Though discussed further in Part II, it is important to note here—as a matter of corrective justice theory—that a defendant's unreasonable action with respect to climate hazard preparedness and its link to plaintiff's harms will be much easier to prove, at least in theory, than the causal link between a carbon emitter's actions and a given harm.

> As a goal of tort law, then, corrective justice allows for and justifies access to the courts for plaintiffs impacted by climate change to pursue claims against those that have acted unreasonably in light of the specter of sea-level rise, increased wildfire or severe storm risks, and other climate impacts. To that end, the goal of civil recourse[53] is also relevant to and further justifies the pursuit of adaptation litigation.[54] Even if the tort system of civil redress is not an optimal system of deterrence or corrective justice, as some have argued, the ability for climate-injured plaintiffs to have access to avenues for repair is a core purpose of tort law.[55]

Of course, the threat of tort litigation can have a powerful impact, even if a claim does not make it into the courtroom. With the uphill battle of public nuisance litigation and the general skepticism surrounding its viability, there have been many opportunities to contemplate the benefits of simply filing climate-related claims.[56] As Benjamin

43. *See id.* at 476.
44. Aristotle, Nicomachean Ethics, at 1132a2-a6 (David Ross trans., Oxford Univ. Press 1980), *quoted in* Perry, *supra* note 41, at 240.
45. *Id.* at 1132a25-a27 (stating that the "the judge restores equality").
46. Of course, I do not mean to suggest that access to the courts is seamless. There are financial and other hurdles that potential climate adaptation litigants are certain to face. An exhaustive discussion on this point is beyond the scope of this Article; however, class actions and/or actions brought by environmental justice advocacy groups like the Center on Race, Poverty, and the Environment, who brought the *Kivalina* case, may present helpful models. *See* David Rosenberg, *The Causal Connection in Mass Exposure Cases: A "Public Law" Vision of the Tort System*, 97 Harv. L. Rev. 849 (1984).
47. Matthew Adler, *Corrective Justice and Liability for Global Warming*, 155 U. Pa. L. Rev. 1859, 1859 (2007). In fact, Matthew Adler is quite skeptical of generalized claims against GHG emitters for environmental damage as a matter of corrective justice. He claims that these damages are not themselves losses to individuals' paradigmatically protected interests. He goes on to say, however: "An exception would be the loss of acreage to coastal property owners, a quite direct result of sea-level rise." *Id.* at 1861. This is the exact kind of claim I contemplate in this Article.
48. Beever, *supra* note 42, at 494.
49. *Id.* at 492.
50. This is also notable because it alleviates any concern with the possibility of strict liability being applied in these cases. I thank Robin Craig for raising this important consideration.
51. Perry, *supra* note 41, at 239-40.
52. Adler, *supra* note 47, at 1860. Adler's skepticism about establishing a causal link between property damage and liability (*id.* at 1861) is relevant only to defendant emitters and not, as I argue, defendant developer and/or local government.
53. Civil recourse is contrasted by some with corrective justice theory. *See generally* Benjamin C. Zipursky, *Civil Recourse, Not Corrective Justice*, 91 Geo. L.J. 695 (2003) (arguing that civil recourse, not corrective justice, explains the concepts and principles embedded in our tort law and displayed in its plaintiff-defendant structure). Benjamin Zipursky argues:
    > The state provides the plaintiff with a right of action against the defendant for damages or other relief only if the defendant has wronged the plaintiff in a manner specified by tort law. In permitting and empowering plaintiffs to act against those who have wronged them, the state is not relying upon the idea that a defendant has a pre-existing duty of repair. Instead, it is relying on the principle that plaintiffs who have been wronged are entitled to some avenue of civil recourse against the tortfeasor who wronged them.

    Id. at 699. Related to the point above, the foundational role of the state in providing a means to press one's claims is cogently explained in Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 Harv. L. Rev. 1089 (1972). They state:
    > Whenever a state is presented with the conflicting interests of two or more people, or two or more groups of people, it must decide which side to favor. Absent such a decision, access to goods, services, and life itself will be decided on the basis of "might makes right"—whoever is stronger or shrewder will win. Hence the fundamental thing that law does is to decide which of the conflicting parties will be entitled to prevail . . . Having made its initial choice, society must enforce that choice. Simply setting the entitlement does not avoid the problem of "might makes right"; a minimum of state intervention is always necessary.

    Id. at 1090.
54. *See* discussion of John C.P. Goldberg and Zipursky's scholarship in Ewing & Kysar, *supra* note 8, 373-74 (2011) (discussing John Goldberg & Zipursky's contention that tort law is a means of civil recourse or redress that may be a constitutionally protected due process right).
55. *See* Ewing & Kysar, *supra* note 8, at 373.
56. *See, e.g.*, David B. Hunter, *The Implications of Climate Change Litigation: Litigation for International Environmental Law-Making*, *in* Adjudicating Climate Change (William C.G. Burns & Hari M. Osofsky eds., Cam-

Ewing and Douglas Kysar have delineated, those benefits include, among other things, the ability for plaintiffs to tell their climate story as well as helping advocacy movements, like the climate justice community,[57] to organize themselves.[58] Of course, having a claim make it to the merits stage with successful resolution can resonate widely beyond the parties—including altering or halting the actions of the defendant in a particular case as well as all other similar entities. Perhaps the greatest potential benefit of both successful and unsuccessful litigation is its ability to complement current regulation or accelerate more aggressive, climate-appropriate regulation.

Tort law is arguably a vital complement to environmental regulation generally.[59] Thomas McGarity argues that society needs tort law to hold companies responsible for harms they have caused and fairly distribute the attendant losses. "Only through vigorous ex-ante implementation and enforcement of environmental statutes and equally vigorous ex post tort litigation," McGarity argues, "will citizens receive the critical protections that both statutes and common law meant to provide."[60] This complement corrects for a regulatory system that is "easily controlled" by the very entities it is meant to control. Indeed, there is evidence that this kind of undue influence is occurring in local attempts to build adaptive capacity,[61] further justifying ex-post litigation.

Perhaps more importantly, high-profile litigation may also drive legislative action on adaptation *and* mitigation.[62] In the case of adaptation litigation, tort actions would stem from failures on the part of regulators to address potential harms from failing to prepare for climate change risks.[63] This kind of litigation might be the most powerful means for energizing the nascent regulatory regime, far eclipsing even sustained lobbying of our decisionmakers. As climate scientist Myles Allen has incisively observed, "even the most impassioned eco-warrior has nothing on a homeowner faced with negative equity."[64] As the physical and personal costs of climate change continue to rise steeply, the value of slowing or halting the root causes may become painfully clearer.

2. Form—The Tort of Negligence

The tort of negligence will be the most relevant claim in climate adaptation litigation. The general query will look something like the following: Has x defendant acted reasonably in light of the known risks of climate change when acting or failing to act, thus causing plaintiff's alleged harm? The four elements for proving negligence are establishing a duty, breach, causation, and damages. This is standard across claims between individuals and individual entities as well as large groups of similarly situated plaintiffs against one or many defendants, as in class actions. Multiple defendants and elements of uncertainty, unpromising hallmarks of emissions reduction litigation, are not necessarily significant hurdles to successful adaptation claims on the merits.

Adaptation litigation might face the same criticisms. It is important to make clear at the outset, however, that these characteristics of climate-related litigation should not be dispositive. First, tort law rejects the notion that individual entities can avoid responsibility for harms negligently produced by more than one negligent actor. If they act in concert and/or produce a single, indivisible harm, an individual defendant may still be liable, assuming that plaintiffs prove all other elements of the negligence tort.[65] Further, with regard to uncertainty, the system of civil justice has never required 100% certainty—or even 52% certainty—in assessing risks or establishing causal links.[66] Legal scholars and practitioners should not dismiss outright nor prematurely confess to tort law's inadequacy and irrelevance[67] when assessing the potential of adaptation-related tort litigation just because negligence claims place the inherently complex science and politics of climate change in the courtroom.

C. *Moving Beyond the "Carbon" Defendant*

With all that tort law can do about potential harms that climate change risks producing, it would behoove those

bridge 2009) (arguing that just the acts of preparing, announcing, filing, advocating, and forcing a response have significant impacts).

57. *See generally* Burkett, *supra* note 2.
58. Ewing & Kysar, *supra* note 8, at 373.
59. *See generally* Thomas O. McGarity, *Regulation and Litigation: Complementary Tools for Environmental Protection*, 30 COLUM. J. ENVTL. L. 371 (2005).
60. *Id.* at 372-73.
61. The Intergovernmental Panel on Climate Change (IPCC) defines "adaptive capacity" as the "the ability or potential of a system to respond successfully to climate variability and change." R.J.T. Klein et al., *Inter-Relationships Between Adaptation and Mitigation*, *in* CLIMATE CHANGE 2007: IMPACTS, ADAPTATION, AND VULNERABILITY, CONTRIBUTION OF WORKING GROUP II TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 745-77 (M.L. Parry eds., Cambridge Univ. Press 2007).

    The role of developers in the legislation that initially forbade consideration of SLR in coastal policy in North Carolina is indicative. *See* Wade Rawlins, *North Carolina Lawmakers Reject Sea Level Rise Predictions*, REUTERS, July 3, 2012, *available at* http://www.reuters.com/article/2012/07/03/us-usa-northcarolina-idUSBRE86217I20120703 (reporting that the General Assembly "[b]acked by real estate developers, passed a law requiring that projected rates of SLR be calculated on historical trends and not include accelerated rates of increase"); *see also* discussion *infra* Part II.
62. McDonald, *supra* note 14, at 241; *see also* Kaminskaité-Salters, *supra* note 38, at 170 (arguing that one aim of litigation is to achieve regulatory change).
63. Kaminskaité-Salters, *supra* note 38, at 170.
64. Myles Allen, *Liability for Climate Change: Will It Ever Be Possible to Sue Anyone for Damaging the Climate?*, 421 NATURE (Feb. 27, 2003) (introducing the "attribution problem" and arguing that the uncertainty that inheres in attributing a severe weather event to climate change can be rigorously quantified for purposes of establishing liability).
65. RESTATEMENT (THIRD) TORTS §C18; *see also* Daniel A. Farber, *Climate Justice*, 110 MICH. L. REV. 985, 992 (2012).
66. *See* RESTATEMENT (SECOND) TORTS §431; *see also* Ewing & Kysar, *supra* note 8, at 420 n.255 ("To the extent that there is trade-off between stability and predictability on the one hand, and reasonableness and responsiveness on the other, tort law may by its nature be more comfortable than, say, contract or property law with sacrificing some certainty in exchange for propriety."); Daniel A. Farber, *Adapting to Climate Change: Who Should Pay*, 23 J. LAND USE & ENVTL. L. 1, 7 (2007).
67. *See, e.g.*, Ewing & Kysar, *supra* note 8; *see also* Kysar, *What Climate Change Can Do About Tort Law*, *supra* note 8, at 3 (arguing that beyond indirect effects, tort law is unlikely to play a substantial role in the ultimate effort to reduce GHGs, compensate climate change victims, or otherwise implement legal responses to the global warming problem).

seeking a remedy for climate impacts to move beyond defendants in the business of carbon emissions. Though I have argued elsewhere that there is value and merit to the claims against carbon emitters,[68] there is perhaps greater possibility in pursuing other defendants culpable for climate-related harms—defendants that are not also subject to the major conceptual and practical hurdles to suing emitters for climate-related harms. Jan McDonald identified three major impediments to claims against emitters based on individual property damage.[69] They are: (1) the difficulty in proving that past emissions constituted a breach of duty at that time, particularly if they occurred before the early 1990s; (2) the challenge of proving the causal connection between those emissions and the harms suffered; and (3) for plaintiffs seeking prompt payment of compensation, the significant delay they would encounter in light of the number of parties and complex relationships between emitters and their carbon emissions.[70]

By considering alternative defendants—like property developers and local governments[71]—claimants can sidestep all of these major hurdles. In essence, actions against developers and local governments will not involve emissions, but rather decisions made along the coastline or in wildfire "red zones," for example. Establishing the causal link between those decisions and the harm plaintiffs allege will be easier. Attributing extreme weather events to climate change, the most difficult and technically underdeveloped element of climate science, will occur at the stage of establishing defendant's breach of duty, rather than establishing the causal link between defendant's emissions and plaintiff's harms, as is required in the carbon tort. I suggest that demonstrating the unreasonableness of defendant's actions in light of the great risks climate change presents will be a much lower bar for an adaptation plaintiff to clear.[72]

Relevant to the plaintiffs contemplated in this argument for adaptation litigation, it is worth also noting that the promise of *Native Village of Kivalina v. ExxonMobil*[73] is the very plaintiffs in *Kivalina* and the claims that they make. While the defendants are the familiar carbon emitters, the plaintiffs seek a remedy that the Clean Air Act (CAA)[74] cannot provide: damages. In stark contrast to the overall skepticism about tort's efficacy with respect to climate-related claims, Doug Kysar's analysis of the *Kivalina* case highlights the promise of adaptation litigation. Kysar argues that of all the climate change tort cases filed, the suit in *Kivalina* was the best pled.[75] The plaintiffs seek monetary recovery, rather than emissions limits, for preexisting, official estimates of the costs to relocate their village due to the loss of coastal buffers resulting from climate-related storms and rising seas. Kysar explains: "In essence, they are asking the court to reinscribe a classical liberal conception of property rights in which the interest of landowners in the use and enjoyment of property is protected."[76] Yet, even more compelling from a climate justice perspective, *Kivalina* is a paradigmatic example of climate justice in the courts by virtue of its plaintiffs and the nature of their claims. Kivalina has almost 400 residents, 97% of whom are Alaska Natives. The village is traditional Inupiat and is located at the tip of a six-mile-long barrier reef. The storms and waves are destroying the land with such severity that the entire community must relocate further inland. As Kysar states, the village represents "extremely sympathetic [plaintiffs who] are among the most vulnerable people in the world to climate change while also being among the least responsible for it."[77] Plaintiffs will still encounter the three major impediments to claims against emitters, outlined above; however, the strengths of *Kivalina* suggest that a more-inclusive understanding of the "climate tort" can galvanize and fine-tune action to adapt to anticipated impacts and, perhaps, expedite emissions reductions as well.

II. Local Government and Developer Liability for SLR Impacts—Precedent and Possibilities

Recent actions by North Carolina lawmakers demonstrate the need for a broader conception of climate change liti-

68. Burkett, *supra* note 2; *see also* Burkett, *Climate Reparations*, 10 MELBOURNE J. INT'L L. 509 (2009). Further, particularly with advances in end-to-end attribution of severe climate and weather events and carbon emissions, holding current emitters liable for the actual impact of their emissions is "at least conceptually straightforward." Allen, *supra* note 64.

69. McDonald, *supra* note 14, at 242.

70. *Id.* at 242-43.

71. McDonald also ponders the liability potential of emergency services agencies and infrastructure owners and operators. McDonald, *supra* note 14, at 241. Real estate brokers might also be subject to increased liability. *See* discussion *infra*.

72. In fact, the more difficult issues are the antecedent ones—defining a duty to which potential defendants might be held and identifying the actions (or inactions) that reasonable governments or developers might take to discharge that duty. There are duties that are "easier" to identify (If you build something, you must do it well to manage reasonably anticipated risks.). And there are "tougher" duty questions (What is a reasonable time frame for which to plan? How do you frame the duty so that the well-intentioned decisionmakers are not penalized if they make the wrong decision, even if based on best available science? When is coastal retreat the only right answer?). These critically important questions are beyond the scope of this Article, but are taken up in Maxine Burkett, *Establishing Duty in an Era of Uncertainty: Local Government and Developer Liability for Failing to Adapt*, GEORGE MASON L. REV. (forthcoming). I thank Robin Craig for raising these important considerations.

73. This case is the remaining public nuisance tort claim that is still viable, despite the holding in *AEP*. Complaint for Damages, Native Village of Kivalina v. ExxonMobil Corp., 08-CV-1138 (N.D. Cal. 2008); Native Village of Kivalina v. ExxonMobil Corp., 663 F. Supp. 2d 863, 39 ELR 20236 (N.D. Cal. 2009).

74. 42 U.S.C. §§7401-7671q, ELR STAT. CAA §§101-608.

75. Kysar, *supra* note 8, at 24.

76. Kysar, *supra* note 8, at 25. This appeal to property rights echoes intimations of the strengths of these kinds of claims by Adler, *supra* note 47, at 1861, and Jonathan Adler, *Global Warming: A Dialogue—Should Victims Receive Compensation?*, 23 PERC Reports 1 (Mar. 2005), *available at* http://www.perc.org/articles/article532.php (last visited Sept. 25, 2012) (arguing that for a property rights violation to exist, climate change need not be catastrophic, nor even produce more costs and benefits; rather, climate impacts need only impose identifiable costs on those who have not consented to the imposition of such costs). The property rights approach is not without its own challenges. Property rights appeals may present a significant hurdle to climate adaptation efforts if property owners claim that preventive regulation or preventive works constitute an uncompensated taking.

77. Kysar, *supra* note 8, at 24.

gation—particularly, litigation directed toward purposeful as well as benign inaction in an era of climate change. Though its coastlines are identified as hotspots for SLR, with rates three to four times faster than the global average,[78] North Carolina's General Assembly affirmatively chose to ignore the state's particular vulnerability to rapid SLR predicted for the state's coastline and thousands of square miles of low-lying land.[79] The panel of scientists advising the North Carolina Coastal Resources Commission, a state policy panel, recommended that coastal communities plan for roughly 39 inches of SLR by 2100.[80] The recommendation "drew backlash" from NC-20, a coastal economic development group that questioned the scientific basis for the recommendation and argued that such policy would undermine "the coastal economy, raise insurance costs, and turn thousands of square miles of coastal property into flood plains that could not be developed."[81] The General Assembly, sympathetic to these arguments, initially prohibited any use of prospective sea-level forecasts, requiring the use of historical data instead. One dissenting legislator said in response: "By putting our heads in the sand literally, we are not helping property owners. We are hurting them. We are not giving them information they might need to protect their property. Ignorance is not bliss. It's dangerous."[82] While the final piece of legislation retreated from outlawing all consideration of SLR in the state, it still prohibits state agencies from implementing policies based on sea level until 2016[83]—a period of time that might be critical for North Carolina's coastal resiliency.

Not all governing bodies are similarly repelled by the science of climate change and the forecasted impacts. In fact, many local authorities that are not currently building adaptive capacity in their communities are likely not doing so for more benign reasons, including lack of information and strained human and financial resources. Yet, the North Carolina story remains relevant, as it highlights the key role that both decisionmakers and developers have in determining the level of climate preparedness individuals and communities can achieve and, conversely, just how vulnerable ill-advised policy renders them. Adaptation litigation is a means of empowering those that are vulnerable by allowing them, on equal footing, to address those that put them in harm's way. It might also spur critical "protective works"[84] that would minimize the risk of further damage to people and property. The associated claims would not be "exotic"[85]; indeed, they would explore and expand upon the more run-of-the-mill actions tort law has demonstrated comfort in addressing—facilitating repair, reconstruction, and protection for property owners subject to the negligent acts of others.

A. *SLR—Forecast and (Un)certainty*

The current climate science on SLR establishes a clear link between the phenomenon and the anthropogenic emissions fueling climate change.[86] That fact, along with the strong science on observed SLR and modeled increases in the rate of SLR,[87] make SLR one of the most obvious targets for aggressive adaptation.[88] Researchers have also carefully documented and summarized for policymakers the impacts of SLR, including exacerbation of coastal erosion, storm surge, inundation, and other coastal hazards that threaten vital infrastructure, settlements, and facilities that support coastal communities.[89] The Intergovernmental Panel on Climate Change (IPCC), in its summary

78. *See* Asbury H. Sallenger Jr. et al., *Hotspot of Accelerated Sea-Level Rise on the Atlantic Coast of North America*, Nature Climate Change, June 24, 2012, doi:10.1038/nclimate1597, http://www.nature.com/nclimate/journal/vaop/ncurrent/fig_tab/nclimate1597_ft.html (last visited Oct. 26, 2012). The study authors explain that SLR superimposed on storm surge, wave run-up, and set-up will increase the vulnerability of coastal cities to flooding, and beaches and wetlands to deterioration.

79. Wade Rawlins, *North Carolina Lawmakers Reject Sea Level Rise Predictions*, Reuters, July 3, 2012, http://www.reuters.com/article/2012/07/03/us-usa-northcarolina-idUSBRE86217I20120703 (last visited Oct. 26, 2012).

80. *Id.* The panel based its recommendation on seven scientific studies.

81. *Id.*

82. *Id.*

83. *See* Andrew M. Ballard, *North Carolina Governor Allows Bill on Sea-Level Change to Become Law*, Daily Env't Rep., Aug. 3, 2012. The law calls on the state Coastal Resources Commission to update a March 2010 scientific panel's report on estimated SLR. Lawmakers will receive the updated report by March 1, 2016, and rates of sea-level change may not be established for state regulatory purposes until July 1, 2016. N.C. Sess. Laws 2012-202.

84. *See* McDonald, *supra* note 14, at 240.

85. *See* Kysar, *supra* note 8, at 1 (stating that by forcing courts to confront questions of harm, causation, and responsibility that lie at the frontiers of science and ethics, climate change lawsuits hold potential to move the bar for what counts as "exotic" in the domain of tort).

86. *See, e.g.*, Martin Vermeer & Stefan Rahmstorf, Global Sea Level Linked to Global Temperature, 106 Proceedings of the National Academy of Sciences (PNAS) 21527-32, http://www.pnas.org/cgi/doi/10.1073/pnas.0907765106 (last visited Oct. 24, 2012); *see also* Grossman, *supra* note 38, at 5. This is not the only impact that is, for the most part, linked to anthropogenic climate change with little controversy. *See, e.g.*, Anthony J. McMichael & Keith B.G. Dear, *Climate Change: Heat, Health, and Longer Horizons*, 107 PNAS 21, 9483-84, May 25, 2010, http://www.pnas/org/cgi/doi/10.1073/pnas.1004894107 (describing the limits to human tolerance to heat that will render much of the earth's surface uninhabitable by 2030; "Climate change, ultimately, is a threat for biological health and survival."). Further, the heat and drought experienced in Texas is 20 times more likely than it would have been in the 1960s. Justin Gillis, *Global Warming Makes Heat Waves More Likely, Study Finds*, N.Y. Times, July 10, 2012, http://www.nytimes.com/2012/07/11/science/earth/global-warming-makes-heat-waves-more-likely-study-finds.html?_r=0 (last visited Oct. 26, 2012).

This more concrete level of certainty with regard to climate change and SLR is quite important from a torts perspective. Schueler argues that tort law does not really provide strong incentive to pursue adaptation measures. Schueler, *supra* note 32. While Schueler's proposition may be generally correct, it does not necessarily hold for SLR or other climate impacts for which attribution and identification are improving dramatically.

87. *See generally* Michiel Schaeffer et al., *Long-Term Sea-Level Rise Implied by 1.5° C and 2° C Warming Levels*, Nature Climate Change, June 24, 2012, doi:10.1038/nclimate1584, *available at* http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate1584.html (explaining, among other things, that about one-half of the 21st century SLR is already committed to as a result of past emissions).

88. Of course, I do not mean to suggest that finding the best policy mechanisms to adapt to SLR will be easy. Hawaii's recent difficulty in adopting, much less incorporating, an SLR benchmark for planning demonstrates some of the practical hurdles to sound adaptation, assuming willing local entities. Identifying SLR as a starting place for focused adaptation planning, however, is not as difficult.

89. Neil Adger et al., *IPCC 2007: Summary for Policymakers*, *in* Climate Change 2007: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Intergovernmental Panel on Climate Change, at 6, 11.

for policymakers, has explicitly stated that adaptation is necessary to address the impacts of warming that are now unavoidable due to past emissions.[90] They further state that one way of increasing adaptive capacity is by introducing consideration of climate impacts in development planning by including adaptation measures in land use planning and infrastructure design, among other things.[91] Simply considering these recommendations might be enough for a government to discharge a duty to act reasonably in managing and developing U.S. coastlines irrespective of lingering uncertainties in the science—though more concerted action will likely be necessary.[92]

More readily, scientists are beginning to link other severe weather events with climate change. With snow storms, tornadoes, floods, heat, and drought affecting hundreds of millions globally, 2011 registered as another "unusually active" year for extreme weather events. In response, National Center for Atmospheric Research scientist Kevin Trenberth stated that all of these events have an anthropogenic component to them. He further estimated that human activity is responsible for 5-10% of overall atmospheric conditions behind today's global weather patterns.[93] Until quite recently, scientists resisted affirmatively linking observed weather with global warming, and were loath to attach concrete numbers to those occurrences.[94] With advances in statistical tools, climate models, and computer power, "attribution of extremes is hard–but it is not impossible."[95] Further, while the 5-10% increase sounds small, Trenberth explains: "This is exactly the sort of thing that breaks records, that breaks levees, and potentially helps Lake Pontchartrain spread out over New Orleans."[96] By way of analogy, climate scientists are now comparing the global climate to loaded dice that still lands on one from time to time.[97] Our climate now has a clear bias toward increasingly more erratic weather events that is essentially irreversible,[98] including inexorable SLR.[99] As the linkages between climate change and severe events become even more concrete, the expectation—and perhaps even duty—for local entities and other relevant private parties will be to take those impacts into account when making decisions affecting vulnerable areas.

90. *Id.* at 17.
91. *Id.* at 19.
92. Schaeffer et al., *supra* note 87. For further discussion of what might constitute acting with reasonable or due care under climate change circumstances, see Burkett, *supra* note 72.
93. Jean Chemnick, *GHGs "Load the Dice" for Extreme Weather, Scientists Say*, E&E News, Sept. 8, 2011.
94. *See* Quirin Schiermeier, *Extreme Measures: Can Violent Hurricanes, Floods, and Droughts Be Pinned on Climate Change? Scientists Are Beginning to Say Yes*, 477 Nature 148, Sept. 8, 2011, http://www.nature.com/news/2011/110907/full/477148a.html (last visited Oct. 26, 2012).
95. *Id.* (quoting Gavin Schmidt, climate modeler at NASA Goddard Institute for Space Studies). While there have been significant advances in attribution, it is important to note that many climate scientists remain skeptical about the endeavor. *Id.* This does not, however, significantly impact the argument I make here largely based on SLR, for which the link to global warming is quite clear.
96. *Id.*
97. *Id.*
98. *See* Susan Solomon et al., *Irreversible Climate Change Due to Carbon Dioxide Emissions*, 106 PNAS 6, Feb 10, 2009, at 1704-09.
99. *Id.* at 1707.

There remain uncertainties as to degree of impact for all climate-related events, particularly at the scale of regional and local impact.[100] These uncertainties, which may mean that future changes in SLR, for example, could be worse than currently projected,[101] admittedly present formidable obstacles to error-proof planning. They do not, however, weigh in favor of failing to embark on building adaptive capacity at all.[102]

B. *An Overview of Local Government and Developer Liability for Harms Suffered by Coastal Landowners*

Among the many claims coastal landowners might make relevant to SLR impacts, the most common claims will likely relate to loss of coastal land, damages to buildings and other infrastructure, and personal injury.[103] Landowners might also make claims seeking further damages for preventive measures that have been or should have been taken.[104] Researchers from various disciplines and sectors have already documented the tangible economic costs of severe events at the coastline.[105] The most compelling data show that costs of cleanup after an unmitigated disaster far eclipse the cost of instituting preventive measures, sometimes by a factor of 4:1, if not far more.[106] Indeed, hurricane loss-prevention and preparedness measures taken by certain policyholders prior to Hurricane Katrina presented an up-front cost of $2.5 million, but avoided $500 million in losses.[107] With this magnitude of potential loss, and the great possibility for cost-saving through prevention, litigation spurring more protective measures is even more compelling. This section explores the current trends in the law on local government and developer liability for coastal hazards that are analogous to or will be exacerbated by climate-related SLR.

100. *See* Quirin Schiermeier, *The Real Holes in Climate Science*, 463 Nature 284, Jan. 20, 2010, *available at* http://www.nature.com/news/2010/100120/full/463284a.html (last visited Oct. 7, 2012).
101. *See, e.g.*, Jean-Marie Macabrey, *Researchers Warn That Sea Levels Will Rise Much Faster Than Expected*, E&E News ClimateWire, Mar. 11, 2009, http://www.eenews.net/public/climatewire/2009/03/11/1 (last visited Oct. 26, 2012) (reporting that SLR by 2100 will be greater than the IPCC's prediction, and also that the rate of increase after 2100 will be faster than before 2100). "We are at the very least in the worst case scenario of the IPCC." *Id.*
102. *See* Schiermeier, *supra* note 100. In fact, Quirin Schiermeier explains that all of the problems (with downscaling models) do not make regional simulations worthless, as long as their limitations are understood. *Id.* Planners at the local and national levels are already using regional simulations. *Id.*
103. David Grossman introduces these possible claims in his provocative, early piece on climate-related tort litigation. Grossman, *supra* note 38, at 16.
104. *Id.*
105. *See generally Resilient Coasts: A Blueprint for Action*, The Heinz Center and Ceres (2009) (noting that despite the compelling evidence presented, nearly all U.S. coastal cities and towns lack adequate land use requirements and building code standards to realize the savings).
106. *Id.* at 1.
107. *Id.*

1. Local Government Liability

Over the last 40 years, local governments have adopted flood loss-reduction measures that generally fall into two categories: structural measures and nonstructural measures.[108] Structural measures include dykes, dams, levees, and stormwater systems. Nonstructural measures describe building codes, land use planning, flood predictions, and warning systems, among other measures.[109] Lawsuits against local governments due to flood or erosion losses allegedly due to these measures are instructive to assess local government liability with respect to SLR-associated risks.[110] Even without the potentially catastrophic damage of SLR on the coastlines, advances in technology that allow for more accurate hazard prediction have already presented more directed liability questions. As James Wilkins frames the question in his persuasive article on SLR and local government liability:[111]

> If a local government entity has control over planning and zoning decisions and possesses special knowledge about the likelihood and severity of risks, and it allows development that results in damage or injury from natural hazards that it knew or should have known about, can it be found liable for damages?[112]

While the answer is not straightforward, as there are many factors that influence the analysis and outcome,[113] the frequency with which the question is asked, coupled with more sophisticated means of prediction, should be of great concern to local governments. Further, prior case law suggests that certain climate-related claims are quite familiar and do not fall in government's favor.[114]

The current trend in local government liability differs depending on the measures employed. Here, I briefly take the measures in turn and summarize the findings regarding likelihood of liability, starting first with structural measures, which themselves are intended to reduce flood losses. Courts have often found local governments liable for flood and erosion losses related to structural measures.[115] The most successful flood related suits have involved government infrastructure that has increased natural hazards or hazard risks.[116] Specifically, if a government has itself constructed dams that collapsed due to inadequate design, construction, operation, or maintenance, courts have found them strictly liable to plaintiffs alleging harm.[117] They have also been held liable for negligence in the design, construction, maintenance, and operation of groins, seawalls, levees, bridges, and stormwater facilities that increased flooding or erosion on private properties.[118] In his comparative look at public liability for flood hazard mitigation, Jon Kusler explains that these structural measures cause increased loss in some instances with poor design, construction, maintenance, and operation, but also when design frequencies are exceeded.[119] This kind of error in design frequency is particularly relevant in the SLR context, as forecasted impacts of SLR will almost certainly exceed the interval of events for which the structure was designed.

Courts have held governments liable for losses in fewer cases involving inadequate flood warnings and inadequate dissemination of flood information, as well as other nonstructural measures. These cases are generally less successful because of explicit liability exemptions in state tort claims statutes, the notion that these measures constitute "benefits" that government has no duty to provide, and because many of these measures, such as weather prediction, involve a great degree of discretion.[120] Specifically, and most relevant to this Article, governments have not been held liable for weather and flood forecasts, nor have they been held liable for inadequate flood maps.[121] They have, however, been held liable in a few cases for inadequate dissemination of weather or flood forecast information.[122]

Planning and regulatory decisions made by local governments are also quite relevant to a discussion of adaptation litigation. With respect to liability for regulations, some courts have held governments liable for negligence when

108. *See generally* Jon A. Kusler, *A Comparative Look at Public Liability for Flood Hazard Mitigation*, Association of State Floodplain Managers Foundation (2009).
109. *Id.* at 4.
110. Some suits involve landowner claims against governments alleging that floodplain regulations constitute an unconstitutional taking of private property. These suits are relevant to actions that local governments are willing to take at the coastline, and often have a chilling effect on more aggressive legislation. *See, e.g.*, Douglas Codiga et al., *Climate Change and Regulatory Takings in Coastal Hawaii*, Center for Island Climate Adaptation and Policy (2011). Recent developments in Australia further highlight the admittedly difficult decisions local governments face in attempts to address SLR. *See, e.g.*, Vikki Campion, *Sea Level Rise Planning Clause Dumped*, The Daily Telegraph (Australia), July 4, 2012, http://www.dailytelegraph.com.au/property/sea-level-rise-planning-clause-dumped/story-e6frezt0-1226416675787 (last visited Oct. 26, 2012) (describing the removal of a controversial clause on planning documents that labeled the homes of thousands of coastal property owners in SLR danger). On the one hand, local governments face claims of devaluation of properties and increased insurance premiums. On the other hand, they might risk action for failing to disclose SLR dangers. A more comprehensive discussion of the takings hurdle is beyond the scope of this Article.
111. *See generally* Wilkins, *supra* note 12.
112. Wilkins, *supra* note 12, at 440.
113. Factors include whether there is a statute requiring government to avoid planning decisions that result in flooding, the level of knowledge government possesses about potential hazards and defenses available to government, and, perhaps the most obvious, sovereign immunity and discretionary function immunity. *See id.* at 441.
114. *See generally id.*
115. Kusler, *supra* note 108, at 4.
116. *Id.* at 13. *See also* Wilkins, *supra* note 12, at 493 (discussing the *In re Katrina* litigation).
117. Kusler, *supra* note 108, at 4. *See also* McDonald, *supra* note 14, at 244 (discussing possible claims in Australian courts). McDonald suggests that liability may also arise in cases where erection of structures in one place creates a reasonable expectation that it will also be built elsewhere. Failure to undertake such works could give rise to liability damage that occurred that could have been prevented. *Id.*
118. Kusler, *supra* note 108.
119. *Id.* Generally, design frequency describes the design decisions made based on assumptions about the frequency and magnitude of catastrophic events over a given time frame. For further discussion of design frequencies and climate change in the transportation context, see Michael D. Meyer, *Design Standards for U.S. Transportation Infrastructure: The Implications of Climate Change*, Transportation Research Board of the National Academies, Publications, *available at* onlinepubs.trb.org/onlinepubs/sr/sr290Meyer.pdf.
120. Kusler, *supra* note 108, at 5.
121. *Id.* at 5. Governments have been held liable in a few cases for inadequate emergency management activities.
122. *Id.*

they issue regulatory permits for buildings or other structures, or for subdivisions that cause increased flood hazards on *other* property.[123] This is significant, as it suggests that adjacent property owners along the coastline may have a viable action against local governments for issuing permits or failing to adequately regulate if those actions produce losses more frequent and/or more severe as a result of SLR impacts. Courts have also broadly supported regulations that exceed the minimum Federal Emergency Management Agency (FEMA) standards, including flood-protection elevations that exceed FEMA requirements, floodway designations, and beach and river setbacks. This is also significant, as it affirmatively supports a local government's attempts to build adaptive capacity by shielding them from property owners that seek to limit the government regulations along the coastline. Further, courts have "strongly and universally" supported floodplain regulations against takings claims,[124] claims that can have a significant chilling effect on local government's adaptive planning efforts.

Actions for failing to adequately regulate flood-prone areas have been less successful.[125] In general, governmental units have no duty to adopt regulations absent a legislative mandate requiring adoption.[126] This is the case for much the same reason as actions related to nonstructural measures have failed, including no duty to confer a benefit and sovereign immunity.[127] Though sovereign immunity leaves state or local governments immune from civil suit; when governments act as landowners they are subject to liability for impacts from their construction and operation of structural measures, such as dams, levees, and groins.[128] If, however, governments are designing or implementing nonstructural measures that involve a high degree of discretion, such as flood forecasting, sovereign immunity will apply under the discretionary function exception to the waiver of sovereign immunity.[129] Though sovereign immunity might at first impression appear to present significant hurdles,[130] there remain many other SLR-related impacts that are actionable, as demonstrated above.

Perhaps most significant to adaptation litigation are the impacts to coastal property owners affected by permitting and approving subdivisions. Many jurisdictions hold governments liable, though a comparable number of courts have held the opposite. Quite ironically, states with incredible vulnerabilities, like Hawaii,[131] do not hold counties liable for permitting or subdivision approval, finding that local governments have no duty to adjoining homeowners to ensure protection from flood risks.[132] Yet, the advances in technology and quality of data that become available for river and stormwater systems, and those overlaid with SLR data, suggest that courts may increasingly hold governmental units liable.[133] Kusler argues that, with such data available, communities can no longer convincingly argue that they were unaware of flood and erosion problems caused by development.[134] Further, for jurisdictions like Hawaii that find no duty to homeowners, to the extent that duty is determined by foreseeability of a harm,[135] better data coupled with greater stresses at the coastline due to climate change might force a reconceiving of duty obligations local authorities owe to coastal property owners.[136] Public policy may soon favor more expansive liability.[137]

Further, juries will soon regularly consider "unreasonable government conduct" under very changed circumstances because of climate change. Juries will assess the reasonableness of government action vis-à-vis flood hazards based on whether government staff had knowledge of the potential flood problems, the foreseeability of floods resulting in damage to individuals, and the degree of risk involved.[138] SLR will deeply affect all of these considerations.

2. Developer Liability

Current liability risks strongly suggest that developers might face greater liability due to continued land devel-

123. Kusler, *supra* note 108, at 5, 42-43. Kusler cites numerous cases that found governmental units liable or potentially liable for issuing permits or approving subdivisions, including: *Sheffet v. County of Los Angeles*, 84 Cal. Rptr. 11 (Cal. Ct. App. 1970) (court held that county was liable when it approved the subdivision and accepted dedication of her facilities, which resulted in a flood and urgent damages); *County of Clark v. Powers*, 611 P.2d 1072 (Nev. 1980) (court applied a "reasonable use" rule for surface waters and held city liable for increased funding to urbanization and cities flood control activities); *Pickle v. Board of County Comm'r of County of Platte*, 764 P.2d 262 (Wyo. 1988) (court held that county duty to exercise reasonable care in reviewing subdivision plan is potentially liable in negligence or flooding problems with wastes disposal because of failure to use such care); *Eschete v. City of New Orleans*, 245 So. 2d 383 (La. 1971) (court held that city could be held liable for approving subdivision that overtaxed drainage system and caused flooding).

124. *Id.*

125. *Id.* at 41.

126. *Id.*

127. *See id.*

128. *Id.* at 13.

129. *See id.*; *see also* In re Katrina Canal Breaches Consolidated Litigation, 647 F. Supp. 2d 644, 703 (E.D. La. 2009) ("The discretionary function exception bars claims based on the performance of a discretionary function and has no requirement to exercise due care.").

130. *See* Kusler, *supra* note 108, at 14. *See also id.* at 17; Julius Rothschild & Co. v. State, 655 P.2d 877 (Haw. 1982); *but see In re Katrina*, 647 F. Supp. 2d at 704-17.

131. Hawaii is a 100% coastal state, with its entire population residing in coastal counties. *See generally* Hawaii CZM Program, http://hawaii.gov/dbedt/czm/ (last visited Oct. 24, 2012); *see also* Wilkins, *supra* note 12, at 483 (describing Alabama, Mississippi, and Texas as the Gulf states that are least likely to find local governments responsible for public works projects or planning decisions that cause or exacerbate flooding).

132. *See* Cootey v. Sun Investment, Inc., 718 P.2d 1086 (Haw. 1986) (county not liable for having approved subdivision plans, including drainage plans verifying result; court held that there is no breach of duty of care).

133. Kusler, *supra* note 108, at 45; Dave Owens, *Mapping, Modeling, and the Fragmentation of Environmental Law* (manuscript on file with author).

134. *Id.* Landowners will also have better access to computer-generated computers flood-erosion models that can calculate the effects that specific structures, fills, and drainage works have on flood height velocities and erosion. *Id.* In the Australia context, McDonald makes a similar prediction. McDonald, *supra* note 14, at 248 (stating that recent development approvals are likely to demand a higher level of care because public awareness and understanding climate change risks has increased so dramatically in recent years).

135. *See* Wilkins, *supra* note 12.

136. *Id.* at 488 ("There is reason to think that if sea level inundation continues its observed trend, not to mention accelerated rate predicted by many models, effects will also submerge the discretionary function immunity defense for those governments who chose to ignore the coming threat.").

137. *See* Kusler, *supra* note 108, at 15. This is not a slam dunk, however, as administrative concerns (due to the sheer number of possible claims) as well as concerns over crushing liability may encourage legislators to steer these actions away from the courts.

138. Kusler, *supra* note 108, at 13-14.

opment on increasingly threatened coastlines. The historical trend regarding developer liability reflects an increased willingness to find developers liable for damages landowners incur.[139] Reflected in the doctrinal progression from caveat emptor to more expansive liability in tort law, social mores have counseled in favor of protecting landowners in their transactions with developers.[140] In particular, case law from Oregon and Indiana detail the more liberal interpretations of developer liability due to poor siting and/or construction, and, I suggest, portend the direction of tort litigation against developers as a result of increasing climate-related risks.

The *Salishan* cases[141] in Oregon, involving oceanfront lots plagued by coastal erosion, clarified both contract and tort liability against developers, providing a helpful analogue to the adaptation tort. Relevant to the present discussion, these cases made clear that developers planning to develop coastal lands, particularly in characteristically unstable coastal regions, must anticipate potential negligence liability.[142] While contractual liability might be avoided, the court in *Beri v. Salishan*[143] found that a developer has a duty of reasonable care to determine whether the lots sold are fit for their intended use. Tort liability, with its additional threat of punitive damages, may apply to transactions involving land alone. This is true despite the fact that coastal erosion is a matter of common knowledge. The *Beri* court, adopting a broader view of duty, found that developers are liable for failure to exercise reasonable care in the development projects that they undertake.[144] Developers can, therefore, face tort liability as relative experts who have failed to satisfy the "knew or should have known" standard of care with respect to the dangers of lands they develop and sell.

Relevant to their expertise, while a developer need not be aware of every latent defect, they can be "held responsible for losses to purchasers caused by his failure to take reasonable precautions to determine whether the lots he offers are fit for that purpose."[145] The more liberal finding of liability is echoed in the Indiana case, *Jordan v. Talaga*.[146] The homeowners in *Talaga* brought suit against subdivision developers from whom they purchased lots subsequently plagued by severe water and drainage problems. In finding against the developers, the court focused heavily on the developers' relative expertise. Further, because developers generally hold themselves out as experts, they may have to shoulder the burden of liability for "purely equitable reasons."[147] Indeed, other jurisdictions, such as Texas, have also found that the professional developer, rather than the purchasing property owner, should bear the risk of loss.[148] In addition, as the *Talaga* court reasoned, developers "are in the best position to absorb the loss attributable to the latent, undisclosed effect in the real estate they sold."[149] Not only do they hold greater expertise and knowledge, they also have greater access to insurance to alleviate potential erosion risks.[150]

Like local governments, the reasonableness of developers' actions will turn on the foreseeability of the harms present, as well as what they knew or should have known. Foreseeability is particularly relevant in the context of coastal development; yet, because of the inherent unpredictability of the coastal environment—even ignoring SLR for the moment—foreseeability issues are among the most challenging. Foreseeability is based on historical patterns, but it is also based on what science and technology can project regarding future conditions.[151] Ignorance, therefore, will not relieve the developer of liability. Even a developer's good-faith belief that a development is stable will not, as a matter of law, serve as a viable defense. The breach of developer's duty to purchasers may be established by presenting evidence that the developer knew or should have known material facts regarding the suitability of a development.[152] This, incidentally, may also militate in favor of exploring increased liability for real estate brokers, as well as others along the chain of development and sale of property.[153] At the very least, for developers to meet the appropriate due diligence standard, "[t]ort law clearly imposes a duty 'to anticipate the usual weather of the vicinity, including all ordinary forces of nature.'"[154]

Coastal regions are characteristically dissimilar, though climate change poses a quite unique evidentiary dilemma for developers, and perhaps brokers. As discussed in Part II.A., better science yields greater understanding of just how much more risky the coastlines might become. Indeed, it is clear that engineers are beginning to think about and plan around these risks in earnest.[155] SLR and related impacts

139. *See generally* Jeffrey Piampiano, *Coastal Erosion and the Risk of Liability for Coastal Land Developers*, 4 J. Small & Emerging Bus. L. 347 (2000).
140. *Id.* at 353.
141. *See* Cook v. Salishan Properties, Inc., 569 P.2d 1033 (Or. 1977) and Beri, Inc. v. Salishan Properties, Inc., 580 P.2d 173 (Or. 1978).
142. *See* Piampiano, *supra* note 139, at 355-61. There may also be tort liability for failure to warn buyers of erosion risks. *Id.* at 365-67. *See also* McDonald, *supra* note 14, at 256 (extrapolating from cited cases, it could be argued that compliance with the statutory development approval will not obviate the need for developer to warn potential purchasers of known risks associated with impacts of climate change).
143. Piampiano, *supra* note 139, at 359.
144. *Beri*, 580 P.2d at 176.
145. *Id.* at 177.
146. 532 N.E.2d 1174 (Ind. Ct. App. 1989).
147. Piampiano, *supra* note 139, at 363.
148. *See* Luker v. Arnold, 843 S.W.2d 108 (Tex. Ct. App. 1992).
149. *Talaga*, 532 N.E.2d at 1185-86.
150. Piampiano, *supra* note 139, at 364; *see also* Conklin v. Hurley, 428 So. 2d 654, 659 (Fla. 1983).
151. Piampiano, *supra* note 139, at 369. Explaining that even if natural forces had not struck a particular location before, liability may still exist if reasonable design, construction, operation, inspection, or maintenance should have anticipated and thereby prevented or minimized the risk. *Id.*
152. *See, e.g.*, Easton v. Strassburger, 199 Cal. Rptr. 383, 386-88 (Cal. Ct. App. 1984) (holding that a real estate broker was liable for negligent misrepresentation in failing to disclose a material fact related to the soil conditions of a property, which would have been discovered had the broker exercised due care).
153. *See* Piampiano, *supra* note 139, at 369 (arguing that public policy militates that a duty to inspect and inform falls upon the broker and citing Elizabeth A. Dalberth, *Unfair and Deceptive Acts and Practices in Real Estate Transactions: The Duty to Disclose Off-Site Environmental Hazards*, 97 Dick. L. Rev. 153, 177 n.171 (1992), to demonstrate that imposing heightened duty would not be unduly burdensome).
154. Piampiano, *supra* note 139 at 370 (citing Denis Binder, *The Duty to Disclose Geologic Hazards in Real Estate Transactions*, 1 Chapman L. Rev. 13, 49 (1998)).
155. Watts, *supra* note 31.

might make the foreseeability issue clearer, though likely not to the benefit of developers and their desire to build at the coastline without the threat of liability. While knowledge of specific impacts might elude developers, understanding the well-established projections about the decline of domestic coastlines is well within the grasp of developers. Further, relevant to tort claims, as the gravity of potential harm relative to the burden of preventing it increases, finding of unreasonable behavior is also heightened.

Reasonable behavior for a developer in light of the specter of SLR might entail the following: Developers will need to take all necessary measures to know their site and contract for independent geological, hydrological, and engineering studies that are based on the best available climate science for the region or topography before commencing development[156]—previously warranted measures at the coasts that are arguably even more important today and into the future. This kind of vigilance will allow developers to identify risky areas in light of emerging climate science, incorporate the recommendations of engineers and geologists, and, whenever necessary, limit or cease development in areas where the risk of catastrophic damage is significant.[157] Actions short of this may appropriately expose developers to increasing liability.

III. Corrective (Climate) Justice

There are numerous possible claims that may be successful against local governments and developers, contradicting the enduring skepticism about the efficacy of tort law. These possibilities, coupled with more sophisticated science, suggest that courts are sensible spaces for remedy-seeking for climate change adaptation. It would be a means of arresting, at least partially, the accelerating impacts of climate change utilizing a "thousand cuts" approach.

In prior scholarship, I have both questioned[158] and endorsed[159] climate-related tort litigation. As anthropogenic emissions and current and forecasted climate impacts continue to frighteningly outpace any consequent action to curb climate change, it seems that all avenues should be used to their maximum potential. This is especially true if these avenues are not only well-suited for the procedural task, but also demand commitment to advancing justice as part of their core purpose.

Further, it is incumbent upon those with particular concerns for individuals and communities that will suffer more acutely to continue to identify every mechanism that is legally viable and that can have significant impact beyond the courtroom. Those seeking to advance climate justice[160] should look to the trailblazers in theory and activism that have defined the environmental justice movement. Although—or perhaps because—there was no law or legal mechanism that explicitly advanced environmental justice, advocates needed to find myriad existing avenues to meet the ultimate goal of relieving some of the largely toxic, environmental burdens poor communities and communities of color shoulder.[161] As Robert Verchick explains:

> [E]nvironmental statutes could be used to further the interests of social justice, [but] the terrain was not landscaped for that purpose. It took activists with imagination and grit to climb the peaks . . . It took lawyers who could scan the glaciers of federal code and find a *foothold*—a place where you could jam your steel-toothed boot, stabilize your momentum, and launch yourself forward.[162]

IV. Conclusion

In this Article, I have attempted to persuade legal scholars, practitioners, and potential claimants—even local governments and developers—that tort litigation relating to climate change adaptation deserves much greater attention. Climate change liability has enjoyed more spirited and dynamic conversation in the academic arena, rather than familiar, yet potentially prolific and productive, action in the court clerk's office. I argue that the more commonplace foundation on which climate change adaptation litigation would proceed presents a possible foothold desperately needed to meet justice goals. This could be an early step needed to launch a more transformative journey.

156. Piampiano, *supra* note 139, at 364.

157. This recommendation seems especially poignant when one considers the incredible proliferation of development in high-risk fire zones. For further discussion of increased property damage and casualties due to risky development coupled with greater wildfire risk due to climate change, see Michael Kodas & Burt Hubbard, *Policies Put More Coloradans at Risk*, I-News Network, http://www.inewsnetwork.org/redzone/ (last visited Oct. 8, 2012). Developer liability may curb this kind of development, in which short-term gains encourage profitable human settlements in ill-suited areas.

158. *See* Burkett, *supra* note 68; *but see* Hari Osofsky, *Reflections on Future Directions for Climate Justice*, Commentary on Maxine Burkett, *Climate Reparations*, 10 Melbourne J. Int'l L. 509 (2009), http://opiniojuris.org/2010/02/11/a-response-to-maxine-burkett-by-hari-m-osofsky/ (last visited Oct. 26, 2012) (Osofsky convincingly argues that climate litigation is a valuable complement to the reparations scheme I proposed).

159. *See* Burkett, *supra* note 2.

160. "The field of 'climate justice' (CJ) is concerned with the intersection of race and/or indigeneity, poverty, and climate change. It also recognizes the direct kinship between social inequality and environmental degradation." Burkett, *Climate Justice and Elusive Climate Tort*, *supra* note 2, at 116.

161. *See generally* U.S. EPA, *Plan EJ 2014*, Sept. 2011, http://www.epa.gov/compliance/ej/plan-ej/index.html (last visited Oct. 24, 2012).

162. Robert Verchick, *EPA Releases Inventory of Legal Authorities to Advance Environmental Justice*, CPR Blog, Feb. 13, 2012, http://www.progressivereform.org (last visited Oct. 17, 2012).