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Comparative Climate Change Torts

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Article

COMPARATIVE CLIMATE CHANGE TORTS

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Climate change torts are in their collective infancy. Yet, there have been a few climate change tort actions launched, largely in the United States, against major carbon emitters. Comparative tort law in countries around the world present interesting possibilities for future climate change tort actions seeking money damages and injunctive relief in coming years.

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I. INTRODUCTION

With breathtaking speed, "[o]ver the course of the last few years, climate change litigation has been transformed from a creative lawyering strategy to a major force in transnational regulatory governance of greenhouse gas emissions."[1] Climate change litigation is, in large part, a multi-pronged attempt by governments and non-governmental organizations ("NGOs"), to politically pressure industrial greenhouse gas emitters and enablers.

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* Professor of Law, Valparaiso University School of Law. I am grateful for the opportunity to have served as a panel chair for a conference on Litigating Climate Change held in February, 2011, at the Valparaiso University School of Law; many of the insights from that conference inspired this Article. For articles presented at the conference, see Kevin T. Haroff, *On Thin Air: Standing, Climate Change, and the National Environmental Policy Act*, 46 VAL. U. L. REV. 411 (2012); Hari M. Osofsky, *Litigation's Role in the Path of U.S. Federal Climate Change Regulation: Implications of* AEP v. Connecticut, 46 VAL. U. L. REV. 447 (2012); Victor E. Schwartz, Phil Goldberg, & Christopher E. Appel, *Does the Judiciary Have the Tools for Regulating Greenhouse Gas Emissions?*, 46 VAL. U. L. REV. 369 (2012).

1 William C.G. Burns & Hari M. Osofsky, *Overview: The Exigencies That Drive Potential Causes of Action for Climate Change*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES 1 (William C.G. Burns & Hari M. Osofsky eds., 2009).

One recent commentator emphasized "the socio-legal role that climate change litigation plays" in constituting "a formal part of the regulatory process" as well as serving as an "expressive," or "social norm creating" force.[2] In particular, "[t]he adjudication provides a mechanism for dialogue and awareness . . . in a regulatory environment in which policies have not caught up with the problem. At least as important, it creates diagonal interactions through which different levels and branches of regulators interact and grapple with what is needed."[3]

Climate change litigation encompasses subnational,[4] national,[5] and supranational[6] case studies.[7] Yet, from the perspective of *tort law*—as distinct from regulatory/administrative law,[8] land use law,[9] human

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2 Hari M. Osofsky, *Conclusion: Adjudicating Climate Change Across Scales*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 380, 383.

3 *Id.* at 383 (footnote omitted).

4 *See, e.g.*, Stephanie Stern, *State Action as Political Voice in Climate Change Policy: A Case Study of the Minnesota Environmental Cost Valuation Regulation*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 31; Mary Christina Wood, *Atmospheric Trust Litigation*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 99.

5 *See, e.g.*, Hari M. Osofsky, *The Intersection of Scale, Science, and Law in* Massachusetts v. EPA, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 129; Amy Sinden, *An Emerging Human Right to Security from Climate Change: The Case Against Gas Flaring in Nigeria*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 173.

6 *See, e.g.*, William C.G. Burns, *Potential Causes of Action for Climate Change Impacts Under the United Nations Fish Stocks Agreement*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 314; Hari M. Osofsky, *The Inuit Petition as a Bridge? Beyond Dialectics of Climate Change and Indigenous Peoples' Rights*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 272 [hereinafter *The Inuit Petition as a Bridge? Beyond Dialectics of Climate Change and Indigenous Peoples' Rights*]; Erica J. Thorson, *The World Heritage Convention and Climate Change: The Case for a Climate-Change Mitigation Strategy Beyond the Kyoto Protocol*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 255.

7 *Cf.* Hari M. Osofsky, *Is Climate Change "International"? Litigation's Diagonal Regulatory Role*, 49 VA. J. INT'L. L. 585, 587 (2009) ("[T]he nature of climate change regulation necessitates multiscalar legal approaches—that is, ones which simultaneously engage more than one level of governance" because "[c]limate change is an individual, local, state, national, regional, and international problem" and "carbon is so deeply embedded in the global economy and its impacts manifest in specific ways in different places [that] emissions and impacts occur at multiple levels simultaneously.").

8 *Cf.* Lesley K. McAllister, *Litigating Climate Change at the Coal Mine*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 48 (discussing assorted Australian cases involving judicial orders requiring governmental agencies to examine the environmental impacts of greenhouse gases directly produced by coal mines and the future environmental impacts of burning coal).

9 *Cf.* Katherine Trisolini & Jonathan Zasloff, *Cities, Land Use, and the Global Commons: Genesis and the Urban Politics of Climate Change*, *in* ADJUDICATING CLIMATE CHANGE: STATE,

rights law,[10] and international law[11]—the theory and practice of pleading and proving a civil wrong caused by one or more defendants' "climate change" conduct, sufficient to trigger entitlement to money damages or injunctive relief, or both, is seriously problematic at present. Given the creativity and persistence of tort lawyers, however, it is likely that within the next several decades of the twenty-first century, in the United States as well as other countries, climate change torts will be recognized in individual cases that apply traditional tort causes of actions and evolving new tort causes of action. In such cases, tort plaintiffs will likely recover money damages and equitable relief for their harms.

The remainder of this Article is organized into two principal parts. In Part II, climate change tort developments in the United States will be discussed. In Part III, a broad-brush comparative climate change tort perspective is sketched out by looking at recent developments in other countries. A brief sketch of potential future scenarios and strategies of various climate change torts is considered in the Conclusion.

II. AMERICAN CLIMATE TORT LAW DEVELOPMENTS

As noted by David A. Grossman: "Tort-based climate change litigation strikes many people as a strange idea at first. Basic tort principles, however, combined with . . . scientific [evidence] . . . may provide a basis for liability claims against major corporate emitters for some of climate change's effects."[12] Expanding on an earlier article that he wrote,[13] Grossman provided an update, as of 2009, to American "tort law [principles] to hold companies emitting substantial amounts of

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NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 72–73 (discussing the New Zealand Environment Court's reversal of a local land use decision regarding the location of a small wind farm based on the positive national benefits of renewable energy outweighing the negative local effects).

10 *Cf. The Inuit Petition as a Bridge? Beyond Dialectics of Climate Change and Indigenous Peoples' Rights*, *supra* note 6 (discussing a petition filed with the Inter-American Commission on Human Rights on behalf of the Inuit people in the United States and Canada alleging that U.S. climate change policy violated their human rights).

11 *Cf.* Andrew Strauss, *Climate Change Litigation: Opening the Door to the International Court of Justice*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 334, 336–50 (formulating a strategy for litigating climate change disputes before the International Court of Justice).

12 David A. Grossman, *Tort-Based Climate Litigation*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 193, 228 [hereinafter *Tort-Based Climate Litigation*].

13 David A. Grossman, *Warming Up To a Not-So-Radical Idea: Tort-Based Climate Change Litigation*, 28 COLUM. J. ENVTL. L. 1 (2003).

greenhouse gases liable for at least some of the harms caused by climate change."[14]

Grossman offers a number of illuminating observations about traditional American tort law and climate change. First, from an overarching perspective, "because of the uneven nature and distribution of the effects of climate change . . . [t]his . . . raises the question of whether we should continue to ask the victims of climate change to bear these costs or transfer them [via tort law] to those who have most substantially contributed to creating the harm."[15] Second, "[p]ublic nuisance seems to be the strongest of the climate tort claims" because of the tort's "focus on 'unreasonable injury,'"[16] the use of "public nuisance suits for decades to address pollution,"[17] and since "[t]he application of nuisance law to the problem of climate change does not appear to be that novel an extension."[18] Third, "[p]roducts liability is another tort theory potentially applicable to climate change, although it seems to be a significantly weaker claim than public nuisance, which may be why no plaintiffs have filed climate change products liability suits to date."[19] According to Grossman's analysis:

> All things considered, . . . climate change plaintiffs' strongest products liability claim [among warning

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14 *Tort-Based Climate Litigation*, *supra* note 12, at 193.

15 *Id.* at 194. He properly notes that "[a]llocation of the costs of harms is . . . [a] central tort concern." *Id.* (citing Eduardo M. Penalver, *Acts of God or Toxic Torts? Applying Tort Principles to the Problem of Climate Change*, 38 NAT. RESOURCES J. 563, 569 (1998)).

16 *Id.* at 195, 228.

17 *Id.* at 195 (footnote omitted).

18 *Id.* (footnote omitted). Grossman highlights three recent public nuisance climate cases that have not yet reached the merits: Connecticut v. Am. Elec. Power Co., 406 F. Supp. 2d 265 (S.D.N.Y. 2005), *vacated*, 582 F.3d 309 (2d Cir. 2009), *rev'd*, 131 S. Ct. 2527 (2011) (revealing that eight states, New York City, and three land trusts separately sued electric power companies that owned and operated fossil-fuel-fired power plants in twenty states seeking abatement of ongoing contributions to the public nuisance of global warming and the Supreme Court held that the plaintiffs had standing, that the Clean Air Act and Environmental Protection Agency actions it authorizes displaced any federal common law right to seek abatement of carbon dioxide emissions from the power plants, and the availability of claims under state nuisance law would be left for consideration on remand), California v. Gen. Motors Corp., No. C06-05755 MJJ, 2007 U.S. Dist. LEXIS 68547 (N.D. Cal. Sept. 17, 2007), and Native Vill. of Kivalina v. ExxonMobil Corp., 663 F. Supp. 2d 863 (N.D. Cal. 2009) (telling of a public nuisance claim against twenty-four oil, gas, and power companies seeking a declaratory judgment for damages and expenses as well as alleging civil conspiracy and concert of action). *Tort-Based Climate Litigation*, *supra* note 12, at 195—196.

19 *Tort-Based Climate Litigation*, *supra* note 12, at 199 ("The basic elements of a products liability claim are: (1) a product has a defect that makes it unreasonably dangerous; (2) this defect existed when the product left the defendant's control; and (3) the defect proximately caused plaintiff's injuries.").

> defects, design defects, and negligence] would appear to be a design defect suit. However, recognition of manufacturers' [such as automobile companies'] duties to climate change victims outside of their capacity as users or consumers of products that emit carbon dioxide is by no means certain, and potential defendants might be able to present strong "state of the art" defenses. While a products liability claim might be viable, therefore, these caveats suggest that it is a much weaker claim than public nuisance.[20]

Fourth, speaking to potential jurisdictional hurdles in American climate change tort suits, Grossman concludes that, in light of recent U.S. Supreme Court standing jurisprudence, "the ability of plaintiffs in a climate tort case to establish standing . . . appears greatly enhanced."[21] While displacement of federal common law nuisance claims is now the law after *American Electric Power Co. v. Connecticut*,[22] Grossman concludes that federal preemption of state common law claims is unlikely, "at least until comprehensive [air pollution] regulations are in place (and perhaps [not] even then, if the regulations do not provide a remedy for harms) . . . so long as the emissions at issue in the state common law claims are not from motor vehicles."[23] Fifth, "[c]ausation in any climate change tort suit will be a complicated issue, as plaintiffs must show that their harms are traceable to defendants' actions."[24] Generic and specific causation is problematic in climate change tort suits because "several factors are involved in producing shifts in climatic activity" and "[t]hese multiple causes and background levels of climatic effects make it difficult to show that [the] defendants' contributions to anthropogenic climate change caused any particular incidence of a phenomenon."[25]

Focusing on the emerging common law duty of care in American climate change tort law—potentially applicable to a variety of tort causes of action (from the tort of negligence to product liability claims, from private nuisance to public nuisance suits)—Professors David Hunter and James Salzman provide a fascinating discussion of technological trends, foreseeable risks of harm, and reasonable mitigation measures that will

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20 *Id.* at 206.

21 *Id.* at 208.

22 131 S. Ct. 2527, 2538 (2011). "The [Clean Air] Act itself . . . provides a means to seek limits on emissions of carbon dioxide . . . —the same relief the plaintiffs seek by invoking federal common law. We see no room for a parallel track." *Id.*

23 *Tort-Based Climate Litigation*, *supra* note 12, at 213.

24 *Id.* at 215.

25 *Id.* at 217 (footnote omitted).

drive the next wave of climate change tort suits in their article, *Negligence In the Air: The Duty of Care in Climate Change Litigation*.[26] In considering potential "duty issues" of key potential climate tort defendants, they state:

> Car makers, oil companies, utilities, and others all have a duty to behave reasonably and avoid the unreasonable imposition of harm on others, of course, but what is the nature of this duty? With respect to car companies, for example, is it unreasonable to produce cars that fully comply with existing regulatory requirements? Have the impacts of auto emissions on the climate been so foreseeable in the past that a reasonable car company should have accounted for them in its design? Or is it sufficient that car companies have been conforming to general industry norms and customs? Indeed, given the consistently strong consumer demand for SUVs and cars with powerful engines, could a car company even have stayed in business if it produced only cars with low greenhouse gas emissions? Looking to the future, when will foreseeability and design options have progressed enough that the duty of car companies should evolve? Does the consistent lobbying of some automobile companies against national fuel emissions standards . . . have relevance to their potential liability? Similar questions could be posed of fossil fuel producers, utilities, and other potential defendants.[27]

Looking at the classic Judge Learned Hand negligence formula,[28] Hunter and Saltzman opine: "The identifiable risks of climate change are becoming better understood, and most of them have become more likely with greater consequences than was thought even a decade ago."[29] Moreover, "new technologies are lowering the costs of pollution control equipment, carbon storage, fuel switching, and renewable and other

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26 David Hunter & James Salzman, *Negligence in the Air: The Duty of Care in Climate Change Litigation*, 155 U. PA. L. REV. 1741 (2007).

27 *Id*. at 1750–51.

28 United States v. Carroll Towing Co., 159 F.2d 169, 173 (2d Cir. 1947) ("[T]he owner's duty, as in other similar situations, to provide against resulting injuries is a function of three variables: (1) The probability that she will break away; (2) the gravity of the resulting injury, if she does; (3) the burden of adequate precautions.").

29 Hunter & Salzman, *supra* note 26, at 1757.

energy alternatives."[30] Considering the potential "moral blameworthiness or unreasonableness of a defendant's climate-changing activities,"[31] the authors suggest a variety of relevant inquiries in climate change litigation:

- Marketing a product (for example, an automobile) that is particularly inefficient.
- Planning a large expansion of electricity generation from coal-fired power plants without budgeting for any mitigation steps.
- Taking preventive measures in foreign operations (where they may be subject to climate-related regulations) while continuing to operate without such measures [in the United States].
- Making public statements or issuing policies that appear climate friendly but do not reflect actual operations.
- Reducing research and development budgets or slowing deployment of more carbon-efficient technologies or products.
- Issuing or promoting misinformation about climate change that the company knows or reasonably should have known is false.
- Withholding studies or information that would increase our understanding of climate change.
- Destroying climate change related documents.[32]

In closing this brief survey of important American tort law developments, it is instructive to note some innovative climate change tort theories and related liability theories suggested by other commentators. Professor Mary Christina Wood has argued for "'atmospheric trust litigation'" against all levels of American government to hold the government "accountable for reducing carbon emissions."[33] According to Wood, "[s]uch litigation rests on the premise that all governments hold natural resources in trust for their citizens and bear the fiduciary obligation to protect such resources for future generations."[34] Moreover, Aura Weinbaum contends that, as a gap-filling climate change liability strategy to traditional tort causes of action, compensation based on restitution for unjust enrichment of emitters would be a fruitful idea.[35]

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30 *Id.*

31 *Id.* at 1773.

32 *Id.* at 1774 (footnotes omitted).

33 Mary Christina Wood, *Atmospheric Trust Litigation*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES, *supra* note 1, at 99.

34 *Id.*

35 Aura Weinbaum, *Unjust Enrichment: An Alternative to Tort Law and Human Rights in the Climate Change Context?*, 20 PAC. RIM L. & POL'Y J. 429 (2011). Recently, a seminal comparative law book was published: CLIMATE CHANGE LIABILITY: TRANSNATIONAL LAW

III. COMPARATIVE CLIMATE TORT LAW DEVELOPMENTS

A. Overview and Introduction

In this Part, the preliminary discussion focuses on comparative environmental laws and policies that should be viewed as analogous to potential tort-based claims for environmentally-induced harms. Then the commentary shifts to specific comparative tort-based climate change legal matters.

As an initial comparative law observation relevant to global climate change litigation, it is interesting to note that more than half of the 195 nations of the world—by one estimate 109 states[36]—"have constitutional environmental provisions of some kind," while "no recently promulgated constitution omits these, and many older constitutions are being amended to include them."[37] According to Kathryn Kintzele's analysis of national constitutional environmental provisions:

> Constitutions often carry a similar structure, regardless of the state: an opening, or preambulatory, aspirational

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AND PRACTICE (Richard Lord, Silke Goldberg, Lavanya Rajamani & Jutta Brunnee eds. 2012) [hereinafter CLIMATE CHANGE LIABILITY]. Under the rubric of "private law," this book examines, among other climate liability topics, the following:

> Private law claims envisage one person, C, who alleges he/she has suffered damage from climate change, suing D, who is allegedly responsible in part for it, for compensation, or for an order to make D change his/her behaviour. C might be a person who suffered in a heatwave [sic], or had his/her house flooded. D might be an oil company or power generator. The claim will be brought in "tort" or "delict." In common law systems a specific tort has to be alleged, and those most commonly discussed in this context are "nuisance" and "negligence." Establishment of this type of liability has been seen as a kind of holy grail by environmental campaigners and as an unacceptable disaster scenario by sectors of industry which might have to bear the cost. The numbers of potential claimants and defendants in this type of action, and the scale of potential compensation, are all huge, and indeed the very wide scope of such claims is one policy factor against their being permitted. No *action of this type has yet succeeded. Few have been brought, almost all in the United States of America.*

Jutta Brunnée, Silke Goldberg, Richard Lord QC & Lavanya Rajamani, *Overview of Legal Issues Relevant to Climate Change*, *in* CLIMATE CHANGE LIABILITY, *supra*, at 32–33 (emphasis added) (footnote omitted) (American English spelling). For a detailed and timely analysis and quantification of U.S. climate change liability developments; *see* Michael B. Gerrard & Gregory E. Wannier, *United States of America*, *in* CLIMATE CHANGE LIABILITY, *supra*, at 556–604.

[36] TIM HAYWARD, CONSTITUTIONAL ENVIRONMENTAL RIGHTS 22, n.2 (2005) (citation omitted).

[37] *Id.* at 4 (footnote omitted).

> statement, followed by numerated, operational clauses detailing the rights and duties of the government and the citizenry. Many of the clear ethical statements found in constitutions are often preambulatory, but many of the operative clauses show ethical considerations, as well.[38]

Kintzele identifies a variety of environmental constitutional provisions of foreign nations that have potential implications for climate change tort-based litigation. Among the national environmental constitutional provisions extant are those of Ecuador,[39] Cuba,[40] France,[41] Bhutan,[42] Montenegro,[43] Iraq,[44] and Kenya.[45]

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38 Kathryn Kintzele, *Keeping Nature Alive: From Moral Motivations to Legal Implications*, *in* GLOBALISATION AND ECOLOGICAL INTEGRITY IN SCIENCE AND INTERNATIONAL LAW 233 (Laura Westra, Klaus Bosselmann, & Colin Soskolne eds., 2011).

39 "'Nature has the right to an integral restoration. This integral restoration is independent of the obligation on natural and juridical persons or the State to indemnify the people and the collectives that depend on the natural systems.'" *Id*. at 234 (footnote omitted) (quoting República del Ecuador's, Rights of Nature, art. 2 (2008)).

40 "The [s]tate protects the environment and natural resources of the country. It recognizes their close link with the sustainable economy and social development for making human life more sensible, and for ensuring survival, welfare and security of present and future generations." *Id*. (footnote omitted) (quoting República de Cuba (1992)).

41 "The French People, considering that natural resources and equilibriums have conditioned the emergence of mankind; the future and very existence of mankind are inextricably linked with its natural environment . . . ." *Id.* (footnote omitted) (quoting Charte de l'Environnement, République Française (1958, amended 2007)). Moreover: "When the occurrence of any damage, albeit unpredictable in the current state of scientific knowledge, may seriously and irreversibly harm the environment, public authorities shall, with due respect for the principle of precaution and the areas within their jurisdiction, ensure the implementation of procedures . . . ." *Id.* (alteration in original) (footnote omitted) (quoting Charte de l'Environnement, République Française, Art. 5 (1958, amended 2007)).

42 "Parliament may, in order to ensure sustainable use of natural resources, enact environmental legislation and implement environmental standards and instruments based on the precautionary principle, polluter pay principle, maintenance of intergenerational equity . . . ." *Id.* (alteration in original) (footnote omitted) (quoting Bhutan, art. 5, Environment 4 (2008)).

43 "Montenegro is a civil, democratic, ecological state with social justice, based on the rule of law." *Id*. at 235 (footnote omitted) (quoting Montenegro, art. I (2007)).

44 Iraq mandates a constitutional oath be taken by each member of the Council of Representatives: "I swear by God Almighty to carry out my legal duties and responsibilities with devotion and integrity and preserve the independence and sovereignty of Iraq, and safeguard the interests of its people, and ensure the safety of its land, sky, water, wealth, and federal democratic system . . . ." *Id.* (alteration in original) (footnote omitted) (quoting Article 50, Doustour Joumhouriat al-Iraq [The Constitution of the Republic of Iraq] of 2005).

45 "The [s]tate shall . . . ensure that social and cultural values traditionally applied by the communities of Kenya for the sustainable management of the environment and natural

Beyond national environmental constitutional provisions, domestic courts in numerous foreign nations have found enforceable environmental rights emanating from national constitutions. These judicial opinions, based on interpretation of their respective national constitutions, stem from cases in India,[46] Columbia, and Nigeria.[47] Joining this trend is the 1993 Philippines Supreme Court's opinion in *Oposa v. Factoran*, where the court opined:

> [T]he right to a balanced and healthful ecology belongs to a different category of rights altogether for it concerns nothing less than self-preservation and self-perpetuation the advancement of which may even be said to predate all governments and constitutions.
>
> As a matter of fact, these basic rights need not even be written in the Constitution for they are assumed to exist from the inception of humankind. If they are now explicitly mentioned it is because of the well-founded fear of its framers that unless the right to a balanced and healthful ecology and to health are mandated as state policies by the Constitution itself the day would not be too far when all else would be lost not only for the present generation, but also for those to come—generations which stand to inherit nothing but parched earth incapable of sustaining life.[48]

There are also non-constitutional foreign law principles that are analogous and relevant to potential tort-based climate change law. India's substantive law, for example, "has a robust public trust doctrine that citizens there can draw upon to establish atmospheric trust

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resources are observed." *Id.* at 236 (alteration in original) (footnote omitted) (quoting Jamhuri ya Kenya, Republic of Kenya, chs. 8–87 (2001, amended 2008)).

46 Sinden, *supra* note 5, at 186 (citing Charan Lal Sahu v. Union of India, (1990) A.I.R. 1480 S.C. 717; Michael R. Anderson, *Individual Rights to Environmental Protection in India*, *in* HUMAN RIGHTS APPROACHES TO ENVIRONMENTAL PROTECTION 199, 215–16 (Alan E. Boyle & Michael R. Anderson eds., 1996)).

47 *Id.* (citing Barry E. Hill, Steve Wolfson & Nicholas Tary, *Human Rights and the Environment: A Synopsis and Some Predictions*, 16 GEO. INT'L ENVTL. L. REV. 359, 382–87 (2004)).

48 Wood, *supra* note 4, at 101–02, n.8 (alteration in original) (quoting Juan Antonio Oposa v. Fulgenico S. Factoran, Jr., G.R. No. 101083 (S.C., 1993) (Phil.), e*xcerpted in* JAN G. LAITOS, SANDRA B. ZELLMER, MARY C. WOOD & DAN H. COLE, NATURAL RESOURCES LAW 441–44 (2006)).

responsibility."[49] In a similar vein, Indian tort law, according to one authoritative account, has the potential of holding enterprises that cause environmental or health damages to an absolute liability standard, with no exceptions; if the enterprises are adjudicated as being engaged in hazardous or inherently dangerous activities.[50] Furthermore, the India Supreme Court has held that, in hazardous substance tort actions, "the measure of compensation must be correlated to the magnitude and capacity of the enterprise, thereby challenging well-settled principles of tort law" and allowing a potential liability for climate change torts whereby "the larger and more prosperous the enterprise, the greater must be the amount of compensation payable by it for the harm caused on account of an accident in the carrying on of the hazardous or inherently dangerous activities."[51]

Climate change litigation in Europe has "differed from that of the [United States] mainly because of the diverse and less homogeneous framework that characterizes Europe."[52] Indeed, "[e]ach European state tends to tackle domestic issues, including those related to the environment, with a unique and cultural-specific approach, not only from a legal perspective, but also from political and cultural points of view."[53] Yet, the supranational political and legal structure of the European Union has created an Emissions Trading Scheme ("ETS"), which, in turn, has spawned "a considerable number of proceedings" before European supranational courts focusing on various aspect of Directive 2003/87/EC, establishing the ETS "allowances for the quantity of CO_2 that can be emitted by a single Member state over a particular period" of time.[54] The supranational European carbon market litigation

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49 *Id*. at 124 (citing M.C. Mehta v. Kamal Nath, (1997) 1 S.C.C. 388 (India)); Karnataka Indus. Areas Dev. Bd. v. Sri C. Kenchappa, A.I.R. 2006 S.C.W. 2546 (India); T.N. Godavarman Thirumulpad v. Union of India, A.I.R. 2005 S.C. 4256; Perumatty Grama Panchayat v. State of Kerala, (2004) 1 K.L.T. 731 (India); Deepa Badrinarayana, *The Emerging Constitutional Challenge of Climate Change: India in Perspective,* 19 FORDHAM ENVTL. L. REV. 1, 26 n.137 (2009)).

50 *See* Els Reynaers & Krishnan Venkataraman, *India*, *in* ENVIRONMENT IN 26 JURISDICTIONS WORLDWIDE 74, 79 (Carlos de Miguel Perales ed. 2008), http://www.smarteeconsulting.com/wp-content/uploads/2009/01/india-18.pdf.

51 *Id*. at 78; *see also*, RICHARD DUNDAS ALEXANDER, INDIAN CASE-LAW ON TORTS (R.F. Rampinini, 3d ed. 1906); LEARNING FROM DISASTER: RISK MANAGEMENT AFTER BHOPAL (Sheila Jasanoff ed., 1994).

52 Luciano Butti, *The Tortuous Road to Liability: A Critical Survey on Climate Litigation in Europe and North America*, 11 SUSTAINABLE DEV. L. & POL'Y 32, 34 (2011).

53 *Id*.

54 *Id*. (citing JAN H. JANS & HANS H.B. VEDDER, EUROPEAN ENVIRONMENTAL LAW 385–88 (3d ed. 2008); A. Denny Ellerman & Barbara K. Buchner, *The European Union Emissions Trading Scheme: Origins, Allocation, and Early Results*, 1 REV. ENVTL. ECON. & POL'Y 66 (2007)).

to date can be "conceptually divided into the following three categories: challenges to the validity of the directive, infringement proceedings, and challenges to decisions of the European Commission on the National Allocation Plans designed by the Member states for re-allocating the allowances to national installations."[55] One Italian scholar has commented on these European carbon litigation trends by observing: "Evidently, little room is left for individual applications aimed at recovering [tort-based] damages suffered as a result of global warming, and therefore, linked to CO_2 emissions."[56] Indeed, according to this view, compared to the potential tort-based trajectory of U.S. carbon litigation in the future, "[t]he influence of the resulting [European regulatory] jurisprudence thus ends up being considerably more limited, and the possibilities of evolution more scant."[57] Yet, another scholar, Giedré Kaminskaité-Salters, focusing on English law, has boldly articulated a possible tort-based legal approach to achieve legal redress in his book, *Constructing a Private Climate Change Lawsuit Under English Law: A Comparative Perspective*.[58]

B. Asia and Pacific National Laws[59]

Australia – a commonwealth, consisting of "a federal State with three levels of government comprising a national government, the governments of six states and two territories, and local government"[60] – "is one of the developed countries most vulnerable to the impacts of climate change."[61] Greatly influenced by English tort law, the tort of

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55 *Id.* (footnotes omitted).

56 *Id.*

57 *Id.*

58 GIEDRÉ KAMINSKAITÉ-SALTERS, CONSTRUCTING A PRIVATE CLIMATE CHANGE LAWSUIT UNDER ENGLISH LAW: A COMPARATIVE PERSPECTIVE (2010).

59 The regional headings and national law summaries that follow rely extensively on the approach taken by the various authors in the book, CLIMATE CHANGE LIABILITY, *supra* note 35.

60 Ross Abbs, Peter Cashman & Tim Stephens, *Australia*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 67.

61 *Id.* at 70. In particular:

> As the driest inhabited continent on earth, with already high levels of climate variability, Australia can expect a range of severe impacts if there is no mitigation of global emissions. Under a business-as-usual scenario it is expected that by 2100 drought will be increasingly frequent; there will be severe stress on urban water supplies; irrigated agricultural production in the Murray Darling Basin, Australia's main "food bowl," will have declined by more than [ninety] per cent [sic]; the Great Barrier Reef will effectively have been destroyed; and many coastal areas including the Kakadu wetlands will have been transformed by rising sea levels.

negligence under relevant Australian law, would be problematic because: (1) plaintiffs would likely have difficulties establishing duty of due care; (2) there would be issues of foreseeability; (3) there is conservative precedent regarding legal policy reasons to recognize a duty; (4) proximate causation problems would surface; (5) there would be standard of care and breach of duty barriers stemming from multiple and diffuse sources of greenhouse gases and the social usefulness of carbon-intensive industrial and mining activities; (6) causation proof problems would erupt; and (7) there would be scope of liability limitations.[62] Australian private and public nuisance "law is poorly adapted to dealing with the consequences of large-scale industrial activity, and has rarely ventured beyond cases involving close geographical propinquity."[63] So, "while the law of nuisance might have the potential to short-circuit some of the complications associated with the law of negligence, it has severe limitations and raises a number of doctrinal hurdles of its own."[64]

The People's Republic of China ("PNC" / "China") "is a united and multi-ethnic country, with a unitary system of government yet a multi-tiered legal system."[65] China has suffered from "grave climate damage" in recent years.[66] Broad national statutory principles of civil law, tort law, and environmental law could conceivably construe a climate tort under Chinese law.[67] "Environmental torts encompass conduct or activities (industrial or from other anthropogenic sources) which cause harm or damage to personal, property or environmental rights and interests or to public property."[68] Interestingly, as a departure from common law tort principles, "[a]s the principle of causation presumption

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Id. (footnote omitted).

62 *Id*. at 86–98.

63 *Id*. at 98.

64 *Id*. at 99.

65 Deng Haifeng, *China*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 112.

66 *Id*. at 124. The details are as follows:

> In 2009, [China] suffered from extremely high temperatures in summer and very low temperatures in winter, temperatures it had not witnessed for decades. An extraordinarily severe drought occurred in 2009–10 in southwest China, the most serious drought in recorded history. In 2010, fourteen rounds of rainstorm [sic] continuously attacked south China and regions south of the Yangtze River . . . ; ten rounds of rainstorms continuously attacked north China and west China and temperatures were high beyond historical extremes in many places. Cumulatively, these caused major casualties and economic loss to China.

Id. at 124–25 (footnote omitted).

67 *Id*. at 135.

68 *Id*. (footnote omitted).

is applicable to environmental torts, the burden of proof is reversed, i.e., the party causing the injury shall bear the burden of proving that there is no causality between the act causing the injury and the harmful result."[69] Moreover, "strict liability is applicable to environmental torts in China, which means that liability will be imposed on the person legally responsible for the loss or damage without a finding of fault being necessary."[70] Yet, because of the code-based stringency of Chinese environmental tort law, "[s]ince there is no provision in China for private law liability directly caused by climate change," one observer contends that "GHG emissions will not give rise to tort liability."[71]

India is subject to national and state legislation, in addition to a panoply of subordinate administrative rules; moreover, as "a legacy of its colonial past," it has a common law heritage that relies on judicial precedent.[72] "India will soon be a significant contributor to climate change. India is predicted by some estimates to become the third largest emitter by 2015. . . with the United States, European Union, China and Russia, to account for two-thirds of global greenhouse gases . . . ."[73] India faces a variety of serious climate risks in coming decades.[74] "There have been no significant private law claims in India based on allegations of actual or anticipated damage from climate change. However, should claimants be inclined to bring such claims, the two torts that offer promise are nuisance and negligence."[75] Premised on principles of English common law tort, similar barriers exist under Indian law as under Australian tort law[76] in bringing a successful climate change tort.[77]

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69 *Id.* at 136 (footnote omitted) (quoting Art. 66, Tort Law of the People's Republic of China, 2009).

70 *Id.* (footnote omitted) (quoting Art. 7, Tort Law of the People's Republic of China, 2009).

71 *Id.* at 137.

72 Lavanya Rajamani & Shibani Ghosh, *India*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 139.

73 *Id.* at 140–41 (footnotes omitted).

74 According to one authoritative estimate:

> [T]he annual mean surface air temperature in India is likely to rise by 1.7°C and 2.0°C in the 2030s; melting glaciers will increase flood risk and decrease water supply; sea level rise . . . will threaten coastal regions; monsoons, on which agriculture depends, will become more erratic and rain less plentiful; and incidence of malaria and other vector-borne diseases will increase, as will heat-related deaths and illnesses. [Moreover], . . . by 2080–2100, there is a probability of [ten to forty] per cent loss in crop production, and before 2025 India is likely to reach a state of water stress.

Id. at 142 (footnotes omitted).

75 *Id.* at 164.

76 *See supra* notes 60–64 and accompanying text.

Indonesia is subject to "significant negative impact" from climate change risks.[78] "Indonesia inherited its civil law system from the Dutch. In addition to written laws, other sources of Indonesian law are custom, case law, treaty and doctrine."[79] Two potential climate change theories of action exist under Indonesian legislation: (1) an "[u]nlawful action"—similar to the negligence concept of a breach of "reasonable care," but also encompassing contravention of "public decency" and "principles of propriety/appropriateness,"[80] and (2) "strict liability for actions that cause a 'serious threat to the environment.'"[81]

Japan's legal system is a product of U.S. law that existed "during the period of the Allied occupation after the Second World War," but "major [Japanese] codes, including the Civil code and the Criminal code, were modelled [sic] on the French and German codes and are still heavily influenced by the Civil law system."[82] Importantly, "[t]he earthquake on 11 March 2011 and nuclear incident in Fukushima is [sic] likely to change national and governmental debate on future energy and climate policy" in Japan since the previous national GHG "[twenty-five] percent reduction target is premised on construction of fourteen new nuclear

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77 In addition to negligence and nuisance torts, an absolute liability tort exists under Indian law, stemming from a 1987 Supreme Court of India case. Rajamani & Ghosh, *supra* note 72, at 166 (citing M.C. Mehta v. Union of India (1987) 1 S.C.C. 395). The basis of this rule of absolute "liability is that a non-delegable duty is owed to the community to ensure that highest standards of safety are maintained" when enterprises are involved in "hazardous or inherently dangerous industrial activity and harm results on account of an accident in the operation of such hazardous or inherently dangerous activity." *Id*. (footnotes omitted).

78 Mas Achmad Santosa, Josi Khatarina & Rifqi Sjarief Assegaf, *Indonesia*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 178. In particular:

> The combination of sea level rise and an increased occurrence of extreme weather . . . will cause higher intensity of erosion and abrasion. In turn, it will further negatively affect the changes in the coastline that is already losing ground to higher sea level. This negative impact is reflected in Indonesia's capital Jakarta. It is estimated that by 2100 Jakarta's coastline will be reduced by [fifteen] km, thereby directly affecting the central business district. The erosion also contributed to the loss of twenty-four Indonesian islands in two years (2005–07). Extreme weather also causes a significant negative impact on the lives of the population that lives along the coastline. This population is often subject to maritime accidents and disasters caused by extreme weather, diseases, drought and flood.

Id. (footnotes omitted).

79 *Id*. at 181.

80 *Id*. at 194.

81 *Id*. at 195 (footnote omitted).

82 Yukari Takamura, *Japan*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 206.

plants, which might now be impractical with public opposition."[83] Under a Japanese civil code provision first enacted in 1896, and still in effect, tort liability for intentional or negligent "violat[ion] [of] the rights of others," triggers civil liability for compensation and injunctive relief.[84] Regarding negligence, "[s]ome [Japanese] lower courts dealing with pollution cases have passed judgments to the effect that when there is a threat to life and body, costs to avoid the damage should not be considered and [enterprises] should be obliged to cease operations."[85] Strict liability, without fault, exists under Japanese law for "hazardous activities involving significant risks" to others.[86] Some recent Japanese courts have liberalized factual causation burdens of victims by considering "epidemiologic evidence of factual causation between collective acts and the disease" and "award[ing] compensation tailored to the degree of probability," thus allowing "discounted compensation providing that there is a substantial likelihood that claimants suffer from the [environmental] disease."[87] Interestingly,

> Injunctions have the potential [under Japanese tort law] to play a powerful role in climate protection: [F]or instance, injunctions could result in the suspension or limitation of those GHG emitting activities of large emitters that are likely to cause climate change. The difficulty lies in the need to show "unlawfulness": [I]f the activities in question are considered public in nature and/or if the damage in question is regarded as not significant, the [Japanese] courts would not order an injunction. However, the courts have reconfirmed in several cases that where there is a high probability of damage to human health, even if the activities in question are of a public nature, injunctive relief should be provided.[88]

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83 *Id.* at 210. A Japanese government report predicts the following climate change impacts by 2050: increased flood damage, drastic changes in rice production areas, and a doubling of heat stress deaths. *Id.* at 215.

84 *Id.* at 228 (quoting Civil Code, art. 709, 1986).

85 *Id.* (footnote omitted).

86 *Id.* at 229.

87 *Id.* at 229–30 (footnote omitted).

88 *Id.* at 232–33 (footnote omitted).

In sum, regarding "civil litigation, Japanese case law demonstrates a clear trend towards better environmental protection and more effective remedies for victims."[89]

C. Africa and Middle East National Laws

While the full legal and political ramifications of Egypt's "Arab Spring" revolution are still in flux,[90] the broad framework of Egypt's legal system is based on a civil code.[91] "The sources of Egypt's laws in order of priority are legislation, custom, the principles of Islamic Sharia, and equity."[92] Egypt's judiciary is "slow and—with the exception of the higher courts—not very sophisticated."[93] Egypt's climate change risks are in the following sectors: "(1) agriculture and food security, (2) coastal zones, (3) aqua-culture and fisheries, (4) water resources, (5) human habitat and settlements, (6) tourism, and (7) human health."[94] Tort liability in Egypt is based on the Civil Code with fault being the primary liability approach though there are also isolated areas of no-fault, or strict, liability.[95] Climate change private law tort claims for compensation, according to knowledgeable commentators, "will likely fail because of the requirements of actionable damage under Egyptian law."[96]

Israel's "legal system has its roots in the British Mandate on Palestine. The British, who ruled Palestine between 1917 and 1948, replaced many of the legal rules and institutions that were in place during the Ottoman era, infusing the legal system with significant common law elements."[97] Climate change risks for Israel include sea level risk and accompanying loss of land and structures along the Mediterranean Sea, desertification, soil erosion, salinization, surface runoff, water supply disruptions, vector-borne diseases, water-related illness, agricultural damage, and increased geo-political conflicts.[98] No private law climate tort claims have yet to be filed; "[d]ue to the many

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89 *Id*. at 240.

90 *See, e.g.*, Matt Bradley, *Egypt Vote Puts Military Role in Play*, WALL ST. J., Jan. 4, 2012, at A8.

91 Dalia Farouk & Lamiaa Youssef, *Egypt*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 245.

92 *Id*. (footnote omitted).

93 *Id*. "Seeking redress through the courts could therefore be a lengthy process with uncertain outcomes." *Id*.

94 *Id*. at 249 (footnote omitted).

95 *Id*. at 260.

96 *Id*. at 271.

97 Issachar Rosen-Zvi, *Israel*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 272 (footnote omitted).

98 *Id*. at 277–78.

difficulties a plaintiff would face in establishing liability, it is not anticipated that such a claim would be filed in the near future."[99] Future Israeli climate change torts—based on a codification of British common law torts—are likely to be predicated on "nuisance, breach of statutory duty and negligence."[100] Significantly, with the encouragement of the Supreme Court of Israel, negligence per se claims, based on statutory violations that cause harm, have proliferated, and climate change tort actions of the future may be based on this theory of liability.[101] "The most likely defendants in Israel" of climate change torts include the following: "(1) large producers of fossil fuels and gas (such as oil refineries and natural gas companies) and (2) heavy users of fossil fuels, fuel oil, coal and gas that cause GHG emissions, including large industrial and power generators."[102] Israeli tort law damages are liberally construed by the courts allowing for not only recovery of personal injuries and property damage but also for pure economic damages, such as lost profits or higher prices.[103] A judicial trend of recognizing "statistical-based compensation" has made proving factual causation in difficult tort cases easier for Israeli plaintiffs.[104]

In 1994, South Africa moved from a racially-based parliamentary sovereignty system "to a constitutional democracy underpinned by a progressive Bill of Rights," which includes, among other provisions, "an environmental right."[105] "Notwithstanding these developments, the historic Roman-Dutch legal system, a mixed legal system reflecting aspects of both the European civil law and the English common law traditions, was retained."[106] Significant warming is predicted for the country by mid-century and, "[a]fter 2050, warming is projected to reach around 3–4°C along the coast, and 6–7°C in the interior."[107] According to one assessment: "These types of temperature changes will place a massive strain on an already water-stressed nation currently dealing with problems of poverty and unemployment, poor service delivery and

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99 *Id*. at 286.

100 *Id*.

101 *Id*. at 287–88.

102 *Id*. at 289. "Even through many other corporations and all individuals emit GHGs into the atmosphere, they are not potential defendants because the *de minimis* doctrine protects them from liability." *Id*. (footnote omitted).

103 *Id*. at 290–91.

104 *Id*. at 292–93 (footnote omitted).

105 Jan Glazewski & Debbie Collier, *South Africa*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 320 (footnote omitted); *cf*. Patricia Kameri-Mbote & Collins Odote, *Kenya*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 296, 312–15 (detailing a British-influenced tort law approach that is more traditional than that of South Africa).

106 Glazewski & Collier, *supra* note 105, at 320 (footnote omitted).

107 *Id*. at 319 (footnote omitted).

low levels of education."[108] Unlike the Anglo-American common law system of separately defined tort causes of action, in South Africa, the law of delict is the principal private law approach for seeking legal redress for injuries with "general principles or requirements that determine delictual liability."[109] The five essential requirements of a delict under South African law are: "an act or omission; wrongfulness; fault; causation; and harm (loss)."[110] Establishing legal causation "is likely to constitute a stumbling block in establishing liability for climate change" under South African law.[111] "While there is to date no climate change" private law litigation extant, South African law is characterized by "the evolving nature of . . . private law principles which renders the law capable of adapting to new scenarios and threats of harm."[112]

D. Europe and Eurasia National Laws

The European Union ("EU") consists of twenty-seven member states and is governed by a regional treaty and a panoply of regional legislation and administrative directives.[113] However, "neither the human rights provisions nor the EU rules on environmental policy allow" private litigants to bring actions regarding climate change liability "to the EU courts."[114] Private law litigants within the EU nation-states must bring legal actions in domestic courts of a particular country.[115]

Germany is governed by "a civil legal system" with laws promulgated by national, state, regional, and municipal legislative bodies, subject to judicial scrutiny and interpretation.[116] Climate change environmental risks for Germany in the future entail more extreme precipitation and flooding, low water periods during dry summers, greater erosion, and potential ground and surface water contamination.[117] There have been "no direct climate liability claims" under German private law to date.[118] "Commentators from some law

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108 *Id.*
109 *Id.* at 333.
110 *Id.*
111 *Id.* at 341.
112 *Id.* at 344.
113 Ludwig Krämer, *European Union Law*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 351–52.
114 *Id.* at 374–75.
115 *Id.*
116 Hans-Joachim Koch, Michael Lührs & Roda Verheyen, *Germany*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 376–77.
117 *Id.* at 386.
118 *Id.* at 399.

firms have expressed views that are very sceptical [sic] as to the chances of success of such claims; and debate has now started . . . as to whether such claims would be covered by standard liability insurance."[119] German law follows general principles of delict for wrongful conduct causing harm.[120] With analogues to common law torts of negligence, nuisance, and strict liability,[121] one set of commentators have predicted "that substantial potential [private law liability] lies in [German] cases where the owner of a coastal property claims costs for increasing coastal protection infrastructure from, for example, operators of large coal-fired power plants" and "claims for damages after a major storm flood."[122]

England, a constitutional monarchy without a written constitution, is a common law legal system with well-developed tort jurisprudence.[123] Climate change concerns for England, and the larger inclusive United Kingdom, entail "an increased risk of flooding, coastal erosion, damage to essential infrastructure due to intense rain events and increased levels of UV radiation."[124] As of early 2012, "[t]here have been no significant private law claims in England based directly on allegations of actual or anticipated damage from climate change."[125] A pithy projection of future English tort law actions for climate change damages asserts:

> Whether or not "direct" cases involving actions against emitters and similar defendants for damages for the effect of climate are successful, it is very likely that there will be much litigation against professionals, public bodies, utility companies and other categories of defendant, for damage allegedly caused or contributed to by climate change. These cases typically [will] involve allegations that the defendant failed to factor in the effects of climate change, whether in designing buildings, planning civil engineering projects, or auditing accounts of a company exposed to climate-related risks. This type of potential for liability is of great significance not only to those directly at risk from

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119 *Id.* (footnotes omitted).

120 *Id.* at 400.

121 *Id.* at 399.

122 *Id.* For a discussion of a similar civil law private wrong approach to climate change harms see Bartosz Kuraś, Maciej Szewczyk, Dominik Wałkowski, Tomasz Wardyński & Izabela Zielińska-Barłożek, *Poland*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 417, 428–36.

123 Silke Goldberg & Richard Lord QC, *England*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 445.

124 *Id.* at 449 (footnote omitted).

125 *Id.* at 458.

> such actions, but to their investors, lenders, insurers and professional advisers.[126]

English tort claims of negligence and nuisance might be filed in the future based on damages to property caused by sea level rise, extreme weather leading to property damage, and illnesses from warmer weather.[127]

E. North America and South America National Laws[128]

Canada has a federal system of government with a common law tradition of tort law outside of the civil law based province of Québec.[129] Interestingly, "[c]limate change has . . . emerged as *the* environmental issue in the eyes of the public in Canada over the past decade. It has also become one of Canada's great political, social and economic challenges."[130] Northern areas of Canada "are experiencing significant changes in temperature, precipitation and sea ice, which are affecting ecosystems and northern aboriginal populations in particular."[131] Moreover, coastal areas risk damages from sea level rises, while western provinces face reduced precipitation; further climate change worries focus on forests, species, and agriculture.[132] Canadian "[c]limate change tort litigation actions could be brought in negligence, conspiracy, strict liability, or public or private nuisance."[133]

The legal system in Brazil is based on civil law; as a federal system of government, the states share power with the federal government.[134] Brazilian climate change risks include "floods in large cities like Sáo Paulo [and] Rio de Janeiro among others; droughts in northern and southern Brazil, accompanied by . . . [animal mortality] and fires in the

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126 *Id*. at 459.

127 *Id*. at 460. "Harm in terms of economic loss alone is less likely to be actionable." *Id*. For a review of Russian private law developments see Fiona Mucklow Cheremeteff, Max Gutbrod, Daria Ratsiborinskaya & Sergei Sitnikov, *Russia*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 489, 512–17.

128 For analysis of U.S. climate change private law matters see *supra* Part II.

129 Meinhard Doelle, Dennis Mahony & Alex Smith, *Canada*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 525–26.

130 *Id*. at 525.

131 *Id*. at 529.

132 *Id*.

133 *Id*. at 542 (footnote omitted). For Mexican climate change private law liability issues see José Juan González Marquez, *Mexico*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 627, 637–42.

134 Yanko Marcius De Alencar Xavier & Pedro Lucas De Moura Soares, *Brazil*, *in* CLIMATE CHANGE LIABILITY, *supra* note 35, at 607.

midwest due to low air humidity" and warmer temperatures.[135] Uniquely, "[t]he basis for imposing civil liability on those causing environmental damage is found in Article 225, [Section] 3 of the Constitution."[136] Moreover, environmental civil liability under Brazilian law "arise[s] under Article 927 of the Brazilian Civil Code, which affirms the obligation to compensate damage regardless of fault when the activity that gives rise to the damage entails an inherent risk of harming others."[137]

IV. CONCLUSION

Imagine a future climate change tort lawsuit, conceived and initiated by creative plaintiffs' lawyers who boldly argue for the judicial recognition—in any country of the world discussed in this Article—of a "[n]ew [t]ort[]" cause of action for damages, injunctive relief for damages, and injunctive relief for personal or property damages.[138] Of course, the "right" plaintiffs would be essential: those who have suffered identifiable property damages or personal injuries fairly traceable to carbon-induced climate change. Moreover, it would be optimal to sue manufacturers and electric utilities that clearly emit massive amounts of carbon, or other GHGs, into the atmosphere.

Cobbling together comparative concepts from a number of tort precedents and doctrines from around the world, our intrepid lawyers might draw upon the following: (1) the tort of public nuisance from state laws in the United States, focusing on the unreasonableness of the defendants' massive emissions over long periods of time, the foreseeable risks of climate induced harm, and any efforts by the defendants to withhold information about climate change risks from their operations;[139] (2) persuasive precedent of courts in nations that recognize constitutional rights to a healthy and balanced environment;[140] (3) the principle of causation presumption, from Chinese environmental tort law, whereby the party causing the injury bears the burden of proving that there is no causality between the act causing the injury and the harmful results;[141] (4) the rule of absolute liability, from Indian law,

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135 *Id.* at 610.

136 *Id.* at 615.

137 *Id.* at 616.

138 *See* Robert F. Blomquist, *"New Torts": A Critical History, Taxonomy, and Appraisal*, 95 DICK. L. REV. 23 (1990) (discussing the public policy rationales of various American appellate courts for considering the legal recognition of new tort causes of action with new elements of a prima facie case).

139 *See supra* Part II.

140 *See supra* Part III.A.

141 *See supra* note 69 and accompanying text.

entailing a non-delegable duty owed to the community to ensure the highest standards of public safety when enterprises are involved in hazardous or inherently dangerous activities;[142] (5) persuasive Japanese judicial precedent requiring industrial operations to shut down, without consideration of costs, when there exists a serious threat to life and body;[143] (6) liberal negligence per se liability for climate change damages recognized under Israeli law based on violations of statutory and administrative requirements of industrial operations;[144] (7) the evolving law of delict under South African law, providing flexibility for accommodating legal redress to new scenarios and threats of harm;[145] and (8) other assorted liberalizing trends, principles, and doctrine.

142 *See supra* notes 77 and accompanying text.
143 *See supra* note 85 and accompanying text.
144 *See supra* notes 100–101 and accompanying text.
145 *See supra* notes 109–112 and accompanying text.