



## Payback Time?

What the Internationalization of Climate Litigation Could Mean for Canadian Oil and Gas Companies

Andrew Gage and Michael Byers



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# Executive Summary

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## Introduction

Climate change is increasingly discussed not as some far-off threat but in terms of current realities. These include extreme weather events like Hurricane Sandy and Typhoon Haiyan, flooding in Alberta and Bangladesh, wildfires, habitat change like the damage caused by the Mountain Pine Beetle, industry stress (e.g. reduced industrial access to areas of Northern Canada caused by melting permafrost, and reduced agricultural yields in drought-stricken California) and health issues such as West Nile Virus and other diseases being contracted in new areas.

For 2010 alone, the global financial cost of private and public property and other damage associated with climate change has been estimated at \$591 billion. That number is expected to increase dramatically in the coming years. In Canada, the National Roundtable on the Environment and the Economy has estimated that climate change will cost \$5 billion annually by 2020. Given these significant costs, attention will inevitably shift to the issue of compensation and liability. In short, who will pay for the costs and damages caused by climate change, as well as the necessary adaptive measures?

The idea that companies responsible for large-scale emissions of greenhouse gases might be responsible for financial losses associated with climate change is not new. Several lawsuits claiming compensation for climate change damages have already been filed in the United States. While these cases have encountered some problems – a common occurrence in new

areas of litigation—recent developments in climate science, rising global damages and the lack of progress of international climate negotiations are spurring ever greater interest in what this report refers to as climate damages litigation.

The report explores scenarios in which the legal landscape concerning climate damages litigation could suddenly and dramatically change. Previous examinations of the issue have largely focused on existing national or sub-national laws in developed countries such as the United States or Canada. But climate change is a global problem, and nation-specific assessments of the potential for climate damages litigation could overlook the significant and growing risks posed to large-scale greenhouse gas producers from transnational lawsuits. These risks include the possibility that a judgment handed down by a court in one country could be enforced in the courts of another (including Canada).

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## Current State of Climate Litigation

There is a spectrum of academic opinion concerning the prospects of climate damages litigation. Optimistic scholars argue that damage from climate change is not fundamentally different from other types of common law damages, and that the same legal concepts could be applied. Other scholars argue that climate damages litigation is too complicated or political to be considered by the courts.

The U.S. judiciary has not yet adopted a clear and consistent position on the matter. While some lower courts have accepted the argument that climate change damage is a “political question” unsuitable for judicial determination, higher courts have expressly suggested that litigation may remain open under the common law as it exists at the state level. Overall, it appears the U.S. judiciary has some concerns about their role in climate damages litigation; the courts have not ruled out the possibility of future damage awards against major greenhouse gas producers, but have signalled that action by other branches of government is to be preferred.

As a result of this judicial uncertainty in the United States, no climate damages case has yet been argued on its merits. When this does happen, courts will have to answer a series of questions concerning whether and how existing legal approaches arising from environmental, product liability and other mass tort litigation apply to damages caused by climate change.

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## International Nature of Climate Change and Climate Litigation

Much of the commentary on climate change litigation has focussed on cases brought in the United States. It also assumes that lawsuits will be brought against greenhouse gas producers in their home countries. However, climate change is a global problem: emissions originate in every country, and the effects of emissions are experienced, to varying degrees, in every country.

The global nature of climate change raises the possibility of transnational litigation involving a climate victim suing greenhouse gas producers in his or her own country – even if the greenhouse gas producers are from other countries. Transnational litigation involves complex and inter-related questions about which country’s courts should hear a case (jurisdiction), which country’s laws should apply (choice of law), and which countries will enforce a judgement obtained in another country (recognition and enforcement).

### Jurisdiction

In transnational litigation, there is a presumption that the courts of the place where a wrongful action (or “tort”) took place have jurisdiction over compensation for the resulting harm. However, in the case of climate change, it should not be assumed that the tort took place in the location where the emissions were produced, as those emissions only caused damages in conjunction with global emissions. Instead, claims for climate damages could be brought in countries where the damages are suffered. Indeed, improvements in climate change science, the growing frequency of visible climate impacts and the lack of meaningful international action on climate change are making it increasingly likely that courts in countries suffering damage will assert jurisdiction.

### Choice of Law

After a court has asserted jurisdiction, it may be necessary to consider which country’s laws apply. Although one might assume that a court will apply the laws of the country in which it is located, in transnational litigation courts may apply foreign laws instead.

In many jurisdictions, including Canada, the law to be applied is the law of the place where the tort (legal wrong) took place. But again, in climate damages litigation, there is a real question as to where the tort took place,

meaning that the laws of the country where climate damages have been suffered might apply.

### **Recognition and Enforcement of Orders**

Greenhouse gas producers might assume that damage awards issued by courts in countries where they do not have assets pose little risk. However, in many countries around the world, once a court in a “foreign jurisdiction” has awarded damages the award may be recognized as a debt and enforced. As with the other aspects of transnational litigation, whether and how this occurs depends upon the laws of the individual country. Nevertheless, the existence of this possibility has serious consequences for greenhouse gas producers in developed countries like Canada, since it exposes them to climate damages litigation almost anywhere in the world.

### **Prospects for Non-U.S. Litigation**

Once we recognize that courts in countries where climate damages occur may claim jurisdiction over compensation claims, the number of jurisdictions where such litigation could be potentially brought increases greatly. Several countries offer promising venues, as their legal systems have features that are conducive to climate litigation. Examples include the possibility of lawsuits brought on the basis of constitutional or statutory rights, existing statutes that clarify or expand environmental liability for pollution of the atmosphere, and judicial precedents for awarding damages in cases where a defendant’s actions increased risk to a plaintiff.

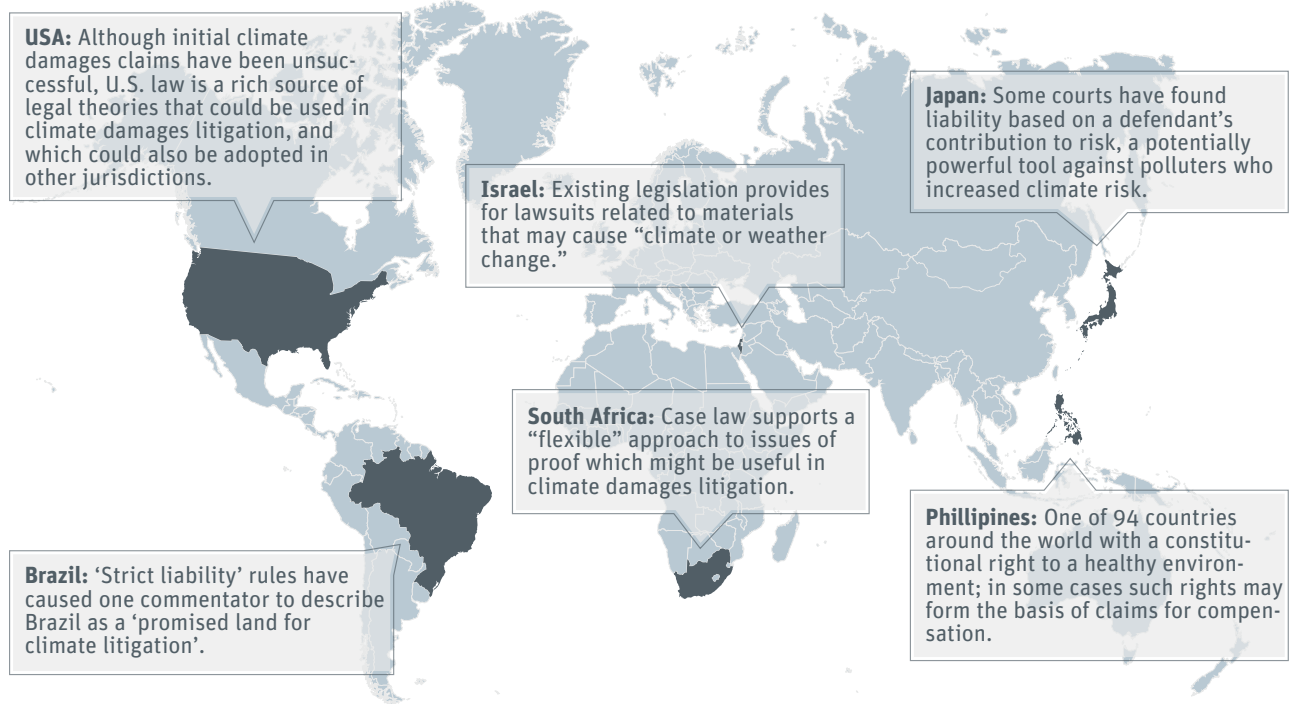
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## **Climate Compensation Legislation**

Most commentary on climate damages litigation assumes that liability will be based on current legal frameworks. However, as is illustrated by tobacco compensation legislation in several Canadian provinces, governments sometimes alter rules related to liability in response to new developments. Concerns about the rising costs of climate change could well prompt governments around the world to enact legislation clarifying uncertainty around climate liability, changing the rules for proving liability or even creating new causes of action.



**FIGURE 1** Some Promising Venues for Climate Damages Litigation



## Quantifying the Liability Risk

The potential liability risk borne by greenhouse gas producers depends upon many factors, including the rights of the plaintiffs, the nature of the claim and the type of defendant. For the sake of illustration, this report considers the total potential liability of five oil and gas companies currently trading on the Toronto Stock Exchange: EnCana, Suncor, Canadian Natural Resources (CNR), Talisman, and Husky.

To calculate the contribution of each Canadian company to the global costs of climate change, its percentage of global emissions from 1751–2010 is multiplied by the total global cost of climate change. As illustrated, the potential liability of each company is significant, ranging from \$295.6 million to \$709.6 million in 2010 alone, rising to between \$2.090 billion and \$5.015 billion annually in 2030.

The same method is applied to calculate the contribution of these Canadian companies to the costs of climate change in a sample of representative developing countries impacted by climate change. In India, for example, the potential liability of each Canadian company is between \$37.8 million and \$90.8 million in 2010, rising to between \$297.9 million and \$714.9 million in 2030.

**TABLE 1** Global Liability of Canadian Companies

Entity	Percentage of global emissions 1751–2010	Annual contribution to net costs/damages of climate change (2010 in Cdn Dollars)	Annual contribution to net costs/damages of climate change (2030 in 2010 Cdn Dollars)
EnCana	0.12%	\$709.6 million	\$5.015 billion
Suncor	0.10%	\$591.3 million	\$4.179 billion
CNR	0.07%	\$413.9 million	\$2.925 billion
Talisman	0.06%	\$354.8 million	\$2.507 billion
Husky	0.05%	\$295.6 million	\$2.090 billion

While the actual numbers could end up being lower or higher, this report provides a first attempt at quantifying the significant liabilities that Canadian greenhouse gas producing companies may be incurring globally.

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## Conclusion

The potential for climate damages litigation is global in scope. Cases could be brought in a large number of countries, under a wide range of legal theories, then enforced in Canada or other countries in which greenhouse gas producing companies have assets. As a result, these companies and their shareholders are exposed to significant legal and financial risks – and these risks will only grow.

Although currently there may not be any single jurisdiction in which a climate damages award is imminent, the sheer number and diversity of venues, and means through which such litigation might be successful, suggest that civil liability is likely, particularly as the costs associated with climate change rise. The likelihood will only increase if, as also seems likely, countries severely impacted by climate change adopt legislation that removes legal hurdles to climate liability.

Increasingly, around the world, climate change is causing significant damage leading to demands for compensation. These demands, if not met through other means, will likely be addressed through climate damages litigation. Major greenhouse gas producers and their investors can manage this risk only by reducing their emissions, which may require moving away from fossil fuels, and by supporting efforts to conclude new international agreements that address climate liability, compensation demands, and emissions reductions in comprehensive and meaningful ways.

# Introduction

CLIMATE CHANGE IS increasingly discussed not as some far-off threat but in terms of current realities. These include more frequent extreme weather events such as Hurricane Sandy in 2012, the Alberta floods of July 2013 and, later that same year, Typhoon Haiyan in the Philippines. Developments in climate science increasingly enable us to make fairly conclusive links between particular weather events and changes to our climate due to industrial greenhouse gas emissions.<sup>1</sup> The human toll of these disasters is heavy and difficult to calculate. The staggering financial implications, on the other hand, are coming into view.

In 2010 alone, the global cost of private and public property and other damage associated with climate change was estimated at almost CAD\$600 billion.<sup>2</sup> That number is expected to increase dramatically in the coming years. In Canada, the National Roundtable on the Environment and the Economy estimated that climate change would cost \$5 billion annually by 2020, rising to between \$21 billion and \$43 billion by 2050. Those costs will incur even if the international community is *successful* at reducing greenhouse gas emissions by enough to keep the global average rise in temperature to below 2°C — a goal, we should add, that slips away with each year of inaction.<sup>3</sup>

Given how significant the costs are — in damages and necessary adaptive measures — the question of who should pay them is urgent. As Daniel Farber wrote in 2007:

We should start thinking about cost allocation now because very soon the world is going to start doing so. As the realization sinks in that climate change will cause billions of dollars of harm even if we do everything feasible to cut back on emissions, the people who are directly harmed are going to start wondering whether they alone should bear the costs.<sup>4</sup>

Farber suggests that there are strong arguments in favour of the “polluter” paying for climate damages. In this paper we use the generic term ‘greenhouse gas producers’ to describe the various categories of companies and other entities which contribute to large-scale greenhouse gas emissions to the world’s atmosphere — power companies, automobile manufacturers, fossil fuel companies and others — and therefore collectively bear a large part of the financial responsibility for climate change.<sup>5</sup> However, there is increasing interest in particular in the total contributions of the world’s fossil fuel companies:

- A recent paper by Richard Heede demonstrates that roughly 63% of global emissions up to the year 2010 can be traced back to the output of 90 major producers, primarily fossil fuel producers.<sup>6</sup> Heede and others have labelled these 90 producers the “carbon majors.”<sup>7</sup>
- Carbon Tracker, Bill McKibben and others have popularized the term “Carbon Bubble” to refer to the realisation that fossil fuel companies are generally overvalued because their energy reserves cannot be burned if the international commitment to keep temperature rises to 2°C or less is to be met. The realisation that they may also face claims of compensation represents an additional reason that their stocks may be overvalued.
- At the same time, a growing divestment movement calling on institutional investors to pull out of fossil fuel companies is already having an effect on markets.

Since it is unlikely these companies will willingly donate the resources needed to address climate change, and to date governments have been unwilling to intervene, the case that fossil fuel companies need to pay for climate-related damage has been raised in the courts, where it has not, as yet, been successful. In 2005, Ned and Brenda Comer, and other victims of Hurricane Katrina, sued Murphy Oil Corporation and a number of other companies in the Southern District of Mississippi for damages arising from cli-

mate change. Lawyers commenting on this and other examples of what we refer to in this report as ‘climate damages litigation’ have said:

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.<sup>8</sup>

Although several cases of climate damages litigation have been filed in the United States, as noted, none has yet been successful.<sup>9</sup> Nor have equivalent cases been filed elsewhere.<sup>10</sup> Some experts suggest that significant barriers to climate damages litigation in current legal systems mean lawsuits like the *Comer* case are unlikely to have a major impact on greenhouse gas producing companies.

As we will argue here, this assessment is premature. It is not unusual for new types of litigation to encounter problems, as procedural obstacles are navigated and legal theories tested.

For example, as recently as 1987, it was reported:

Tobacco companies boast that they have never lost a case to a consumer, have never settled, and do not expect that picture to change. In the 1950s and 1960s, no cases successfully obtained damages for injuries caused by smoking. Recent cases have been similarly unsuccessful.<sup>11</sup>

Very soon thereafter, large-scale lawsuits against the cigarette industry began to succeed and even became a major liability for the tobacco industry, spreading through the United States as well as to other countries. There are very good reasons to predict the same course for climate change-related lawsuits.

New developments in climate science, rising global damages from frequent extreme weather events and other climate-related developments, and the lack of progress in climate negotiations internationally are spurring a new interest in climate damages litigation, not just in the United States but internationally. In September 2013, leading environmental lawyers from around the world met in Washington, D.C. to discuss Heede’s findings on the greenhouse gas contributions of fossil fuel companies and how those contributions might form the basis of climate lawsuits.<sup>12</sup> It was reported that Greenpeace and Earthjustice are “fielding teams of lawyers to prosecute climate-related legal actions...in courts all over the world.”<sup>13</sup>

The purpose of this report is to explore scenarios in which the legal landscape in relation to climate change compensation could change suddenly and dramatically. While we have made every effort to ensure that our discussion of the law is accurate, our focus is not on any particular theory of law but rather on the interaction between the legal field and a new socio-political emphasis on damages and compensation in countries around the world.

Prior assessments of the risks associated with climate damages litigation have focused on existing national or sub-national laws in developed countries such as the United States and Canada. As a result, these assessments make assumptions about how the law might address claims for damages related to climate change. A summary of some of the legal principles in play in the United States and Canada is included in the first part of this report.

However, as climate damages increase, and the science linking them to changes in the global atmosphere improves, the potential for litigation in *other* countries rises significantly, particularly in those suffering disproportionately from the impacts of climate change. For this reason, a narrow nation-specific examination of the risks of climate damages litigation could overlook the significant and growing risks posed to large-scale greenhouse gas producers by the possibility of transnational litigation.

The impacts and causes of climate change are global, which means that climate damages litigation could take place in, and apply the laws of, any of the countries where damage occurs. For example, lawsuits in Pacific island nations could target major emitters based in North America, Europe or Australia. As a result, climate change liability could be considered under a wide range of legal approaches within quite different legal systems. Moreover, at least some of the judges hearing such cases will belong to countries, cultures and economies that receive relatively few benefits from fossil fuels while suffering heavy damages caused by climate change. In other words, the social and economic influences on these judges would be significantly different than in Canada or the United States.

Once a court in one country has made an order requiring payment of compensation for climate-related damages, that order is at least potentially enforceable in other countries where the defendant has assets. For example, a judgment from a Pacific island nation could potentially be enforced in the United States, Canada, Europe or Australia. The implications of international lawsuits and the potential enforcement of foreign judgments for climate damages litigation are discussed in the second part of this report.

Following this, the report observes that litigation under existing laws is not the only way in which climate change liability could develop. As the

impacts of climate change become more costly, and the public discourse on the need for climate compensation grows, governments around the world will come under pressure to enact legislation that clarifies the legal bases for climate change liability. Legislation of this type was enacted in Canada with respect to tobacco liability, as explored in the third part of this report.

Finally, the report considers the scope of the liability risk currently borne by major greenhouse gas producers based in developed countries. For the sake of illustration only, we look at the potential exposure of five oil and gas companies currently trading on the Toronto Stock Exchange that were identified in Heede's study as among the world's 90 largest greenhouse gas producers. While it is unlikely that all potential liability incurred by fossil fuel companies would be recovered through litigation, our analysis suggests these five companies could presently be incurring a global liability as high as **\$2.4 billion per year** for their contribution to climate change.

When these annual liabilities are calculated over multiple years the resulting figures are staggering. It is not clear what portion of this theoretical liability might ultimately become the subject of litigation or other measures aimed at compensation. These figures represent potential risk only; the actual numbers could be lower or higher. In any event, investors in these and other companies will want to take note, since current stock valuations fail to take the true risks of climate damages litigation into account.<sup>14</sup>

# State of Climate Damages Litigation

ACADEMIC ARTICLES ON the prospects of climate damages litigation generally sit on a spectrum between two opposing positions on the possibility of successful lawsuits. Those which are optimistic about the prospects for climate damages litigation argue that damage from climate change is not fundamentally different from other types of common law damages that already give rise to liability, and that the success of climate damages litigation is very much in keeping with the purposes of tort law (the law of liability for legal wrongs). For example, David Grossman writes:

Conceptions of equity and corrective justice suggest that those who have been harmed by others' negligent and morally dubious actions should be compensated in some way. Notions of corrective justice thus also seem to support shifting the cost of climate change onto these fossil fuel companies. Since these basic goals of tort law could potentially be satisfied, applying a tort framework to climate change could indeed be an appropriate endeavor.<sup>15</sup>

Such articles discuss how existing legal concepts — especially the torts of nuisance, negligence and conspiracy<sup>16</sup> — could be applied to climate change damage claims, and respond to the many defences that are likely to be raised in such litigation. The court cases filed to date have been based on these different legal approaches.



Many commentators sit mid-way along the spectrum. They accept that existing legal concepts could form a basis for recovery of climate damages but caution that such cases face a series of unique challenges, often centred around the question of which defendants can legitimately be said to have “caused” climate-related damages.<sup>17</sup> Articles in this range typically accept that climate damages litigation is possible but vary on the likelihood of U.S. (or Canadian) courts finding such liability.

At the other end of the spectrum, some commentators argue that climate damages litigation asks the courts to make value judgments and political determinations that exceed the proper role of the judiciary. One such article argues:

These are not the kinds of decisions that a common law court, without guidance from previously enacted statutory or regulatory standards, is capable of making. No appropriate judicial standard exists enabling a court to determine whether the contributions of any particular defendant emitter constitute a “unreasonable interference” required by most definitions of public nuisance... Such decisions are not usually suitable for adjudication... because of the numerous variables to be taken into account and the impossibility of developing generally applicable premises of reasoning with reference to which the variables can be judged.<sup>18</sup>

In essence, these and other more pessimistic articles suggest that although climate change is affecting existing legal rights that are protected through current tort law, this particular type of damage is too complicated or political to be considered by the courts. Significantly, most of these articles do not consider the possibility that new legislation could be passed by governments explicitly affirming the role of the courts in addressing such problems, as discussed later on in this report.

U.S. courts have not fully decided where they sit on this spectrum. Although some lower courts in the United States have accepted the argument that climate change is a “political question” unsuitable for judicial determination,<sup>19</sup> some higher courts of appeal have not.<sup>20</sup> The appellate courts, however, clearly have some concerns about their role in climate damages litigation and have signalled, at least in terms of U.S. federal common law, that action by other branches of government is to be preferred. Notably, in *American Electrical Power Co Ltd. et al. v. Connecticut et al.*, the U.S. Supreme Court ruled that the *Clean Air Act*, and the power it gives the Environmental Protection Agency to act, has “displaced” the possibility of litigation at the level of federal common law. At the same time, the Court expressly sug-

gested the option for common law litigation might remain at the state level.<sup>21</sup> Some commentators have similarly claimed state-level climate damages litigation would be more likely to succeed.<sup>22</sup>

On one level, the uncertainty in U.S. law is not surprising. J.R. Evans and J. Zomazak write the setbacks in U.S. climate litigation are entirely consistent with the evolution of “mega-recovery” case law, as reflected in earlier tobacco, asbestos and other cases:

[T]he history of the pertinent cases and other factors suggest that some plaintiffs (as well as their attorneys) remain motivated to press climate change-related liability claims even in the face of significant judicial adversity. If this proves to be the case, the potential impacts to greenhouse gas emitting companies and their insurers could be significant.<sup>23</sup>

Nonetheless, the conclusions reached in these U.S. climate cases can also be seen as evidence of a high level of cultural discomfort within the United States,<sup>24</sup> not only among judges, with the idea of compensation for damages related to activities that are seen as central to the U.S. economy. At the same time, a public debate about the moral and legal responsibility of large-scale greenhouse gas producers has begun, in the United States and elsewhere, that could have profound implications for how this type of litigation is regarded — and how it develops — in the future.

To date, no climate damages cases have been brought in Canada. However, due to the similarities between U.S. and Canadian law, several commentators have suggested it could happen, especially if U.S. case law evolves in that direction.<sup>25</sup>

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## Other Questions and Challenges

As a result of judicial deference to other branches of government in the United States, no climate change lawsuit has yet been argued on its merits. When this does eventually happen, a series of questions concerning how the law assigns responsibility for climate change, and to whom, will have to be addressed.<sup>26</sup> This report does not attempt to address each question which might be raised (some of which may not arise in the context of particular claims<sup>27</sup>), and each legal argument that might be used to answer them. Our objective is to demonstrate that there is sufficient guidance for the courts on climate damages litigation in existing case law. The common law has dealt with a wide range of uncertain legal issues and large-scale liability ques-

tions, whenever new areas of litigation have opened up, as they did with respect to tobacco. We should not underestimate the ability of lawyers to find and adapt existing legal principles, particularly when faced with damages on the scale caused by climate change.

Furthermore, as improved scientific knowledge about climate change and its effects is beginning to foster public discussion about climate damages, it is also increasingly available to lawyers to help them answer key legal questions about the emissions produced by particular defendants. This new scientific evidence is likely to increase the chances of successful climate change cases.

To demonstrate the range of different ways in which existing legal concepts drawn from U.S. and Canadian jurisprudence might answer seemingly unanswerable questions, consider the issue of causation, widely regarded as the most significant barrier to climate damages litigation.<sup>28</sup> At a general level, causation is proven when a defendant's actions — in this case greenhouse gas emissions or the production of fossil fuel products that result in emissions — can be shown to have meaningfully caused the harm in question.

When used in the context of climate damages litigation, the term “causation” refers to at least two different types of questions. The first concerns the relationship between the law and climate science, specifically whether the science is sufficiently developed to prove a connection between climate change and the particular damage suffered by a plaintiff. The science in this area is advancing rapidly, and it is now possible to demonstrate that climate change dramatically increased the probability of a particular weather event.<sup>29</sup> Scientists are also increasingly able to establish the degree to which climate change has contributed to sea level rise.<sup>30</sup> Legal scholars are already considering how to handle such statistical evidence.<sup>31</sup> Finally, lawsuits brought by governments (and other large scale plaintiffs) seeking to recover the costs of major shifts in weather patterns, or the costs of adapting to climate change, may not need to demonstrate that a single weather event was linked to climate change to succeed.

The second type of question often raised in discussions of “causation” in climate damages litigation is the challenge of assigning legal responsibility for a problem caused by a very large number of greenhouse gas producers.<sup>32</sup> This is closely related to the argument that climate damages claims are inherently political. Faced with a global problem such as climate change, which emitters will be responsible and what portion of climate change can they be said individually to have “caused”?

In Canada, the courts have generally applied a “but for” test to causation, asking whether the harm would not have occurred “but for” the actions of the defendant.<sup>33</sup> The test requires a demonstration that the defendant’s conduct was *necessary* for the occurrence of the harm. This may be a difficult test for climate change plaintiffs to meet, since the actions of a single defendant, or even a group of defendants, would not have caused climate change alone.

At the same time, the recent work by Heede attempts to quantify the relative contribution to climate change of major private and public fossil fuel producers, demonstrating that a relatively small group is responsible for a very significant proportion of greenhouse gas emissions to date, either as direct emissions or through emissions caused when their products are burned.<sup>34</sup> Heede finds that 63% of all greenhouse gases released into the atmosphere between 1751 and 2010 can be traced back to the activities of 90 entities.<sup>35</sup> The top three emitters — Chevron, ExxonMobil and Saudi Aramco — are implicated in almost 10% of global emissions up to 2010. So on this issue, too, improving scientific information may help climate change litigants overcome a previously daunting hurdle.

The courts in the United States and Canada have recognized that multiple polluters cannot escape liability by claiming that no one of them caused the pollution alone. Courts have developed rules to assign liability among multiple defendants in cases involving pollution, negative side effects from prescription drugs, or faulty consumer products. Existing and proposed legal approaches to causation identified as relevant to climate change include the following:

- **Significant contribution** — Case law in Canada and the United States concerning water and air pollution has long recognized that defendants can be held liable for their “significant” contribution to pollution, even if it only became harmful in combination with other sources of pollution.<sup>36</sup> Lawyers in the United States have targeted significant greenhouse gas emitters on the basis of this approach.<sup>37</sup>
- **Globally detectable emissions** — There is a well-developed body of law in Canada and the United States protecting the owners of property bordering rivers and lakes from water pollution caused by multiple polluters. This case law holds that any detectable change in the naturally occurring quality of water is legally recognized harm, even if that change cannot be linked to any particular damages suffered. This approach could be applied in respect of the global atmosphere,

meaning that a defendant can be said to have caused a public nuisance if the emissions for which they are responsible are detectable at a global level.<sup>38</sup>

- **Material contribution test** — In cases “where it is impossible to determine which of a number of negligent acts by multiple actors in fact caused the injury, but it is established that one or more of them did in fact cause it,”<sup>39</sup> the courts may find liability where a defendant has materially contributed to the risk that resulted in the loss.<sup>40</sup> As Smith and Shearman explain, “A test based on a material increase in risk would clearly improve the prospects of success for climate change plaintiffs.”<sup>41</sup>
- **Market share approach** — The market share approach, developed in the context of litigation brought by women who claimed to have suffered injuries due to injection by their mothers during pregnancy of the drug diethylstilbestrol (DES), allows a court to assign liability for harm caused by a product based on a defendant’s respective “share” in the manufacture and sale of the product.<sup>42</sup> Several commentators have advocated extending market share theory to climate litigation. Daniel Grimm notes, “[A] market share-based liability regime may actually approximate specific causation better when applied to global warming than when applied to chemically fungible products like DES.”<sup>43</sup>
- **Co-mingled product approach** — In cases involving litigation over groundwater contamination from the gasoline additive methyl tertiary butyl ether (MTBE), the harmful product had come from multiple gasoline manufacturers. As the U.S. District Court (SDNY) stated in one case involving MTBE, “When a plaintiff can prove that certain gaseous or liquid products...of many suppliers were present in a completely commingled or blended state at the time and place that the risk of harm occurred, and the commingled product caused a single indivisible injury, then each of the products should be deemed to have caused the harm.”<sup>44</sup> Several commentators have identified the co-mingled product approach as being applicable to climate damages litigation.<sup>45</sup> Indeed, greenhouse gas emissions resemble MTBE in significant ways; emissions have no “chemical signature” that would allow them to be traced to particular emitters, and they co-mingle in the global atmosphere.<sup>46</sup>

All of these common law approaches to causation could potentially be used to address one of the most significant barriers to climate damages litigation.<sup>47</sup> And it is not an exhaustive list; other novel approaches may well be proposed to address causation and other challenges.<sup>48</sup>

Again, it is difficult to assess the likelihood of success in a new field of litigation. New fields of “mega-recovery” liability<sup>49</sup> have typically passed through several stages, the earliest involving “prospecting” and “defining” cases that are generally unsuccessful as different legal theories are tested. It is only through trial and error that workable approaches to litigation are identified and “mega-recovery” occurs.<sup>50</sup> As a result, there is a tendency during the initial, unsuccessful stages, to underestimate the likelihood of successful litigation in a new field.

Shi-Ling Hsu evaluates the prospects for successful climate change cases by considering both strong potential plaintiffs, namely the Inuit of the Arctic region, and a vulnerable group of defendants, namely U.S. electricity generating companies. Hsu concludes that the Inuit would “have very viable causes of action [that] favor a finding of liability.”<sup>51</sup> However, he also finds the odds of such a case succeeding in the United States to be “slightly less plausible than not, but certainly not inconceivable.”<sup>52</sup>

Some of the problems that have dogged U.S. litigation so far, such as doctrines related to pre-emption and justiciability, are largely absent in Canadian law.<sup>53</sup> And while the challenges to climate litigation are formidable, related in large part to the difficulties of challenging activities that are so central to the economy and society of both nations, legal tools do exist in both Canada and the United States that could, in the right case and if judges choose to apply them, be used as a basis for finding liability for climate-related damages.

# International Nature of Climate Change and Climate Damages Litigation

SO FAR, AND as noted above, all of the lawsuits brought for damages against greenhouse gas producers have been brought by U.S. plaintiffs for U.S.-occurring climate impacts in U.S. courts and against U.S. defendants. Much of the commentary on this type of litigation has consequently focussed on these cases, or has assumed that lawsuits against greenhouse gas producers would occur, if at all, in the same country as where the emissions were produced.<sup>54</sup> There are many reasons for this narrow focus, including that the U.S. legal system recognized a number of concepts related to proving causation at a time when climate science was less developed, and that a high proportion of historic greenhouse gas emissions took place there.

A narrow focus on U.S. law, or on litigation in the country where emissions occurred, is comforting for greenhouse gas producers. It means that as long as the courts in their home country do not impose climate liability, producers have little to worry about. It also creates a disincentive for the courts of any one country to find liability, since it would penalize that country's own emitters without affecting equally blame-worthy competitors based in other countries.<sup>55</sup> For example, despite the strong environmental

track record of India's courts, commentators have suggested that an Indian judge considering a claim for climate-related damages would be preoccupied by the question of "how much action is appropriate for a country like India, given its, thus far, limited contribution to the problem, and its limited ability, on its own, over time, to resolve the problem?"<sup>56</sup>

However, climate change is a global problem that does not originate in any one country. U.S. emissions are causing climate change in combination with Chinese, European, Canadian, Australian and, ultimately, global emissions. And the effects are felt in particular ways by particular countries around the world.<sup>57</sup>

All of this raises the possibility — even the likelihood, as damages increase and climate science improves — of transnational litigation involving a plaintiff suing greenhouse gas producers from one or more countries for climate-related damages that occur in another country.<sup>58</sup> As public awareness of the link between climate change and particular impacts grows, governments may come under increased pressure to initiate legal action to recover compensation for both public and private costs associated with climate change.<sup>59</sup>

Transnational litigation involves complex and inter-related questions about which country's courts should hear a climate litigation case (jurisdiction), which country's laws should apply (choice of law), and which countries will enforce a judgement obtained in another country (recognition and enforcement).<sup>60</sup> In each case, the laws of each individual country determine the answers to these questions. This raises many possible scenarios regarding where and how climate damages litigation might be brought.

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## Jurisdiction Over Climate Damages Litigation

Increasingly, we can expect the courts of countries where climate-related damages have occurred to claim jurisdiction over climate damages litigation. The test for jurisdiction to hear a case is decided in each country's legal system. Under French law, for example, a French citizen residing anywhere in the world may sue a foreign defendant in the French courts even if the case otherwise has no connection to France.<sup>61</sup> Similar provisions exist in Belgium and the Netherlands, although they are not the norm internationally.<sup>62</sup>

Canadian law, which is perhaps more typical, holds that the courts of a Canadian province may hear a case where there is a "real and substantial connection"<sup>63</sup> between the harmful actions that give rise to the case and the province in which the case is brought.<sup>64</sup> This is also the test that Canadian



courts will apply in deciding whether another country's courts could legitimately claim jurisdiction over a case — a key factor in whether the Canadian courts will enforce an order for damages obtained in a foreign country (discussed below). While this approach is not as wide as that taken by courts in other countries, the international nature of climate damages litigation suggests Canadian law would recognize the authority of the courts of another country to hear a lawsuit arising from climate damages that occurred there.

For example, consider a situation in which greenhouse gases produced in countries around the world could be shown to have collectively caused flooding in Alberta. The “real and substantial connection” between Alberta and the flooding<sup>65</sup> would seem to be more important than the connection between the flood and the greenhouse gas emissions that occurred in any one of the many countries that contributed to the emissions, since none of those national emissions, on their own, are sufficient to have “caused” the damage.

Similarly, the Canadian courts should also recognize the authority of the Bangladeshi courts<sup>66</sup> to hear claims related to climate-related flooding that occurs there. In other words, Canadian law would likely accept the possibility that a Canadian emitter could be taken to court in Bangladesh in an attempt to claim for damages from climate change-related flooding.

There is a presumption that the courts of the place where a tort (legal wrong) occurred have jurisdiction.<sup>67</sup> In the case of climate change, it should not be assumed that the tort took place in the location where the emissions were produced, particularly since those emissions only caused actionable damages in conjunction with emissions that originated elsewhere. The Supreme Court of Canada has recognized, at least in principle, that:

There are situations, of course, notably where an act occurs in one place but the consequences are directly felt elsewhere, when the issue of where the tort takes place itself raises thorny issues. In such a case, it may well be that the consequences would be held to constitute the wrong.<sup>68</sup>

Similarly, in litigation related to the right of the province of British Columbia to pass legislation related to tobacco lawsuits, the Supreme Court wrote that in such lawsuits, and therefore the legislation:

**[N]o territory could possibly assert a stronger relationship to that cause of action than British Columbia.** That is because there is at all times one critical connection to British Columbia exclusively: the recovery permitted by the action is in relation to expenditures by the government of British Columbia for the health care of British Columbians. [Emphasis added]<sup>69</sup>

In evaluating whether there is a “reasonable and substantial connection” between a jurisdiction and a tort, the courts will also consider issues of “fairness” to both parties. The following fairness-related factors argue in favour of a reasonable and substantial connection to a country in which a particular harm occurred:

- A single court can consider the relative contributions of, and the interaction between, the major sources of global emissions, even when they occur in different countries. This would not be possible if individual lawsuits in respect of climate-related damages had to be brought in multiple jurisdictions where the harmful emissions had occurred.
- Plaintiffs would be able to lead evidence related to the climate-related damage in one court proceeding, and allow the defendants to respond to that evidence in one proceeding. If jurisdiction were dependent upon where the emissions occurred, a plaintiff would theoretically need to bring separate actions in multiple jurisdictions where the emissions occurred, and defendants operating in multiple jurisdictions might need to defend parallel actions.
- All greenhouse gas producers would be subject to the same laws,<sup>70</sup> at least in relation to a particular climate-related harm. This addresses the problem of “leakage,” in which producers move operations from countries with strong environmental laws to those with weaker laws.
- Individuals impacted by climate change may have legal recourse in their own courts.

In our opinion, Canadian law recognizes the authority of a court in a country where climate-related damage has occurred to assert jurisdiction over the actions that caused the damage. In other words, a court from Bangladesh, Tuvalu or Kenya, for example, could credibly claim jurisdiction related to climate-related damages suffered in those countries, even in respect of a defendant or defendants whose greenhouse gas producing operations are based in Canada, the United States or other countries.

It has even been suggested that courts may, in the long-term, claim a still broader jurisdiction in relation to climate change because of the international nature of the problem. J.B. Gracer writes:

In the area of international human rights law, for example, the Spanish courts have asserted “universal jurisdiction” over alleged torturers. Environment-

al advocates could argue that climate change arising from greenhouse gas emissions is a harm that knows no borders and that should be recognized under international law, and is therefore subject to universal jurisdiction.<sup>71</sup>

Despite the arguments in favour of claiming damages in countries where they have occurred, a variety of factors – from limits on the available scientific evidence to cultures that are averse to litigation and would rather rely on international negotiations for resolving climate change – might delay or limit such developments. At the same time, improvements in climate change science, increasingly visible climate impacts, and changing public conversations have already made climate damages litigation almost inevitable – in countries around the world.

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## Choice of Law

In international litigation, after a court has asserted jurisdiction, it may be necessary to consider which country's laws apply. Although one might assume that a court would apply its own laws, it is possible in transnational litigation that many courts, including Canadian courts, could apply foreign laws instead. Canadian courts, for example, will generally apply the “law of the place where the activity occurred,”<sup>72</sup> a principle referred to as *lex loci delicti*.

With climate change, there is a real question as to where the “activity” occurred. As discussed above, greenhouse gas emissions from any one jurisdiction may only give rise to actionable damages in conjunction with emissions from many other jurisdictions, making it at least arguable that the tort occurred where the damages are felt. The laws of the place where the damages occurred would then be the *lex loci delicti*,<sup>73</sup> making it possible for a plaintiff to sue Canadian companies in Canada, or in another country where the defendant companies have assets, while arguing that the law of the country where the impacts occurred, and not Canadian law, should apply.

This situation is clearer in Europe where member countries have signed a treaty known as Rome II that deals with inter-jurisdictional issues. Rome II, which came into force in 2009, adopts what is essentially a *lex loci delicti* approach, although its language describes the approach in terms of damages:

[T]he law applicable to a non-contractual obligation arising out of a tort/delict shall be the law of **the country in which the damage occurs** irrespective of the country in which the event giving rise to the damage occurred and

irrespective of the country or countries in which the indirect consequences of that event occur.<sup>74</sup> [Emphasis added]

Rome II also has a special, and more flexible rule, for environmental litigation, giving the plaintiff a choice of whether to sue based on the laws of the “country where the damage occurred” or the country where “the event giving rise to the damage occurred.”<sup>75</sup>

Rome II is intended to apply to all litigation within EU countries.<sup>76</sup> Silke Goldberg and Richard Lord write:

The Rome II regime is of potentially great significance in climate change litigation, where nationals in developing countries may allege damage suffered in those countries as a result of actions by corporations domiciled in the EU. Such corporations may be sued in their State of domicile, with the claimant able to rely on the law of his/her own State.<sup>77</sup>

Canadian companies could conceivably be involved in such a case if the courts of a EU country were to claim jurisdiction, perhaps on the basis of the particularly broad jurisdiction asserted in some of those countries, and even if the Canadian companies do not have assets in those countries or in the EU.<sup>78</sup>

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## Recognition and Enforcement of Orders

Lawyers interested in bringing climate change lawsuits have been concerned about the apparently limited prospects for collecting damage awards issued by courts in countries where the emitters do not have assets or otherwise carry on business. This is one reason why legal discussions so far have focused on bringing lawsuits in the jurisdiction where the emissions occurred, or at least where emitters have assets.

However, in many countries around the world, once a judgment for damages has been obtained in a “foreign jurisdiction,” it is possible to have that judgment recognized as a debt and enforced. As with the other aspects of international litigation, whether and how this occurs depends on the laws of the individual country.<sup>79</sup>

In Canada, although rules vary from province to province, the courts will generally recognize a final judgment of a foreign court where:

- (a) the foreign court had jurisdiction according to Canadian law (i.e. a “real and substantial connection” to the case, as discussed above);

- (b) the order is final and conclusive; and
- (c) the order is not for a penalty or for taxes, or for enforcement of a foreign public law.<sup>80</sup>

If the above analysis concerning jurisdiction is correct, there is no reason why an award for climate-related damages should not meet all of these requirements.<sup>81</sup>

Notwithstanding this general rule, the Canadian courts will not enforce a foreign judgment that is contrary to public policy as a result of being, “founded on a law contrary to the fundamental morality of the Canadian legal system. The public policy defence also guards against the enforcement of a judgment rendered by a foreign court that is proven to be corrupt or biased.”<sup>82</sup> Consequently, evidence of fraud, a fundamentally unfair court process, or other circumstances that would shock Canadian consciences, can prevent enforcement.<sup>83</sup>

Even if the Canadian courts do not ultimately enforce such a debt, many large greenhouse gas producers operate in multiple countries, which means that the judgment could potentially be enforced in countries other than Canada.<sup>84</sup>

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## Prospects for Non-U.S. Litigation

To date, no climate damages litigation against major emitters has been launched outside of the United States. But recognizing that countries where climate impacts occur may claim jurisdiction over compensation claims greatly increases the number of places where such litigation could potentially be brought. Consequently, it is not enough to consider the likelihood of climate change liability arising in the jurisdictions where a producer of greenhouse gas emissions operates. It is just as important to consider whether such liability might arise in any country where significant climate change-related damages occur.

The 2012 book *Climate Liability* examines the potential for climate damages litigation in 18 countries.<sup>85</sup> There are challenges with litigation in all jurisdictions examined, and no court in any of the 18 countries had grappled with all of the legal questions concerning climate change. As explained above, the issue of causation is especially problematic, given the scientific complexity of climate change as well as the large number of possible defendants.

Nevertheless, the book demonstrates that the United States is not the only jurisdiction where such cases could be brought. Among several alternatives, India is singled out as at least as promising a venue as the U.S. The authors explain:

Whilst there is no current trend [in India] specifically as far as climate cases are concerned, there is the potentially potent combination of the following: (i) well developed law and activist judiciary; (ii) its status as a potentially serious ‘victim’ of climate change; and (iii) at the same time its large population, economic power and growth rate, and status as a ‘top ten’ (in cumulative terms) GHG emitter.<sup>86</sup>

There are various legal theories, often unique to specific countries, which could play a role in climate litigation globally. These include:

- **Constitutional or statutory rights** — According to David Boyd’s review of constitutional environmental rights, nearly half of all countries (94) have constitutions guaranteeing their citizens the right to live in a healthy environment,<sup>87</sup> and 84 countries have constitutional provisions that recognize a responsibility on the part of individuals to protect the environment.<sup>88</sup> In other countries there are other constitutional rights affected by climate change that could form the basis of an action.<sup>89</sup> This is not to suggest that such rights will always give rise to civil liability against private parties. In some countries these constitutional rights can be enforced only against the government, or are otherwise restricted. However, in some they can be enforced directly or indirectly against private parties.<sup>90</sup>
- **Assessing risk versus causation** — Courts in some countries have awarded damages in cases where a defendant’s actions have given rise to increased risk to a plaintiff even if it is not possible for the plaintiff to prove that risk caused the harm. As discussed in *Climate Liability*, the Supreme Court of Israel has created a rule for situations “where a tortfeasor creates recurring risks to a large group of people and where there is a systemic bias that prevents plaintiffs from proving in the preponderance of the evidence that in their case the risk materialized and caused them harm.” In these cases, the new rule of “statistical-based compensation” applies, and the tortfeasor is held liable “for the damages that, based on statistical evidence, result from its negligent conduct.” Significantly, the Israeli court indicated that situations of environmental pollution would fall within

the scope of this rule.<sup>91</sup> *Climate Liability* also reviews some Japanese court decisions that adopt a similar rule.<sup>92</sup>

- **Statutory law on environmental liability** — In some countries there are existing statutes intended to clarify or expand environmental liability for polluters that may be applicable to climate damages litigation.<sup>93</sup> Notably, in Israel, the definition of “air pollution” in the *Abatement of Environmental Nuisances (Civil Action) Act* creates a cause of action for environmental nuisances, and expressly includes “material whose presence in the air causes or may cause... climate or weather change.”<sup>94</sup>
- **Flexible approaches to causation** — Several jurisdictions have case law suggesting that a “flexible approach” to legal causation may be required, in some cases, to achieve justice, possibly supporting the use of statistical evidence or a shift in the burden of proof in climate cases.<sup>95</sup>
- **Strict environmental liability** — Brazil’s laws related to liability provide for “strict liability”<sup>96</sup>, meaning that it is unnecessary to demonstrate that a defendant meant to cause harm, and in an environmental context also recognize the ‘polluter pays’ principle<sup>97</sup>. These features of Brazil’s civil liability rules have led one commentator to wonder if Brazil might be the “promised land for victims of climate change?”<sup>98</sup>

Any one of these theories, in addition to those available in the United States and Canada as discussed above, could be adopted elsewhere in the world,<sup>99</sup> though it is difficult to predict where climate damages litigation might arise. Certainly, any country’s courts would struggle with the issues raised by this new field of litigation. But with 196 countries to choose from, it seems probable that climate damages litigation will succeed in one or more jurisdictions.

It is perhaps more likely that such litigation would succeed in countries expected to suffer most dramatically from the impacts of climate change, and which receive relatively little benefit from fossil fuels. In these countries, judges may have a significant incentive to develop new law and find liability against major greenhouse gas producers.<sup>100</sup> Regardless of where it starts, once the courts of one country find in favour of climate liability, a precedent will have been established, potentially making it easier for courts in other countries to follow suit.<sup>101</sup>

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## National Versus International Statutory Defences

The possibility of transnational litigation also poses problems for large-scale greenhouse gas producers that seek comfort in the argument that their actions are authorized by legislation or by public policy, or that their governments might be persuaded to enact legislation protecting their operations from liability. Depending on the specific circumstances, legislation could potentially provide a “statutory defence” against climate damages litigation, at least in the context of a case brought in the country where the legislation was passed.

Where litigation is brought in another country, however, there is no guarantee the legislation would be recognised by a foreign court as having extraterritorial effect. For example, there is no reason in principle why a court in the Philippines should hold that Canadian legislation grants immunity from liability related to an extreme weather event in the Philippines.

This kind of statutory defence might be useful to defendants fighting efforts to enforce a foreign judgment in the country where legislation authorized the emissions. Nevertheless, it might still be possible for a plaintiff to collect a climate debt in other countries where the defendant has assets.

The legal uncertainty described above underscores the need for meaningful international agreements governing climate change and greenhouse gas emissions. It is only at the international level that the liability risks to greenhouse gas producers can be comprehensively addressed. Although there are currently no examples of climate damages lawsuits outside of the United States, the issue of climate compensation is becoming increasingly central in international negotiations.

At the Warsaw climate change talks in November 2013, developing countries pressed for a Loss and Damages Mechanism to address the impacts of climate change but faced opposition from Canada and other countries to any discussion of compensation for climate impacts. At one point, developing countries walked out of the negotiations when agreed-upon text was seen as too weak.<sup>102</sup> In the end, negotiators agreed to create a new “Warsaw international mechanism for loss and damage associated with climate change impacts,” to facilitate international co-operation related to climate losses and damages.

Although the agreement as currently worded avoids language related to compensation and liability, it seems likely that this will be the forum where issues related to compensation are raised in future international climate negotiations.<sup>103</sup> In June 2014, an international network of climate lawyers pro-



posed that the funding for the Warsaw loss and damages mechanism should come from a levy on fossil fuel producers and cement manufacturers “based on their emissions to date and on future extraction of fossil fuels.”<sup>104</sup> The extent to which this proposal may influence international negotiations on the funding of the Warsaw mechanism remains to be seen.

# Climate Compensation Legislation

MOST ATTEMPTS TO quantify the risks of climate damages litigation have assumed that liability will be determined on the basis of current legal frameworks related to liability, whether common law or statutory. In actual fact, governments often alter the rules related to liability in response to new developments or situations of perceived unfairness.

In the case of climate change, many countries already have a significant incentive for reform that will grow as the impacts of climate change, especially on public expenditures, worsen. If we are correct that public debate will increasingly focus on damages and responsibility, public opinion may also demand new climate compensation legislation to impose liability on those responsible for large-scale greenhouse gas emissions.

Once again we should look for parallels in the evolution of tobacco legislation, only this time from an important Canadian perspective.

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## Lessons From Canadian Tobacco Compensation Acts

Canadian law is arguably less developed than U.S. law when it comes to causation issues that are central to tobacco litigation and, as we suggest, to climate litigation also. But because Canada has public health care, the

harm caused by smoking is more heavily borne by governments here than in the United States.

Canadian provinces were therefore very interested when, in 1995, the State of Florida enacted the *Medicaid Third Party Liability Act*,<sup>105</sup> which allowed it to recover smoking-related costs covered by Medicaid, and changed the rules for liability in lawsuits against tobacco companies. As explained by J. Shelley in 2010:

The *Medicaid Third Party Liability Act* represented a significant development as it allowed the state to introduce epidemiological evidence to prove causation, created a new cause of action, removed affirmative defences, and permitted the allocation of responsibility on the basis of market share. Florida's litigation ultimately resulted in a \$11.3 billion settlement.<sup>106</sup>

British Columbia was the first province to take action, enacting the *Tobacco Damages Act* in 1997.<sup>107</sup> Like the Florida legislation, the *Tobacco Damages Act* created a new cause of action, allowed the government to recover damages on behalf of the health care system, allowed the award of damages where a defendant's actions had increased the risk of an outcome, and dealt with the apportionment of liability between parties. All other Canadian provinces followed the B.C. lead, although to date only B.C., Ontario and New Brunswick have filed suits under the new laws.<sup>108</sup>

The tobacco industry initially challenged the constitutionality of the *Tobacco Damages Act*, arguing that it was intended to regulate the actions of U.S. companies. That court battle culminated with the Supreme Court of Canada affirming the ability of a province to change its tort law and enact legislation for the recovery of damages occurring within its boundaries.<sup>109</sup>

The situation has not yet been resolved, since tobacco companies are still aggressively fighting these lawsuits. But the fact remains that when faced with mounting damages caused by tobacco (an estimated \$5 billion annually in Canada),<sup>110</sup> and a lack of certainty about the prospects of litigation under existing laws, Canadian provinces chose to change the law.

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## What Could a Climate Compensation Law Do?

The lesson for countries suffering climate impacts is obvious: if climate liability is difficult or impossible to litigate under the current legal system, change the law.<sup>111</sup> There are a great many precedents for this, from all over the world. In civil law countries, liability regimes are entirely statutory in

nature. In common law countries, legislation often alters the judge-made rules around liability, causation, and the calculation of damages, etc.<sup>112</sup>

A government concerned about the rising costs of climate change could enact legislation to clarify much of the uncertainty around climate liability, change the rules for proving liability, or even create new causes of action. Although such legislation would vary considerably from country to country, it might take approaches already found in other statutes.<sup>113</sup> These could include:

- Clarifying who can sue for climate-related damages, and on what basis (standing);<sup>114</sup>
- Recognizing or creating legal rights or duties in respect of the global atmosphere, or other rights that might form the basis of liability;<sup>115</sup>
- Defining who might be an appropriate defendant to a climate-based lawsuit;<sup>116</sup>
- Clarifying the types of evidence that may be used to establish a link between particular weather events and climate change;<sup>117</sup>
- Adapting common law causes of action, or creating new causes of action, to address climate-related liability;<sup>118</sup>
- Addressing questions about limitation periods and how they apply to greenhouse gases emitted over long periods of time;<sup>119</sup>
- Defining the remedies that a court might grant in a climate litigation case, including how damages might be apportioned between defendants;<sup>120</sup>
- Removing barriers to litigation, for example by adapting class action rules to climate litigation, providing resources in support, or removing the right of a winning party to claim costs against a losing party;<sup>121</sup> and
- Providing for reciprocal enforcement of climate-related judgments from countries that have similar climate compensation legislation.<sup>122</sup>

Properly crafted legislation could address many or all of the challenges facing climate change litigants today. While there are no current examples of such legislation specifically aimed at addressing climate change liability, former Philippine prime minister Gloria Arroyo ordered in 2008 that:

The Department of Foreign Affairs shall lead a Task Group with the Department of Justice to co-operate with other island nations in exploring legal and meta-legal approaches on how to hold highly carbon dioxide-emitting countries accountable and liable for the climate change damages that are happening and will be happening in this generation and for sustainable development of future generations. Said agencies shall tap the talent of law professors and top-calibre litigation and environmental lawyers in the Philippines, in Asia and in the rest of the world.<sup>123</sup>

Although the mandated task group has not yet been struck, the order nevertheless demonstrates an interest on the part of one nation's government to obtain legal compensation from high greenhouse gas producing countries, and could easily lead to proposals based in civil liability and directed against foreign defendants.

# Quantifying the Liability Risk

WHAT IS THE scope of the liability risk borne by major greenhouse gas producing companies? The answer to this question depends on many factors, including the rights of the plaintiffs, the nature of the claim brought, and the types of defendants that the plaintiff chooses to sue. For the sake of illustration, this section considers the total potential exposure of five oil and gas companies currently trading on the Toronto Stock Exchange: En-Cana, Suncor, Canadian Natural Resources (CNR), Talisman, and Husky.<sup>124</sup> All of them are on Heede's aforementioned list of "carbon majors," or the 90 entities responsible for 63% of total greenhouse gas emissions to date.<sup>125</sup>

Using Heede's study, and another by the Climate Vulnerable Forum, an international network of governments in countries impacted by climate change, and the humanitarian organization DARA, which is funded, *inter alia*, by UNICEF,<sup>126</sup> we attempt to calculate the contribution of these Canadian companies to the global costs and damages caused by climate change, and to the costs and damages in a sample of representative developing countries.

Heede's study quantifies the relative contribution of major fossil fuel companies to global greenhouse gas emissions between 1751 and 2010.<sup>127</sup> However, the contribution of the five Canadian companies is unusual amongst the carbon majors, in that their operations for the most part did not start until the early 1990s. As a result, their greenhouse gas contributions largely date from a period of time when the impact of greenhouse gases on cli-

mate change was well documented, and the global community had committed to regulate future emissions. The Canadian companies' respective share of global emissions from 1990 to present, as a percentage of global emissions during that time period, would also be significantly larger than identified by Heede.

The Climate Vulnerable Forum/DARA report focuses not on individual fossil fuel companies but the socio-economic impact of global emissions on individual nations. It differentiates between the costs and damages caused by climate change, and those caused by the current "carbon economy."<sup>128</sup> The estimate for climate change encompasses the costs and damages associated with a global rise in temperature, whereas the estimate for the "carbon economy" focuses on the localized costs and damages arising from the production and use of fossil fuels.

Figures for the costs and damages caused by the "carbon economy" are similar to those for climate change. However, the following estimates of the liability of Canadian companies do not include the costs and damages caused by their contribution to the carbon economy, because these effects are largely localized. That is, unlike climate impacts, where a Canadian contribution is proportionately responsible for damage in other countries, the bulk of costs and damages from the carbon economy caused by Canadian companies will be borne in and by Canada. Consequently, the following estimates of liability are conservative, because they include only one aspect of the damages and costs caused by the companies.

To reach our estimates of liability below, each Canadian company's percentage of global emissions from 1751–2010, as estimated by Heede, was multiplied by the total global cost of climate change in 2010 and 2030, and separately by the cost of climate change in the developing countries in 2010 and 2030, as provided by the Climate Vulnerable Forum/DARA report. By doing so, we can represent the contribution, or potential liability, of each company to the costs and damages of climate change. All figures are converted from U.S. dollars to Canadian dollars adjusted to 2010<sup>129</sup> (in 2010 the two currencies were close to on par, so the U.S. figures are similar).

Of course, the fact that these figures reflect the total contribution of each company to climate change damages does not mean that litigation would be brought, or brought successfully, in respect of this full amount. Even if courts around the world become increasingly willing to award climate damages against fossil fuel companies, there will always be damages due to climate change where the link cannot be proven on the basis of a balance of probabilities, and damages suffered by plaintiffs that are not in a position to en-

**TABLE 1** Global Liability of Canadian Companies

Entity	Percentage of global emissions 1751–2010	Annual contribution to net costs/damages of climate change (2010 in Cdn Dollars)	Annual contribution to net costs/damages of climate change (2030 in 2010 Cdn Dollars)
EnCana	0.12%	\$709.6 million	\$5.015 billion
Suncor	0.10%	\$591.3 million	\$4.179 billion
CNR	0.07%	\$413.9 million	\$2.925 billion
Talisman	0.06%	\$354.8 million	\$2.507 billion
Husky	0.05%	\$295.6 million	\$2.090 billion

gage in large-scale tort litigation. The only way that awards based purely on damages could even approach these levels would be if lawsuits by governments for all climate damages suffered by their citizens and their country (encompassing a wide range of the climate damages) became commonplace.<sup>130</sup>

On the other hand, the calculations below do not reflect the possibility of punitive awards, above the amount of actual harm suffered, intended to punish egregious behaviour. Such awards might be possible for companies that made little effort to move away from fossil fuels despite full knowledge of the damage they were causing. The calculations also do not reflect the considerable legal costs that would be incurred by companies defending themselves against such lawsuits.

Subject to those qualifications, what follows is a first attempt at quantifying the considerable liabilities that at least five Canadian companies might be incurring.

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## Global Liability of Canadian Companies

The DARA report estimates the total costs and damages of climate change and the carbon economy in 2010 at \$1.2 trillion, or 1.7% of global GDP. It predicts these costs will rise to 3.2% of global GDP by 2030.<sup>131</sup> The figures in *Table 1* represent the **annual** contribution of Canadian companies to the net global costs and damages of climate change alone (i.e. excluding costs from the carbon economy),<sup>132</sup> estimated at \$591 billion in 2010,<sup>133</sup> and estimated to rise to \$4.2 trillion in 2030.<sup>134</sup>



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## Canadian Liability in Developing Countries

While the global liability of Canadian companies is significant, actual laws allowing for the recovery of climate damages against greenhouse gas emitters will develop in individual countries, and likely those countries expected to suffer most from the impacts of climate change but that receive little benefit from fossil fuels. Vietnam, Ghana and India fall into this category, as they are historically considered to be “low emitters” in “acute” or “severe” danger of significant losses from climate change.<sup>135</sup> The figures in *Table 2* represent the contribution of Canadian companies to the costs and damages of climate change in these developing countries.<sup>136</sup>

### I. Vietnam

The net costs and damages caused by climate change in Vietnam in 2010 are estimated by the DARA report to be approximately \$13.8 billion.<sup>137</sup> The net costs and damages are expected to rise to \$156.0 billion by 2030.<sup>138</sup> As can be seen in *Table 2*, the damages caused by the 5 Canadian companies totals \$55.3 million per year in 2010, and is expected to rise to \$624 million per year by 2030.

### II. Ghana

The net costs and damages caused by climate change in Ghana in 2010 are estimated to be approximately \$2.6 billion annually.<sup>139</sup> The costs and damages are expected to rise to \$19.9 billion by 2030.<sup>140</sup> As indicated in *Table 2*, the contribution of Canadian companies to the costs and damages of climate change in Ghana are \$10.5 million per year in 2010, projected to increase to \$79.4 million per year by 2030.

### III. India

It is particularly relevant to examine the contribution of Canadian companies to the costs and damages of climate change in India because of the potentially favorable judicial conditions for environmental litigation there. The net costs and damages caused by climate change in India in 2010, based on the DARA report, are approximately \$75.7 billion annually.<sup>141</sup> The costs and damages are expected to rise to about \$595.8 billion by 2030.<sup>142</sup> The contribution by the five Canadian companies (as shown in *Table 2*) is \$302 million per year in 2010, and expected to rise to \$2.4 billion per year by 2030.

**TABLE 2** Liability of Canadian Companies in Developing Countries

Entity	Percentage of global emissions 1751–2010	Annual Contribution to net costs/damages of climate change (2010)	Annual Contribution to costs/damages of climate change (2030)
<b>Vietnam</b>			
EnCana	0.12%	\$16.6 million	\$187.2 million
Suncor	0.10%	\$13.8 million	\$156.0 million
CNR	0.07%	\$9.7 million	\$109.2 million
Talisman	0.06%	\$8.3 million	\$93.6 million
Husky	0.05%	\$6.9 million	\$78.0 million
<b>Ghana</b>			
EnCana	0.12%	\$3.2 million	\$23.8 million
Suncor	0.10%	\$2.6 million	\$19.9 million
CNR	0.07%	\$1.8 million	\$13.9 million
Talisman	0.06%	\$1.6 million	\$11.9 million
Husky	0.05%	\$1.3 million	\$9.9 million
<b>India</b>			
EnCana	0.12%	\$90.8 million	\$714.9 million
Suncor	0.10%	\$75.6 million	\$595.8 million
CNR	0.07%	\$53.0 million	\$417.0 million
Talisman	0.06%	\$45.4 million	\$357.5 million
Husky	0.05%	\$37.8 million	\$297.9 million

We must stress these figures represent the damages being caused by these companies and therefore the risk, not certainty, of liability. The actual numbers could be lower or, conceivably, higher. Regardless, they illustrate that the significant potential liability of Canadian companies, even in developing countries. Investors might want to note the current stock valuations of EnCana, Suncor, Canadian Natural Resources, Talisman, and Husky, as well as other companies responsible for high levels of greenhouse gas production, do not take into account this risk of climate damages litigation.

# Conclusion

FOSSIL FUEL COMPANIES and other large-scale greenhouse gas producers have contributed, globally, to trillions of dollars of damages related to climate change. As with tobacco companies in the 1980s, these producers are confident the law will not hold them responsible for these damages. But rising levels of climate damage, increasing scientific evidence about the links between emissions and the particular damage they cause, and an emerging public debate about who is financially responsible for this damage, could change the situation very quickly.

The most serious risk to Canadian companies is not litigation in Canada. Rather, the potential for climate damages litigation is global in scope. Cases could be brought in a large number of countries, under a wide range of legal theories. As a result, large-scale greenhouse gas producers and their shareholders are exposed to significant legal risks that will only grow into the future.

Although there may not be any single jurisdiction in which climate change liability is imminent, the sheer number and diversity of potential venues for litigation, and the growing interest in pursuing it, makes civil liability extremely likely, particularly as the costs associated with climate change rise.

In addition, those countries most severely impacted by climate change could adopt legislation that removes legal hurdles to climate liability. Increasingly the public may demand such legislation, rather than having the costs of climate change borne only by its victims and the general public.

Finally, and problematically for greenhouse gas producers, damage awards obtained in one country could be enforced in other countries where the defendants are based, or where they otherwise operate or have assets.

In the long run, large-scale greenhouse gas producers and their investors can manage this risk of climate damages litigation. But it will require their moving away from fossil fuels, and supporting the adoption of international agreements that could link the reduction of liability risk to the provision of financial assistance or future emission reductions.

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*Clean Air Act*

*Code Judiciaire* (Belgian Judicial Code)

*Code of Civil Procedure* (Netherlands)

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*Environmental Management Act*, S.B.C. 2003, c. 53

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*Tobacco Damages Recovery Act* [SBC 1997] c. 41, subsequently renamed the *Tobacco Damages and Health Care Costs Recovery Act* [SBC 2000], c. 30

*Transportation Act*, S.B.C. 2004, c. 44

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# Notes

**1** See T.C. Peterson et al. “Explaining Extreme Weather Events of 2011 from a Climate Perspective,” (2011) *Bulletin of the American Meteorological Society* 93: 1041–1067. doi:10.1175/BAMS-D-11-00021.1: “In the past it was often stated that it simply was not possible to make an attribution statement about an individual weather or climate event. However, scientific thinking on this issue has moved on and now it is widely accepted that attribution statements about individual weather or climate events are possible, provided proper account is taken of the probabilistic nature of attribution.”

**2** Annual losses are presently estimated at \$1.2 trillion, and 400,000 deaths, per year, but this figure is expected to rise to 2.5 percent of global GDP by 2030: Climate Vulnerable Forum and DARA. *Climate Vulnerability Monitor: A guide to the cold calculus of a hot planet* (2nd Edition. (Madrid, Spain: Fundación DARA Internacional, 2012), p. 17. See also Eduardo Porter, *Counting the Cost of Fixing the Future* (10 September 2013), available on-line at: <http://www.nytimes.com/2013/09/11/business/counting-the-cost-of-fixing-the-future.html> (last accessed 1 October 2014). See below at note 129 regarding our conversion of U.S. dollars used in the *Climate Vulnerability Monitor* report to 2010 Canadian dollars.

**3** National Roundtable on the Environment and Economy. *Paying the Price*, (Ottawa: National Roundtable on the Environment and Economy, 2011), at p. 45. If global temperature increases are not brought under control, this figure could rise to between 5 percent and 25 percent of Canada’s GDP, or hundreds of billions of dollars annually: p. 38.

**4** D. Farber. *Adapting to Climate Change: Who should pay*. 23(1) *Journal of Land Use* 1 (2007) at p. 4.

**5** In this report we use the phrase ‘greenhouse gas producers’ to refer to potential defendants, to avoid prejudging which types of companies might be targeted. The potential types include power companies that burn coal or other fossil fuels to generate power, automobile manufacturers (which build machines that emit greenhouse gases) and fossil fuel companies (which emit greenhouse gases in extracting and processing fossil fuels, which are later burned, producing more greenhouse gases). See Grossman, below, note 15, for a discussion of some of the relative merits of these different defendants.

**6** R. Heede. Tracing anthropogenic carbon dioxide and methane emissions to fossil fuel and cement producers, 1854–2010. *Climate Change*. Nov 2013. DOI 10.1007/s10584-013-0986-y. Available on-line at <http://link.springer.com/article/10.1007/s10584-013-0986-y>, last accessed 1 October 2014.

**7** See, e.g.: [www.carbonmajors.org](http://www.carbonmajors.org), last accessed 1 October 2014.

**8** R. Lord et al. *Climate Change Liability: Transnational Law and Practice*. (Cambridge: Cambridge University Press, 2012), pp. 32–33.

**9** See below, footnotes 19 and 20.

**10** It should be noted that other types of climate-related court actions have been brought in a large number of countries: <http://web.law.columbia.edu/climate-change/non-us-climate-change-litigation-chart>, last accessed 1 October 2014.

**11** B.A. Levin, *The Liability of Tobacco Companies – Should Their Ashes be Kicked?* (1987) 29 *Ariz. L. Rev.* 195, 200

**12** D. Zegart. “Want to Stop Climate Change? Take the Fossil Fuel industry to Court.” *The Nation*. (May 12, 2014), available on-line at <http://www.thenation.com/article/179459/want-stop-climate-change-take-fossil-fuel-industry-court>, last accessed 1 October 2014.

**13** *Ibid.*

**14** While not yet a legal requirement, the disclosure of climate change liability and related risks to investors is being considered by the U.S. SEC. Securities and Exchange Commission [Release Nos. 33-9106; 34-61469; FR-82] ‘Commission Guidance Regarding Disclosure Related to Climate Change’ (February 2010), p.10–12, available on-line at: <http://www.sec.gov/rules/interp/2010/33-9106.pdf>, last accessed 1 October 2014.

**15** D. Grossman. Warming up to a not-so-radical idea: Tort-based climate change litigation. 28 *Colum. J. Envtl. L.* 1 2003, at p. 5. See also Thomas Traschler. *Litigating Climate Change in Canada. Emissions Trading and Climate Change Bulletin* (McMillan Binch Mendelsohn, December 2006), p. 7–8, available on-line at [http://www.mcmillan.ca/Files/LitigatingClimateChange-Cda\\_1207.pdf](http://www.mcmillan.ca/Files/LitigatingClimateChange-Cda_1207.pdf), last accessed 1 October 2014.

**16** The courts recognize certain types of harmful actions as “torts” – or wrongs for which the courts require compensation. Private nuisance refers to a tort related to illegal interference with the use and enjoyment of property; public nuisance refers to a tort arising from illegal interference with public rights or interests; negligence refers to careless actions that lead to foreseeable harm to another person; and conspiracy refers to working together with other parties to harm another person. All these torts and others have been proposed as possible bases for climate liability. Different countries may use different terms to refer to similar concepts.

**17** Hsu, Shi-Ling, *A Realistic Evaluation of Climate Change Litigation Through the Lens of a Hypothetical Lawsuit*. 79 *U.Col.L.R.* 701 (2008) 79, Available at SSRN: <http://ssrn.com/abstract=1014870>, (last accessed 1 October 2014); L.C. Chambers. *Tort law, climate change and private nuisance*. October 2012, Dissertation, University of Otago (N.Z.), for example, has an excellent discussion demonstrating that a climate lawsuit against a hypothetical “super emitter”, responsible for all or substantially all emissions of greenhouse gases, would likely be successful under ordinary common law principles of liability. Nevertheless, Chambers concludes that the number of real-world emitters involved creates potentially unmanageable challenges for would-be litigants in the absence of judicial innovations.

**18** D. Gifford. *Climate change and the public law model of torts: reinvigorating judicial restraint doctrines*. 62 *South Carolina Law Review* 201 (2010), at pp. 224–225.

**19** Connecticut v. American Electric Power Co. 406 F. Supp. 2d 265 (S.D.N.Y. 2005) at 274; Comer v. Murphy Oil, U.S.A., No. 1:05 CV-436-LG-RHW (S.D. Miss. Aug. 30, 2007); Native Vill. of Kivalina v. Exxonmobile Corp., 663 F. Supp. 2d 863, 868 (N.D. Cal. 2009). For criticism of the application of the political questions doctrine to these cases, see A. Thorpe. Tort-based climate change litigation and the political questions doctrine. 24 J. Land Use & Envtl. L. 79 2008–09.

**20** The 2nd District Court of Appeals reversed the trial dismissal in Connecticut, *ibid.*, at Docket Nos. 05-5104-cv, 05-5119-cv (2nd District, Sept 21, 2009), upheld by the Supreme Court of the U.S. on this point in 131 S. Ct. 2527, 564 U.S. \_\_\_ (2011). The trial judge’s dismissal of Comer, *ibid.*, was overturned, with the Court of Appeal concluding that the political questions doctrine did not apply, in Comer v. Murphy Oil USA, No. 07-60756 (Oct 16, 2009). This decision was then vacated due to an unusual procedural rule, but no higher court has questioned the court’s reasoning in concluding that the political questions doctrine does not apply. In Kivalina, *ibid.*, the Court of Appeal for the 9th Circuit upheld the dismissal, but on grounds other than the political questions doctrine, No. 09-17490, D.C. No. 4:08-cv-01138-SBA.

**21** American Electrical Power Co Ltd. et al. v. Connecticut et al., *ibid.*

**22** T. Hester. A new front blowing in: State law and the future of climate change public nuisance litigation. 31 Stanfd Envtl. L.J. 49 (2012); J. Zasloff. The Judicial Carbon Tax: Reconstructing public nuisance and climate change. 53 UCLA Law Review 1.

**23** J.R. Evans and J. Zomalzak. Climate Litigation: Just Heating Up? (February 2013), available on-line at <http://www.mckennalong.com/publications-851.html>, last accessed 1 October 2014.

**24** For discussion on how culture impacts the perception of the risks and science of climate change, see Dan M. Kahan. Why we are poles apart on climate change. Nature, Vol 488, Issue 7411, 15 August 2012, available at <http://www.nature.com/news/why-we-are-poles-apart-on-climate-change-1.11166>, last accessed 1 October 2014; Dan M. Kahan, “Cultural Cognition and Public Policy.” (2006). Faculty Scholarship Series, Paper 103, available at [http://digitalcommons.law.yale.edu/fss\\_papers/103](http://digitalcommons.law.yale.edu/fss_papers/103), last accessed 1 October 2014.

**25** J. Coop. Recent trend in climate change litigation may find its way north. 60 Enviromation (CCH Canadian Limited: Dec 2009) 517; J.B. Gracer, Climate Change Litigation: Could it take root outside of the United States? 20(3) Environmental Claims Journal 248 (2008), at p. 250; J. Early. Climate change in Canada’s Courts. YyccLaw Blog, available at <http://yycc.com/2014/02/11/climate-change-in-canadas-courts/>, last accessed 1 October 2014. M. Doelle et al. in Lord, above, note 8, pp. 542–549, 555; Traschler. above, note 15; T. Farber et al. Waiver of torts: a potential arrow in the quiver of climate change class action litigants (Toronto: Miller Thompson, 2007).

**26** Michael B. Gerrard, What Litigation of a Climate Nuisance Suit Might Look Like, 121 Yale L.J. 135 (2011), available on-line at: <http://www.yalelawjournal.org/forum/what-litigation-of-a-climate-nuisance-suit-might-look-like> (last accessed 1 October 2014); J. Peel. Issues in climate change litigation. 1 CCLR 15 (2011).

**27** For example, the issue of “standing” — who may bring a claim for climate damages — is seen as a major barrier to such litigation. While this could be true in some cases for private litigants, it is not in other situations. For example, government plaintiffs will generally be able to claim standing: Canadian Forest Products v. BC, [2004] 2 S.C.R. 74.

**28** Vincent S. Oleszkiewicz & Douglas B. Sanders, The Advent of Climate Change Litigation Against Corporate Defendants, 35 BNA Env’t Rep. (2004) 2365, 2369; D. Kysar. What Climate Change can do about Tort Law. 41 Envtl. L. 1 (2011) at 29.

**29** M. Allen. The Scientific Basis for Climate Change Liability, in Lord, above, note 8, pp. 8–22. See Pall et al. Anthropogenic Greenhouse Gas Contribution to Flood Risk in England and Wales in Autumn 2000, Nature 470 (2011), 382–5 for a study demonstrating that the likelihood of a par-

ticular weather event was more than doubled by climate change. The doubling of likelihood is legally significant, since it corresponds to a 50 percent probability that climate change caused an event, which is known in law as “a balance of probabilities” and is the standard of proof generally required in civil litigation in many countries.

**30** Riccardo E. M. Riva et al. Sea-level fingerprint of continental water and ice mass changes from GRACE. Vol. 37 (19) *Geophysical Research Letters* (Oct 2010).

**31** Celine Herweijer & Robert Muir-Wood, “Liability for Climate Change and the Emerging Role of Probabilistic Risk Attribution Science” (2007) 40:4 *Law & Technology* 13 at 22–26. The use of epidemiological and statistical evidence to establish causation in class actions involving breast implants has been approved of in the BC case of *Harrington v Dow Corning Corp* [2000] 11 *WWR* 201 (BCCA) at para 40. In England see *Sienkiewicz v Greif (UK) Ltd.*, [2011] UKSC 10; *Fairchild v Glenhaven Funeral Services Ltd.* [2002] UKHL 22.

**32** Some opponents of climate change litigation have argued that contributors include every person on the planet, and that this is a reason the courts cannot and should not be dealing with such issues. In response, advocates of such litigation emphasize that the courts will often differentiate between significant and insignificant contributions: Pawa, below, note 37.

**33** *Clements v Clements*, 2012 SCC 32 at para 8 (CanLII) [Clements]. See also *Blackwater v Plint*, [2005] 3 SCR 3 at para 78; *Walker Estate v York Finch General Hospital*, [2001] 1 SCR 647 [Walker]; *Atthey v Leonati*, [1996] 3 SCR 458; *Snell v Farrell*, [1990] 2 SCR 311.

**34** The idea of lawsuits against fossil fuel producers, rather than the individuals who burned fossil fuels, may be contentious to some, but bears striking similarities to lawsuits against tobacco companies and other manufacturers of dangerous substances. The legal and public policy rationale for climate damages litigation targeting fossil fuel producers is canvassed in the literature concerning climate litigation; for example, Grossman, above, note 15, pp. 28–31.

**35** Heede, above, note 6.

**36** For example, *Walker v. McKinnon Industries Ltd.*, [1949] 4 D.L.R. 739 (Ont H.C.), at p. 767, varied [1950] O.W.N. 309, [1950] 3 DLR 159 (CA), affirmed [1951] W.N. 401, [1951] 3 D.L.R. 577 (P.C.); *McKie v. K.V.P. Co. Ltd.*, [1948] 3 D.L.R. 201 at pp. 211 to 213; affirmed with variation [1948] O.W.N. 812, [1949] 1 D.L.R. 39; affirmed with variations [1949] S.C.R. 698, [1949] 4 D.L.R. 497; *Gauthier v. Naneff*, 14 D.L.R. (3d) 513 (Ont H.C.) at 517; *Woodyear v. Schaefer* 57 Md. 1 (Md. 1881) at 9–10; *Milwaukee II*, 1973 U.S. Dist. LEXIS 15607, at 21–22.

**37** Matthew F. Pawa, “Global Warming: The Ultimate Public Nuisance” in *Creative Common Law Strategies for Protecting the Environment* (Environmental Law Institute 2007) (Cliff Rechtschaffen & Denise Antolini, eds.), p. 138. See *American Electrical Power Corp*, above, notes 19 and 20.

**38** Gage, A. Climate change litigation and the public right to a healthy atmosphere. 24 *J. Env. Law & Pract.* 257 (July 2013).

**39** *Clements*, above, note 33, para. 13.

**40** According to the Supreme Court of Canada, in *Clements*, *ibid.*, at para. 39, the following features favour the use of the material contribution test in specific cases: (1) multiple parties were all involved in causing the harm; (2) all of those parties are at fault; (3) one or more of those parties in fact caused the plaintiff’s injury; (4) the plaintiff would not have been injured “but for” the negligence of those parties, “viewed globally”; (5) because those parties are engaging in mutual finger pointing, it is impossible for the plaintiff to prove that any one of them caused the injury.

**41** Joseph Smith & David Shearman, *Climate Change Litigation: Analysing the Law, Scientific Evidence and Impacts on the Environment, Health and Property* (Adelaide: Presidian Legal Publications, 2006), at 110.

**42** Hymowitz v. Eli Lilly & Co., 493 U.S. 944 (1989). The use of market share theory by appellate courts was affirmed in Enright v. Eli Lilly & Co. 1991. 77 N.Y. 2d 377, 570 N.E. 2d 198 (1991).

**43** Daniel J Grimm, Note, “Global Warming and Market Share Liability: A Proposed Model for Allocating Tort Damages among CO<sub>2</sub> Producers” (2007) 32: Colum J Env’t L 209 at 221. See also Dan Lashof, quoted in Scientific America (in collaboration with Jones Day), “Climate Change: Litigation and Corporate Risk”, Roundtable Proceedings, February 2009, p 4, on-line: Jones Day, <[http://www.tacklingglobalwarming.com/docs/Jones/02\\_09\\_climate.pdf](http://www.tacklingglobalwarming.com/docs/Jones/02_09_climate.pdf)> (last accessed 1 October 2014)

**44** In re Methyl Tertiary Butyl Ether (MTBE) Prods Liab Litig, 379 F Supp 2d 348 (SDNY 2005), 377–378.

**45** Grossman, above, note 15, p. 57; L. Case. Climate Change: A new realm of tort litigation and how to recover when the litigation heats up. 51 SCLR 265 (2011) at 286–88.

**46** Case, *ibid.*

**47** Case, *ibid.*, includes a general discussion of several of these theories of causation.

**48** For example, T. Farber, above, note 25, discussing the concept of waiver of tort.

**49** Evans et al. use this term to refer to class action and other litigation that combines large numbers of harmed plaintiffs who have suffered significant harm into a single case — thereby resulting in very large damages awards. Some examples include cases related to tobacco damages, asbestos, contaminated sites and potentially, Evans et al. suggest, climate change litigation. See: J. Randy Evans, Joanne L. Zimolzak, and Christina M. Carroll, Is Past Prologue To Climate Change Liability?, Law360, New York (May 31, 2011), available on-line at: [https://www.mckennalong.com/media/resource/1512\\_Is%20Past%20Prologue%20To%20Climate%20Change%20Liability.pdf](https://www.mckennalong.com/media/resource/1512_Is%20Past%20Prologue%20To%20Climate%20Change%20Liability.pdf) (last accessed 1 October 2014).

**50** Evans et al., *ibid.*

**51** Hsu, Shi-Ling, above, note 17, at p. 34 of SSRN version.

**52** *Ibid.*, in abstract.

**53** Justiciability, or the political questions doctrine, is the concept that the courts should not consider certain issues because they are inherently political. As noted above, at footnote 19, some U.S. courts have refused to hear climate lawsuits on this basis. The Canadian courts have generally been willing to examine cases raising political questions, provided that there is a “sufficient legal component to warrant the intervention of the judicial branch”: Reference re Canada Assistance Plan, [1991] 2 S.C.R. 525 at p. 545 per Sopinka J. It is sometimes argued that the Federal Court adopted a version of the political questions doctrine in Friends of the Earth Canada v. Canada, 3 F.C.R. 201, which concerned a judicial review of the failure to implement sections of the Kyoto Protocol Implementation Act. The decision, however, was based on the interpretation of the particular statute involved, and is not relevant to the political questions doctrine in tort law. The U.S. Doctrine of Pre-emption, on the basis of which, as noted above at note 21, the U.S. Supreme Court has held that the Clean Air Act has displaced any federal common law basis for climate-damages claims, is equivalent to the Doctrine of Paramountcy in Canadian law. This doctrine has been given a relatively narrow interpretation by the Canadian courts (being relevant only where there is an unavoidable conflict between federal and provincial laws): *Multiple Access v. McCutcheon*, 138 D.L.R. (3d) 1 (S.C.C.).

**54** This is not universally true, although the discussions of international scenarios have focused on a small number of individual players, and have not recognized the full ranges of scenarios that are possible. Zasloff, above, note 22, at pp. 49 to 58 discusses the possibility of an Indian company being used in U.S. Courts. Grossman, above 15, pp. 7–8, discusses the international nature of climate change, including mentioning the possibility that a foreign plaintiff might try to re-

cover climate-related damages in U.S. courts, but does not mention the possibility of litigation by that foreign plaintiff in its own courts. Shi Ling Hsu, above, note 17, and the University of Victoria Environmental Law Centre (citing Hsu), <http://www.elc.uvic.ca/associates/documents/Climate-Change-Dec3.07.pdf>, last accessed 17 July 2014, do discuss the potential for a Canadian plaintiff to sue U.S. emitters in Canadian courts, but do not explore the practical implications of that approach at a global level. There is a brief mention of the possibility of such litigation in Lord, above, note 8, at pp. 48–49. All of these papers assume, with little discussion, that a tort occurs where the emissions occur, rather than in the country where damages occur, as discussed below.

**55** J. E. Heintz et al. “Applying Fairness Principles in Climate Change Nuisance Litigation” *Environmental Claims Journal*, 22(2):91–111, 2010, argue that the fact that U.S. lawsuits only claim compensation from U.S. defendants represents part of a fundamental unfairness in these claims. At pp. 92–93: “We also know that some of the largest contributors to climate change are not here in the United States, but are found in other countries. So how can it be deemed ‘fair’ to hold a handful of U.S. power companies responsible for a local effect of global warming? In short, it cannot.... The unfairness seems particularly acute when the result of the litigation would be to impose restrictions on a handful of companies, thereby subjecting them to different, ad hoc standards and an economic disadvantage as compared to other similarly situated companies.”

**56** Lord, above, note 8, p. 152.

**57** Impacts may not be felt equally. The global risk consultancy Maplecroft publishes an annual Climate Change Vulnerability Index, which “classifies seven cities as ‘extreme risk’ from changing temperatures and weather systems resulting from climate change, out of a list of 50 chosen for their current and future importance to global business. These are (1) Dhaka, Bangladesh; (2) Manila, the Philippines; (3) Bangkok, Thailand; (4) Yangon, Myanmar; (5) Jakarta, Indonesia; (6) Ho Chi Minh City, Viet Nam; and (7) Kolkata, India. See: [http://maplecroft.com/about/news/ccvi\\_2013.html](http://maplecroft.com/about/news/ccvi_2013.html), last accessed 17 July 2014.

**58** L.C. Chambers. *Tort law, climate change and private nuisance*. October 2012, Dissertation, University of Otago (N.Z.), suggesting, at pp. 43–44, 46–47, that an international class action may be a viable way for climate victims in New Zealand to achieve compensation.

**59** A reviewer of an earlier draft of this report expressed skepticism that private litigants would bear the costs and uncertainty associated with climate damages claims, and felt that such litigation would only occur when governments became involved in litigation. This is particularly true given the ability of governments to alter rules around liability (see Part 3) and to claim damages on behalf of their “public” (see note 130).

**60** See K. MacDonald. *Cross-Border Litigation: Interjurisdictional Practice and Procedure*. (Aurora, Ontario: Canada Law Book, 2009) for discussion of these concepts in a Canadian context. Courts may also have jurisdiction based on the fact that the defendants reside or do business in the country, or that the parties have agreed to be subject to the jurisdiction of the court.

**61** French Civil Code, Article 14. This is not to suggest an absence, depending on the facts of the case, of other legal concepts such as *forum non-conveniens* (the idea that a court should decline to act, even if it has jurisdiction, where there is a more appropriate place to bring the claim) that might dissuade a court with such a wide jurisdiction from hearing a climate damages claim.

**62** MacDonald, above, note 60, p. 7, footnote 4, citing Code Judiciaire (Belgian Judicial Code), articles 635(5) and 638; and Code of Civil Procedure (Netherlands), articles 126(3).

**63** *Morguard Investments v. De Savoye* (1990), 76 D.L.R. (4th) 256 (S.C.C.); *Beals v. Saldanha* (2003), 234 D.L.R. (4th) 1 (S.C.C.); *Club Resorts Ltd. v. Van Breda*, 2012 SCC 17, [2012] 1 S.C.R. 572.



**64** New Zealand's Court Rules explicitly provide for the court to hear cases whenever the harm that is the subject of a lawsuit has occurred in New Zealand: N.Z. High Court Rules, r 6.27, cited in Chambers, above, note 58, at p. 44.

**65** For a more comprehensive discussion of the "real and substantial test" see MacDonald, above, note 60, pp. 45-57.

**66** As noted, jurisdiction is based on each country's own legal requirements. Consequently, the Canadian legal test is not relevant to whether a Bangladeshi court might itself claim jurisdiction. Each jurisdiction's own laws related to jurisdiction will be relevant. However, the Canadian law related to enforcing a foreign judgment within Canada involves the application of Canadian law's test related to jurisdiction: See below, note 80. This report is written primarily for a Canadian audience and it is useful to consider Canadian law for two reasons: (1) It is not possible to canvas every possible nation's laws related to jurisdiction, and (2) Canadian readers are more likely to accept Canadian law as a reasonable balance. Certainly Canadians should not be surprised if the laws of other countries support a broad climate damages jurisdiction if Canadian law also supports such an approach. A more comprehensive review of jurisdictional laws in key countries may be an important future research project.

**67** Club Resorts, above, note 63, para. 90. The other factors which create a presumption of a real and substantial connection include the defendant being domiciled in or carrying on business in the jurisdiction, or if the case concerns a contract signed in the jurisdiction. However, this is not an exhaustive list and other grounds for finding a real and substantial connection may be developed.

**68** Tolofson v. Jensen, [1994] 3 S.C.R. 1022, para. 43.

**69** Imperial Tobacco v. BC, 2005 SCC 49, para. 49.

**70** This benefit is subject to the decision of the court on the appropriate "choice of law", a concept discussed below at notes 72 - 78.

**71** Above, note 25.

**72** Above, note 60, pp. 151-153.

**73** Tolofson, above, note 68.

**74** REGULATION (EC) No 864/2007 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 July 2007 on the law applicable to non-contractual obligations (Rome II), available at <http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32007R0864>, last accessed 1 October 2014, at Article 4(1). Note that even before Rome II most EU countries applied variants of the *lex loci delicti* approach to determining which law should apply. Thus, recent litigation against Royal Dutch Shell in the courts of the Netherlands by Nigerian plaintiffs applied the law of the Nigeria, since the damages in question had occurred prior to Rome II. See, for example, F. Akpan v. Royal Dutch Shell, District Court of the Hague, docket number: C/09/337050 / HA ZA 09-1580, Final Judgment, available at [https://www.milieudefensie.nl/publicaties/bezwaren-uitspraken/final-judgment-akpan-vs-shell-oil-spill-ikot-ada-udo/at\\_download/file](https://www.milieudefensie.nl/publicaties/bezwaren-uitspraken/final-judgment-akpan-vs-shell-oil-spill-ikot-ada-udo/at_download/file), last accessed 1 October 2014.

**75** *Ibid.*, Article 7.

**76** *Ibid.*, Article 3 (note, however, the exception of Denmark, which did not sign the Treaty: *Ibid.*, Article 1(4).)

**77** Lord, above, note 8, p. 484.

**78** MacDonald, above, note 60.

**79** MacDonald, above, note 60, p. 295.

**80** MacDonald, above, note 60, at pp. 254–261. See also M. Koehnen and A. Klein. The Recognition and Enforcement of Foreign Judgments. (Vancouver: International Bar Association International Conference 2010, 2010), available at [http://mcmillan.ca/Files/132622\\_Paper\\_RecognitionandEnforcementofForeignJudgmentsinCanada2010-IBA%20Vancouver%20October%202010%20%28co-%20%282%29.pdf](http://mcmillan.ca/Files/132622_Paper_RecognitionandEnforcementofForeignJudgmentsinCanada2010-IBA%20Vancouver%20October%202010%20%28co-%20%282%29.pdf), last accessed 1 October 2014, which adds another required element (that the amount of damages must be for “a definite and ascertainable sum of money”) which MacDonald includes in (b), while listing (c) as a defence to enforcement rather than a required element for enforcement.

**81** The possibility that the rules regarding liability for climate change could be defined through legislation is discussed in Part 3. In such a case, it might well be argued that such legislation is a ‘public law’. Consequently, it may be worth saying a bit more about the public law rule. While the precise scope of the rule remains somewhat in dispute, the mere fact that a foreign law addresses issues related to compensation and liability for damages occurring in that jurisdiction does not invoke the rule. If it did, it would be impossible to enforce judgments from civil law countries — in which all liability is based in statute. In *United States of America v. Ivey* (1996), 30 O.R. (3d) 370 (C.A.), affirming 26 O.R. (3d) 533, the Ontario Court of Appeal considered whether an order for compensation under the U.S. *Comprehensive Environmental Response Compensation and Liability Act* (1980), which deals with liability for contaminated site remediation. The court concluded that the public law exception, if it exists in Canadian law, did not apply to legislation like this, aimed at compensation for environmental harm occurring within the boundaries of the jurisdiction. Notably, the trial judge, Sharpe, J., in reasons adopted by the Court of Appeal, writes about the complex relationship between legislation and the common law: “[T]he traditional remedies of the common law have effectively been supplanted by detailed statutory and regulatory regimes... If these judgments are to be refused enforcement on the grounds that they represent an assertion of foreign sovereignty, it is difficult to see how enforcement could ever be accorded a civil judgment in favour of a foreign state.” Provided that the focus of legislation is on compensation for harm occurring in a foreign jurisdiction, and remedies are available not just to the government but to all suffering such harm, then it appears that the foreign law exception will not apply. This is not to say that legislation aimed at enabling climate change compensation could never be found to have a predominantly public purpose, and this risk may mean that governments adopting climate compensation legislation, such as that discussed in Part 3, should base their laws, to the extent possible, on existing and accepted principles of liability, and clearly link compensation owed to the actions of the defendants and the harm caused.

**82** *Beals v. Saldanha* (2003), 234 D.L.R. (4th) 1 (S.C.C.) at para. 72.

**83** See Koehnen, above, note 80, pp. 30–39, discussing fraud, denial of natural justice and public policy defence. See also MacDonald, above, note 60, pp. 267–268, discussing the relationship between fraud, natural justice and the public policy defence, and generally from pp. 261–271.

**84** Not addressed in this report is the question of whether the courts in some countries might also enforce injunctive relief (i.e. court orders requiring a party to stop doing something — reducing greenhouse gas emissions, for example — or to do something) made by foreign courts in respect to large-scale greenhouse gas producers: see *Pro Swing Inc. v. Elta Golf Inc.*, 2006 SCC 52, for discussion of when Canadian courts will consider enforcing injunctive relief in an order from another country’s courts. The enforcement of such orders could potentially represent a significant source of uncertainty for large-scale greenhouse gas producers.

**85** Lord, above, note 8. This book is not the only attempt to review the prospects of climate litigation in a range of countries, but it is the most thorough and credible of which we are aware, and we have chosen to rely primarily on it in this paper. For an interesting, and often more optimistic, assessment of the potential for climate damages litigation in several countries, see the website *Claimer.org* at <http://news.claimer.org/>, last accessed 1 October 2014. See also R. Blom-

quist. Comparative Climate Change Torts. 46(4) Valparaiso University Law Review 1053 which draws heavily on Lord et al.

**86** Lord, *ibid.*, p. 48. The authors of the chapter on India suggest, at p. 177, that constitutional litigation is more likely than tort litigation, due to the easier access to higher courts in constitutional cases and the slow pace of tort litigation. The authors also, as quoted above at note 56, suggest that a climate damages claim aimed primarily at Indian defendants might be unsuccessful, but do not examine the question of transnational litigation that also targets non-Indian defendants.

**87** David Boyd. *The Right to a Healthy Environment*. (Vancouver: UBC Press, 2012), at p. 74.

**88** *Ibid.*, p. 88. These are not the only form of constitutional protection for the environment; the constitutions of 142 countries place an obligation on the government to protect the environment (p. 73). However, it seems that individual rights or duties are more likely to give rise to the type of civil liability discussed here.

**89** Lord, above, note 8, p. 250, in relation to Article 33 of Egypt's Constitution which protects "public property", and has "giv[en] standing to citizens in litigation against public and private bodies involving harm to, or misuse of, public property."

**90** For example, *M.C. Mehta v. Union of India*, WP 12739/1985 (1986.02.17) (Oleum Gas Leak Case) (S.C. of India), which awarded compensation to the victims of an Oleum gas leak in a case brought under constitutional provisions.

**91** Lord, above, note 8, pp. 292–93, citing *Carmel Hospital v. Malul*, DNA 4693/05 (29 August 2010).

**92** Tokyo Minamata disease case, Judgment of the Tokyo District Court, 7 February 1993, Hanrei jiho special edition (25 April 1993), 3, cited in Lord, *ibid.*, p. 230.

**93** *Environmental Liability Act*, UmweltHG, Germany, discussed in Lord, *ibid.*, at p. 413. See the full English language text on-line: [http://www.utexas.edu/law/academics/centers/transnational/work\\_new/german/case.php?id=1396](http://www.utexas.edu/law/academics/centers/transnational/work_new/german/case.php?id=1396) (last accessed 1 October 2014).

**94** *Abatement of Environmental Nuisances (Civil Action) Act*, Israel, discussed in Lord, *ibid.*, at p. 294. See an English-language translation on-line: <http://www.sviva.gov.il/English/Legislation/Documents/Nuisances%20Laws%20and%20Regulations/PreventionOfEnvironmentalNuisances-CivilAction-Law1992.pdf> (last accessed 1 October 2014).

**95** Lord, *ibid.*, p. 229 (Japan), p. 342 (South Africa).

**96** *Brazilian Civil Code*, Article 927, discussed in Lord, *ibid.*, pp. 616–617.

**97** Article 4, section VII of Law No. 6938 of 1981, discussed in Lord, *ibid.*, p. 617.

**98** See: <http://news.claimer.org/2013/04/brazil-climate-change-promised-land-for.html>, last accessed 1 October 2014. The authors of the chapter in Lord, *ibid.*, on Brazil are less optimistic, but not because of the features of the liability regime, but because of a preference for a legal mechanisms that proactively prevents environmental damage, and because of the length and expense of damages litigation, pp. 616, 618.

**99** In particular, causation rules grounded in Canadian law may be more transferrable to other commonwealth jurisdictions. It may be noted that Lavanya Rajamani et al, in Lord, *ibid.*, p. 166, in relation to Indian Law, suggest that greenhouse gas emissions could themselves be a public nuisance—an argument very similar to the approach taken by Gage, above, note 38: "It could... be argued that since emissions of pollutants constitutes a nuisance, by logical extension emission of GHGs can also be construed to be a nuisance."

**100** This is not to question the neutrality of the judges in question, so much as to recognize that judges bring their experiences to bear in the cases that they hear. Similar incentives operate, in

reverse, in countries that are obtaining a significant economic advantage from the use of fossil fuels. See above, footnote 24.

**101** The extent to which a precedent persuades other courts will, of course, depend upon the courts and legal systems involved as well as many other factors.

**102** “133 countries walk out of UN climate meeting over global warming compensation row”, available at <http://rt.com/news/climate-change-walkout-warsaw-050/>, last accessed 1 October 2014.

**103** Decision 2/CP.19, Warsaw international mechanism for loss and damage associated with climate change impacts (advance unedited version), available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf>, last accessed 1 October 2014.

**104** K. Boom and J. Richards. *Carbon majors funding loss and damage*, Volume 39 of the Publication Series Ecology (Heinrich-Böll-Stiftung, Berlin, June 2014), p. 11, available at <http://www.scribd.com/doc/228362115/HbF-CJP-Report-Carbon-Majors-Funding-Loss-and-Damage>, last accessed 1 October 2014.

**105** Fla. Stat. Ch. 409.910 (1995).

**106** J. Shelley. *The Crown’s Right of Recovery Act*. Health Law Review 18:3, 2010, at p. 17.

**107** *Tobacco Damages Recovery Act* [SBC 1997] c. 41, subsequently renamed the *Tobacco Damages and Health Care Costs Recovery Act* [SBC 2000], c. 30.

**108** Shelley, above, note 106, p. 16.

**109** Above, note 69.

**110** Shelley, above, note 106, p. 17, citing Barbara Sibbald, “All provinces likely to join tobacco litigation” (2005) 173:11 CMAJ 1307 at 1307.

**111** See <http://www.hazmatmag.com/news/a-civil-action/1000204868/>, last accessed 1 October 2014, for a discussion, by Tyson Dyck, a lawyer with Torys LLP, of the use of legislation analogous to the *Tobacco Damages and Health Care Costs Recovery Act*, above, note 107, to allow governments to recover environmental damages.

**112** Common law countries include Canada (except Quebec), the U.S., and most Commonwealth countries. Rules around liability in these countries are based on the “common law” — legal principles articulated and developed by judges over time. Civil law countries include much of continental Europe and their former colonies, where governments have enacted “civil codes” outlining the rules governing liability. Other countries have liability rules that draw on both approaches.

**113** Footnotes 114 to 122 provide examples of legislation that alter the rules related to liability in ways analogous to what climate compensation legislation might do. These footnotes are not intended to be a comprehensive list of such provisions, but simply to demonstrate that such legislation is by no means unprecedented. Since this paper is intended for a Canadian audience, and the authors are Canadian, the examples draw disproportionately on Canadian examples.

**114** A few of the many examples of legislation broadening rules of standing in respect of environmental cases include: Environmental Bill of Rights (Ontario), S.O. 1993, c. 28, s. 103 (“Ontario EBR”); Abatement of Environmental Nuisances (Civil Action) Act, 1992 (“AENCAA”), (Israel), para. 2, as discussed in Lord, above, note 8, at p. 294. The AENCAA allows any person (or NGO acting on behalf of a person) to take a civil action or class action in cases of environmental pollution or nuisances.

**115** Public rights of way, such as highways, are often created through legislation, and can form the basis of public nuisance litigation: Transportation Act, S.B.C. 2004, c. 44, ss. 42–43. Examples of legislation that recognize or create public rights in relation to environmental resources

that could form a basis for liability for defendants that interfere with those rights include the Yukon's Environment Act, R.S.Y. 2002, c. 76, s. 6, as well as hunting and fishing heritage legislation passed in several Canadian provinces that explicitly recognizes a public right to use fish and wildlife resources: Heritage Hunting and Fishing Act, 2002, S.O. 2002, c. 10, s. 1; Hunting and Fishing Heritage Conservation Act, S.B.C. 2002, c. 79, s. 1. Similarly, 'occupiers liability' legislation typically creates a duty of care the operators of property that gives rise to civil liability: Occupiers Liability Act, R.S.B.C. 1996, c. 337, s.3. A statute that creates an environment-related duty is National Environmental Management Act, Statutes of South Africa, No. 107 of 1998, s. 28 (creating a duty of care to prevent or remediate pollution).

**116** Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), 42 USC § 9607 – Liability; Environmental Management Act, S.B.C. 2003, c. 53, ss. 45-47.

**117** BC, Tobacco Damages and Health Care Costs Recovery Act at s 5. A fairly common form of legislation dealing with issues of proof are "reverse onus clauses", which require a defendant to disprove elements of a case once certain elements are proven. For example, the Highway Traffic Act, R.S.O. 1990, c. H-8, s. 193; Parental Responsibility Act, 2000, S.O. 2000, c. 4, s. 2; Parental Liability Act, S.B.C. 2001, c. 45, s. 9.

**118** AENCAA, above, note 114. See discussion in Lord, above, note 8, at p. 294. For examples of statutes that create or recognize legal rights and associated causes of action in respect of environmental problems, see Environmental Liability Act, Germany, above, note 93; in relation to liability for contaminated sites and hazardous materials release, CERCLA, above, note 116; Environmental Management Act, above, note 116; Environmental Response and Liability Act, Minn. Statutes 2013, c. 115B. Damages (Asbestos-related Conditions)(Scotland) Act 2009 reverses court rulings that certain health impacts of Asbestos (Asbestos-related pleural plaques, asbestos-related pleural thickening and asbestosis) are insignificant, thereby creating the possibility of litigation in respect of those damages.

**119** In general, limits on when court cases can be brought are statutory in nature. However, there are also examples of these statutes being adjusted in cases where the time-delay is significant. For example, Acts Amendment (Asbestos Related Diseases), Western Australia, No 84 of 1983, s. 4, amending s. 38 of the Limitations Act, 1935-78.

**120** Ontario EBR, above, note 114, s. 93; Canadian Environmental Protection Act, 1999, S.C. 1999, c. 33, ss. 39-40.

**121** Class action legislation is generally an example of legislation modifying the rules around litigation to facilitate plaintiff access to the courts: Class Proceedings Act, R.S.B.C. 1996, c. 6 generally, and s. 37 in relation to protecting plaintiffs from costs.

**122** Many countries or jurisdictions have legislation setting out rules for the enforcement of court orders from other countries, including designating the orders of particular jurisdictions as generally enforceable: *Foreign Judgments (Reciprocal Enforcement) Act 1933* (United Kingdom), 1933 c. 13 (Regnal. 23\_and\_24\_Geo\_5); *Court Order Enforcement Act*, R.S.B.C. 1996, c. 78, Part II. In relation to enforcement of court orders specifically related to environmental liability, see *Canada's Marine Liability Act*, S.C. 2001, ss. 63-71.

**123** Executive Order, No. 774 (2008) (Philippines), s. 14, available on-line at [http://www.lawphil.net/executive/execord/eo2008/eo\\_774\\_2008.html](http://www.lawphil.net/executive/execord/eo2008/eo_774_2008.html), last accessed 1 October 2014.

**124** Fossil fuel companies are an attractive target for climate change lawsuits, in that they are "upstream defendants" (Zasloff, above, note 22, pp. 36-38) meaning that they are key players not only in their own emissions, but in the emissions resulting from their products. Consequently a lawsuit focusing on fossil fuel producers would involve "a formidable number of entities, but far fewer defendants" (p. 37) than a lawsuit against end users.

**125** Heede., above, note 6. Other “carbon majors” are operating in Canada, but these five companies are the carbon majors currently listed on the Toronto Stock Exchange.

**126** DARA, above, note 2.

**127** Heede, above, note 6.

**128** DARA, above, note 2.

**129** Since the U.S. figures are 2010 figures, we have used U.S.-Canada conversion rates for 2010. According to the Bank of Canada website, the average U.S. to Canada exchange rate for 2010 was 1.0299.

**130** This type of litigation, known as *parens patriae* litigation, in which the government acts in the role of a parent on behalf of the public, is well established in the U.S. and has been endorsed by the Supreme Court of Canada: *Canadian Forest Products v. BC*, above, note 27. The emergence of class actions for climate damages might also represent a significant percentage of the damages discussed, but would probably not include environmental and other public damages which could be better captured in a *parens patriae* case.

**131** DARA, above, note 2.

**132** Examples of the types of costs/damages considered in the Climate Vulnerable Forum/DARA report include, but are not limited to, drought, floods and landslides, loss of biodiversity, rising sea levels, melting permafrost, malaria and vector borne diseases, hunger, and stresses on fishing, forestry, tourism and other industries. See DARA, *ibid.*, for a more complete list.

**133** *Ibid.*, p. 23. Losses from climate change exceed this net figure, but there are benefits in some countries from rising temperatures that offset some of the costs. DARA estimates the 2010 losses from climate change at \$696 Billion (p. 17). The net loss figure that we use in this report represents a conservative estimate.

**134** *Ibid.*, p. 23.

**135** *Ibid.*, pp. 294–296.

**136** While the Climate Vulnerability Monitor does estimate the costs of climate change for each country in terms of a percentage of GDP, it does not provide a dollar value of the losses in any one place. For the purposes of this report, country specific net costs are calculated in this section by totaling the costs for the country for each indicator assessed by the Climate Vulnerability Monitor Report, *ibid.* The result likely under-estimates the net cost, since the Climate Vulnerability Monitor Report does not provide a dollar value associated with health indicators.

**137** *Ibid.* At p. 296 the losses for Vietnam are estimated at 5.2% of Vietnam’s GDP.

**138** *Ibid.*

**139** *Ibid.* At p. 296 the losses for Ghana are estimated at 4.4% of Ghana’s GDP.

**140** *Ibid.*

**141** *Ibid.*

**142** *Ibid.*





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