Weather Disasters and the Law: Examining the Need for Change in Canada

by

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B.Soc.Sc., University of Ottawa, 2009
J.D., University of Ottawa, 2012

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Abstract

Canada is one of the wealthiest and most technologically advanced countries in the world. Yet, it fails to maintain an effective and comprehensive system for responding to weather-related hazards. The adverse socio-economic impacts of extreme weather are sufficiently serious to make climate change a threat to humanity. Weather events have lingering effects on peoples' financial stability, particularly in low-income households. The goal of this thesis is to illuminate the nature of the legal, economic and social challenges posed by extreme weather. Thus, I present a comprehensive study of the Canadian institutional responses to these disasters.

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Chapter I: Introduction

In Canada, homeowners and tenants enjoy a variety of insurance coverage for misfortunes. If a cottager woke up one day to a devastating forest fire that engulfs the cottage and burnt it the ground, this calamity would likely be covered by her or his insurance. However, if it were destroyed because of a flood, things would be more complicated. In Canada, overland flood insurance is not available for purchase, forcing provincial/territorial and federal governments to act as *ad hoc* insurers to cover these disasters. The absence of flood insurance is emblematic of the broader failures of the laws and institutions that govern the responses to natural disasters and the adverse impacts of climate change. Canada is one of the wealthiest and most technologically advanced countries in the world. Yet, it fails to maintain an effective and comprehensive system for responding to weather-related hazards. As will be demonstrated in this thesis, Canada has a fragmented and uncoordinated approach to managing such risks.

A. Context

Climate change refers to fluctuations in climate and weather systems, due to natural or human influences.[1] It occurs when solar radiation is absorbed by the surface of the earth and re-emitted back to the atmosphere by aerosols, gases and clouds.[2] This natural process is agitated by human activity when industry and individuals produce additional greenhouse gas (GHG) emissions, notably carbon dioxide (but also other gases such as methane). Human induced change to the climate is also known as *anthropogenic*

[1] *Climate Change 2007: Synthesis Report*, online: Intergovernmental Panel on Climate Change < http://www.ipcc.ch/publications_and_data/ar4/syr/en/mains1.html>.
[2] Cubasch, U., D. Wuebbles, D. Chen, M.C. Facchini, D. Frame, N. Mahowald, and J.-G, *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge: Cambridge University Press, 2013, online: < http://www.climatechange2013.org/images/report/WG1AR5_Chapter01_FINAL.pdf>, at p 126.

climate change. There are mountains of research on anthropogenic climate change but the International Panel on Climate Change's (IPCC) is the leading authority in the field. The IPCC is an organization established by the United Nations Environmental Programme that provides stakeholders with scientific data relating to climate change.[3] In their fifth assessment report, the IPCC wrote that climate change influences "the likelihood of the occurrence or strength of extreme weather and climate events such as extreme precipitation events or warm spells."[4] The dilemma of predicting the frequency and severity of weather events was addressed further in the IPCC's special report on *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*. There are numerous examples indicating that natural climate variances cause weather pattern anomalies (for example, the periodic warming of the ocean water temperatures created by an El Nino affect).[5]

Changes to these natural processes, however, influence: "the frequency, intensity, spatial extent, duration, and timing of weather and climate extremes, and can result in unprecedented extremes".[6] The overall confidence of scientists in predicting how anthropogenic climate change influences weather is challenged by the lack of accurate data and the variations between regions. For example, the IPCC reports it is *likely* that such changes will increase extreme coastal high water but there is *medium* confidence that it has intensified extreme precipitation at the global scale.[7] Therefore, scientists are

[3] United Nations Environmental Programme, online International Panel on Climate Change,: <http://www.ipcc.ch/organization/organization.shtml#.UyE5-lFdUmY>.
[4] International Panel on Climate Change, *Working Group I Contribution to the IPCC Fifth Assessment Report Climate Change 2013*: *The Physical Science Basis*, (Stockholm: 30 September 2013), at p. 12. At the same time, progressive scientists have denied the links between climate change and extreme weather. <http://activistteacher.blogspot.ca/2011/03/on-gargantuan-lie-of-climate-change.html>.
[5] IPCC, *supra* note 2, a p 111.
[6] *Ibid.*
[7] *Ibid,* at p 112.

not yet able to predict that a given weather event is a direct result of the broader influences of anthropogenic climate change, even if the statistical likelihood of such events occurring more frequently has been proven.

The adverse socio-economic impacts of extreme weather are sufficiently serious to make climate change a threat to humanity. Weather events have lingering effects on peoples' financial stability, particularly in low-income households. For example, almost two years after Hurricane Sandy struck the east coast of the United States (US), public housing residents were still waiting for repairs to be completed by state authorities.[8] The lack of repairs often disrupts the financial situations of the affected families and thereby forces them to personally bear the repair costs. Extreme weather also threatens the domestic and global economy. In North America, extreme weather events have steadily destroyed more property.[9] In 2012, the US recorded $186 billion in damages from natural disasters.[10] That same year, the US and Canadian insurance industries reported (USD)$77 billion and (CAN)$3.2 billion in insured losses respectively.[11] Liability claims for climate change against governments and utility companies are on the rise. In 2014, the Illinois Farmers Insurance Co. sued 200 Illinois towns for failing to prevent flooding ostensibly

[8] Greg B. Smith, "17 months after Hurricane Sandy, NYCHA residents are still waiting for repairs: report" *New york Daily News* <http://www.nydailynews.com/new-york/17-months-nycha-sandy-victims-waiting-article-1.1718410>.
[9] IPCC, *supra* note 1, at p 7.
[10] "Swiss Re's sigma on natural catastrophes and man-made disasters in 2012 reports USD 77 billion in insured losses and economic losses of USD 186 billion, 27 March 2013", Swiss Re (27 March 2013), online: <http://www.swissre.com/media/news_releases/nr_20130327_sigma_natcat_2012.html>.
[11] Jaqueline Nelson, "Canadian Insurers Made Record Payouts in 2013", *The Globe and Mail,* January 20 2014, <http://www.theglobeandmail.com/report-on-business/economy/severe-weather-leads-to-record-32-billion-in-insurance-payouts/article16405099/>. Due to the severity of Hurricane Sandy, the US total insured losses was significantly higher than the Canadian total, despite the devastation of the Southern Alberta floods that same year.

related to climate change.[12] In a landmark case, the town of Kivalina attempted to hold some industry titans (e.g. ExxonMobil Corporation) responsible for causing a rise in sea levels that led to the destruction of the community and forced the village to relocate.[13] Kivalina alleged the defendants' GHG emissions contributed significantly to anthropogenic climate change and amounted to a public nuisance. These examples reveal only a small portion of the tribulations from weather events.

B. Scope and Purpose

The goal of this thesis is to illuminate the nature of the legal, economic and social challenges posed by extreme weather. Thus, I present a comprehensive study of the Canadian institutional responses to extreme weather. This study centers on Canada but relies on policy developments and jurisprudence from other countries with natural disaster systems to discover workable patterns of disaster responses. The thesis does not discuss fatality rates, or the lasting economic effects of these events. As well, although the impacts on ecosystems and the physical integrity of the environment are of great import, these issues are beyond the scope of this thesis. The focus if this thesis is limited to a discussion of the laws and institutions for responding to extreme weather events.

Previous studies on the institutional responses to extreme weather have adopted mechanistic approaches, focusing solely on the material outcomes of public policy and private insurance designs.[14] The study of public-private partnerships in natural disaster

[12] Rob Wile, *Business Insider* (May 18, 2014), "An Insurance Company Is Suing 200 Illinois Towns For Not Being Better Prepared For Climate Change", online: Business Insider <http://www.businessinsider.com/farmers-sues-towns-over-climate-damage-2014-5>.
[13] *Native Village of Kivalina v ExxonMobil Corp,* 696 F 3d 849 (9th Cir 2012).
[14] *Ibid.*

insurance is an example of this approach.[15] Public-private partnerships take on a variety of formats but typically involve cost sharing for natural disasters between governments and the private insurance market.[16] For example, Youbaraj Paudel posits that governments cover large-scale losses and private insurers cover medium-sized losses for natural disasters.[17] Jim Chen proposes a portfolio of legal rules for institutions to deal with catastrophic risks.[18] Through this portfolio approach Chen's *modern disaster theory* comprises a "mixture of policy instruments for reducing environmental hazard and human susceptibility and for enhancing social resilience and capacity".[19] These theories on private and public partnerships are landmarks in the literature and I rely on them for this thesis project.

However, disaster law scholarship has paid little attention to the forces that affect our institutional responses to extreme weather. Their contributions only partially explain the implications of the system dynamics as they fail to take a holistic approach. These theories may offer insight into the material processes of natural disaster responses but do not address the broader cultural issues that drive these institutional responses. In Canada,

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[15] Youbaraj Paudel, "A Comparative Study of Public—Private Catastrophe Insurance Systems: Lessons from Current Practices", (2012) *The Geneva Papers* (2012) 37, 257, online: <http://www.palgrave-journals.com/>.

[16] See *supra* note 6.

[17] *Ibid.* at p 257. In a comparative study of fully public, fully private and public-private insurance systems in 10 countries Paudel gives 10 recommendations for the creation of a PPP. His nine recommendations are: (1) mandatory participation requirements are advisable to achieve a high market penetration rate; (2) adequate monitoring and enforcement mechanisms need to be put in place to ensure compliance with these requirements; (3) the government needs to take responsibility for part of the (extreme) damage in order to keep an insurance system financially viable and affordable; (4) private insurance companies should participate in a PP insurance scheme by selling and administering policies and by covering medium-sized losses; (5) the integration in systems of risk transferring mechanisms is advisable; (6) it is advisable that governments stimulate the building-up of insurers' reserves by providing tax exemptions; (7) risk mitigation policies should be carefully integrated in a natural disaster insurance system; (8) a detailed assessment and mapping of risk provides the basis for an effective mitigation policy; (9) insurance should provide financial incentives for policyholders to take risk mitigation measures.

[18] Jim Chen, "Modern Disaster Theory : Evaluating Disaster Law As A Portfolio Of Legal Rules" (2011) 25 Emory Int LR 1121.

[19] *Ibid*. p 1149

ineffective environmental laws result in the absence of extreme weather mitigation and adaptation strategies. The pursuit of economic development based on the extraction of natural resources contradicts efforts to attenuate the effects of climate change and weather disasters. I address this multidimensional problem using a systematic approach and by contextualising how extreme weather interacts with our lives and institutions. The literature on disasters and the law identifies three institutions that control these mechanisms: the courts, the insurance industry and the government. This chapter argues that Canadian laws fail to coordinate institutional responses and to facilitate adaptation and mitigation mechanisms towards extreme weather and, to a larger extent, climate change.

C. Methodology and the Structure of This Thesis Project

As demonstrated above, the issue of weather disasters is wide-ranging, and requires a coordinated approach. In this regard, it is important to consider the robust nature of a contextual approach. There are varying institutional responses to extreme weather and contextualisation allows for a comprehensive assessment of these responses. It provides insights into more transformative strategies and helps us to understand that no single legal decision, insurance product or policy can truly operate in insolation.[20] Colleen Sheppard uses contextual methodology to uncover patterns of substantive and procedural harms.[21] Sheppard discusses the reproduction of harms at the institutional level and does not simply offer a set of rhetorical suggestions but provides solutions for

[20] This methodological approach was inspired by Colleen Sheppard's chapter on Contexts of Inequality, see Colleen Sheppard, "Contexts of Inequality: Identifying and Remedying Discrimination" in Colleen Sheppard, *Inclusive Equality: The Relational Dimension of Systemic Discrimination in Canada,* Montreal and Kingston: McGill-Queens University Press, 2010.
[21] *Ibid.*

change. The subject matter discussed in this thesis is vastly different but what she calls 'contextualism' provides a method of analysis that allows us to focus on the cultural and material processes of extreme weather responses. The following paragraphs offer an overview of the organization of the thesis and its contents.

Chapter II lays out the theoretical framework for the thesis. It examines extreme weather responses in light of the larger ('macro') sociological, historical and economic context. This method permits us to uncover the cultural connections that traverse the institutions executing these responses, and asks how individuals protect themselves financially from extreme weather through the market. I argue that *economic liberalism*'s lasting influence has shaped the way our society and institutions respond to extreme weather. Indeed, the adoption of liberal thought provides insight into why society deems it reasonable to purchase insurance coverage through the market. Society's concept of risk management is grounded in liberalism's endorsement of individual responsibility. I utilize two theories to both uncover and challenge our anthropocentric orientation towards risk management: Green Legal Theory (GLT) and the socialization of risk.[22] GLT addresses the dynamics embedded within our institutional systems (economic, political, cultural) to consider how they might be 're-formed' to better reflect ecological interests in legislation and judge-made law. Green legal scholars argue that liberal notions of market fundamentalism and the self-reliant individual govern our culture and our laws. This explains why our environmental laws tend not to infringe on economic growth. I use GLT in this thesis to argue that our responses lack a coherent structure that

[22] In this chapter, I also explore the theory of law and economics. This theory offers insight into how economic principles rooted in liberalism are inducted into legal analysis. However, it is not used to formulate the argument against the liberal foundations of risk management. Instead, the discussion around law and economics is purely descriptive, permitting us to understand how liberalism has influenced a wide range of legal scholarship.

is conducive to ameliorating environmental health. Also, the notion of socialization of risks indicates that there are limits to liberalism's notion of self-reliance.[23] It provides a moral argument for a solidaristic approach to managing risks and ensuring the well being of citizens. I utilize this theory to argue for the need to socialize risks stemming from extreme weather. Thereafter, these theories are employed throughout our institutional analysis.

Next, I examine the institutional context within which Canada responds to extreme weather. There are three components at this level, and these are divided into three separate chapters: the tort system that applies legal principles to determine the parties responsible for the harm suffered by a plaintiff; the private insurer that sells various products to clients, permitting the latter to transfer financial responsibility for a loss to the former; and the government that provides a safety net for victims with disaster relief funds.[24] While these institutions should operate in harmony to respond to extreme weather,[25] a piecemeal approach dominates. Because the major impacts of climate change are perceived to be in the future, and extreme weather events are rare occurrences, governments have failed to enact comprehensive laws to govern these issues[26] with the result that legal principles are uncoordinated, incomplete and contradictory.

In Chapter III, I review the common law's response to climate change to illustrate the role of courts in determining remedies for victims of extreme weather. I argue that the

[23] Fritz Karl Mann. "The Socialisation of Risks", (1945) 7:1 *The Review of Politics* 43, at p 55.
[24] Jim Chen and Daniel Faber, *Disasters and the Law*, (New York: Aspen Publishers 2006), at p 161. For an overview of the institutions controlling the responses to extreme weather see this *Disasters and the Law*, chapter 5.
[25] This statement, and the thesis project at large, has a domestic focus. For the developments of loss and damage mechanisms on the international level see Meinhard Doelle, "The Birth of the Warsaw Loss & Damage Mechanism: Planting a Seed to Grow Ambition?" (2014) SSRN Electron J 1, online: <http://www.ssrn.com/abstract=2389851>.
[26] Karine Péloffy, "Kivalina v Exxonmobil- A Comparative Case Comment" Case Comment, (2013) JSDLP - RDPDD 9:1, at p. 122.

common law is not an appropriate forum for seeking compensation for extreme weather damages. I examine the history of this institution's interaction with extreme weather complaints to determine if there is a future role for the courts. Common law claims against industrial polluters have been on the rise, particularly in the US.[27] From the outset, experts were concerned with the heavy evidentiary burden on claimants, the foreseeability of harms arising from climate change or extreme weather and the difficulty in attributing causation for these harms.[28] Plaintiffs have launched civil suits against large industries claiming the latter contributed significantly to climate change and thereby exacerbate weather events. In some cases, insurers refuse to pay claims for damages from storms, forcing customers to launch tort claims that courts seem reluctant to recognize.[29] Judges are reticent to impose liability on industries or climate damages because it would be contrary to public policy. Moreover, the very legal principles used in tort claims are unworkable for climate victims[30] because the common law is unable to reconcile these mechanisms with the level of sophistication of climate science and the complex factors at play. The question therefore arises whether the private insurance system can provide an appropriate response to extreme weather events.

Chapter IV examines the market responses to extreme weather. Climate change has resulted in significant changes for the insurance industry,[31] rattled by the impacts of

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[27] Julia Schatz. "Climate Change Litigation in Canada and the USA", (2009) *Reciel* 18:2 119, at p. 130.
[28] Deborah Curran "Climate Change Backgrounder" University of Victoria, Environmental Law Centre (Unpublished, December 2007), Toronto: Carswell, 2009 in Meinhard Doelle and Chris Tollefson. *Environmental Law: Cases and Material,* (Toronto: Carswell, 2009), 507, at p 509-510.
[29] R. Trent Taylor, "The Death of Environmental Common Law?: The Ninth Circuit's Decision in Native Village of Kivalina v ExxonMobil Corp", (2012), online: McGuire Woods LLP, <http://moodle.uvic.ca/file.php/22357/kivalina_appeal_comment.pdf>.
[30] *Native Village of Kivalina v ExxonMobil Corp*., 2012 U.S. App. (9th Cir. Sept. 21, 2012).
[31] Allie Wilkinson, "Climate change is big business (for the insurance industry): The world's largest industry is taking climate change very, very seriously", *Arstechnica*, (December 24 2012), found online: http://arstechnica.com/security/2012/12/climate-change-is-big-business-for-the-insurance-industry/. See

weather-related events, such as Hurricanes Katrina and Sandy.[32] Risks cease to be insurable when they are no longer fortuitous.[33] An insurer will not underwrite risks that are likely to occur. This undermines the purpose of private insurance because individuals are encouraged to seek financial security from disasters through the market rather than the government. Indeed, as an adaptation measure to climate and weather damages, private insurance can be unreliable because insurers' self-interests focus on generating profits. If climate and weather risks become increasingly foreseeable, insurers will simply remove themselves from managing these risks to avoid having to pay numerous expensive claims that are likely to threaten their financial viability. As such, market failures inevitability result in ad-hoc government interventionism. And yet there is a role for insurers in mitigating the impacts of climate change. Insurers have influence over other private sector actors because they are financially responsible for some of their actions. Therefore, the notion that insurance can modify the behaviour of large industrial polluters is explored in this chapter. I argue that insurance acts as an unreliable adaptation strategy but could be useful to mitigate some of the issues arising from climate change.

Chapter V addresses state responses to extreme weather. In Canada, financial assistance is offered through Disaster Financial Assistance Arrangements (DFAA) to provincial and territorial governments in the event of large-scale natural disasters where costs exceed the funds allocated by the provinces and territories for emergency

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also Evan Mills, "Climate Change: The Greening of Insurance", (2012) *Science*, 338 1424, online: <http://evanmills.lbl.gov/pubs/pdf/science-2012-mills-1424-5.pdf>.

[32] *Ibid.* Sean B. Hecht, " Climate change and the transformation of risk: Insurance Matters" (2008) UCLA LR 55 < http://www.uclalawreview.org/pdf/55-6-3.pdf>. Also see, W.J.W., Botzen, J.C.J.M van den Bergh and L.M. Bouwer, "Climate change and hailstorm damage: Empirical evidence and implications for agriculture and insurance ", (2010) *Resource and Energy Economics* 32 341. The literature in Climate Change insurance is growing but it is mostly limited to the field of economics and is almost non-existent in the Canadian context.

[33] Trevor Maynard, *Climate Change: Impacts on Insurers and How They Can Help With Adaptation and Mitigation,* (2008) *Geneva Papers* 33 140.

management.[34] Government becomes an auxiliary institution of compensation when private insurers refuse or do not offer coverage for losses.[35] Yet, there is an absence of comprehensive legislation governing climate and weather disaster issues. Canadian governments have not intervened in disaster insurance debates and consistently downplay the importance of introducing systemic legislation to counter the impacts of climate change.[36] This chapter highlights the fragmented and uncoordinated nature of Canada's natural disaster laws.

Chapter VI concludes with reflections on the condition of our natural disaster institutions and laws. I discuss the implications of this research and possible future research in this emerging field of law.

[34] Emergency Management: Recovery from Disasters, Government of Canada: Public Safety Canada website, found online: <http://www.publicsafety.gc.ca/cnt/mrgnc-mngmnt/index-eng.aspx>.
[35] Peter J Beshar, Who Pays for Catastrophes (2013), online: Consumer News Business Channel <http://www.cnbc.com/id/100780508>.
[36] David R Boyd, *Unnatural Law,* (Vancouver: UBC Press, 2012), at p 146.

Chapter II: Theoretical Framework

This chapter lays out the theoretical framework used throughout the thesis to examine the fragmented nature of Canada's extreme weather responses. In this endeavour, the political philosophy of *liberalism* is critiqued for its anthropometric origins. This ideology is a prescription for organizing the modern state and market institutions and the lives of individuals that interact with them.[1] The prevalence of liberal thought provides a rationale for why society has deemed it more reasonable to purchase insurance coverage through the market instead of relying on a social safety net facilitated by the state. Private insurance is consistent with the neo-liberal expectation of individual responsibility for financial security because it reduces society's dependency on the government. Government *ad hoc* programs exist to help individuals that are unable to receive compensation from private insurers but it is reasonably expected to have private home insurance. In British Columbia, for example, the provincial disaster financial assistance program does not cover losses for which insurance is reasonably and readily available.[2] This chapter's goal is to elucidate the connections between liberal ideology and environmental disaster management. Indeed, the liberal notion of self-determination and individualism shapes our responses to these situations of crisis and our attitudes towards the environment. This chapter draws upon three approaches to build a theoretical framework to examine our extreme weather responses: Law and Economics, GLT, and the Socialization of Risks.

[1] Alan Wolfe, *The Future of Liberalism*, (New York: Alfred A Knopf, 2009), at p 3.
[2] *Compensation And Disaster Financial Assistance Regulation,* BC Reg 206/2006, s 8(1)(a).

A. Framing the Problem: The Anthropocentric Foundations of Liberalism and Law and Economics

Liberalism is a political philosophy with broad reach. The task of examining its history can be confusing given that it encompasses many different views, partly because the theoretical debates are far from settled. As well, the two major political parties in the US, democrat and republican, endorse particular "liberal" ideas. The critique offered in this chapter is about the ideas of individualism in economic liberalism. Both economic liberalism and law and economics are rooted in similar theoretical traditions and both have had a profound influence on the ideological orientation of western society. Liberalism is widely regarded by its scholars as the most appropriate political philosophy of the modern era.[3] As explained below, its proponents believe the individual is born with a set of natural rights that derive from their own existence not from the community, and especially not from a dependence on the power of the state. Liberal scholarship also supports the free market, which has influenced law and economics theory as the quintessential embodiment of the agency of liberal individualism. In fact, ideas of liberal individualism and market efficiency are prevalent in law and economics.[4] In this section, I use the anthropocentric nature of these theories to argue that Canada must move away from these foundations to a more collective approach to managing weather disaster risks. The history of economic liberalism is first examined, followed by an analysis of the basic principles of law and economics.

[3] Wolfe, *supra* note 1, at p 10.
[4] *Ibid*. at p. 29.

1) Liberalism's Lasting Legacy

Liberal ideology has dominated economic, political and social western thought for almost 400 years. The founding concepts of liberal philosophy emerged throughout the English Civil War and the European Enlightenment:[5] individualism, liberty and (to a varying degree) civil rights. Embedded in these notions was distaste for government involvement in the routine affairs of individuals and the market, which was subsequently integrated into economic theory. In 1776, Adam Smith wrote his seminal work *The Wealth of Nations,*[6] creating a movement of economic liberalism. He advocated for the free-market and argued that governments should have a laissez-faire approach to the machineries of business. This started an era of *classical liberalism*, with political philosophers advocating for what Isaiah Berlin refers to as 'negative' conceptions of freedoms, liberty from barriers or constraints like those arranged by the government through legislation.[7]

However, a widening disparity between the rich and the poor in the late 19th century became the catalyst for a *social liberalism* movement that emphasized a greater role for the state. Thomas Hill Green is credited with beginning this transformation, identifying the marginalizing impacts of the free market on the working class.[8] Green argued for government to have a greater role in the democratic society, namely in addressing inequities created by the market. He proposed that class equality, however, could be

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[5] *Ibid*, at p 3.
[6] Adam Smith, 5th ed, *An Inquiry into the Nature and Causes of the Wealth of Nations*, (London and Methuen & Co., 1776).
[7] Isaiah Berlin, "Two Concepts of Liberty" in *Four Essays on Liberty* (London: Oxford University Press, 2002) 118.
[8] Colin Tyler, "Thomas Hill Green", *The Stanford Encyclopedia of Philosophy* (2011), online: <http://plato.stanford.edu/archives/sum2011/entries/green/>.

delivered within the bounds of a market economy. In this respect, Green wanted individuals to assume greater responsibility towards their community, promoting the shift from negative freedoms to Berlin's conception of 'positive' freedoms,[9] encouraging individual autonomy, self-determination and personal development. The individualistic application of the concept of positive freedoms reveals the important role for government to create conditions for individual self-reliance. Green believed that governments should not directly interfere with individuals' lives but foster an environment of interdependence amongst the state's autonomous citizens.

In the end, however, economic equality and freedoms for working class individuals did not flourish as promised under the auspices of liberal ideology. Hence, progressive thinkers increasingly challenged traditional applications of economic liberalism. This affirmation became evident during the great depression of the 1930s. In response to the austerity measures introduced in Great Britain at that time,[10] John Maynard Keynes advocated for government stimulus to lower unemployment even if this meant running large budget deficits.[11] This social investment marked a dramatic change in the trajectory of economic liberalism because Keynes' ideas operated within the bounds of the market but argued that government should intervene to ward off recessions and economic uncertainty. During the great depression, Keynes urged governments to lower interest rates to create an economic environment that encouraged individuals to spend more and save less as a means of stimulating the economy and boosting the demand for goods and

[9] *Supra* note 5.
[10] Peter Clarke, "Keynes in History", (1994) *History of Political Economy* 26:1 117, online: <http://hope.dukejournals.org.ezproxy.library.uvic.ca/content/26/1/117.full.pdf>, at p 118.
[11] Elba K Brown Collier and Bruce Collier, "What Keynes Really Said About Deficit Spending", (1995) *Journal of Post Keynesian Economics* 17:3 341, online: <http://www.jstor.org/discover/10.2307/4538449?uid=3739400&uid=2&uid=3737720&uid=4&sid=21104230977753>, at p 341.

services. This approach gave individuals an incentive to ameliorate their well being by giving them spending power and thus reduce financial hoarding.

Keynesian economics reigned over the US, Great Britain and Canada for five decades but politicians took a sharp turn in another direction soon after the economic recession of the 1970s.[12] Dissenting economists argued that Keynesian methods would eventually lead to stagflation, an increase in inflation and unemployment. This position, combined with the global increase in oil prices created periods of stunted growth in the economies of developed nations.[13] During this recession, liberals promoting limited government intervention rose to the occasion with a renewed idea known as "neo-liberalism". This form of liberalism, however, did not completely restrict the state's role in market affairs. Indeed, it demanded the state create policies permitting corporations to flourish, therefore normalizing the notion of corporate self-defined interests. Although Milton Friedman became the key figure of this revitalization of *classical liberal* ideas, Frederic Von Hayek was the precursor to the neo-liberal crusade who helped provide its foundational justifications.[14]

Hayek argued that humans must live without restraints from government to reach their full potential as market participants. According to Hayek, the market naturally diffused responsibilities amongst individuals to remedy the negative effects of the market, such as class inequality.[15] Government interference in the market prevented this

[12] John Merriman and Jay Winter, *Encyclopedia of Modern Europe: Europe Since 1914: Encyclopedia of the Age of War and Reconstruction,* (2006) 4 2170, online: <go.galegroup.com>, at p 2170.
[13] *Ibid.*
[14] Wolfe, *supra* note 1, at p 74-75.
[15] *Ibid.*

'spontaneous order' from occurring in society.[16] Indeed, the anthropocentric foundations of liberal thought were evident in Hayek's ideas: he doubted the ability of one individual or organization (the state) to fully grasp the complexity of the market, economies or a system of governance that was satisfactorily elaborate and efficient to craft policies to support their organic emergence.[17] Humans can organize and create their own paths without direction or control and must operate within the bounds of the market without the influences of the government. Therefore, Hayek rebooted the classical idea of self-determination and catapulted this notion in the ideology of neo-liberalism.

Despite this veritable fixation with the individual, liberals found ways to address how humans interact with the natural environment. Central figures of the 19th century transcendentalism movement, including John Muir, defined the beginnings of liberalism's history with environmentalism.[18] Transcendentalists believed that individuals conformed easily to societal norms, which prevented them from desiring any interaction with the natural world and limited their self-development. The most noteworthy of all these characters was Henry David Thoreau, an unabashed transcendentalist and outdoor enthusiast. Liberals remember Thoreau for his outright devotion to the notion of individual self-reliance.[19] Although Thoreau advocated for the liberal notion of self-determination he was sceptical of capitalism's greatness. On the one hand, Thoreau believed that the state should not interfere with the rights and freedoms of society and

[16] Brian Lee Crowley, *The Self, The Individual and The Community: Liberalism in the Political Thought of F. A. Hayek and Sidney and Beatrice Webb*, (New York: Oxford University Press, 1987), at p 36-37.
[17] Wolfe, *supra* note 1.
[18] Alan Wolfe, "Liberalism, Environmentalism, and the Promise of National Greatness" in Ed. Neil Jumonville and Kevien Mattson *Liberalism for a New Century*, (Los Angeles : University of California Press, 2007), 174, at p 176.
[19] Henry David Thoreau, *Walden* (Boston: Ticknor and Fields 1854) at p 123.

that individuals should defend themselves against this type of oppression.[20] Thoreau embraced the notion of self-reliance to such an extent that he sought isolation in nature, measured his own productivity and illustrated his individualistic accomplishments to prove that humans can be self-sufficient.[21] On the other hand, Thoreau thought capitalism gave society a false sense of progress.[22] Technological advancements only added to the complexities of life and individuals became dependant on them.[23] For Thoreau, these material manifestations of capitalism, namely transportation, interfered with the personal connection individuals have with nature. Thoreau argued that self-reliance was important to suppress the encroachments of capitalism and the state. What would Thoreau think of society's current arrangement with government and private insurers regarding the protection of the environment and the prevention of disasters?

The above discussion demonstrates that the notions of individualism and self-determination bounded in liberal traditions have greatly influenced North American society's cultural orientation. Historically, legal developments have fostered an environment for individuals to flourish and the methods by which this is accomplished have been the source of great debate. Therefore, it is difficult to deny the anthropocentric origins that govern our constitutive and legal laws.

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[20] Henry David Thoreau, *Civil Disobedience*, (Liberty Library: New Jersey, 1946), online: <http://babel.hathitrust.org/>
[21] *Supra* note 17, at p 44-52.
[22] *Ibid*, at p 90.
[23] A modern day comparison is how individuals value their mobile telephones. In a busy western society, we often expect more productivity from these devices then from themselves and, as a result, tend to consider these items as integral to life itself.

2) Law and Economics: How to Internalize Everything

The discipline of law and economics is the legal extension of liberal economic thought. How do you justify using economics and law together? The economic analysis of law permits judges and lawmakers to evaluate the effects of legal rules (judge-made law or legislation) on individuals and institutions (e.g. the market, common law or legislation).[24] Upon analysing these effects, there are two fundamental assumptions in law and economics: individuals are rational and legal rules must be efficient.[25] Specifically, individuals are rational because they act within a market setting in their own interests. As such, rules must be efficient to generate outcomes that are socially desirable.[26] This notion of efficiency is the most complex and controversial part of the law and economics thought, since individuals acting in their own self-interest can produce negative affects for others. As such, law and economics operates within the bounds of our existing liberal economic structures to offer tools to respond to such instances, known in the law and economics scholarship as 'market failures'.

Opponents of law and economics have increasingly challenged the theory's technical and individualistic depictions of individuals as rational actors. This assumption can produce faulty conclusions about their interactions with the market because it fails to contextualize individual behaviour. For example, Kenneth Dau-Schimt examines how law and economics is informed by sociological ideas about individualistic preferences and rationality that law and economics scholars get wrong.[27] Specifically, Dau-Schimt posits that law and economics' assumptions about rationality leave out cultural and

[24] David Friedman. *Law's Order* (New Jersey: Princeton University press, 2000) at p 73.
[25] *Ibid.*
[26] *Ibid*, at p 18.
[27] Dau-Schmidt, Kenneth G. "Economics and Sociology: The Prospects for an Interdisciplinary Discourse of Law" (1997) Wisconsin LR 389, at p. 395.

societal influences. Robert Ahdieh also argues that law and economics fails to appreciate the challenges of examining the relationship between individuals, social structures and institutions.[28] He suggests that an individualistic approach ignores the system dynamics and the interdependence of individuals.[29] Indeed, law and economics is a liberal theory, largely focusing on the individual and their interactions with the market. The law and economics debate regarding efficiency in our legal system illustrates how legal systems ought to serve individuals by mimicking the market processes,[30] because it offers the most efficient system for producing socially desirable outcomes.[31] The market is able to produce these outcomes because it facilitates an environment that is truly competitive,[32] that is, a system that assigns rights and resources to the individual that values (or is able to pay for) these the most.

In this respect, the aim of efficiency in law and economics is wealth maximization.[33] This term does not only connote monetary wealth but social wealth. Indeed, Richard Posner argues that the common law evolves based on its ability to maximize social wealth and the economic well being of individuals.[34] Scholars from different schools of law and economics, mostly derived from the neoclassical tradition of economics, use similar notions to make assumptions about the nature of markets and the

[28] Robert Ahdieh. "Beyond Individualism in Law and Economics", (2011) Boston U LR 91:43 44, at p55.
[29] *Ibid,* at p. 48.
[30] Jules Coleman, "Economics and the Law: A Critical Review of the Foundations of the Economic Approach to Law", (1984) *Ethics* 94:4 649, at p 662.
[31] Friedman, *supra* note 21, at p 29.
[32] *Ibid.* at p 85.
[33] Susan Dimock, *Classic Readings and Cases in the Philosophy of Law* (Toronto: Pearson Education, 2006), at p 70 .
[34] Richard Posner, *Overcoming Law*, (Cambridge: HUP, 1995) at p. 109.

market participants.[35] In this regard, there are generally two forms of law and economics study: a positive economic analysis and normative economic analysis. The positive economic analysis purports that some legal rules (namely those from judges because they tend to adopt a cost-benefit analysis in deciding case law) are efficient, whereas the normative analysis explains why judges and lawmakers ought to be efficient.[36] For the purposes of this thesis, our discussion largely focuses on the normative perspective because it discusses the potential of laws to govern adaptation and mitigation of weather disasters. As well, it argues that liberalism's and law and economics' anthropocentric tendencies postulate a free-market that facilitates the maximization of individual wealth but disregards ideas of collectivity or environmental stewardship.

However, to foster an environment where individuals and organizations can flourish, law and economics theory proposes methods to remedy the negative affects resulting from the pursuit of self-interest. These problems are referred to as market failures, which occur when the market is inefficient. As market participants commonly pursue their own goals, negative outcomes can occur for other individuals or groups. Pollution is one such example of this type of market failure and is commonly referred to as an environmental *externality*. An externality is created when a market participant unexpectedly affects another participant.[37] Arthur Pigou argued negative externalities[38]

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[35] Eric Engle, "Law & Economics: Theoretical Puffery, Exaggerated Claims and Counterfactual Models", (2009) J Juris 2 29, at p. 4. As per Engel, there are some approaches in law and economics that stem from Classical and Continental economics.
[36] Dimock, *supra* note 31, at p 70.
[37] In other words, the externality is the cause and the market failure is the effect.
[38] There are also positive externalities that exist, which can be characterized as benefits generated from market activities. For example, insurance tends to produce a positive externality when the insured purchases an insurance contract from a private insurer, placing less financial pressure on the government. See Ronen Avraham, "The Law and Economics of Insurance Law – A Primer" (2012) Connect Insur Law J 19:1 29, at p 41.

could be *internalized* by imposing a tax on polluters equal to the social cost.[39] This type of government intervention is manifested through a carbon tax, such as British Columbia's revenue-neutral carbon tax model.[40] Conversely, Ronald Coase developed a bargaining approach to controlling externalities.[41] This seminal idea on liability and externalities formed the basis for the famous Coase Theorem,[42] which argued that externalities could be avoided if property rights were properly allocated (the law and economics notion that a right should be assigned to the individual that values it the most) and transaction costs eliminated (or at least reduced).[43] The cap & trade model is a practical application of the Coase Theorem. It imposes a quota on greenhouse gas emissions for companies, permitting those with unused emissions to trade with companies that have exceeded their quota.[44] A law and economics application to market failures, therefore, creates solutions to remedy the shortcomings of self-interests but does little to challenge the nature or design of the market.

The law and economics framework interprets efficiency as wealth. How individuals obtain this depends on what they are capable of paying.[45] Indeed, the law and economics notion of efficiency places great importance on the accumulation of individual wealth but eschews the consequences of poor environmental health that often results in the pursuit of personal and collective growth. As demonstrated above, this theory's objective appears to be twofold: an analytical tool for determining legal rules that are

[39] D. Helm "Economic Instruments and Environmental Policy" (2005) *The Economic and Social Review* 36:3 205, at p. 4.
[40] *Ibid.* and *Carbon Tax Act,* SBC 2008, c 40.
[41] Friedman *supra* note 28. at p. 36.
[42] *Supra* note 30.
[43] *Ibid.* at p. 39. For example, when an individuals' reasonable enjoyment of clean air is spoiled by a neighboring factory that emits harmful pollutants.
[44] Helm *supra* note 43.
[45] Coleman *supra* note 29.

efficient, that is, wealth maximizing, and a theoretical instrument for concealing, or internalizing the environmental mistakes of individuals and companies in society's quest for economic growth.

B. Challenging the Anthropocentric Nature of Liberalism

This section discuses two ideologies that challenge the anthropocentric foundations of liberalism. As demonstrated above, law and economics has a strong influence in legal academia, offering procedural processes that objectively determine whether legal rules are efficient and socially desirable. Its sober analysis of the law, however, tends to leave out the impacts individuals have on the integrity of the environment. This is one of the concerns raised in GLT, a critical theory arguing for systemic reformation, pointing to the need for collective and naturalistic considerations in our systems of governance (i.e. legal laws, cultural and economic dynamics). This thesis employs GLT to argue for change in the management of environmental disaster risks. Its 'green' critical perspective permits us to make determinations about the weak and fragmented nature of Canada's environmental and natural disaster laws. Other scholars have also doubted the self-reliance of private insurance institutions to distribute and socialize risks throughout society, for example, when the capacity of individuals to obtain insurance is thwarted by the accessibility of insurance products through the market. In this regard, advocates for the socialization of risk argue that private insurance should be

viewed as a solidaristic institution rather then a series of contractual agreements.[46] In the next sections, I explain how socialization of risk and GLT perspectives are used to understand the systemic problems associated with our disaster laws.

1) Green Legal Theory

GLT uncovers the long historical disembodiment of Western consciousness from the natural world, while considering how society might reintegrate itself with its physical context. To GLT scholars, the field of 'environmental law' is a prop for an unsustainable political economy.[47] Western society's adoption of liberalism provides insight as to why individuals do not value and treat common interests, namely the protection of the environment, as they do their material possessions.[48] As demonstrated above, liberalism gives deference to the individual, prioritizing interests such as private property and the right to contract. In this regard, GLT scholars argue that this promotion of self-interest is, in part, responsible for society's fixation on associating progress with economic growth. Michael M'Gonigle posits: "the inherent growth dynamic of capitalism is foundational to contemporary economic, political and social life […]", offering very little incentive for imagining a world in which environmental priorities are at the forefront of collective

[46] As a result of the 2008 global recession, the SOR has been used as an undesirable metaphor for placing the burden of financial failures of the capital markets onto society. Although, our definition of SOR deals in some form, as demonstrated below, with economic debacles, it important to distinguish these two conceptions. This thesis projects definition of SOR embraces principles related to the redistribution of wealth and those guaranteeing individuals in our society are able to receive coverage for certain risks. Conversely, the recent use of the term SOR implies that society, through the payment of taxes and government stimulus programs, bail out large companies that have conducted activities that were both morally and financially irresponsible. *See* Peter Speller, "Privatizing profit and socializing risk", online: New Internationalist blog: <http://newint.org/blog/2011/03/02/privatizing-profit-and-socializing-risk/>.
[47] *See* Michael M'Gonigle and Louise Takeda, "The Liberal Limits of Environmental Law: A Green Legal Critique" (2013) 30:3 Pace Env L Rev 1005.
[48] Ibid., at p 1012

social consciousness.[49] As such, GLT is about culture, economics, law and politics and examining these elements to reveal that this growth complex functions as a culturally constitutive mode of regulation.[50] But above all this, it is about a new social framework that integrates notions of political ecology into law. This sort of 'green legal' analysis permits us to deconstruct the formal market conceptions of weather disaster responses.

At present, the material foundations of the economy (i.e. the market) and the legal system reflect liberal ideology. Geoffrey W. Leane suggests: "by creating, defining and enforcing private legal rights in property, and by underwriting private contracts, law creates a system of exchange relations which we call a market system."[51] As these principles give economic priority to the market economy, the state facilitates its operation and remedies its failures.[52] As such, liberal societies validate the market and, to a lesser extent, the state as the only forms of legitimate political and cultural governance.[53] In other words, the state and the market condition social life. Private insurance offers a relevant example of this process: It allows people from all income brackets to purchase psychological and tangible 'reassurance" that, should they suffer some misfortune, they will be compensated for their losses. In some instances, such as automobile insurance, individuals are expected to take financial responsibility through the purchase of private insurance and laws are created to facilitate this relationship between the individual and the market.[54] This dialectical model permits GLT theorists to acknowledge that liberal values permeate through the day-to-day affairs of society.

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[49] *Ibid.*, at p 1064.
[50] *Ibid*, at p 1063.
[51] Geoffrey W G Leane, "Environmental Law's Liberal Roots: (Not) A Green Paradigm" (1998) in Ed. N. Rogers, *Green Paradigm and the Law,* (Lismore (Australia): Southern Cross University Press, 1998), 1, at p. 22.
[52] *Ibid.*
[53] *Ibid.*
[54] For example, the *Compulsory Automobile Insurance Act,* RSO 1990, c C25, s 2 (1).

Accordingly, GLT suggests that *social laws* are far more influential than formal *legal laws* (i.e. legislation and judge-made law). It situates regulatory power beyond the state and government to include more normalized patterns of behaviour. Complex cultural, economic and sociological dynamics are responsible for these social laws. For example, our dependency on natural resources is more determinative of social life than our legal laws.[55] GLT scholars argue that government regulation is merely created to conduct patchwork for the environmental consequences of an economic system geared towards maintaining growth. This is the inevitable result of a culture that prioritizes economic growth and personal well-being. As M'Gonigle states: "While conservation measures and environmental regulations can mitigate some of the negative impacts of growth, they do not challenge the broad goal of expanding production to allow increased consumption."[56] In other words, legal laws are subservient to social laws. Thus, GLT scholars challenge both the formal legal system and the composition of our culture to change our legal rules.

For our purposes, GLT provides a framework for critically examining our current environmental laws. Its broad approach permits us to conduct an investigation that deconstructs both our weather disaster laws and the cultural practices responsible for their creation. Also, GLT acts as the counterpoint for a law and economics approach that prioritizes legal efficiency and individuals over ecological considerations and the social collective in developing the rules that govern how society makes decisions and evolves. In examining weather disasters, such a viewpoint permits us to recognize how

[55] *Ibid*.
[56] *Supra* note 46, at p 1022.

governments place the interests of carbon producing industries[57] before climate change issues. Indeed, a GLT perspective argues that government adaptation or mitigation strategies are negated by society's unwillingness to curb the production and consumption of carbon. Thus, the implementation of GLT principles that would seek to reorganize our cultural and legal practices with those of ecologists implies that a systemic collapse is necessary to reconstruct legal systems to encompass these ideas. For this thesis project, however, GLT is only used as a deconstructive tool against the structures governing our weather disaster responses.

2) The Socialization of Risk

The socialization of risk is a solidaristic theory that seeks to ensure individuals are financially protected against misfortunes. Scholars in this field argue that, in certain circumstances, there are limits to the liberal credo of individual self-reliance.[58] Unfortunate events that are beyond the control of individuals may occur and these may not be covered through private insurance regimes, either because this coverage is excluded or the state manages the social repercussions of such calamities. For example, provincial and federal governments intervene in natural disasters to offer victims financial assistance.[59] These programs, however, are not socialized through the state; rather, individuals are expected to first obtain their own form of financial protection from

[57] The oil and gas industry receives (CAN) $1.3 billion in federal government subsidies. See BlueGreen Canada, *More Bang For our Buck: How Canada Can Create More Energy Jobs and Less Pollution* (Toronto, 2012), online: <http://bluegreencanada.ca/sites/default/files/resources/More%20Bang%20for%20Buck%20Nov%202012%20FINAL%20WEB.pdf>.

[58] Fritz Karl Mann. "The Socialisation of Risks", (1945) 7:1 *The Review of Politics* 43, at p. 55.

[59] See Compensation and Disaster Financial Assistance Regulation, BC Reg 124/95 and *Disaster Financial Assistance Arrangements*, online: Public Safety Canada < http://www.publicsafety.gc.ca/cnt/mrgnc-mngmnt/rcvr-dsstrs/dsstr-fnncl-ssstnc-rrngmnts/index-eng.aspx>.

private insurer and when this method fails to compensate the victim, the state will then offer its help. Conversely, workers' compensation is a socialized platform that resulted from political pressure from those demanding that coverage be socialized and facilitated through the state.[60] Neo-liberals view private insurance as responsible self-reliance[61] and argue that socialized programs create a culture of dependency, even in the context of catastrophic events.[62] Therefore, it is important to distinguish private insurance from social safety nets or benefits afforded in the welfare state. Throughout this thesis project, the socialization of risk is used as a mechanism to uncover the social relations between individuals and insurance institutions. The historical precedents described below provide a starting point for the discussion regarding these issues.

In the 19th century, the rise of working class insurance produced insurance-based workers' clubs premised on notions of social responsibility and solidarity amongst workers. These clubs organized compensation funds through their own cultural understanding of workplace risk.[63] Members exclusively managed the finances of the compensation regime and were required to make contributions to the fund before receiving any benefits. Also, members were always familiar with each other and helped reduce risks stemming from the workplace. In this example, neither the state nor the market intervened with the processes of the fund and the fear of state taxation is noted as

[60] For references explaining the history of workers compensation in Canada see *Overview of Canada's Workers' Compensation* online: Association of Workers' Compensation Boards of Canada < http://awcbc.org/?page_id=57> and RCB Risk, "'This Nuisance of Litigation': The Origins of Workers' Compensation in Ontario" in David H Flaherty, ed, Essays in the History of Canadian Law (Toronto: University of Toronto Press, 1983) 2

[61] Richard Ericson et al, "The Moral Hazards of Neo-Liberalism: Lessons from the Private Insurance Industry" (2000) *Economy & Society* 29 532.

[62] Scott E Harrington, "Rethinking Disaster Policy" *Regulation* 23:1 40, at p 45.

[63] Nob Doran, "Risky Business: Codifying Embodies Experience in the Manchester Unity of Oddfellows" (1994) *J of Historical Sociology* 7 131, at p 133.

being a trigger for disbandment.[64] The insurance-based workers club demonstrates that in the insurance context, the state is not the only legitimate source of law and that culture served as a constitutive mode of regulation within these organizations.[65] In addition, Islamic legal scholars developed concepts of insurance institutions (*takafuls)* in response to the risk prediction practices of private insurers, which violated Islamic values regarding gambling and contracts based on chance. In contrast to the purely contractual, profited-oriented and third party nature of market insurance, Tom Baker defines the Islamic version of insurance as an " institution that reduces or eliminates risk for the benefit of the social group."[66] This perspective shifts the focus of insurance as contractual agreements between two parties, the insured and the insurer, to insurance "viewed in the aggregate and institutional form."[67] Yet, *takafuls*, which literally means 'solidarity', require that members make periodic monetary contributions to the institution. These practices are similar to those followed by private insurers in that insureds pay regular premiums and contribute to a collective fund. These examples are illustrative of the divergence between social safety nets and private insurance. A society is able to recognize insurance as inherently collective because, as in these examples, it relies on the existence of a group through which risks of unfortunate events are dispersed. Social organizations like the insurance-clubs and *takafuls*, however, demand that individuals and organizations have some degree of responsibility towards each other.

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[64] *Ibid*, at p 135.
[65] It is important to note, as mentioned above, the workers' compensation regime was finally created by the provincial governments to protect employees from the financial hardships resulting from accidents that occur during work. For an overview and history of provincial workers' compensation regimes *see supra* Association of Workers' Compensation Boards of Canada note 60.
[66] Tom Baker & Jonathan Simon, "Toward a Sociology of Insurance and Risk" in *Embracing Risk: The Changing Culture of Insurance and Responsibility* (Chicago & London: Univ of Chicago Press, 2002), 27, at p. 37.
[67] *Ibid.*

The market-based concept of insurance is lauded as guaranteed protection from the financial consequences of a misfortune. This viewpoint portrays it as a solidaristic organization because it is interested in the welfare of the insured. The actual practice of the private insurance industry, however, reveals a very different vision of insurance, one that is extremely efficient at minimizing the risks it accepts and that generates massive profits.[68] Elizabeth Adjin-Tettey argues that although insurance may have been characterised as solidaristic in the past, the current model of insurance is purely mathematical, correlating premiums to an insured's level of risk:

> A number of factors point to the business rather than welfare model of insurance institutions, including the decline in the solidarity model of insurance and the disconnect between the "sales" and "claims" visions of insurance which is aimed at encouraging people to take out insurance while engaging in aggressive strategies with the goal of limiting insurers' exposure to liability, for example through the use of fine prints that often escape the untrained eyes or unsuspecting customer, restrictive interpretation of contractual provisions and liberal interpretations of exclusion clauses.[69]

The business factors of market-based insurance are far more determinative of their practices than its collective attributes. In their commercial narrative, insurers advertise their products as 'protection' for individuals and their families against misfortunes. Market–based insurance, however, abides *de facto* by principles that are anthropocentric since both parties involved in the equation are looking after their own interests: the insured seeks financial security from harmful unanticipated events and the insurer seeks to protect its funds by minimizing the risks it underwrites. At the risk of repetition, from both a GLT and socialization of risk perspective, this logic is translated

[68] Elizabeth Adjin-Tettey, "Potential for Genetic Discrimination in Access to Insurance: Is there a Dark Side to Increased Availability of Genetic Information?" (2012) Alta LR 50:3 1, at p 6.
[69] Adjin-Tettey points out that insurers do not always succeed at denying coverage to the insured. There are various protections afforded to the insured through the common law. *see Ibid*. See also Craig Brown and Andrew Mercer, *Canadian Insurance Law*, 3d ed (Markham, ON: Lexis Nexis Canada, 2013), at chapter 9.

into dynamics that, working as social rather than 'legal' law, has a culturally constitutive effect on society with which legal laws are made to accord. It is viewed as responsible and prudent for individuals to protect themselves from the risks of living in a world plagued with uncertainties. The connections between the rise of neo-liberalism and the individualisation of insurance[70] are manifested by the practice of risk segmentation.[71] Specifically, modern insurance tends to divide risks rather than actually pooling them together because the entirety of an insurer's risk pool is segregated into smaller, less risky, ones. Therefore, the costs associated, namely the premiums, with these smaller pools can be kept marginally lower to promote actuarial equity, which largely benefits only those who fit into the smaller or particular risk categories.[72] Individuals are thus either rewarded with lower premiums if they are deemed less risky (below the standard risk) or higher costs if they do not fall within the insurer's actuarial definition of standard risk. This reveals the true nature of modern market-based insurance as an extremely individualistic affair, contradicting the portrayal that is collective and even solidaristic.

In sum, liberal notions of individualism characterize western society's conception of financial protection from calamities. There is an increasing devolution of responsibility from governments onto individuals to manage the potential financial ramifications from disasters. The dearth of Canadian federal and provincial policy promoting socialized programs that ensure citizens are sufficiently protected from disasters and the absence of a comprehensive national climate agenda are emblematic of the individualistic and fragmented Canadian approach towards preventing climate change. But initiatives to curb

[70] *See* Ericson, *supra* note 61 and Ulrick Beck, *Risk Society: Towards a New Modernity*, (London: Sage 1992)
[71] *Ibid*, Ericson et al., at p 534-537.
[72] *Ibid*, at p 534.

the risks from climate disasters should not only originate from government-sponsored legislation. Instead, Canada must move past its current cultural paradigm, locked into individualistic notion of protection against disasters, to one that endorses collective approaches to adaption and mitigation. GLT and the socialization of risk help further uncover the mechanisms constituting our responses to weather and climate disasters.

Chapter III: Common Law Responses

The institutional analysis begins by examining the last resort for victims of extreme weather: litigation. The common law is an influential and dynamic institution with the capacity to create both mitigation and adaptation measures for climate change. In the US, the tort system has forced governments to regulate emissions and to revisit the purpose of environmental laws[1] but the common law faces serious hurdles in providing actual remedies for climate and weather damages. Here plaintiffs must establish the correlation between industrial activities, climate change, extreme weather, and a personal harm. Groups of homeowners, communities and regional governments bring claims against industrial companies, alleging their conduct increased the potency of storms that in-turn cause damage to property.[2]

It is unlikely that traditional tort principles will provide remedies for extreme weather and climate damages. Judges are reticent to impose liability on industrial sectors for climate damages since it would contradict public policy. Moreover, the traditional legal principles used in tort claims are unworkable for climate victims[3] because the common law is unable to reconcile these mechanisms with the level of sophistication of climate science and the complex factors at play. No comprehensive environmental laws addressing climate change governance exist and as such no legislation can help guide

[1] *Massachusetts v EPA,* 549 US 497 (2007). [Massachusetts]
[2] Deborah Curran "Climate Change Backgrounder" University of Victoria, Environmental Law Centre (Unpublished, December 2007), Toronto: Carswell, 2009 in Meinhard Doelle and Chris Tollefson. *Environmental Law: Cases and Material,* (Toronto: Carswell, 2009), 507at p. 508. An important distinction must be made between two general categories of climate change litigation. The first are statutory claims that encompass a number of cases dealing with legislative interpretations of various environmental and CC related laws. The second are common law claims that allow plaintiff's to seek legal remedies against private actors (usually industrial) allegedly responsible for causing harms associated with climate change impacts. See also Julia Schatz. "Climate Change Litigation in Canada and the USA", (2009) *Reciel* 18:2 119 at p 130.
[3] *Native Village of Kivalina v ExxonMobil Corp*., 2012 U.S. App. (9th Cir. Sept. 21, 2012).

judges in future damage claims. In the US, this has led such claims into a legislative vacuum, leaving the *Clean Air Act* [4] (which lacks appropriate climate damage remedies), to dictate the case law in this area. Therefore, the jurisprudence on this subject is unfavourable to weather damage victims seeking legal remedies.

In addition, victims face a number of practical difficulties that limit the likelihood of successful claims.[5] In this section, I discuss the relevant common law principles, survey the state of American jurisprudence and explain its effect for Canadian law, and finally use Green Legal Theory to examine the limited characteristics of the environmental common law.

A. Questions Multiply the Mystery: Understanding Tort Claims in a Changing Climate

The number of climate change lawsuits is increasing in the US with plaintiffs eager to use the torts of negligence and public nuisance to obtain recourse for damages.[6] Yet no common law judge has ever processed such litigation in its entirety. Tort claims for climate and weather damage are dismissed summarily and without providing insight on how tort law could be applied to such claims.[7] Moreover, Canadian courts have yet to adjudicate such a case. For these reasons, any application of tort law principles made in this analysis should be considered theoretical. The application of tort law to cases of climate change and extreme weather is a broad topic and a full analysis is beyond the scope of this thesis. The discussion here is limited to an overview of the most problematic

[4] *Clean Air Act*, 42 USC § 7401 (1970).
[5] There is no Canadian jurisprudence on this subject so I will utilize American examples.
[6] See Curran *supra* note 2.
[7] Karine Péloffy, "Kivalina v Exxonmobil- A Comparative Case Comment" Case Comment, (2013) JSDLP - RDPDD 9:1 119, at p 124.

areas: the difficulty in establishing a duty of care, causation in negligence claims,[8] and assessing the reasonableness issue in nuisance claims.

1) Negligence: Duty of Care

There is considerable overlap between the components of negligence and public nuisance claims for climate change and extreme weather damages. The tort of negligence lends itself to such claims because, by applying its principles, one can carefully dissect the defendant's conduct. In most scenarios, the defendant is a large company undertaking multiple long-standing and complex industrial activities. To make a negligence claim the plaintiff must show that the defendant failed to exercise due care to avoid a reasonably foreseeable risk of harm. Specifically, the plaintiff must establish that the defendant owes them a duty of care, the standard of care expected of the defendant, that the defendant breached that duty of care (or the conduct fell below the standard of care), the defendant's breach caused or contributed to the extreme weather, and the harm is not too remote from the defendant's breach.[9] One of the challenges in using the tort of negligence for climate change litigation is establishing a duty of care. The plaintiff must follow the Anns/Cooper[10] test to determine if it was reasonably foreseeable that the defendant owed the plaintiff a duty of care and there was a sufficient relationship of proximity between the parties. Also, there should be no policy considerations that might negate or limit the duty of care owed by the defendant in the circumstances.

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[8] *Ibid.* at. p. 509-510, see also Schatz *supra* note 2 at p. 130.
[9] *See Anns v Merton London Borough Council*, [1978] AC 728 (HL)*; Cooper v Hobart*, 2001 SCC 79, [2001] 3 SCR 537; *Arland v. Taylor*, [1955] O.R. 131 (C.A.); *Resurfice Corp v Hanke*, 2007 SCC 7, [2007] 1 SCR 333; *Overseas Tankship (UK) Ltd v Morts Dock & Engineering Co*., [1961] AC 388, 1 All ER 404. *See* also Curran *supra* note 2 at p 509.
[10] *Ibid, Cooper v Hobart.*

Establishing the duty of care in climate change claims raises a number of important theoretical questions associated with this aspect of the negligence test.[11] It must be reasonably foreseeable that the plaintiff would become a victim of the defendants conduct. In the case of climate change, determining whether the harm was reasonably foreseeable to a specific plaintiff (or group) is exceptionally difficult when the entire world is under the threat of climate change. It is difficult to imagine a court deciding that it was foreseeable that industries emitting GHG would have a duty of care to the entire country. The defendant is required to exercise care to those in the zone of foreseeable risk but the courts typically need an individual or a group to which the duty is owed.[12] Arguably, the plaintiff could use the International Panel on Climate Change's latest report to pinpoint if the plaintiffs are particularly vulnerable to climate change damages (such as a vulnerability to extreme weather) but this raises additional questions about adducing scientific evidence. The plaintiffs could benefit from state-sanctioned reports or legislation supporting the evidence that climate change causes physical damages but unfortunately there is little consensus in either of the legislative houses in Canada or the US on the subject.

The proximity measurement in the duty of care is about the characteristics of the relationship between the plaintiff and the defendant.[13] Determining the proximity between the parties might be problematic given the difficulty in attributing the harm, resulting from GHG emissions, to a specific facility. The Supreme Court of Canada

[11] A fundamental part of the Anns/Cooper test is finding an analogous case in the duty of care process. At present, there is no analogous case for determining a duty of care, owed by an industrial actor for contributing to climate change and weather disasters through GHG emissions. Therefore, the plaintiff would need to establish all element of the Anns/Cooper test without the help of an analogous case.
[12] Curran, *supra* note 2, at p 509.
[13] *Cooper, supra* note 9, at para 31.

identified in *Hill v Hamilton-Wentworth* that the proximity relationship should be "close and direct".[14] Could the defendant be reasonably expected to know that their GHG emissions would cause physical damages? What are the characteristics of the relationship between an industrial facility and an individual or group? At first glance, this relationship seems fairly obscure. However, judges have great discretion when it comes to establishing if there is a relationship of proximity between the parties.[15] This does not mean a personal relationship, simply one that entails a duty of care through their interactions. In the case of climate change litigation, if courts decided to take a broad approach to interpreting the relationship, they would simply need to determine whether the industrial polluter's conduct could foreseeably have caused physical harm to the plaintiff.[16] Therefore, the significance of the relationship between the parties would likely be left to the discretionary power of the courts.[17]

The notion of *residual policy considerations* is also significant for this type of litigation. These considerations mitigate the defendant's duty of care towards the plaintiff. The burden of proof lies with the defendant to prove these policy considerations exist. For judges, it entails balancing the competing interests between the community and the duty of care claimed by the plaintiff.[18] A court would be cautious in casting a large and powerful duty of care on an important industry, given the concern that such a duty is likely to negatively impact economic development.[19] These social rules, as green legal theorists describe, pre-empt the allowable scope of the law. Similarly, judges are

[14] *Hill v Hamilton-Wentworth Regional Police Services Board*, 2007 SCC 41, [2007] 3 SCR 129, at para 29
[15] Lewis Klar , *Tort Law,* 5th ed 2012 (Toronto: Carswell, 2012), at p 185.
[16] *Cooper*, *supra* note 9, at para 36, *Ibid.* at 183.
[17] A relevant component, causation, is discussed in the following section.
[18] Phillip H Osborne, *The Law of Torts*, 4th ed, (Toronto: Irwin Law, 2011) at p 74.
[19] *Ibid.*

unwilling to recognize a duty that would lead to a multitude of liability cases or "indeterminate liability". Therefore, there are important theoretical and practical considerations regarding the public policy doctrine. This doctrine is representative of how social laws govern decisions around legislation and jurisprudence.

It has been argued by green legal theorists that capitalism moulds laws to accommodate the state's dependence on economic growth.[20] This notion of economic growth has crept into the common law's public policy considerations, which was created to fill a "gap" in the law to describe what is generally "good" for the community.[21] Yet because the doctrine is used in a variety of legal areas, Kain and Yoshida argue that it "has produced an inordinate amount of judicial disagreement, leaving practitioners and commentators alike with little in the way of a consistent organizing principle."[22] These ambiguities raise important questions about the interpretation of this legal doctrine in climate negligence litigation. In particular, how does this doctrine reconcile the tensions between maintaining economic growth, as our society adheres to a neo-liberal economic order, and the protection of the environment, which adheres to principles of mitigation and adaptation to climate change? With regard to climate change, extreme weather and the regulation of industrial emissions, there are inconsistencies within the doctrine of public policy. In the throes of recovery from the economic recession of 2008 there is nothing more important for society than the imperative of economic growth. Therefore, a public policy doctrine supporting environmental protection appears almost impossible

[20] Michael M'Gonigle and Louise Takeda, "The Liberal Limits of Environmental Law: A Green Legal Critique" (2013) Pace Env L Rev 30:3 1005, at p 1100.
[21] WSW Knight, "Public Policy In English Law: Early Antecedents of the Expression-Generalities", (1922) 38 L Q Rev, at p 208.
[22] Brandon Kain & Douglas T Yoshida, "The Doctrine of Public Policy in Canadian Contract Law" in *Annu Rev Civ Litig* (Toronto: Thomson Carswell, 2007), at p 2.

because much of the demand for growth is premised, directly or indirectly, on industrial developments that cause pollution. For example, the Alberta oil sands and the Saskatchewan potash mines are economic engines in those provinces and the thought of enacting law that contradicts the development of these industries would be political heresy. These are examples of how legal laws are subservient to social laws.

Public policy considerations are employed in negligence claims[23] to prevent a decision that might be against social, political and economic interests. In neo-liberal societies such as ours, manufacturing, natural resource extracting and utility companies are paramount for economic prosperity. In the Anns/Cooper test, defendants are permitted to raise policy considerations that could negate their responsibility. Namely, a defendant would argue that producing emissions is within the bounds of reasonable land use and conduct within an economy that favors property rights. Moreover, if there are no legislative restrictions on emissions for industrial polluters, there is nothing preventing these actors from conducting business as usual. The defendant's overall argument being that the interest of the plaintiffs should not be allowed to trump the broader societal interest in economic activities. In relation to climate or weather damages, however, this is a narrow way of conceptualizing the issue. This is partly a function of the bilateral nature of tort litigation that focuses primarily on the parties. The question of accountability for climate damages must encompass the distributive effects of economic activities itself.[24]

[23] The public policy doctrine is used differently in contract disputes than tort claims. For information on how this doctrine is applied in contracts please see Brandon Kain & Douglas T Yoshida, "The Doctrine of Public Policy in Canadian Contract Law" in *Annu Rev Civ Litig* (Toronto: Thomson Carswell, 2007).
[24] It is important to note that the external factors causing climate harms might be represented through interveners at the appellate level.

Before *Cooper*, Lewis Klar claims that issues of social policy played a prominent role in the development of the common law.[25] Today, he argues that the court embraces this "pro-defendant" approach in policy considerations, which does not extend "negligence law into nontraditional areas"[26] such as social, environmental and cultural interests. In this regard, *Cooper* restricted the public policy doctrine since the Supreme Court of Canada was concerned not to place a duty on business or that is too onerous.[27] Thus, implementing public policy considerations that embrace a business as usual approach is favored in the Canadian common law. This points to major difficulties for climate damage plaintiffs since the Anns/Cooper test is unlikely to evaluate policy considerations favouring a duty. Moreover, within this approach to determining a duty of care, plaintiffs are unable to fully receive the attention needed to argue policy considerations against industrial defendants conducting activities that are harmful to the environment.[28]

2) Negligence: Causation as the Greatest Obstacle

A number of causation issues also undermine the effectiveness of climate change litigation. Causation is a complex dimension of negligence actions that determines a causal connection between the plaintiff's harm and the defendant's breach of the duty of care. In the case of climate change and extreme weather, daunting evidentiary problems complicate this part of the negligence analysis.

[25] Lewsi Klar, "Judicial Activism in Private Law" (2001) Can Bar Rev 80 215, at p 217.
[26] Lewis Klar "Foreseability, Proximity and Policy" Advoc Q 25 360, at p 376.
[27] *Cooper, supra* note 9 at para 50.
[28] As explained below, the *Charter of rights and Freedoms* RSC, 1982 does not apply to private litigation, nor does it have a provision guaranteeing the right to healthy environment. Therefore, it would be of little use in private liability claims.

To illustrate these complexities, Kaminskaité-Salters has identified three dimensions in which sophisticated evidence is needed to establish legal causality for climate change litigation.[29] The first is general causation, in which a plaintiff would have to establish how the defendant's emissions caused or contributed to anthropogenic climate change. The second dimension relates to the link between climate change events and regional environmental effects. The third is concerned with specific causation, whereby a plaintiff must establish a connection between climate change and a specific impact such as property damage. I suggest a fourth dimension of causation where a plaintiff would have to prove causality between climate change and the extreme weather event that caused or contributed to the harm. This dimension is the most difficult to establish because, to date, scientists are unable to attribute how much climate change has influenced a specific weather event.[30] The IPCC has determined that changes in climate influence the occurrence of extreme weather but experts in attribution science (the science of understanding the mechanisms responsible for climatic changes) are still not able to point to a clear picture of the specific impacts of such changes. For these reasons, plaintiffs may have to resort to the 'material contribution' test to establish that the defendant's conduct caused the plaintiff harm and causality mechanisms must be sensitive to the 'contributive' nature of climate change issues.

At present, it is scientifically impossible to establish a causal link between the damages suffered by plaintiffs to one single polluter. As a result, plaintiffs are required to

[29] Giedrė Kaminskaitė-Salters, *Constructing a Private Climate Change Lawsuit Under English Law: a Comparative Perspective*, (The Netherlands: Wolters Kluwer 2010), at p 156.
[30] Christian Huggel et al, "Loss and damage attribution" (2013) *National Climate Change* 3:8 694, online: <http://www.nature.com/doifinder/10.1038/nclimate1961>, at p 94.

establish causality to a large pool of defendants.[31] In the US, a "market-share" based approach is employed to apportion liability to manufacturers with a substantial share of a given market. [32] In *Sindell v Abbott Laboratories,*[33] the plaintiff was unable to identify the actual tortfeasoer responsible for selling a drug her mother took while she was pregnant, which caused her to develop cancer. The court held that since the defendant sold 90% of the drug they were liable for the plaintiff's losses.[34] To apply "market-share" liability, a plaintiff has to prove the defendant is liable for contributing to the harm. If a defendant were unable to refute that allegation, they would be held accountable for the harm caused, proportional to their share of the market.[35] While the concept of "market-share" liability is provided for in some statutes, it has not been adopted in Canadian case law.

In the United Kingdom, there were similar evidentiary and causality problems in cases where plaintiffs who contracted mesothelioma had been negligently exposed to asbestos from multiple employers.[36] The material contribution test allows the plaintiff to demonstrate that the defendant's negligence was one of several causes of injury.[37] It has

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[31] In Canada, plaintiffs use the "but for" test to prove that on a balance of probabilities without ("but for") the conduct of the defendant the harm would not have occurred. Climate change plaintiffs need a mechanism with a broad reach because of the expansive nature of such claims. This test is impractical in climate change litigation because a plaintiff cannot attribute causation to one entity when there are a number of actors responsible for climate change. In this instance, those unable to meet the 'but for' test might elect the alternative 'material contribution' test for causality, which is used to establish a single harm with multiple causes. *See* Curran, *supra* note 2, at p 509.

[32] Curran, *supra* note 6, at p 510.

[33] *Sindell v Abbott Laboratories,* 26 Cal 3d 588 (Cal Sup Ct 1980) [Sindell].

[34] *Sindell, Ibid.* at p 612. This method for causality has been written into the *Tobacco Damages And Health Care Costs Recovery Act,* SBC 2000, c 30, s 7 (3) (b) for plaintiffs seeking compensation from tobacco companies for harms against personal health. "Market-share" liability is also permitted under Ontario's *Tobacco Damages and Health Care Costs Recovery Act*, 2009, SO 2009, c.13, s 7 (3) (b).

[35] John L. Diamond, Lawrence C. Levine, M. Stuart Madden. *Understanding torts*, 4th ed., (Portland: Lexis Nexis, 2010) at p.184.

[36] *Fairchild v Glenhaven Funeral Services*, [2002] 3 WLR 89, [200] 3 All ER 305 (HL). It is important to note that in some of the post-Fairchild cases, the plaintiff's own conduct was one of the sources of exposure to asbestos. However, that did not affect the applicability of the Fairchild approach to causation.

[37] *Klar, supra* note 26 at p 456.

been used in the face of inconclusive scientific evidence.[38] Although Canadian courts have never fully grappled with the material contribution test in *Hank v Resurfice* McLachlin CJ *in obiter* stated that the material contribution test might be applied in "special circumstances" where the 'but-for' test is found unworkable.[39] The Supreme Court of Canada recently dealt with the issue of whether to use the 'but-for' or material contribution test because of the limitation of scientific evidence in *Clements v Clements*.[40] In that case, McLachlin CJ again affirmed that the "but for" test is still the approach plaintiffs should utilize to determine causation.[41] Altogether, the Canadian case law on the material contribution test has not worked favorably for plaintiffs. The presumptive applicability of the "but-for" test is an obstacle for climate change claimants seeking to establish that industrial polluters materially contributed to a harm vis-à-vis extreme weather. The global nature of the offensive actions requires a test that apportions liability even if scientific evidence pointing to one particular polluter is lacking and there are multiple contributory factors to the harm.

However, returning to the UK mesothelioma cases, *Fairchild* reveals complications in applying the material contribution test. Although the test does offer

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[38] *Fairchild, supra* note 36. See also *Snell v Farrell* [1990] 2 SCR 311, at p 33.
[39] *Resurfice*, *supra* note 9, at para 24.
[40] *Clements v Clements*, 2012 SCC 32. In this case, the two parties (motorcyclists) were driven down a wet roadway and the defendant was overloaded and driving excessively fast. The defendant smashed into the plaintiff but it was determined that the defendant's tire deflated and this helped cause the accident. The Supreme Court of Canada had to determine if the defendant's negligence *contributed* to the plaintiff's injury.
[41] Clements, *ibid*, McLachlin CJ nonetheless stated that in « special circumstances the "material contribution" could be used and summarized the application of material contribution test: "Exceptionally, a plaintiff may succeed by showing that the defendant's conduct materially contributed to risk of the plaintiff's injury, where (a) the plaintiff has established that her loss would not have occurred "but for" the negligence of two or more tortfeasors, each possibly in fact responsible for the loss; and (b) the plaintiff, through no fault of her own, is unable to show that any one of the possible tortfeasors in fact was the necessary or "but for" cause of her injury, because each can point to one another as the possible "but for" cause of the injury, defeating a finding of causation on a balance of probabilities against anyone.", at para 46.

assistance to plaintiffs seeking to apportion liability to a defendant in the face of inconclusive scientific evidence, it is limited in the climate change and extreme weather context. The UK House of Lords limited the applicability of the material contribution test, stating that a defendant's actions must be 'not insignificant' in its contribution to the harm.[42] Canadian industrial companies produce a very small portion of total global emissions.[43] Judges could be hard-pressed to formulate a decision on this issue, given the massive quantities of GHG emitted from industries located in countries with emerging economies.[44] In this regard, would judges have to compare Canadian companies' emissions with domestic or global industrial standards?

To conclude, even the material contribution principle to causation would be exceptionally difficult to apply, and judges are not well equipped to adjudicate such matters. Could existing legislation calibrate the common law to developments in the climate change dialogue and provide remedies for climate victims? Due to the elusive nature of the "market-share" liability in Canadian case law, this common law method offers little help to plaintiffs. But the introduction of "market-share" principles in Canadian legislation offers some guidance regarding apportionment of liability for climate change contributions and extreme weather damages.

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[42] Giedrė Kaminskaitė-Salters, *supra* note 29 *and Fairchild supra* note 36 at para 42. It is important to note that the material contribution test has not been used in extreme weather cases by any courts. Therefore, the use of the material contribution test in extreme weahte rcases would be novel.

[43] *Canada' s Emissions Trends*, Environment Canada (Ottawa, 2013), online: <http://www.ec.gc.ca/Publications/default.asp?lang=En&xml=253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5>, and Curran, *supra* note 6, at p 510

[44] Alister Doyle, "Emerging economies nearing half of global warming emissions", *Reuters* (31 October 2013), at p 1.

3) Nuisance: Balancing the Reasonableness Factor

Nuisance claims may also be used in such litigation, particularly against companies that emit large volumes of pollutants. As noted below, balancing the reasonableness of a defendant's conduct against the interests of the plaintiff in nuisance holds particular importance for climate change litigation. Although there are other factors for establishing nuisance, the element of reasonableness is examined here to elucidate the complexity of these claims. As argued throughout this chapter, creative solutions are required for ensuring victims of climate damages in Canada are adequately compensated, including legislative responses, rather than simply resorting to the torts of negligence or nuisance.

There are two types of nuisance claims: *private* nuisance occurs when there is an interference with private property interests.[45] Therefore, these claims tend to affect the private interest of a limited number of individuals and are facilitated through a private lawsuit. The purpose of private nuisance is to strike a balance between the defendant's conduct and the plaintiff's reasonable use and enjoyment of their land.[46] Conversely, *public* nuisance is an interference with public rights.[47] A public nuisance claim typically involves a large number of individuals and is exercised through a public claim initiated by or with the consent of the Attorney General (although it is possible for individuals to claim "special damages" in public nuisance claims).[48] Its function to address issues that obstruct the reasonable enjoyment of rights-broadly interpreted as property or life- of a

[45] G. Pun and M. Hall, *The Law of Nuisance in Canada,* (Markham: Lexis Nexis, 2010), at p 33.
[46] Osborne, *supra* note 18 at p 378.
[47] *Ibid*.
[48] *Ibid,* at p 34.

wide-range of individuals.[49] In both private and public nuisance claims, judges evaluate the reasonableness of the defendant's activities although the process of this evaluation differs somewhat depending on the type of claim. In private nuisance, courts examine the reasonableness of the defendant's activity compared to the interests and rights of the plaintiff.[50] On a broader level, public nuisance entails balancing the utility of the defendant's conduct to society compared to rights common to all.

To satisfy the reasonableness criteria, a nuisance claim for climate or weather damages would entail balancing competing interests between industrial (or economic) development and the rights of individuals (private nuisance) or those common to all (public nuisance). As mentioned, judges undertake a type of cost-benefit analysis when examining the plaintiff's and the defendant's interests. In the case of climate change, the polluting defendant could argue that the industrial activities in question are part of reasonable land use. It could be viewed that such activities (manufacturing, mining, generating electricity etc.) are reasonable within the context of a free market economy. However, claiming that the activity has "high social value" is not an impenetrable defense[51] and a defendant cannot claim that the utility of its activity is important to society if they do not conform to industry norms.[52] The factor of reasonableness in nuisance allows plaintiffs to focus on industrial actors that have outdated practices, which

[49] Romer LJ defined the tort of public nuisance in *Attorney General v P.Y.A Quarries Ltd*., [1957] 1 All ER 894 at 908, [1957] 2 QB 169 at p 191 (CA). For a definition of public nuisance elaborated by a Canadian court see *Ryan v Victoria (City),* [1999] SCJ No 7, [1999] 1 SCR 201 at para 52. In this case, the SCC summarized the definition of public nuisance but the court did raise that public nuisance was "a poorly understood area of law" given that legal scholars gave a variety of inconsistent definitions to this tort mechanism.

[50] There overlapping factors, between private and public nuisance, that determine whether a nuisance is reasonable including the utility of the defendants conduct, the nature of the locality in question, the severity of the harm and the sensitivity for the plaintiff (namely, for private nuisance) and the quality or the damage or interference. See Pun and Hall, *supra* note 45 at p 42 (for public nuisance) and p 73 for (private nuisance).

[51] Pun and Hall, *Ibid* at p 73. See Groat v Edmonton (City), [1928] SCR 522, [1928] 3 DLR 725, at p

[52] Curran *supra*, note 2 at p 509.

have fallen outside industry norms in respect to climate change. Deborah Curran has argued: "those companies whose approach to climate change is behind that of others in their industry run the risk of being singled out in tort actions."[53] Indeed, the tort of nuisance does appear to provide a potential avenue for establishing liability for climate change damages.[54] Despite the positive arguments, there are other, more political, implications that could pressure courts to resist handling climate change litigation altogether.

B. Does Existing Case Law Point To a Dead-End for Victims?

In the previous section, I presented the difficulties in establishing liability for extreme weather and climate damages through the torts system. This was the first illustration in supporting this chapter's main argument that the common law does not have the institutional capacity to address climate change litigation issues. In this section, I further support this claim using examples from US case law. Courts in the US often argue that existing environmental legislation "displaces" the common law in such litigation. Below, I discuss climate change litigation in the US and the potential for such litigation in Canada.

1) Lessons from the USA

American courts often perceive climate change cases as 'non-justiciable' because these claims raise broader issues that are not suitable for courts to adjudicate. Courts take the view that they lack the competency or legitimacy to handle large-scale climate change

[53] *Ibid,* at p 510.
[54] The notion that plaintiffs could establish liability on nuisance claims, assumes that the factors of foreseeability and causation would be satisfied in this hypothetical case. For more information on these elements in both private and public nuisance claims see Pun and Hall, *supra* note 45 at p 5.

litigation and preferring to defer to legislators.[55] Politicians know the inner workings of government budgets and are ultimately responsible to taxpayers for the management of these funds and the economy as a whole. In other words, environmental issues are better considered by regulators with opportunity to factor in other important policy considerations.

In the first known claim for climate damages, *Comer v Murphy Oil USA* (*Comer I),*[56] a group of Hurricane Katrina victims sued a number of utility companies for contributing to the climate change impacts, increasing the intensity of the hurricane and causing damages to their homes.[57] The plaintiffs grounded their claims in a number of tort theories including public and private nuisance and negligence.[58] However, the court never grappled with these questions because the claim was dismissed for lack of standing and that it was not justiciable under the political question doctrine.[59] The Chief Justice of the United States District Court for the Southern District of Mississippi found the claim dealt with "non-justiciable political questions, because there are no judicially

[55] See *Comer v Murphy Oil USA,* 585 F.3d 855, 877 n. 17 (5th Cir. 2009). This was the first climate change lawsuit in the USA. There have been a rising number of these cases as demonstrated below. For a Canadian perspective on the subject of court handling environmental litigation see David R. Boyd, *The Right to a Healthy Environment: Revitalizing Canada's Constitution,* (Vancouver: UBC Press, 2012), at p 30.
[56] *Comer v Murphy Oil USA*, *Ibid*.
[57] In a related insurance case, *Comer v. Nationwide Mutual Insurance Co.,* 2006 US Dist Lexis 33123, the insurers denied the victims coverage for damages caused by the hurricane. The victims filed claims against their insurance companies, along with three chemical companies, the latter for contributing to GHG emissions. The insurers claimed that flooding caused the damages suffered by the homeowners, which was clearly excluded from the coverage. As for the interesting composition of the group of defendants, the court denied a motion to certify the class of defendants, explaining that the classes were too broad. This case is another example of how litigation is an unfruitful exercise for plaintiffs so thqt the majority of victims seeking assistance or compensation after an EW event do not traditionally seek recourse through the judicial system. Private insurance and government programs disperse the majority of assistance after a catastrophe. See Gary Bryner, "The Rapid Evolution of Climate Change Law", (2007) Utah Bar J 20:2 21, found on line: <http://webster.utahbar.org/barjournal/2007/04/the_rapid_evolution_of_climate.html> at p. 26.
[58] *Comer, supra* note 4, at p 3.
[59] *Ibid.*

discoverable and manageable standards for resolving the issues".[60] Thus, the absence of common law principles to address such issues forced *Comer I* out of the court. The plaintiffs were unsuccessful in their appeal and sought to file a new claim (*Comer II*),[61] which was also dismissed on the basis of *res judicata,* because the plaintiffs used the same material (tort theories, evidence, etc.) for the earlier claim. Thus, *Comer II* put the final nail in the coffin in this line of cases. Despite invoking the *res judicata* principle, the court revisited the issue of non-justiciability, siding with the defendants that the *Clean Air Act*[62] preempts the plaintiff's claims.[63] In this regard, the Environmental Protection Agency is increasingly becoming responsible for regulating green house gas emissions in the US,[64] which has meant more roadblocks for plaintiffs given that *Comer I* and *Comer II* strongly emphasize the displacement of the common law in such issues.

In 2007, the state of California filed a complaint against General Motors and several other car manufacturers arguing their conduct caused public nuisance with

[60] *Supra* note 37, at para 29.
[61] The latest appeal was surprisingly granted *Comer v Murphy Oil USA* 39 ELR 20237 (5th Cir 2009) with judges allowing the plaintiff's claims of negligence and public and private nuisance but dismissing unjust enrichment, fraudulent misrepresentation, and civil conspiracy claims. It argued that the allowed tort claims were justiciable and not political. However, the court was forced to rethink its decision to grant the appeal when one of the nine judges from the original appeal was forced to abstain from hearing the appeal. See *Comer v Murphy Oil USA* 40 ELR 20147 (5th Cir 2010). On this late removal of the ninth judge, the appeal was dropped and the decision was reversed to reflect the original trial court finding, which dismissed the claim. The new claim *Comer v Murphy Oil USA* 42 ELR 20067 (SD Miss 2012) was barred *res judicata.*
[62] *Clean Air Act, supra* note 4.
[63] *Comer v Murphy Oil USA* 2012, *supra* note 51 at p 36.
[64] The United States Supreme Court held in *Massachusetts*, *supra* note 1, that carbon dioxide and other greenhouse gases are covered by the Clean Air Act's broad definition of air pollutants. The Environmental Protection Agency recently took steps to control emissions from coal pollution. Thus, tightening their grips on emissions in that country. J Eilperin and S Mufson, "EPA proposes cutting carbon dioxide emissions from coal plants 30% by 2030" *The Guardian* (June 2 2014), online: http://www.washingtonpost.com/national/health-science/epa-to-propose-cutting-carbon-dioxide-emissions-from-coal-plants-30percent-by-2030/2014/06/01/f5055d94-e9a8-11e3-9f5c-9075d5508f0a_story.html. See also *Regulatory* Initiatives, online: Environmental Protection Agency <http://www.epa.gov/climatechange/EPAactivities/regulatory-initiatives.html>

detrimental consequences for the environment and the natural resources of California.[65] The case was dismissed as non-justiciable because it was found to be political in nature.[66] The Court stated that it did not want to "inject itself" into questions of climate change liability because it felt that it "required an initial policy determination", for example, regulation apportioning liability to industrial companies, from the federal government.[67] Like *California v General Motors,* most of the case law regarding climate change damages reflects the findings in *Comer I* and *Comer II* regarding the political nature of climate damage cases.

Kivalina v ExxonMobile Corp. [68] presented a strong case for judicial intervention for an extreme weather claim and yet it was unsuccessful. The Northern Alaskan community of Kivalina filed a claim against a group of oil, gas and electricity producing companies. The village alleged that the companies' activities emitted large amounts of GHG, fuelling the effects of climate change, which in-turn harmed the village. Kivalina sought monetary damages, amounting to $400 million dollars, from the defendants.[69] This amount was based on the estimated costs to relocate the village.[70] Kivalina used a number of interesting arguments to support their claim. The plaintiffs employed the torts of conspiracy and concert of actions to assert that some of the defendants worked together "to suppress the awareness of the link between [their] emissions and global warming".[71] In addition, they alleged public and private nuisance.[72] However, the United

[65] *California v. General Motors et al.,* 2007 WL 2726871 (ND Cal. 2007). See also Schatz *supra* note 2, at p 136
[66] *Supra* note 4.
[67] Schatz *supra* note 2 at p136.
[68] *Native Village of Kivalina v ExxonMobil Corp,* 696 F 3d 849 (9th Cir 2012).
[69] *Ibid.* p. 1.
[70] *Ibid.*
[71] *Ibid.* para 6.

States Court of Appeals for the Ninth Circuit quickly invoked the doctrine of displacement to dismiss the plaintiff's claim without an opportunity to address the tort claims.[73] This doctrine is invoked when a federal statute addresses the question at issue in a federal common law case. In the case at bar, it refers to the invalidation of Kivalina's nuisance claim for monetary damages caused by climate change as it conflicts with an existing area of law under the American federal legislative authority.[74]

The *Kivalina* decision is illustrative of US courts' approach to climate change claims, refusing compensation for climate or weather damages on the basis that such issues are political in nature. However, climate change litigation in the US has been used to govern mitigation strategies through abating greenhouse gas emissions. In *Massachusetts v EPA* (2007),[75] the court decided that greenhouse gas emissions constitute air pollutants under the definition of the *Clean Air Act,* which meant the Environmental Protection Agency had to exercise its authority over the newly defined pollutant and regulate it. The outcome of the decision in *Massachusetts* strongly influenced the state of affairs in US climate change litigation because, by forcing the Environmental Protection Agency to oversee greenhouse gas emissions, that case determined that the *Clean Air Act* has ultimate statutory authority over climate change issues. Therefore, any private liability claim for climate damages falls into a "legislative vacuum" created by the *Clean Air Act*.

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[72] The "market-share" approach to causation that has been used by American courts could have been used as a basis for recognizing Kivalina's case.

[73] R. Trent Taylor, "The Death of Environmental Common Law?: The Ninth Circuit's Decision in Native Village of Kivalina v. ExxonMobil Corp", (2012), online: McGuire Woods LLP, <http://moodle.uvic.ca/file.php/22357/kivalina_appeal_comment.pdf>, at p 1. See also, *American Electric Power Company Inc v Connecticut*, 131 S Ct 2527, 2535, 180 L Ed 2d 435 (2011). The U.S. Supreme Court also decided this case on the displacement doctrine.

[74] *Ibid.* The doctrine of displacement is unique to the USA. In Canada, the doctrine of paramountacy is employed to resolve conflicts between provincial and federal legislation that is operationally incompatible or inconsistent; see *Smith v The Queen,* [1960] SCR 776. However, there is no doctrine in Canada used to displace issues that courts feel are characterised as political or that is handled by the existing legislation.

[75] S*upra* note 1.

Karine Péloffy argues that Kivalina orchestrated their claim to reflect the decision in *Massachusetts*.[76] In this sense, it sought to avoid having their case dismissed on the premise that it impinged on the EPA's authority over GHGs. Despite this prudent approach, their claim ultimately failed based on the legal doctrine of displacement. In *Kivalina*, the court stated that if legislation displaces the federal common law it also displaces the courts power to grant legal remedies.[77] In other words, the displacement doctrine removes the court's authority on all matters relating to such claims. Ironically, there is no statutory remedy for monetary damages resulting from climate change in the *CAA*.[78]

The absence of a legislative or common law remedy ultimately leaves a void for climate damage plaintiffs. In *Kivalina*, Philip Pro JA explained that the common law is not responsible to fill this void.[79] He believed that if Congress intended to create a remedy for climate change damages they would have done so under the *CAA*.[80] Consequently, *Kivalina* has made it difficult or precluded tort remedies for climate change litigants: If the federal legislative authority displaces the federal common law in climate damage claims and there is no statutory or common law remedy, how do victims of climate damages obtain compensation? This conundrum leaves plaintiffs stranded in a legal morass. As such, *Kivalina* remains a powerful decision that reverberates across American environmental common law. Some legal scholars indicate that, unfortunately,

[76] *Supra* note 7 at p 127.
[77] *Ibid.*
[78] *Ibid.*
[79] *Ibid.*
[80] *Ibid*

as a result of *Kivalina,* the door for this type of litigation closed soon after it was opened.[81]

2) Is There Legal Recourse for Climate Victims in Canada?

Despite its negative undertones, US case law provides insight for Canadian plaintiffs. The two countries share similar common law systems and Canadian courts occasionally look to US case law for inspiration. The American experience shows that tort claims for climate damages are cumbersome and inappropriate. As already noted, plaintiffs face great difficulty establishing such claims under the common law.[82] Conversely, Canada does not have legislation analogous to the *CAA*, which acted as a legislative vacuum and halted *Kivalina's* claim. It has been speculated that the absence of such legislation in Canada would provide litigants with a favourable venue for civil claims. Péloffy argues that the federal government may be liable for failing to govern a public nuisance because federal and provincial laws facilitate oil and gas development.[83] She offers a comparative analysis of the Canadian and American legal systems' approaches to climate damages.[84] But is the chill of climate change litigation from the US enough to undermine Canadian claims? Does *Kivalina* demonstrate that environmentalists should focus on broader societal and political issues instead of battling with an unresponsive environmental common law? These legal and political considerations might change the course of climate change litigation in the Canadian context.

In the past, The Canadian Federal Court of Appeal recoiled when grappling with climate change issues because of the porous and discretionary nature of Canadian

[81] Taylor, *supra* note 73.
[82] See above at section A) in chapter III.
[83] Péllofy *supra* note 7, at p 132-134.
[84] *Ibid.*

environmental laws. In *Friends of the Earth v Canada (Governor in Council)* the plaintiffs claimed that the federal government had not fulfilled its duties under the *Kyoto Protocol.*[85] The Canadian Federal Court of Appeal dismissed this claim, stating that the compliance of this international agreement should be left to Parliament. This case demonstrated that, absent mandatory language, governments are not bound to take action against climatic changes. The Court found that the language of the defunct *Kyoto Protocol Implementation Act*[86] did not create a mandatory duty to regulate compliance with the *Kyoto Protocol*.[87] In addition, this case demonstrated the Court's hesitation to intrude on the executive branch's discretionary power over Canadian environmental laws. The Court stated: "I question whether, outside of the constitutional context, the Court has any role to play in controlling or directing the other branches of government in the conduct of their legislative and regulatory functions." [88] This deference creates a legislative vacuum in Canadian environmental law, resulting in a type of 'displacement' akin to the decision in *Kivalina*, for any plaintiff attempting to file a claim remotely questioning the executive's power to regulate climate issues. The issue of the systemic weaknesses of Canadian environmental laws requires careful consideration and is addressed in more detail later at chapter V.

There are various barriers to accessing other national courts such as the Federal Court (FC) and the Supreme Court of Canada (SCC) for climate change claims.[89] The FC is a statutory court and does not have jurisdiction over private litigation. This court can only

[85] *Friends of the Earth v Canada (Governor in Council)*,2008 CarswellNat 3763, 2008 FC 1183.
[86] *Kyoto Protocol Implementation Act*, SC 2007, c 30.
[87] *Supra* note 85, at para 40.
[88] *Ibid*, at para 40.
[89] The FC hears cases throughout Canada and its decisions are nationally enforceable. In addition, the SCC undoubtedly has the most important bearing on environmental jurisprudence since its precedents bind all other courts across the country.

adjudicate matters relating to federal environmental laws and these laws must confer the FC the power to adjudicate conflicts under its authority. In addition, the path to the SCC is long and arduous, placing an exceptionally heavy monetary burden on plaintiffs. An application for leave to appeal is required for the SCC. Although a lower court may reach the wrong decision about a particular case, this is not always a sufficient reason for allowing an appeal to the SCC. The case must raise issues of national importance and a significant legal issue, including a contended common law rule or *Charter* challenge.[90] The SCC has rendered some favorable environmental decisions[91] but it has proven difficult to encourage growth in environmental law through this avenue.

As well, the *Canadian Charter of Rights and Freedoms*[92] would be of little use to litigants seeking private law remedies for climate or weather harms. It does not explicitly recognize environmental rights (or the right to a healthy and unpolluted environment) and courts have not accepted the argument that these are implicit in section 7 of the *Charter,* which guarantees the right to life, liberty, and security of a person. In this instance, David Boyd has argued that constitutional recognition of a healthy environment would have a serious impact on the entirety of Canadian law,[93] potentially giving plaintiffs a tool to obtain remedies. In reality, it is doubtful that such a constitutional change would help alleviate the heavy evidentiary burden on plaintiffs to prove elements such as duty of care and causality. The broad stroke approach of enshrining personal environmental rights in the constitution does not address the more technical issues argued in a court of law; namely, private claims for environmental harms follow tort principles and legal

[90] *Supreme Court Act*, RSC, 1985, c S-26, s 40(1).
[91] See, for example, *Haida Nation v British Columbia (Minister of Forests)* 2004 SCC 73 and *R v Hydro-Québec*, [1997] 3 SCR 213.
[92] *Canadian Charter of rights and freedoms*, RSC, 1982. [Charter]
[93] *See* Boyd, *supra* note 55.

instruments of precision are needed to handle such claims. The *Charter's* scope of application is limited and does not apply to the actions of private entities.[94] Therefore, changes to existing laws that govern specific issues, such as nuisance and negligence, would better address the harms individuals suffer as a result of emissions and climate change.

Moreover, a *Charter* provision guaranteeing the right to a healthy environment would be impractical if all other related disaster laws continue to be weak and fragmented. To this extent, Green Legal Theory (GLT) scholars suggest that our social laws are more determinative than our legal laws. The government cannot enact cultural 're-formation' to change our basic social laws. Indeed, making a change to the constitution could pressure federal and provincial governments to strengthen laws that embody environmental stewardship and enforce mandatory language. However, our environmental laws are not the only sources of power governing the legal responses to climate change and extreme weather adaptation. As demonstrated above, common law claims for climate damages are dismissed because environmental laws do not contain remedies to directly compensate victims. In order to guarantee that victims facing harms resulting from climate change are properly compensated, the common law must treat climate harms as real and tangible. Although damages from climate change are difficult to establish scientifically, the outright refusal of climate damage claims is indicative of a judicial culture that is uncomfortable with the idea of addressing climate change as a justice issue.

Ultimately, legal scholars and policymakers must question the common law's capacity to provide remedies for climate change damage claims by plaintiffs. In addition to the legal hurdles noted above, there is a concern about the ability and appropriateness

[94] *Charter*, *supra* note 92 s 32(1)(a)(b).

of a domestic court to consider climate issues affecting the global population. The next section demonstrates that the problem plaguing climate change and environmental law is not only structural but also epistemological.

C. The Limits of the Environmental Common Law: Loss Valuation

The overall message of this chapter has been that environmental common law is unable to adjudicate climate change claims. GLT completes our assessment of the environmental common law by adding a theoretical component. GLT scholars posit that modern environmental law does not challenge the liberal economic order that governs our social institutions, such as the common law. Instead it follows the *status quo* because it embraces the determinative social laws of the market. In turn, this paradigm treats adaptation and mitigation issues as technical rather than systemic problems. The order of the environmental common law is indeed troubled by this conundrum. I argue that tort mechanisms in the common law are impractical and that environmental laws are unreliable for plaintiffs in complicated environmental cases. These issues persist because the common law has no way of measuring the intrinsic value of environmental losses and must formulate *ad hoc* solutions using the market value. In addition, as demonstrated above, there are related issues regarding causation and responsibility for damages caused by emissions. In this instance, I posit that GLT can be used to study both these systemic and technical problems in the environmental common law. GLT scholarship is based on the simple premise that 'nature' has been left out of our social and legal laws.

In addition to the difficulties outlined above, the valuation of losses from environmental damage raises further issues that are not easily addressed by the common law. How do courts value the environment in the event of a major loss, for example, of

forests? Environmental loss valuation is important for climate and weather disaster litigants because it concerns the validation of important environmental arguments and the common law's sensitization to environmental issues. In this regard, Jamie Benidickson raises various considerations about how the common law measures the true value of the environment:

> How much is a wild river winding through an old-growth forest worth to lovers of the outdoors? Or, what is the value of a wetland region as habitat or for its role in filtering and restoring water? The formulae are of considerable interest, even if their practical utility is often unclear. We might approach the challenge of valuing natural resources by posing the question as one of compensation for loss. That is, supporting that the environment suffered damage- or even destruction- as a consequence of some wrongful act, what amount of compensation should be paid by those responsible.[95]

As Benickson notes, the environment and its resources hold an *intrinsic* value to human beings. Should the common law find equilibrium between the market and *intrinsic* value of the environment? This subject was discussed in *British Columbia v Canadian Forest Products Ltd.*[96] In that case, the province of British Columbia claimed losses arising from a forest fire caused by Canadian Forest Products while conducting a controlled burn. The fire destroyed 1500 hectares of publicly owned forest and an area of 255 hectares that was deemed environmentally sensitive and protected from logging. Although the Supreme Court of Canada did not rule in BC's favour, the Court discussed many important developments on the evaluation of environmental losses. The Court determined that damages for natural resources are set by their market value and also indicated that damages for non-market values could be argued in future cases.[97] However,

[95] Jamie Benidickson, *Environmental Law*, 3rd ed, (Toronto, Irwin Law, 2009), at p 214.
[96] *British Columbia v Canadian Forest Products Ltd*, 2004 SCC 38. [Canfor]
[97] *Ibid,* at p 11.

the Court did not explicitly discuss how to determine this value given British Columbia's lack of evidence.

In hypothesizing the considerations for valuing such losses, a GLT perspective looks beyond the common law and environmental law norms to draw links between law, politics, culture and sustainability. M'Gonigle justifies this position in GLT by arguing that "… specific prescriptions must pay careful attention to their theoretical justifications" since solely relying on technical considerations can seriously undermine efforts to resolve issues pertaining to the environment. A market value methodology really only considers consumer behaviour. Conversely, a *systemic* method to valuing environmental loss would encompass *intrinsic* value, the cultural disconnect caused by the loss and the services the lost resource brings to the ecosystem. But scholars have posited that moving from assertions about undervalued environmental losses is quite difficult when there is no clear method to quantify these losses.[98] In the end, Elgie and Anastasia argue that it may be appropriate for the court to accept less reliable results in using similar non-market value methods.[99]

To this extent, the valuation for environmental losses in the common law can be informed by the debates surrounding the discipline of 'ecosystem services'. The literature on ecosystem services provides insight on how economics addresses the issue of valuing naturel resources. Experts in this field argue, "in order to conduct appropriate valuation of ecosystem services, one needs to consider a broad set of goals that include ecological sustainability and social fairness, along with the traditional economic goal of

[98] Benidickon, *supra* note 95 at p 215.
[99] Stewart A G Elgie & M Anastasia, "The Supreme Court ' s Canfor Decision : Losing the Battle but Winning the War for Environmental Damages" (2005) UBC L Rev 38 223, at p 247.

efficiency."[100] However, this literature has been criticized for its tendency to translate the valuation of natural resources into rational economic (or neo-liberal) terms.[101] For instance, Collard and Dempsey argue that ecosystem services scholarship entails the commodification of nature rather focusing on the environment's intrinsic value.[102] They attempt to bring analytical clarity on how ecosystems bring about social reproduction and contribute to life cycles and note that we cannot simply evaluate environmental loss by relying on traditional economics. It is beyond the scope of this thesis project to evaluate the merit of incorporating ecosystems services, and the counter-arguments of its critics into how the common law evaluates such losses. Our goal is to simply highlight the evolution of this scholarship and its possible bearing on traditional methods of indemnification in tort litigation. A critical lens to valuating ecosystem losses permits legal scholars to understand the greater role the environment plays in the balance of nature and how climate damages ultimately disrupts the earth's natural cycle.

Canfor is a legal blueprint for calibrating the common law with the gravity of environmental loses. Climate damage victims, however, would have difficulty establishing the basic elements of a tort claim including causation and the duty of care. Therefore, incorporating interests that are not purely market-based requires a shift in the level of approach. A GLT perspective provides a lens to examine these gaps in the common law. The fundamental conclusion is that the common law, in its current form, is an unpromising venue for raising and redressing climate and weather damage claims

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[100] Nicholas Dendoncker, Hans Keune et al, "Inclusive Ecosystem Services Valuation" in *Ecosystem Services: Global Issues, Local Pratices*, (San Diego: Elsevier, 2014), 3, at p 4

[101] For a critical analysis of ecosystem services literature see J Dempsey & M M Robertson, "Ecosystem services: Tensions, impurities, and points of engagement within neoliberalism" (2012) *Prog Hum Geogr* 36:6 758, online: <http://phg.sagepub.com/cgi/doi/10.1177/0309132512437076>.

[102] See Rosemary-Claire Collard & Jessica Dempsey, "Life for sale? The politics of lively commodities" (2013) *Environtal Planing* 45:11 2682 , online: <http://www.envplan.com/abstract.cgi?id=a45692>.

against private entities that are largely responsible for climate change. Given the challenges of imposing tort liability for climate change damages, the next chapter will canvass how the private market may be a source of compensation for victims of climate change damages.

Chapter IV: Market Responses

The financial and ecological consequences of weather disasters are obviously devastating for individuals, communities and organizations. In this sense, Ulrich Beck argues that individuals, institutions and governments are increasingly surrounded by risks and that embracing such risks is mandatory in the modern era of 'the risk society'.[1] In the market economy, private insurance institutions are an important mechanism for managing individual and collective risks, while promoting the liberal notion of self-reliance into the psyche of individuals and organizations. Insurance, however, is sometimes unable to compensate victims in unfortunate events for a variety of reasons, mostly because of policy exclusions or unavailability of coverage for the events in question. Indeed, as an adaptation measure to climate and weather damages, private insurance can be unreliable because the social laws of market competition require that private insurers generate profits unencumbered by position-eroding constraints. If climate and weather risks become increasingly predictable, insurers will simply remove themselves from managing these risks to avoid being inundated with expensive claims or the premiums will be unaffordable and inequitable. There is a role, however, for insurers in mitigating the impacts of climate change. In this regard, insurers have tremendous influence over other private sector actors because they are financially responsible for some of their actions.

The purpose of analyzing private insurance institutions is to identify how insurers fail to compensate victims of catastrophic weather events but could potentially succeed at mitigating the impacts of climate change. Insurers manage large portions of the risks

[1] *See* Ulrick Beck, *Risk Society: Towards a New Modernity*, (London: Sage 1992).

stemming from climate and weather disasters. If these risks are excluded or individuals are unable to obtain coverage, this could have important financial repercussions for those affected. Insurance could provide access to financial security from devastating events, but it is not an entitlement. Private insurers are businesses and only accessible to those able to purchase its products. Therefore, I argue that private insurance may not be a reliable mechanism for individuals seeking to protect themselves from climate change or extreme weather damages given the way private insurance currently operates. This chapter expands on these ideas but focuses largely on private insurance's ability to act as a mitigation strategy.

Climate change stands as a stress test for the insurance industry. Indeed, the increase of high-cost environmental disasters has important consequences for an insurer's financial stability. For example, the 2013 Southern Alberta floods had an enormous financial impact on Canadian insurers, who distributed (CAN)$1.7 billion in claims.[2] In 2011, it was reported that natural disasters cost insurers (US)$119 billion from property damage, business disruptions, health impacts, and legal claims against polluters.[3] Climate change is not the first environmental threat insurers have faced. In the 1980's, Lloyd's was threatened with collapse because it provided the majority of environmental liability insurance and other "… large surplus insurers withdrew from the pollution insurance market in 1984 when they judged underwriting environmental liability insurance at marketable rates untenable."[4] As demonstrated below, large insurers and reinsurers are

[2] Carrie Tait, "Alberta flood's record costs will likely drive up insurance premiums", *The Globe and Mail*, Sep 23 2013, online: < http://www.theglobeandmail.com/news/national/alberta-flood-damage-set-canadian-record-insurance-group-says/article14461509/>.
[3] The Canadian Press, Survey Natural Disasters Cost Insurers $65 last year, *Maclean's* Magazine, (January 3 2013), online: < http://www.macleans.ca/general/survey-natural-disasters-cost-insurers-65b-last-year/>.
[4] *Ibid.* at p.1582.

adapting to climate change and weather disasters using both traditional and new methods to manage these risks.[5]

The purchase of reinsurance (or insurance for direct insurers) is a standard practice in the insurance system.[6] In fact, direct insurers rely on reinsurers to protect themselves against insolvency in situations where losses are exceptionally high and the insured relies heavily on direct insurers for compensation after a natural disaster. Insurers may even minimize their reserves by reinsuring a portion of their liability.[7] Reinsurers tend to operate internationally and insure many direct insurers to form a large pool of funds. There are typically more premiums collected than claims paid out so that there remains enough capital to cover uncorrelated and low-cost events, and return a profit to all. Conversely, low-probability and high-cost (fat-tail) risks, such as extreme weather events, exacerbate this mechanism and force reinsurers to solicit private investors for the capital needed to cover such large risks.

In this process, reinsurers create *insurance-linked securities* that are issued in the capital market. These are investment vehicles that hold funds that investors contribute to and can be released in the event of a disaster. Reinsurers argue that insurance-linked securities control the fiscal fallout from climate change and the potential catastrophic events it produces.[8] Insurance-linked securities, however, transfer the fiscal responsibility of managing disaster risks to investors, who do not hold any responsibility towards the

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[5] Sean B. Hecht, " Climate change and the transformation of risk: Insurance Matters" (2008) UCLA LR 55 1559 < http://www.uclalawreview.org/pdf/55-6-3.pdf>, at p1582. Hecht posits that " ... [e]ven large surplus insurers withdrew from the pollution insurance market in 1984 when they judged underwriting environmental liability insurance at marketable rates untenable."

[6] For a comprehensive introduction to reinsurance see Rodolfo Wehrhahn, *Introduction to Reinsurance: Primer Series on Reinsurance*, The World Bank (2009).

[7] However, there are some regualations that restrict the percentage of risk that may be reinsured. For example, see *Reinsurance*, O Reg 129/08 s 3(1).

[8] Robert Koker and Christensen Mcdowell, "Insurance-Linked Securities in Canada: Key Principles for a Canadian Regulatory Regime" (2011) *Canadian Insurance Regulation Report* 5:1 1, at p 1.

consumer. These securities pay unusually high yields to investors but do not release funds in times of extreme need. In fact, insurance-linked securities have gained a reputation for only covering a narrow set of risks and not providing adequate funds to help pay for the damages of a disaster. In this situation it is worth asking: is the tail wagging the dog?

The influence of insurers is too great to leave this industry unexamined. Private insurance is the world's main mechanism for managing risks. Therefore, it is no surprise that insurers have demonstrated a great interest in climate change, arguably the most pressing risk of our time. I begin with an analysis of the relevant insurance law principles applicable to climate and weather damage issues. The following section argues that private insurance could act as a mitigation mechanism in regulating industrial GHG emitters. In this context, there is American case law demonstrating that the industry refuses to cover risks that exacerbate climate change. Next, I describe the fundamentals of the reinsurance industry and the securitization of risk while examining the systemic weaknesses within these structures.

A. Climate Change and Insurance Law

The very purpose of insurance is to transfer risk through a legal contract. In the event of a dispute about the contract, insurance law's objective is to strike a balance between the interests of insurance organizations and the insured; the former seeks to generate profits and maintain solvency and the later seeks to protect themselves from the financial consequences of crippling losses.[9] The veritable role of insurance law is to maintain this balance by examining insurance contracts using established legal principles. The issue of climate change will create challenges for the application of some insurance

[9] Craig Brown & Sara Seck, "Insurance Law Principles in an International Context : Compensating Losses Caused by Climate Change" (2013) Alta L Rev 50:3 1.

law principles but there have been surprising outcomes from litigating insurance contracts regarding pollution. This section discusses how insurance law principles might be applied in climate and weather claims by providing an overview of relevant insurance law principles and their application to cases for compensation. Finally, I discuss how insurers might employ insurance law principles to refuse coverage for climate liability claims.

1) Insurance Economics Principles Reflected in Insurance Law Principles

To a large extent, insurance law principles are subservient to the culturally constitutive rules in the business of insurance. The latter stipulate that insurers should only accept risks that are fortuitous, quantifiable, diversifiable and profitable.[10] The fortuity principle is particularly important because it protects the insurer from an insured that makes a fraudulent claim by seeking coverage for a harm that has already occurred, or where the insured intentionally causes the loss.[11] This is because certain insureds are higher risks than others in the insurance pool and if the insurer is unable to identify this problem before entering into the contract with the insured, *adverse selection* ensues.[12] The notion of 'uncertainty' inherent in the fortuity principle is essential to the business of insurance contracts because accepting risks that are certain to materialize would threaten the solvency of insurance companies. In this sense, it is presumed that fortuity is fundamental to all insurance contracts. The concern about climate change could have a bearing on fortuity as insurers may not want to insure predictable risks if the damage is

[10] Trevor Maynard, *Climate Change: Impacts on Insurers and How They Can Help With Adaptation and Mitigation,* (2008) *Geneva Papers* 33 140.
[11] John E Heintz, Marla H Kanemitsu & Elizabeth Scanlan, "Insurance Coverage for Climate Change Suits : The Battle Has Begun" (2009) Env Claims J 21:1 29, at p 40, see also Richard L Fruehauf, "The Cost of Knowledge: Making Sense of 'Nonfortuityy' Defenses in Environmental Liability Insurance Coverage Disputes" (2014) Va L Rev 84:1 107.
[12] David Friedman, *Law's Order* (New Jersey: Princeton University press, 2000) at p 65.

reasonably certain to occur. As the science around climate change evolves and insurers become more aware of its imminent threats, insurance for property located in areas that are prone to extreme weather risks could become very restrictive or almost non-existent because insurers would become hesitant to underwrite such risks.[13]

Another foundational principle in insurance law is the insured's duty to disclose information material to the risk to be insured.[14] This principle was established in *Carter v Boehm,*[15] a case that concerned the potential difficulties of insurers in obtaining information for underwriting prospective risks. It became a guiding rule in insurance law that the insured disclose all the material facts relating to the risks for which protection is sought. In the case of climate change, it would be difficult to argue that the insured was aware of the potential threats to their property because of climate change or the extreme weather that would ensue. It is important to note, however, that insurers have a duty of due diligence to obtain reasonably accessible information about the risks they accept and not to turn a blind eye to obvious risks when entering into an insurance contract. Insurers conduct highly sophisticated research on weather risks in particular geographical areas. Following the reasoning in *Coronation Insurance Co. v Take Air Ltd* and *Canadian Indemnity Company v Canadian Johns-Manville Co,*[16] the risk level should be known to a reasonably competent and well-informed insurer.[17] There is no duty on the insured to disclose information that the insurer knows or ought reasonably to know.

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[13] Brown & Seck, *supra* note 9, at p 8.
[14] The duty to disclose material information is a foundational principle in insurance law. See *Carter v Boehm*, (1776), 97 E R 1162 (K B). The insured owes the insurer a duty of upmost good faith.
[15] *Ibid.*
[16] *Coronation Insurance Co. v Taku Air Transport Ltd.,* [1991] 3 SCR 622; *Canadian Indemnity Company v Canadian Johns-Manville Co*, [1990] 2 SCR 549.
[17] *Coronation Insurance Co. v Taku Air Transport Ltd, Ibid.,* at para 37.

2) Applying Insurance Law Principles to Climate Issues: Indemnity

The most problematic issue regarding insurance law and climate change is compensation. Individuals purchase insurance because they expect to be compensated in the event of a misfortune but recent events demonstrate that coverage for climate related damages is uncertain. During the Southern Alberta floods, as the terms of the homeowners' contracts varied, some residents were completely denied any compensation.[18] If an insured's claim for damages related to flooding, fire or a hurricane was denied, they could contest this denial in courts. In these cases, the courts use contractual interpretation mechanisms to determine the intentions of the parties upon entering into contract.[19] Judges follow insurance law principles that typically favour a broad interpretation of coverage clauses, narrow interpretation of exclusion clauses, and the reasonable expectations of the parties.[20] However, insurers have methods to circumvent the advancements made in insurance law contract interpretation, namely by carefully redesigning the coverage.[21]

Moral hazard arises when an insured becomes more careless about taking risks after entering into contract.[22] In a similar fashion, the insurer becomes uninterested in compensating their customers, causing an 'insurer moral hazard'. This notion is discussed

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[18] Jaquelin Nelson, "Alberta flood insurers forced to respond to angry 'name and shame' public backlash", *the Globe and Mail,* (July 16 2013) online: <http://www.theglobeandmail.com/report-on-business/insurers-seek-to-quell-pr-headache-after-alberta-floods/article13241484/>.

[19] Barbara Billingsley, *Canadian Insurance Law*, 2d ed (Markham, ON: Lexis Nexis Canada, 2014) at p 144.

[20] See *Consolidated-Bathurst Export Ltd. v Mutual Boiler and Machinery Insurance Co.*, [1980] 1 SCR 888 [*Consolidated-Bathurst*] and *Progressive Homes Ltd v Lombard General Insurance Co. of Canada*, 2010 SCC 33, [2010] SCJ No 33 [Progressive Homes]. Also, courts utilize the rules of *contra proferentem* (a rule that construes any ambiguous content against the party that wrote the contract) and the continuity of judicial interpretation when interpretation ambiguities in insurance policies. For more information on these interpretation mechanisms see *ibid* at p 147.

[21] Brown & Seck, *supra* note 9, at p 8.

[22] Friedman, *supra* note 12, at p 66.

at great lengths in the socialization of risk literature with authors contending that insurers actively employ intricate and complex language in their contracts to avoid paying for losses.[23] Carol Heimer offers examples of these procedures: "The extreme cases are insurance companies who simply do not pay losses to which policyholders are entitled, force policyholders into expensive litigation to collect, or cancel policies if policyholders insist on pursuing payment."[24] The idea of insurer moral hazard threatens the interests of the insured and could provoke major problems for the insured in the wake of climate change. The moral hazard problem in this situation is that clever insurance coverage terms excluding weather disaster or even climate change damages could leave unsuspecting homeowners disappointed.[25]

Risks need to be fortuitous for insurers to make profits. Extreme weather events are sporadic and give the impression that these would be ideal risks for insurers to underwrite. However, the costs associated with these events are enormous (the 2013 Southern Alberta floods cost (CAN)$1.7 billion to insurers) and insurers will attempt to mitigate their losses. What's more, incremental damages resulting from climate change are difficult to quantify, demanding reliable and expensive scientific data. Perhaps the most significant issue concerning incremental damages and fortuity is the strong scientific consensus that incremental changes to the global climate will produce massive changes in weather events. Insurers are aware that damages from climate change are

[23] Carol A. Heimer, "Insuring More, Ensuring Less: The Cost and Benefits of Private Regulation through Insurance", in Tom Baker & Jonathan
Simon, eds, *Embracing Risk: The Changing Culture of Insurance and Responsibility* (Chicago: University of Chicago Press, 2002), at p 137.
[24] *Ibid.*
[25] It is important to note that this practice tends to operate within their legal rights and within the contract's terms. The insurer has a contractual duty to deal with policyholders in good faith and may be subject to punitive damages for undertaking high-handed conduct against to insured. See *Whiten v Pilot Insurance Co*., 2002 SCC 18, [2002] 1 SCR 595 at para 161.

foreseeable, particularly in areas prone to wildfires, hurricanes and ice storms. This could prompt insurers to remove coverage or charge higher premiums. Insurers are able to obtain information about climate related risks and can therefore perform their due diligence to verify that the proposed risk conforms to insurance principles. In these situations, a dramatic gap exists in the information between the insured and the insurer because the former might not have access to the pertinent scientific information identifying if their property is at greater risk of climate damages.

How would insurance law be applied if an insured were denied coverage for an extreme weather event? There are a number of interpretative mechanisms used by the courts to determine the intentions of the parties. These are used when the policy is deemed ambiguous.[26] While utilizing these principles, courts consider "the unequal bargaining power at work in the negotiation of an insurance contract and interpret it accordingly".[27] The courts first examine the intentions of the contracting parties by employing the reasonable expectations doctrine. This principle interprets the disputed contract term in a manner that is consistent with the expectations of the parties.[28] If this exercise fails to provide clarity, the courts use the rule of interpreting coverage provisions

[26] In *Progressive Homes supra* note 20, the SCC explained a two step process for examining insurance policies at para 22-24: If the language of the policy is unambiguous regarding the disputed coverage the courts will follow this language. However, if the court finds the language unambiguous or that it does not speak to the disputed coverage the court will rely on general rules of construction. In other words, interpretations that are consistent with the reasonable expectations of the parties, would create unrealistic results, would not have been in contemplation at the time of the contract negotiations and that similar insurance policies are construed consistently. See *Co-operators Life Insurance Co. v Gibbens*, 2009 SCC 59, [2009] 3 SCR 605, at paras 20-28; *Jesuit Fathers of Upper Canada v Guardian Insurance Co. of Canada*, 2006 SCC 21, [2006] 1 SCR 744 at paras 27-30 [Jesuit Fathers]; *Non-Marine Underwriters, Lloyd's of London v Scalera*, 2000 SCC 24, [2000] 1 SCR 551, [Scalera] at paras. 67-71; *Brissette Estate v Westbury Life Insurance Co.*,[1992] 3 SCR 87, at pp 92 93 and *Consolidated-Bathurst supra* note 20 at pp 899-902. See also Billingsley *supra* note 19.

[27] *Ibid, Jesuit Fathers*, at para 28.

[28] *Progressive Homes*, *supra* note 20 at para 23. See also Billingsley *ibid* at p 151.

broadly and exclusion clauses narrowly.[29] The principle that coverage clauses should be construed broadly[30] protects the insured but it is difficult to predict its effectiveness on climate damage claims. Brown and Seck argue that although these protections exist, insurers have methods of adapting to legal developments: "Cases turning on the interpretation of individual policies […] rarely reflect a dramatic and permanent change in the law. Insurers can respond by changing the wording of policies to negate, prospectively at least, the effect of an adverse judgment."[31] Moreover, no matter how liberally courts will interpret insurance contract terms, this will not extend coverage to excluded losses.[32] At present, it is difficult to imagine that private insurance could effectively compensate the insured in climate-related disasters because of clever policy exclusions, refusing to underwrite losses that seem reasonably predictable (or too costly and unpredictable) and unfavorable contract interpretations. Therefore, strong government compensation programs may be the only method that guarantees absolute protection for the insured. Legislation must be enacted and risks must be socialized to ensure that protection is extended to Canadians. Insurance law, however, remains a powerful mitigation strategy against climate change.

[29] This principle expands on the *contra proferemtem* rule, which construes any ambiguity in the contract against the party responsible for drafting it. See *ibid, Progressive Homes*, at para 24. The rule in *Marche v Halifax Insurance Co* authorizes a court to delete terms that are unreasonable on their face and in their application but only if there are legislative provisions guarantying this protection. See *Marche v Halifax Insurance Co*, 2005 SCC 6. The court must be empowered by legislation to make such a decision and these provisions mostly exist in the fire sections of insurance legislation, which offers no help to victims of storms and floods.
[30] *Reid Crowther & Partners*, [1993] 1 SCR 252, [1993] ACS no10 at para 38 [Reid Crowther].
[31] Brown & Seck, *supra* note 9, at p 8.
[32] *See Nichols v American Home Assurance Co*, [1990] 1 SCR 801. [Nichols]

3) Applying Insurance Law Principles to Climate Issues: The Duty to Defend and Indemnify

An insurer has a duty to defend and indemnify the insured under liability insurance contracts where the claim against the latter is within the scope of coverage. An insurer is required to act in the insured's best interest and avoid conflicts of interest when exercising the duty to defend.[33] The contract terms determine the actual nature and extent of the insurer's duty to defend and indemnify the insured in particular situations. In Canada, we have a trilogy of insurance cases that are concerned with an insurer's duty to defend an insured in lawsuits: *Nichols*, *Scalera* and *Monenco*. The key question to determining if there is a duty to defend is whether the insurer would have to indemnify the insured for the alleged harm. Rostein J explained this founding principle in *Progressive Homes*: "an insurer is required to defend a claim where the facts alleged in the pleadings, if proven to be true, would require the insurer to indemnify the insured for the claim."[34] In this process, the pleadings made by the plaintiff's are examined "to ascertain the 'substance' and 'true nature' of the claims".[35] The pleadings must disclose a cause of action against the insured that, if true, will fall within the scope of coverage and trigger the duty to indemnify.[36] The mere possibility that a claim under the policy may succeed would suffice to prompt the duty to defend.[37] Industries allegedly responsible for making significant contributions to climate change may face coverage challenges based on these principles. As demonstrated below, climate change damage may be excluded

[33] *Ibid*, *Nichols*, *Scalera supra* note 26, and *Monenco Ltd. v Commonwealth Insurance*, 2001 SCC 49, [2001] 2 SCR 699 [Monenco]. See also *Progressive Homes supra* note 20.
[34] *Progressive Homes, Ibid* at para 19.
[35] *Monenco supra* note 33 at para 35.
[36] *Ibid.*
[37] *Nichols supra* note 26 at para 17 and *Scalera supra* note 26, at para 80.

from coverage based on the intentional conduct exclusion, assuming an insurer can prove conduct was deliberate.

In *Steadfast Insurance Ltd v AEP,* an insurance law case related to *Kivalina*, the Virginia Supreme Court (hereafter Virginia Court) rendered a decision suggesting that companies emitting large amounts of GHG emissions are not covered for lawsuits initiated against them by victims of climate damages.[38] It began with Steadfast refusing an insurance claim from its insured (AEP), resulting from the *Kivalina* lawsuit. Steadfast's insurance policy stipulated that it would defend AEP in claims caused by an "occurrence", which more broadly meant an accident.[39] In 2011, the Virginia Court found that the insurance policy did not cover the insured for damages voluntarily caused to the environment.[40] This case has become an important demonstration of insurance law's restrictive interpretation of insurance policies dealing with pollution liability.

The approach to determine if an insurer has a duty to defend in Virginia is similar to the Canadian position.[41] To begin, Virginia uses the "four corners" test, which examines the consistencies between the coverage framed in the four corners of the insurance policy in question and the content found within the four corners of the complaint by the plaintiff in the original lawsuit.[42] The judges compare the policy with the plaintiff's claim to decide whether the insured's conduct is covered by the policy.[43] In *Kivalina*, the plaintiff's alleged AEP "intentionally" emitted GHG during their

[38] *The AES Corporation v Steadfast Insurance Company*, [2012] VA S Ct No 100764.
[39] *Ibid.*
[40] *Ibid.* at p. 18.
[41] Although the Supreme Court of Canada did not label their approach as a "four corners" test, they use the method of analysing the original statement of claim and the policy: see *Nichols supra* note 26, *Scalera supra* note 26, and *Monenco supra* note 33. See also *Progressive Homes supra* note 20.
[42] This is similar to the Canadian "pleadings rule" in the trilogy.
[43] *Steadfast*, *supra* note 38 at p 8.

operations.[44] Meanwhile, the policy covered AEP for damages resulting from an "occurrence", defined as: "an accident, including continuous or repeated exposure to substantially the same general harmful condition."[45] Kivalina did not expressly or implicitly allege that AEP's emissions were an "occurrence", or in simpler terms an "accident". Thus, the trial court determined that Steadfast had no duty to defend.[46] Following the decision, AEP filed a petition to the same Virginia Court for a rehearing on the grounds that this definition of the term "accident" would have serious negative impacts on the state of law concerning coverage for negligence in insurance policies in Virginia. In 2012, the Virginia Court affirmed the decision, reasoning that it is bound by the four corners principle. The Court explained that in certain circumstances negligence might be covered where an intentional act results in an unforeseen harm but[47] there is no coverage for harm that is "reasonably anticipated" or "the natural or probable consequence" of the insured's intentional act.[48] Therefore, what constitutes an "occurrence" within the terms of the policy could be based on the continuing effect of the insured's pollution-based conduct within the policy period.

The Court's decision to apply a narrow interpretation of "occurrence" appears contradictory to the established notion in insurance law that coverage terms are interpreted broadly.[49] If the interpretation of the insured's behavior is ambiguous,

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[44] "Client Alert: AES v. Steadfast", *Hunton & Williams*, April 2012, found online: <http://www.hunton.com/files/News/99f9ae50-1fc6-4fb6-8a74-e7d0e2b0463a/Presentation/NewsAttachment/2ca0bfb8-8887-4efe-b709-f03debb29f4c/AESvSteadfast.pdf>, at p1.
[45] *Ibid*. at p 9.
[46] *Ibid*.
[47] *Ibid*.
[48] *Steadfast, supra* note 38.
[49] Brown & Seck, supra note 9, at p 8. *Reid Crowther* at para 38; *Progressive Homes supra* note 20 at para 24; *Jesuit Fathers supra* note 26 at para 28

however, the courts could apply the reasonable expectations doctrine[50] to hold that both parties could not have anticipated that the insurer would be liable for such losses. In Canada, unlike the US, the reasonable expectations doctrine considers the intentions of both the insurer and insured.[51] This would have a greater negative effect on insured industrial actors because courts favor results that are more in keeping with the reasonable expectations of *both* parties. Therefore, an insurer could argue that it is absurd to think both parties expected the insurer to provide liability coverage in situations where the insured knowingly participated in conduct (i.e. pollution) that was effectively contributing to climate change.

An insurer is only responsible for the conduct covered by the policy. The insured cannot argue that their reasonable expectations were frustrated because the insurer misinterpreted a clause if the policy itself does not address the disputed conduct. For this reason, the objective of negotiating the policy before it becomes a contract is to identify the insured's desired coverage. Through these negotiations, the insurer seeks to avoid the effect of adverse selection and decline coverage, through the freedom of contract, for risks that they are unwilling to accept. The insured cannot remedy this situation through contract interpretations. In *Nichols*, the Supreme Court of Canada stated that the liberal interpretation of coverage terms could not be construed to force the insurer to defend claims that do not fall within the terms of coverage.[52] Thus, given the reality of climate change, insurers are likely to specifically exclude such losses from coverage or charge

[50] David P Vincent, "AES v Steadfast and the concept of foreseeability in climate change litigation" (2014) Env Law 44 201, at p 213.
[51] See *Reid Crowther ibid.* In *Consolidated Bathurst supra* note 20 at p 901, Estey J states that "the courts should loath to support a construction which would either enable the insurer to pocket the premium without risk or the insured to achieve a recovery which could neither be sensibly sought nor anticipated at the time of the contract".
[52] *Nichols supra* note 26, at para 20.

exorbitant premiums and thereby pressure industry players to lighten their liability insurance or behave in ways that are more aligned with the terms of the policy.

B. Insurers as Regulators: Compelling Behaviour Modification

Do insurers have the ability to act as a regulator by denying coverage for undesired conduct? Indeed, if insurers deny coverage to high-risk individuals who then have to adapt their behaviour in order to obtain insurance, it could be argued that insurers act as regulators or promote cautious behaviour. The impact of denying liability coverage to large industrial actors is significant to insurance law and the pursuit of market based climate change mitigation. The insurance industry has tremendous influence on social and economic behaviour by insisting that businesses and individuals conform to the terms of their policies. It is the largest industry in the world, generating (US)$3.2 trillion dollars annually,[53] and it accepts risks from every sector of the economy. I now turn to an examination of the insurance industry's influence and the possibility for insurers to offer mitigation mechanisms. I argue that insurance can act as a private regulatory system and that insurers are currently endeavouring to participate in mitigating harmful climate change behaviour.

1) Insurance and Climate Change Liability

Insurers have the market clout to keep other private actors from harming the environment. The *Steadfast* case demonstrates a shift towards refusing liability coverage for climate change lawsuits but the industry can also force private sector actors to attenuate climate risks by fundamentally changing business practices. Private sector

[53] Evan Mills, "Insurance in a climate of change." (2005) *Science* 309: 5737 1040 , at p 1040, online: <http://www.ncbi.nlm.nih.gov/pubmed/16099975>.

actors are becoming aware that their GHG emissions might attract lawsuits. Therefore, experts argue, insurers will rewrite insurance policies to apply pressure on the insured in order to reduce their liability and lower GHG emissions.[54]

Major industrial actors believe that climate change liability is a serious threat to their business. In 2008, the reinsurer Lloyd's conducted a global survey comprising of 183 board-level member executives regarding their concerns about liability. It found that 27% of leaders believed their businesses would face a wave of litigation claims due to climate damages in the future. The concerns of the private sector rise in tandem with the emergence of recent, albeit unsuccessful, climate change litigation to influence the behaviour of businesses.

Although plaintiffs have been unsuccessful in recent cases such as *Kivalina*, the threat of climate change litigation to businesses is real. Insurers will force their industrial clients to disclose GHG emissions and activities that are detrimental to the environment. In fact, Evan Mills' research on the insurance industry's quest to 'green' itself reveals that: "insurance regulators and investors are seeking climate-risk disclosure, compelling insurers to formally consider climate change in operational, business, and investment practices […] as climate science becomes more settled".[55] The forceful reduction of GHG emissions through limiting insurance liability coverage can be interpreted as a private system of behaviour modification and can constitute indirect regulation.

[54] Anastasia Telesetsky, "Insurance as a-Mitigation Mechanism: Managing International Greenhouse Gas Emissions through Nationwide Mandatory Climate Change Catastrophe Insurance" Pace Env L Rev 27:3 691, at p 705.
[55] Mills *supra* note 53, at p 1425.

2) The Industry's Broad Influence on Business and Policy

Historically, the insurance industry has helped society adapt to risk reduction strategies. A number of preventative measures are entrenched in people's behaviour as a result of the industry's influence on individuals and organizations to adopt safer practices. Examples range from the installation of smoke detectors in homes to seat belts in automobiles.[56] This influence has shaped public policy and there may be a similar role for the insurance industry in influencing responses to climate change risks.

For example, the Canadian insurance industry began to express concern about the impacts of climate change after the devastating New Brunswick floods of 2010.[57] The Insurance Bureau of Canada urged "… the public and governments to take the changing weather patterns seriously" and "… to rethink development policies".[58] A number of schools and businesses were forced to close for several days, causing major disruptions for the local economies in the province.[59] At one point during the flood, 120 roads were partially or fully flooded and some residents even had to leave their homes by canoe. [60] In the end, the total price tag amounted to roughly (CAN)$50 million[61] and insurers in that province are remapping flood prone areas.[62] According to a study by The Co-Operators, a

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[56] *Stormy Future for U.S. Property/Casuaity Insurers,* (2012), online: Ceres <http://www.ceres.org/resources/reports/stormy-future>, at p 6.
[57] "No insurance for most flood damage: expert", (December 23 2010) *Canadian Broadcast Corporation*, online: <http://www.cbc.ca/news/canada/new-brunswick/no-insurance-for-most-flood-damage-expert-1.905121>
58 "Climate change concerns raised by insurance industry", (Febuary 23 2012) *Canadian Broadcast Corporation,* online: < http://www.cbc.ca/news/canada/new-brunswick/climate-change-concerns-raised-by-insurance-industry-1.1265950>
59 "Storm closes N.B. schools, stops ferries", CBC News, December 14 2010, online: <http://www.cbc.ca/news/canada/new-brunswick/story/2010/12/14/nb-school-closures-624.html>.
60 "N.B. flood damage 'beyond imagination': Alward", CBC News, December 18 2010, found online: <http://www.cbc.ca/news/canada/new-brunswick/story/2010/12/17/nb-flood-waters-receding-in-southwestern-nb.html>.
[61] *Ibid*
[62] CBC *supra* note 58.

number of insurers agreed that the existing flood maps were inaccurate, outdated and inadequate[63] and that flood insurance will only become available in Canada if governments take steps to redevelop such maps.

Insurance institutions are some of the oldest and most powerful financial institutions in the world. Virgnia Haufler, an insurance scholar, affirms that the insurance industry's grasp on politics has historically been quite powerful: "The institutions of the insurance industry evolved in tandem with the centralization of political authority on the state; both could be seen as newly developing institutions of protection, with insurance essentially supplementing the still incomplete power of the state and vice versa."[64] Therefore, the state facilitates activities that conform to liberal economic principles and private insurance has become an important mechanism for promoting self-reliance. There has also been an evolving duality between the markets and governments within the neo-liberal environmentalist paradigm. Green legal theory (GLT) suggests that western governments implement laws that foster environmentally destructive market development while expecting other laws to correct this behaviour.[65] Therefore, GLT provides a critical perspective from which to consider how insurers may have the political and economic clout (i.e. the de facto 'regulatory' influence) to rival the power of the state to regulate GHG emissions. With regard to climate change, these institutions conduct large and expensive research projects and develop actuarially sound risk management strategies.

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[63] Jason and Blair Feltmate Thistlewalte, *Assessing the Viability of Overland Flood Insurance: The Canadian Residential Property Market*, (2013) online: < http://www.brookfieldrps.com/overland-flood-insurance/>.

[64] Virgina Haufler, Dangerous Commerce: Insurance and the Management of International Risk, 1997, (New York : Cornell University Press), at p 37.

[65] Michael M'Gonigle and Louise Takeda, "The Liberal Limits of Environmental Law: A Green Legal Critique" (2013) Pace Env L Rev 30:3 1005, at p 1076.

Insurers are interested in how climate change's risks affect their bottom line and this motivation applies pressure to the international and domestic political economy.

In particular, the reinsurer Swiss Re is vocal about climate change adaptation, suggesting that governments enforce regulatory policy, set building codes, regulate land use and perform other key enforcement functions.[66] Reinsurers have the capital to create expensive catastrophe models that are backed with complex actuarial data. The industry thus holds tremendous influence over governments since the latter might have difficulty accumulating the capital to advance such costly projects. There are many instances where reinsurers conduct extensive research to convince governments that policy changes are needed to further adaptation or mitigation development. For example, Swiss Re provided comprehensive research about the absence of a flood insurance program in Canada.[67]

C. Traditional Reinsurance and Insurance-Linked Securities

In the mid 19th century, a sophisticated insurance industry began to emerge in Great Britain (GB), helping that country to become the center of the world economy. To quantify the wealth of GB during this period, Virginia Haufler explains: "… the fifty years before the First World War saw the greatest outpouring of capital ever invested abroad by one nation." The congregation of global trade and finance in that country permitted the rapid growth of an enduring international insurance regime. For example,

[66] Andreas Spiegel, David Bresch, Reto Schnarwiler, "Weathering climate change: Insurance solutions for more resilient communities", 2010, online: Swiss Re < http://europa.eu/epc/pdf/workshop/2-3_pub_climate_adaption_en.pdf>,at p 17.
[67] G Oulahen & G McGillivray D Sandink, P Kovacs, *Making Flood Insurable for Canadian Homeowners: A Discussion Paper* (Toronto, 2010), online: Swiss Re < http://www.iclr.org/images/Making_Flood_Insurable_for_Canada.pdf>.

Lloyd's of London is the oldest reinsurer in the world, dating back to 17th century, and remains today a titan in its field.[68]

Reinsurance has therefore always been the fulcrum of the global insurance market.[69] The reinsurance industry is worth U.S. $4.6 trillion in revenues, equaling 7% of global gross domestic product.[70] Insurers have the market clout to influence behavioural modifications of market participants relying on insurance coverage as well as government policy. The insurers' desire to 'regulate' the market largely emanates from self-interest because undertaking behaviour that is conducive to climate change mitigation is beneficial to insurers. As illustrated above, the devastation of extreme weather and cumulative effects of climate change has impacted insurers' balance sheets. Therefore, insurers are keenly interested in the development of preventative strategies that can ultimately reduce GHG emissions and minimize extreme weather events and the resulting damage.[71]

The introduction of insurance-linked securities has permitted insurers to increase their buffers by sponsoring their own investments to attract investors. This method has helped insurers to carry more risk and can help insurers to respond to catastrophic events resulting in losses for their customers. Given that reinsurers operate internationally, their ability to spread risk is particularly important in a global phenomenon such as climate

[68] For a historical account of reinsurance see Patrick Richard J. Murnane, "Climate Research and Reinsurance" *Bulleting of American Meteorological Society*, May 2004, found online: < http://journals.ametsoc.org/doi/abs/10.1175/BAMS-85-5-697>, at p 698. In the 17th century, what is now Lloyd's of London began as a coffee house (an informal trading centre), where merchants could obtain information about shipment and purchase insurance for their own commercial-marine endeavours; *see The Early Days*, online: Lloyd's on London <http://www.lloyds.com/lloyds/about-us/history/corporate-history/the-early-days>.

[69] There are four (4) reinsurance leaders, actively involved in climate change issues: Swiss Re, Munich Re, Lloyd's of London and Hannover Re. http://www.insurancenetworking.com/news/reinsurers-rank-best-munich-swiss-hannover-30967-1.html

[70] Evan Mills, "Climate Change: The Greening of Insurance", (2012) *Science* 338 1424, online: <http://evanmills.lbl.gov/pubs/pdf/science-2012-mills-1424-5.pdf>.

[71] *Ibid.*

change disasters. However, there are practical and distributive issues within the reinsurance system that makes it operate in less than optimal ways. In this section, I discuss reinsurance mechanisms for spreading risk, problems with this system and theoretical considerations.

1) Traditional Reinsurance Mechanisms

The basic function of reinsurers is to offer insurance coverage to direct insurers, which allows the latter to spread its risks. Reinsurance allows direct insurers to shelter themselves from widespread losses resulting from paying out multiple claims due to disasters such as hurricanes and winter storms. For a price, direct insurers accept risk from the insured and may choose to offset a portion of those risks buy purchasing reinsurance. There are typically more premiums accumulated than claims paid out, thereby creating a buffer, separate from profits, that is invested into the capital markets. If there are investment earnings added to the buffer, it creates surpluses and pressures the price of premiums downwards. However, if the buffer is depleted, premiums are raised.[72] Therefore, premiums are associated with the level of risk of the insured but also with the performance of the capital markets. Thus, demand and risk coordinate the final market price of insurance.

In the case of catastrophic events, excess of loss insurance is commonly used to protect a direct insurer against heavy losses arising from a major natural disaster.[73] In this scenario, direct insurers can purchase reinsurance from a variety of reinsurers creating a

[72] World Bank and United Nations, *Natural Hazards, UnNatural Disasters: The Economics of Effective Prevention* (Washington: The World Bank, 2010), at p 142.
[73] "Financial Innovations for Catastrophic Risk: Cat Bonds and Beyond", *Financial Innovations Lab Report* (2008), at p 6.

diversified reinsurance program.[74] This method allows the direct insurer to spread the risk throughout different sources, which also prevents reinsurers from holding the entire financial burden.[75] A reinsurer must protect itself against insolvency because its wealth can be diminished by costly disasters. Eduardo Canabarro, vice president at Goldman Sachs, explains that a number of catastrophic events dwarfed the reinsurance markets total capital significantly two decades ago: "In the late 1980s and early 1990s, several large losses from U.S. catastrophes put large strains on the capacities of the reinsurance markets."[76] These disasters destabilized the reinsurance market and increased the price of premiums significantly. Reinsurers have created various mechanisms to transfer such large risks.

Reinsurers also craft innovative insurance-linked securities to lighten their financial burden and to stabilize premiums. Insurance-linked securities are instruments that diversify a reinsurer's risk portfolio by transferring risk to a pool of investors. There are various insurance-linked securities within capital markets but the catastrophe bond (cat bond) has gained widespread popularity amongst investors.[77] As of 2013, investors had $19.6 billion locked up in outstanding bonds (bonds that reinsurers have yet to pay back to investors).[78] Traditionally, bonds are safer investments compared to preferred shares because they have a guaranteed return and if default occurs (failure of the bond to pay all of its investors), bondholders are paid before stockholders. The issuance of a cat

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[74] *Ibid*.
[75] *Ibid.*
[76] Eduardo Canabarro, Analyzing Insurance-Linked Securities, (2000) *The Journal of Risk Finance*, online: <www.emeraldinsight.com>. In his comments about natural disasters, Canabarro is refering to an estimated total $100 billion in losses caused by Hurricanes Hugo and Andrew and the Northridge earthquake.
[77] National Association of Insurance Commissioners (US), "Insurance-Linked Securities: Catastrophe Bonds, Sidecars and Life Insurance Securitization",(2013), online : <http://www.naic.org/cipr_topics/topic_insurance_linked_securities.htm>.
[78] "Perilous paper", *The Economist* (October 5 2013), online: <http://www.economist.com/news/finance-and-economics/21587229-bonds-pay-out-when-catastrophe-strikes-are-rising-popularity-perilous-paper>.

bond is no different than a regular private bond: a reinsurer issues a cat bond within the market through an investment bank and thereafter it is sold to a number of investors.[79] In reality, the forces manipulating the performance of the cat bond are unorthodox: investors purchase a cat bond and if no catastrophic event occurs between the time the bond is issued and its maturity (the end of the bond term) they receive periodic interest payments. In the event that a catastrophe does occur, however, the principal is transferred to the issuing reinsurer and these funds are used to pay claims from their policyholders.[80]

The release of the funds are controlled by a number of 'triggers' written into the cat bond, which dictate whether the funds will be liquidated to the issuing reinsurer. The most commonly employed triggers are categorized as parametric and indemnity: the former is set to a weather event (or a number of events) and the latter is set to a stated amount, reflecting the losses of the reinsurer.[81] For example, a cat bond could state that funds will only be released to the issuing reinsurers once their losses reach $400 million. An indemnity trigger offers far less transparency to investors because it is based on the insurer's actual losses, creating a time lag between an event and the release of information on damages.[82] Conversely, a parametric trigger is set to specific occurrences in a catastrophic event, which make it very transparent. For instance, a threshold for a cat bond could be wind speed: The bond can state that funds are to be released once the winds of a hurricane reach 120 km. These triggers play an important role in whether or

[79] National Association of Insurance Commissioners, *supra* note 77.
[80] *Ibid.*
[81] The number of cat bond programs is growing in countries with complex and developed financial markets. Swiss Re and Munich Re have various such programs throughout the US. Canada does not currently take part in this aspect of the market. However, the 2013 Calgary floods prompted many experts to urge national insurers to sell cat bonds to help manage the risks from future natural disasters.
[82] *Supra* note 43 at p. 9. See also Kerinxen Christian Laux, "Catastrophe Bonds and the Competitive Effect of Information-Insensitive Triggers", (2009) *Journal of Risk and Insurance,* 76:3 1, at p 580.

not the funds are dispersed to the insurers. As discussed below, there are limits to the practicality of these instruments.

2) The Trouble with the Securitization of Risk

The dynamic and volatile nature of risk has forced insurance to become the most adaptable industry in the market economy. It is also arguable that the financial devastation from natural disasters prompted the industry to be even more adaptable; insurance contracts were created to underwrite the risks of seafaring merchants that ventured into vast and unpredictable waters and the creation of insurance-linked securities were prompted by the destruction of Hurricane Andrew in the 1990s.[83] The literature identifying the potential distributive or negative impacts of insurance-linked securities is very limited, presumably because the market is in its infancy.

In the last decade, cat bonds have been great investments but dubious relief funds. Their financial performance is directly linked to losses or events occurring from catastrophic events, not to fluctuations of capital markets.[84] As a result, instruments such as cat bond programs have navigated through turbulent investment markets since the 2008 financial crisis. For example, Swiss Re's Global Cat Bond Total Return Index delivered an annualized return of 8.56% from 2002 to 2013. In contrast, the Standard and Poor 500 annualized return during this period was 5.63%.[85] This stellar performance leads to an inevitable question: are cat bonds outperforming their initial purpose of holding and releasing funds for disasters? Indeed, *The Economist* has argued that the

[83] *The Economist, supra* note 82.
[84] There are multiple forms of catastrophe-risk based securities. For a better understanding of these securities see *supra* note 43.
[85] "Catastrophe bond spread payments outstrip losses by 12-1", *Artemis* (January 17 2014), online: <http://www.artemis.bm/blog/2014/01/17/catastrophe-bond-spread-payments-outstrip-losses-by-12-1/>

perilous nature of cat bonds has resulted in limited outcomes for insurers: "Over $40 billion in cat bonds have been issued in the past decade, with $19 billion now outstanding. This is a small fraction of the $300 billion in catastrophe-related payouts that insurers are theoretically on the hook for." At present, the cat bond market is relatively small and these shortfalls offer motivations for improving the mechanics of these securities.

The 2011 Tohoku earthquake further illustrates the limitations of cat bonds and the disbursement of funds. The earthquake was the costliest event of that year[86] and insurance firms were anxious to liquidate cat bonds to help respond to thousands of claims.[87] The financial impact of the catastrophe was very significant: "Even without considering the consequences of the nuclear accident, the economic losses caused by the quake and the tsunami came to US$ 210bn."[88] There was $1.7 billion dollars locked into the cat bonds[89] but their narrow legal framework limited the overall payout to the sponsors (reinsurers and insurers).[90] The cat bonds were dedicated to releasing funds for events occurring in particular geographical regions. Since the earthquake occurred mostly in rural areas only a single cat bond worth 300$ million was paid out.[91] The amount the

[86] "Review of Natural Catastrophes in 2011: Earthquakes in record loss year", (January 4 2012), online: http://www.munichre.com/en/media_relations/press_releases/2012/2012_01_04_press_release.aspx
[87] See David Indiviglio, "Does Japan's Earthquake Show That Catastrophe Bonds Are Useless?", *The Atlantic,* March 25 2011, Found online : <http://www.theatlantic.com/business/archive/2011/03/does-japans-earthquake-show-that-catastrophe-bonds-are-useless/73032/>.
[88] *Ibid.* See also Bryan Keogh, Oliver Suess & Jesse Westbrook, "The Trouble with Catastrophe Bonds", *Bloomberg Business Week Magazine* (April 21 2011), online: <http://www.businessweek.com/magazine/content/11_18/b4226055260651.htm>.
[89] *Ibid.*
[90] *Ibid.*
[91] *Ibid*

insurance firms received from the cat bonds was marginal, receiving less than 10% of the total investments.[92]

Typically, the insured is not directly affected by reinsurance contracts because insurers deal amongst themselves in the reinsurance market. The insurer remains fully liable for the insured's losses. The injection of insurance-linked securities into the reinsurance market increases capacity and diversifies (through insurance collateralization) a reinsurer's capital holdings. In other words, it strengthens the insurance market by helping to increase the claims funding buffer. As explained above, however, the performance of the capital markets can pressure reinsurance prices either to rise or fall. This theory is no different for insurance-linked securities. In fact, these investments have gained such momentum that they are expected to decrease the price of reinsurance in 2014.[93] Indeed, *The Financial Times* reported that in 2012, "the funding buffer above expected claims of the global reinsurance industry [had been] strengthened by $27bn to $205bn […]".[94] This significant increase in the industry's collective buffer was due to $9bn from insurance-linked securities. Experts indicate that interest in these investments is likely to grow in the coming years.[95] Insurance-linked securities contribute to raising adaptation funds for devastating extreme weather damages but their distributive effects on the industry and the economy must be monitored.

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[92] Bryan Keogh, Oliver Suess & Jesse Westbrook. "'Hole-in-One' Cat Bonds Are Top Asset Eluding Quake's Grasp", *Bloomberg* (March 22 2011), online: <http://www.bloomberg.com/news/2011-03-22/-hole-in-one-cat-bonds-rank-as-top-asset-eluding-japan-disaster.html>.

[93] "Reinsurance premiums to fall in 2014: Hannover Re CEO", *Artemis* (December 30 2013), online : http://www.artemis.bm/blog/2013/12/30/reinsurance-premiums-to-fall-in-2014-hannover-re-ceo/

[94] Alistair Gray, "Reinsurance investment pushes down prices for insurance companies", *Financial Times* (June 2 2013), online: <http://www.ft.com/intl/cms/s/0/fbea451a-ca2e-11e2-8f55-00144feab7de.html#axzz2r6fDo8uK>.

[95] Office of The Insurance Consumer Advocate of Florida, Media Release, "Consumer Advocate: Rate decisions should include falling reinsurance costs", May 5 2013, online: <http://www.myfloridacfo.com/ica/news/Article419.asp>.

As insurance-linked securities infiltrate the capital markets, the financial pressure caused by these instruments have significant impacts on premium distribution. For example, the state of Florida has had issues with direct insurers failing to adjust their premiums after a sharp 15% to 20% market-wide drop in reinsurance premiums.[96] In this instance, the Florida Office of the Consumer Advocate encouraged regulators to promote transparency and prevent Florida households from paying unnecessarily high insurance premiums. This example exposes an important flaw in the new reinsurance and insurance-linked securities paradigm: if regulators do not act when the price of reinsurance falls, direct insurers' profits increase instead of the savings being passed on to the consumer. In this equation, a significant decline in reinsurance price that is matched by an equal drop in direct insurance premiums could incentivize the consumer to purchase insurance they would otherwise be unable to afford. As indicated above, reinsurers are broadcasting a drop in reinsurance prices in 2014. Regulators should thus verify that consumer prices reflect the decline in prices.

Premiums should be affordable to encourage individuals to obtain insurance without compromising the ability of the insurance system to respond to claims. In this context, rate regulation has been explored as an option to balance these interests. Insurance price regulation, however, is not desired in the industry. In Canada, varying forms of rate regulation for automotive insurance have been introduced in several provinces.[97] However, there is no regulation for property insurance; the level of risk, calculated by actuaries, helps determine insurance prices. Also, as mentioned above, market forces greatly influence the prices of catastrophe-related property insurance. In

[96] *Ibid.*
[97] Craig Brown, *Insurance Law in Canada*, 6th student ed (Toronto: Thomson Carswell, 2006), at p 2-25.

this context, critics argue that rate regulation does not produce low or stable insurance prices because such regulation exacerbates the insurance cycle (including the supply and demand mechanism of the market and the actuarial science that insurers perform to calculate risk) and interferes with insurers' ability to price risks appropriately.[98] The Canadian, European and US governments have shown great deference to the industry by limiting its interference with insurance premiums.[99] Meanwhile, insurers in Ontario raised premiums by 20% in 2014 due to increasing catastrophic losses and weather-related claims.[100] The area of rate regulation, therefore, is one that policy makers must approach carefully, given the insurance industry's increasing reliance on insurance-linked securities to build wealth.

Experts also argue that insurance-linked securities threaten the stability of the insurance industry in general. Large investors such as the Ontario Teachers' Pension Fund and the New Zealand Superannuation Fund are lured to esoteric insurance-linked securities because of weak returns elsewhere in the capital markets.[101] These investors search for the highest yields in these markets, particularly in the US and Europe, and pour massive amounts of capital into insurance-linked securities. For example, the New Zealand Superannuation Fund has invested $275 million in insurance-linked securities since 2010.[102] As mentioned above, this has pushed down the price of reinsurance and, as a result, experts worry that risks are no longer appropriately priced. The chairman of Lloyd's of London even warned that an influx of capital into the insurance industry

[98] Jane Voll, "Rethinking Rate Regulation" (2005) *Canadian Underwriter* 76:6 28, at p 30.
[99] *Ibid,* at p 29.
[100] "Extreme weather driving up home insurance costs", *Canadian Broadcast Corporation,* (Jan 08 2014), online : http://www.cbc.ca/news/business/extreme-weather-driving-up-home-insurance-costs-1.2489075
[101] Gray *supra* note 94.
[102] Sarah Jones and Margaret Collins, "Pensions Muscle Into Reinsurance in Wagers on Catastrophe", *Bloomberg*, October 27 2013, online: < http://www.bloomberg.com/news/2013-10-28/pensions-muscle-into-reinsurance-in-wagers-on-catastrophe.html>.

would cause "systemic problems" resembling those of the banking sector during the 2008 financial crisis.[103] Moreover, when massive investment funds participate in the insurance-linked securities market, they risk losing enormous sums of money when a calamity occurs. Industry experts are uneasy that this rush of investment is leaving inexperienced investors at risk of large losses. Insurance-linked securities pose quite a dilemma for insurers because it threatens the stability of the industry (and to some extent, the economy) as a whole.

3) Theoretical Considerations on the Redistribution of Responsibility

The liberal rhetoric promoting risk propensity in the market legitimizes pooling investments to provide insurance. François Edwald argues there are two prevailing paradigms of responsibility: a responsibility paradigm that is solidaristic in nature and a liberal paradigm that places importance on self-reliance.[104] Insurance-linked securities do not fall within either category. These are funds designed to share responsibility for quantifiable risks amongst investors, pursuing their self-interests.

What is the level of responsibility that investors have towards insurance institutions? Investors that buy insurance-linked securities want to outperform the market and obtain the best possible interest yield. Therefore, there is no loyalty or responsibility to insurers because investors are merely financial contributors providing the former with capital to increase their funding buffer. This relationship illustrates the neoliberal method of distributing wealth through the capital markets, which are managed by large financial

[103] Alistair Gray, "Lloyd's chairman warns on 'systemic risk' of capital rush", *Financial Times*, September 4 2013, online : <http://www.ft.com/intl/cms/s/0/04b80c2e-15aa-11e3-b519-00144feabdc0.html?siteedition=intl#axzz2zex0ZvvO>.

[104] François Edwald, "The Return of Descartes's Malicious Demon: An Outline of a Philosophy of Precaution", in Tom Baker & Jonathan Simon, eds, *Embracing Risk: The Changing Culture of Insurance and Responsibility* (Chicago: University of Chicago Press, 2002), at p 273-274.

institutions. The funds within insurance-linked securities are disbursed to insurers once a calamity occurs (assuming that conditions permit these funds to be released) but otherwise investors accumulate interest payments. Large investment funds are predicted to stay in the insurance-linked securities market so long as high investment returns are guaranteed.[105] This cycle would be interrupted, however, after a large and costly catastrophe pushes the price of insurance upward. In this event, regular costumers would be reluctant to continue purchasing insurance investments because such circumstances create a yield drop in investments. Fortunately, while returns slowly diminish in insurance-linked securities, there may be alternative investments on the horizon promising attractive returns. This notion is personified through the iconic term 'hunt for the highest yield', which is an example of the neo-liberal credo that opportunism prevails over solidarity.

The securitization of risk naturally succumbs to the pressures of the capital markets instead of the insured.[106] Insurance-linked securities are highly sought after by large investors such as hedge funds, pension funds and large endowments, which seek refuge in insurance-linked securities because of poor returns elsewhere in the market. As discussed above, the infusion of investment capital from corporate funds into insurance institutions interferes with insurance premiums. The irony behind this arrangement is that purchasers of insurance products are unable to escape the intervention of corporate interests, thus interfering with the sacred notion of individual freedom that is central to liberalism. These pressures from the market undermine the pressing need for socializing

[105] Jones and Collins, *supra* note X.
[106] Martha McCluskey, " Risk and Redistribution of Social Insurance" in Tom Baker & Jonathan Simon, in eds, *Embracing Risk: The Changing Culture of Insurance and Responsibility* (Chicago: University of Chicago Press, 2002), at p 159

risk adaptation methods that are accessible to all individuals. The prevailing critique of neo-liberalism is that the interests of the majority are subordinated and tempered by the interest of a small investment class.[107] Thus, as a voluntary system of compensation, insurance has many issues affecting it that are out of the control of the insured. As such, the next chapter explores government intervention in responding to extreme weather events.

[107] *Ibid,* at p 166.

Chapter V: State Responses

Government is the logistical backbone of disaster response systems. Studies indicate that individuals rely heavily on government aid after a catastrophe and that public funding has accounted for the majority of disaster financial assistance.[1] For example, the federal government covered 75% of the losses from the 1998 Ice Storm in Central and Southern Ontario, Canada's second most costly disaster in history.[2] In the US, since Hurricane Katrina (2004) federal funds have paid for 70% of weather disaster financial assistance.[3] These costs indicate that governments bear a significant financial burden compared to private insurers, which are accountable solely to their clients. Federal governments must cover costs associated with provincial (or in the US, state) reimbursements for losses and projects to help mitigate future impacts from extreme weather. In this sense, governments manage a full range of disaster mitigation and adaptation related costs.

It is true that government has an important regulatory role in overseeing the activities of private insurers but it becomes an auxiliary institution of compensation when private insurers refuse or do not offer coverage for losses. In this sense, government becomes a *de facto* insurer of last resort for individuals and communities that are unable to receive compensation from their insurers.[4] The irony behind this paradigm is that liberalism emphasizes the pursuit of self-determination, fostering the supply of private insurance

[1] Tracy Lewis, "Self-Insurance against Natural Disasters '" (1989) *Journal of Environtal Econonimcs Management* 16 209.
[2] Paul Kovacs and Howard Kunreuther, "Managing Catastrophic Risk: Lessons from Canada" (March 23 2001), Paper presentation at IBC Earthquake Conference (Vancouver), at p 2.
[3] Jaison R. Abel, Jason Bram, Richard Deitz, and James Orr, *How Will We Pay For Superstorm Sandy?,* online: Federal Reserve Bank of New York, Liberty Street Economics <http://libertystreeteconomics.newyorkfed.org/2012/12/how-will-we-pay-for-superstorm-sandy.html#.U20xG61dUmY>.
[4] Peter J Beshar, Who Pays for Catastrophes (1 June 2013), *Consumer News Business Channel*, online: <http://www.cnbc.com/id/100780508>.

products for self-protection against misfortunes, but individuals ultimately rely on government *ad hoc* solutions when private insurance fails. Yet, there is an absence of comprehensive legislation governing climate and weather disaster issues. Canadian governments have not intervened in disaster insurance debates and consistently downplay the importance of introducing systemic legislation to counter the impacts of climate change.[5] Understanding this conundrum, and how it has shaped the character of the extreme weather responses, requires critical debate about government norms and practices and its relationship to environmental laws.

This section examines the capacity of Canadian governmental institutions (including parliament, provincial and federal governments) to respond to extreme weather and is informed by a broader discourse that draws on both the socialization of risk and Green Legal Theory (GLT) perspectives. In Canada, environmental laws are characterized by their pervasive discretion and weakness.[6] In contrast, extreme weather responses are geared almost entirely to forming ad hoc programs instead of proactive solutions. Financial protection for extreme weather events is not socialized through a social security system in Canada. Rather, private insurers are accorded great deference in determining how individuals protect themselves from these harms. As a last resort, financial assistance is offered through Disaster Financial Assistance Arrangements (DFAA) to provincial and territorial governments in the event of large-scale natural disasters where costs exceed the funds allocated by the provinces and territories for emergency management.[7] It was proposed in the previous chapter, however, that insurance acts as a

[5] David R Boyd, *Unnatural Law,* (Vancouver: UBC Press, 2012), at p 146.
[6] *Ibid.*
[7] Emergency Management: Recovery from Disasters, Government of Canada: Public Safety Canada website, found online: <http://www.publicsafety.gc.ca/cnt/mrgnc-mngmnt/index-eng.aspx>.

mitigation strategy because these institutions are mindful of their bottom line and refuse to underwrite risks that expose them to higher levels of liability. Indeed, governments should foster a market environment that is conducive to developing these strategies but that guarantees that risks are socialized and individuals are protected from the harms of extreme weather. To this end, it is important to raise the following questions: what are the adaptation and mitigation responses of Canadian government institutions? How do Canadian governmental responses compare to other industrialized nations? As explained above, Canadian public responses to extreme weather are shared between the private and public sector, with insurers as a first line of financial compensation. The applicable laws, however, are uncoordinated and have numerous contradictions and gaps. A number of extreme weather response systems exist in other developed nations that could inform Canadian policymakers.[8] Thus, by first determining the failures and successes of our governmental institutions, with regards to extreme weather, we may then compare our institutional responses. Our discussion begins with explaining the basic structures of Canadian federal government and provincial/territorial governments. Thereafter, it discusses the state of federal natural disaster law.

A. Basic Considerations in Government Natural Disaster Responses

In Canada, most sectors of the insurance industry are heavily regulated. For example, provincial governments control the automotive insurance industry to varying degrees, with some provinces providing their own insurance products and others governing private insurers to ensure consumer protection. The legislative oversight on private insurers is not as exhaustive, however, for compensation due to extreme weather

[8] It is important to note, disaster response schemes from nations of comparable economic status are discussed at the conclusion of the thesis project.

damages. The recent flooding disaster in Southern Alberta had many insurers outright refuse to honour numerous claims.[9] Canadians enjoy coverage for losses related to the wind, ice storms, hail and forest fires, which are included in most property insurance policies.[10] The lack of overland flood insurance offered in Canada, however, is characteristic of a broader failure to integrate climate change issues into insurance schemes. Governments have not taken adequate steps to mitigate environmental disasters and facilitate discussions with industry stakeholders about implementing measures to attenuate climate change. Moreover, it is difficult to imagine governments forcing private insurers to underwrite climate change risks that become less fortuitous. Therefore, in taking into account the interest of private insurers explained in chapter II, private insurance may not be an optimal mechanism for responding to climate disasters. As a result, it is important to consider socialized responses, including varying forms of public insurance. This section offers an introduction to the basic principles of Canadian disaster management by first explaining the Canadian insurance regulatory system. Next, the example of overland flood insurance is used to illustrate the absence of climate change in Canadian insurance law discourse. To conclude, Canada's principle method of disaster management, Disaster Financial Assistance Arrangements (DFAA), and its relevant legislation is defined.

[9] Jaquelin Nelson, "Alberta flood insurers forced to respond to angry 'name and shame' public backlash", *the Globe and Mail,* (July 16 2013) online: <http://www.theglobeandmail.com/report-on-business/insurers-seek-to-quell-pr-headache-after-alberta-floods/article13241484/>.

[10] *Prepare Yourself for Disaster*, online: Insurance Bureau of Canada <http://www.ibc.ca/en/Natural_Disasters/Protect_Yourself_from_Climate_Change/index.asp>

1) A Brief Note on Insurance Regulation

In Canada, insurance regulation is divided between federal and provincial authorities. At the federal level, the guiding legislation is the *Insurance Companies Act*[11] and the Minister of Finance (the Minister) is responsible for its administration. The Minister has jurisdiction over incorporation of federally incorporated insurance companies. The Superintendent of Financial Institutions (the Superintendent) supervises the activities of federally incorporated insurers and reports to the Minister.[12] The Superintendent wields considerable power over the industry since it has discretion to examine the affairs and the financial condition of an insurer.[13] Moreover, the federal legislation ensures that insurance institutions are financially solvent. An insurer's financial stability matters because it needs adequate funds to cover its clients' losses in the event of a misfortune. For these reasons, the *Insurance Companies Act* stipulates that insurers must have more assets than liabilities.[14]

In addition, the federally incorporated insurers together with provincially incorporated companies are subject to provincial legislation on how it conducts business within the province or territory.[15] Provincial and territorial legislation possess a firm grip over the industry because it governs the contractual relations between the insurer and insured.[16] Insurers are subject to the regulation of the provinces in which they do business. The provincial regulation also sets limits on the insurer's freedom to contract

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[11] *Insurance Companies Act*, SC 1991, c 47.
[12] *The Office of the Superintendent of Financial Institutions Act*, RSC 1985 c18 (3rd Supp), s 4(2)(c).
[13] *Ibid*, s 674.
[14] *Supra* note 11*,* s 515(1).
[15] See *Financial Institutions Act*, RSBC 1996, c 141 and the *Corporations Act,* RSO 1990, c C 38. There is also case law about the interaction between the provincial and federal laws regulating the industry: see *Canadian Western Bank v Alberta*, [2007] SCJ No 22, [2007] ACS No 22.
[16] See *ibid,* part 5 of the Ontario *Corporations Act* and *ibid*, part 2 of the BC *Financial Institutions Act.* A federal statute, however, governs marine insurance: *Marine Insurance Act*, SC 1993, c 22. See also Craig Brown, *Insurance Law in Canada*, 6th student ed (Toronto: Thomson Carswell, 2006), at chapter 1.

with the insured. Insurance regulation regarding the freedom to contract is designed to restore a balance between the bargaining power of the insured and the insurer. For these reasons, insurance contract forms typically have to be approved by the Superintendent of Financial Services or their equivalent in particular provinces or territories.[17]

Indeed, governments seek to resolve this imbalance by implementing regulations that favour the insured but climate change poses an incredible challenge for regulators looking to strike this balance. Assuming the scientific forecasts on climate change hold true, extreme weather events and incremental damages from climate change are foreseeable. Therefore, experts argue that insurers will begin to either reduce coverage for disasters or increase premiums, particularly in areas that are prone to natural disasters.[18] Governments would be hesitant to implement regulation that undermines insurers' ability to respond to disasters. As a result, governments create ad hoc programs to supplement the inadequacy or unavailability of insurance coverage for individuals that endure extreme weather damages.

2) Overland Flood Insurance in Canada

Flooding is the most common natural disaster in Canada.[19] Insurers offer some forms of sewage back-up flood insurance that protects clients from basement water damage but do not offer overland flood insurance, which is caused by heavy rainfall or a rise in river flow. The Insurance Bureau of Canada argues that overland flooding only affects a small percentage of Canadians and since the purpose of insurance is to spread

[17] See *Insurance Act*, RSO 1990, cI8, s 227 and *Insurance Act*, RSNS 1989, c 231, s 108.
[18] Nelson, *supra* note 9.
[19] Jason and Blair Feltmate Thistlewalte, "Weather Hardening Flood Insuranee", *Canadian Underwriter* (2013), at p 42.

risk, insureds that are not affected by floods "cannot be expected to share in the costs".[20] Presumably this would raise insurance premiums for homeowners in the most vulnerable flood areas. As such, governments typically cover damages due to floods through a DFAA, whereby victims of flood damage file a claim to the federal government for financial compensation. The literature on Canadian overland flood insurance is not extensive and few experts produce empirical research on the viability of providing such insurance. Even after the devastating floods of southern Alberta (2013) and the Greater Toronto Area (2013) governments continue to avoid using these events to initiate broader discussions about weather patterns and insurance regulation. Governments show great deference to the private insurance industry to determine the state of overland flood insurance but the industry demonstrates little interest in resolving the absence of such insurance. Jason Thistlethwaite and Blair Feltmate conducted a study on the viability of overland flood insurance, finding mixed opinions from private insurers:

> Opponents argued that flooding was not an insurable peril, and the costs of adding an additional layer of risk onto existing property policies, which are already exposed to growing losses, outweighed the benefits. Proponents argued that a product could be designed in a way that made flooding insurable, with the potential to anticipate customer demands, generate additional revenue, and mitigate regulatory and reputational risk linked with the existing gap in coverage.[21]

The discussion on overland flood insurance in Canada is stagnant. Governments have not shown interest in initiating widespread consultations with industry stakeholders (such as consumers, insurers and relevant government departments) and private insurers

[20] *Flooded? : Here's what you need to know*, (2013) online Insurance Bureau of Canada: < http://www.ibc.ca/en/home_insurance/documents/brochures/flooded_en.pdf>, at p 2.
[21] Thistlewalte and Feltmate, *supra* note 19, at p i. These scholars were some of the first to conduct such extensive research on this topic. The debate on whether overland flood insurance is viable in Canada has been met with great resistance from the majority of industry actors. Therefore, there is very little dialogue on this issue.

must fill this void by mandating specialists like Feltman and Thistlewaite to conduct much-needed research. For its part, the federal government allocated (CAN)$3 billion in the 2014 federal budget for natural disasters because of the devastation caused by the 2013 floods.[22] It is arguable, however, that part of this money would be better utilized organizing consultations to discuss potential flood mitigation and adaptation projects or fund research on the implementation of mitigations mechanisms. The federal government has a number of suitable examples to choose from, given that all other G8 countries have functioning flood insurance programs (see below).[23] Insurers have long argued that flood insurance is not viable because it only poses a risk for a small percentage of the population.[24] However, major overland floods are increasingly destructive and pervasive in Canada. Therefore, socializing the risks by creating a public overland flood insurance system is in the interest of governments, given that there is no consensus within the market about its viability as an insurance product and governments must consistently cover losses resulting from these events, and do so on an ad hoc basis with no related ability to manage these risks.

The absence of overland flood insurance illustrates the Canadian government's broader lack of interest in creating tangible climate change responses. This argument is reinforced by Canada's weak and discretionary environmental laws, which permit rather than protect environmental destruction. Legal scholars David R. Boyd and Michael R. M'Gonigle argue that Canada's environmental performance lags behind other nations in

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[22] John Wingrove**, "**Thirteen must-know items from the 2014 federal budget", (February 11 2014) *The Globe and Mail*
<http://www.theglobeandmail.com/report-on-business/economy/2014-federal-budget-canada-canadian-jim-flaherty-highlights/article16789139/.>
[23] Thistlewalte and Feltmate, *supra* note 19*,* at p iii.
[24] *Ibid.*

terms of environmental protections.[25] In the context of extreme weather: How do the laws that govern our responses to natural disasters perform against catastrophes? Boyd and M'Gonigle offer important foundations to discuss the strengths and weaknesses of such 'natural disaster laws'. An introduction to the relevant legislation is offered in the following paragraphs.

3) Laws Governing Natural Disaster Responses in Canada

The Disaster Financial Assistance Arrangement (DFAA) program is the Canadian government's vehicle for responding to natural disasters. This is a simple and functional program that funds provinces/territories for losses that result from natural disasters, so long as the requests for funding fall within the appropriate requirements. Funds are delivered through a cost-sharing (between the federal and provincial/territorial governments) reimbursement mechanism to cover extensive property damages or disruption of the delivery of essential goods and services.[26] These programs work in unison with the provincial/territorial disaster financial arrangements; funds are transferred from the federal DFAA to the respective provincial/territorial version of the program and the latter determines its own methods to deliver aid and how to allocate resources. Insofar as this comes from general tax revenue, there is no regulatory effect. The DFAA program receives its authority from the *Emergency Management Act*[27] and falls under the Minister of Public safety's area of responsibility. The provinces/territories must request financial assistance from the DFAA program that becomes available once

[25] See David R Boyd, *Unnatural Law,* (Vancouver: UBC Press, 2012), at p 6 and Michael M'Gonigle and Louise Takeda, "The Liberal Limits of Environmental Law: A Green Legal Critique" (2013) Pace Env L Rev 30:3 1005.
[26] *2011-2012 Evaluation of the Disaster Financial Assistance Arrangements Program* (2012), online: Public Safety Canada <http://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/vltn-dsstr-fnncl-ssstnc-2011-12/index-eng.aspx>, at p 1.
[27] *Emergency Management Act,* SC 2007, c 15.

their expenses surpass the resources allocated in their own respective disaster assistance programs. [28] Therefore, an individual seeking financial help must submit a request through their province's disaster assistance program and has no direct interaction with the federal structure. Altogether, the federal DFAA program functions as a bureaucratic funding apparatus.

Provincial/territorial disaster programs vary in sophistication. For example, the British Columbia Disaster Financial Assistance Program offers financial assistance for harm to persons or property caused by natural disasters. [29] The statutory authority for this program is the *Emergency Program Act*[30] and the guiding regulation for receiving compensation is the *Compensation And Disaster Financial Assistance Regulation*.[31] The amount that individuals receive depends on the government's evaluation of the harm; therefore, the program rarely covers the entirety of the loss. The regulation stipulates that costs from damage are not covered if insurance was "reasonably and readily available" and that costs must be essential to a home, livelihood or community (such as roads and bridges).[32] The BC program covers only the reasonable costs associated with a natural disaster and it does not include any mitigation or preparedness functions. To a large extent, all forms of provincial/management disaster emergency management have a similar design to that of the BC program. These can be defined as *ad hoc* funding programs, rather than a structured program that also considers and implements preventative strategies and effective responses to natural disasters.

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[28] Public Safety Canada, *supra* note 26.
[29] *Disaster Financial Assistance Program*, online: Emergency Management BC <www.pep.gov.bc.ca/dfa_claims/dfa.html>, also see Brown *supra* note 16, at p 12.
[30] *Emergency Program Act*, RSBC 1996, c 111.
[31] *Compensation And Disaster Financial Assistance Regulation,* BC Reg 206/2006, s 8(1). [The regulation]
[32] *Ibid.*

B. The State of Canadian Natural Disaster Law

GLT scholars argue that laws and their ideological framework (liberalism) in western societies tend to contradict their alleged commitment to environmental sustainability.[33] The struggle caused by the tension between economic growth and environmental quality leads to ineffective and unreliable environmental protection regimes. This observation is supported by Boyd's assessment of the troubling nature of Canada's basic environmental laws: "Environmental law is predominantly discretionary, not mandatory, and enforcement is generally lax, although more people die from pollution in Canada every year than from homicides."[34] Similarly, Canada's natural disaster laws and policies are hollow, lacking 'systemic' responses that include mitigation and adaptation provisions. Generally, experts argue that a natural disaster program should accurately reflect these two fundamental policy responses to climate change.[35] DFAAs embody some relevant adaptation qualities, including intergovernmental collaboration and operational funding mechanisms, but do not exhibit the legal and ecological complexities required to build effective natural disaster responses. The inadequacies of Canadian natural disaster laws are characterized by structural and systemic weaknesses in that they are fragmented across legislative and political lines and they fail to integrate basic principle of mitigation.

[33] M'Gonigle and Takeda *supra* note 22 at p 1007.
[34] *Supra* note X, at p 292.
[35] Dan Henstra Gorden McBean, *Climate Change and Extreme Weather: Designing Adaptation Policy: Background Report* (Burnaby, British Columbia, 2009), online: Simon Fraser University <http://act-adapt.org/extreme-weather/>, at p 10.

1) Fragmented Nature of Natural Disaster Laws and Resource Allocation

The ensemble of Canadian natural disaster laws is fragmented and uncoordinated, leaving Canada without a structure charged with integrating comprehensive emergency management. Research conducted by a federal parliamentary committee indicates that a lack of funding and policy initiatives in this sector of Canadian government is pervasive.[36] Moreover, as the current government fails to seriously address climate change issues, the efforts to build an effective response to natural disasters, that include mitigation and adaptation mechanisms, are unlikely. The rejection of the Kyoto Protocol has stunted efforts to attenuate GHG emissions. The federal Conservative party promised a Clean Air Act to improve air quality and diminish contributions to climate change. However, as of 2014 there is no new regulation.[37] Thus, Canada's natural disaster regime is not supported by legislation that aims to attenuate the threat of climate.

Research also shows the pitfalls of legislators prioritizing private sector interests over environmental protection and extreme weather responses.[38] In Canada, adaptation efforts for catastrophes are shared between the private and public sectors: whatever losses are not covered by private insurance, the government may pay the outstanding costs. However, funding for disaster risk reduction remains relatively low compared to the scale of spending in other areas that promote economic growth, such as natural resource

[36] "Emergency Preparedness in Canada: How the fine arts of bafflegab and procrastination hobble the people who will be trying to save you when things get really bad", (2008) Senate Committee on National Security and Defence, at p v.
[37] Boyd, The Right to a Healthy Environment, *supra* note X, at p 154.
[38] BlueGreen Canada, *More Bang For our Buck: How Canada Can Create More Energy Jobs and Less Pollution* (Toronto, 2012), online: <http://bluegreencanada.ca/sites/default/files/resources/More%20Bang%20for%20Buck%20Nov%202012%20FINAL%20WEB.pdf>. See also, Ombudsperson Of British Columbia, *Striking A Balance : The Challenges Of Using A Professional Reliance Model In Environmental Protection-British Columbia's Riparian Areas Regulation* (Victoria, British Columbia, 2014), online:. < https://www.ombudsman.bc.ca/images/resources/reports/Public_Reports/Striking_a_Balance_Report.pdf>.

extraction and energy. This spending directly affects compensation and mitigation for damages caused by climate change. Instead of taking preventative measures to limit future damages, governments promote these sectors of the economy without a balanced integration of the associated costs. Massive amounts of government funds are funnelled to projects that exacerbate the issue of climate change, contradicting the minimal efforts to create adaptation and mitigation responses. For example, in 2006 the federal budget allocated (Can)$58.5 million to Public Safety Canada for emergency management but it failed to spend a third of that money over the next two years.[39] These are the only funds allocated to technological advancements in disaster risk reduction and climate change adaptation and the share of funding to natural disaster responses was trivial given that Public Safety Canada is responsible for a plethora of other matters, including terrorism and pandemics. In contrast, the petroleum industry receives (Can)$1.3 billion annually in subsidies from the federal government.[40] The Alberta oil sands are the fastest growing source of Canadian GHG emissions and rank third in the world for its oil reserves behind Saudi Arabia and Venezuela.[41] The prioritization of the energy sector demonstrates the contradictory approach to managing climate change impacts.

2) Missing Principles: Mitigation

The best adaptation method for climate change is through the implementation of sound mitigation provisions. There are examples of other federal disaster response programs that offer alternative methods of mitigation. For example, the Federal

[39] Auditor General of Canada, *Report of the Auditor General of Canada to the House of Commons* (Ottawa, Ontario, 2009), p 11.
[40] BlueGreen, *supra* note 208, at p 1.
[41] *The World Factbook*, online : Central Interllengence Agency < https://www.cia.gov/library/publications/the-world-factbook/fields/2116.html>.

Emergency Management Agency (FEMA) in the US covers adjustments for hazard mitigation to attenuate future damage for homes affected by disasters.[42] DFAAs offer purely reactive mechanisms that neglect the importance of introducing preventative measures against climate change. The federal and provincial governments reported the proposal of a National Disaster Mitigation Strategy that implements such strategies.[43] In 2014, however, the Canadian government had yet to support legislation or programs for the National Disaster Mitigation Strategy's implementation or funding.[44] The government's failure to follow through with a robust mitigation program shows a lack of commitment towards improving or avoiding climate change damage.

Information management and communication, education and training, public awareness are all part of mitigation strategies. Yet, the risk stemming from extreme weather is merely a footnote in the everyday affairs of the average Canadian family until a disaster materializes. A recent study from J.D. Power and Associates claims that only 35% of Canadians have some form of added flood coverage.[45] How good is this coverage given the difficulty of compensating victims of such disasters? Furthermore, Blair Feltmate stated that: "surveys from before the events [floods] in Calgary and Toronto demonstrated that about 70 per cent of Canadians believed that they were covered for

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[42] Brown *surpa* note 16, at p 14 . See also Jim Chen and Daniel Faber, *Disasters and the Law*, (New York: Aspen Publishers 2006), at p 25.

[43] *National Disaster Mitigation Strategy* (2008), online: Public Safety Canada < http://safecanada.ca/cnt/mrgnc-mngmnt/dsstr-prvntn-mtgtn/ntnl-dsstr-mtgtn-strtg-eng.aspx >.

[44] Jim Bronskill, "Lack of national disaster mitigation plan prompts 'criticism': federal notes", online: *Maclean's* <http://www.macleans.ca/news/lack-of-national-disaster-mitigation-plan-prompts-criticism-federal-notes/>.

[45] "Many Canadians are Under-Insured or Not Covered From Catastrophic Loss From Earthquake or Flooding", (9 November 2012) online: J.D. Power and Associates <http://autos.jdpower.com/content/press-release/8wzXBon/2012-canadian-home-insurance-study.htm>. It is important to note the flood coverage in this statement is interpreted as sewer backup protection since over-land flood insurance is not offered in Canada. There are parallels between this flooding insurance and earthquake insurance in BC where the premiums are set totally according to how much the market will bear rather than actual risk, and with no effect on how buildings are constructed. See Richard Ericson et al, "The Moral Hazards of Neo-Liberalism: Lessons from the Private Insurance Industry" (2000) 29 Economy & Society, 532, at p 547.

overland flood insurance."[46] The DFAA program in Canada has no procedures to inform Canadians about prospective disasters. In a 2005 United Nations report,[47] the Government of Canada indicated that it did not have a disaster risk information management system.[48] Although the federal government created *The Canadian Disaster Database,*[49] which records data from previous disasters, and websites with rudimentary information on climate change,[50] it has yet to ensure that Canadians are informed about the threats of climate change and natural disasters. These threats are not prevalent in the national discourse and the Canadian government has not produced a climate report that traces climate change impacts since 2007.[51] Policies ensuring that the public is educated about the potential threats of climate change and natural disasters have been introduced in other developed nations. For example, the Shared Environmental Information System is an initiative of the European Union to construct an electronic information system that is made readily available to decision-makers and other users in an open and transparent way.[52] It provides regional and national governments with real-time environmental data, which allows them to disseminate this information to the general public and make important decisions. This project offers a successful model for Canada to emulate.

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[46] "Flood insurance that isn't there when you need it", September 26 2013, online Canadian Broadcast Corporation: <http://www.cbc.ca/news/business/flood-insurance-that-isn-t-there-when-you-need-it-1.1869651>.

[47] World Conference on Disaster Reduction, "Prepared for the International Strategy for Disaster Reduction", (Japan 2005), online: United Nations Office for Disaster Risk Reduction < http://www.unisdr.org/2005/mdgs-drr/national-reports/Canada-report.pdf>.

[48] It is important to distinguish information dissemination about disasters from early warning systems, whereby regional governments have systems in place to warn people of near and imminent threats.

[49] Public Safety Canada, online: The Canadian Disaster Database < http://safecanada.ca/cnt/rsrcs/cndn-dsstr-dtbs/index-eng.aspx>.

[50] *Canada's Action on Climate Change*, online: Government of Canada <http://www.climatechange.gc.ca/default.asp?lang=En&n=20A201A3-1>

[51] *From Impacts to Adaptation: Canada in a Changing Climate*, online: Natural Ressource Canada <https://www.nrcan.gc.ca/environment/impacts-adaptation/assessments/10031>.

[52] *Shared Environmental Information system*, online: European Commission, Environment <http://ec.europa.eu/environment/seis/>

3) Missing Principles: Accountability for Carbon Consumption

GLT scholars highlight the importance of considering production and consumption patterns in our economy while designing laws to combat the increasing threat of climate change. Michael M'Gonigle and Louise Takeda write:

> While conservation measures and environmental regulations might mitigate some of the worst impacts of energy production, whether biofuels or oil and gas, they do nothing to challenge the environmentally harmful goals of expanded production and increased consumption. [53]

This concept will be Canada's greatest challenge in shaping new laws and institutions that deal with extreme weather. This endeavour requires a paradigm shift in climate change law. The goal of climate change law is to address issues regarding carbon emissions. It emphasizes the efforts governments, businesses and individuals can undertake to contribute to carbon reduction.[54] Although, these struggles are necessary and environmental lawyers have accomplished a great deal to curb the impacts of climate change, the "systemic culprit" is the carbon consumption "that underlies the growth economy"[55] Such a change in the approach of climate change law would prioritize issues regarding consumption patterns (industrial and individual) over production patterns. For this reason, systemic responses to extreme weather must incorporate policies that address the level of fossil fuel consumption. Without proper mitigation, adaptive measures to climate change could become ineffective. The legal changes needed to alter our society's consumption patterns must not only originate from our formal laws but from our cultural practices. Our study of the current liberal economic order indicates that the pursuit of

[53] Michael M'Gonigle and Louise Takeda, *supra* note 22 at p 1034.
[54] Michael M'Gonigle & Paula Ramsay, "Greening Environmental Law: From Sectoral Reform to Systemic Re-Formation" (2004) J Environ Law Practice 14, at p 337.
[55] *Ibid*, at p 338.

self-interest acts as a "culturally constitutive mode of regulation".[56] Individuals make consumption choices based on their desires and producers are incentivized, by the prospect of wealth accumulation, to meet those demands. The prospect of creating this cultural shift may be difficult to envision given the strong political views against climate science and politicians refuting the evidence pertaining to its impacts.[57] Regardless of the political and cultural hindrances, I argue that comprehensive polices addressing carbon production and consumption is necessary to create effective extreme weather responses.

C. Future Directions for Government Responses

The path to building a comprehensive response system to climate harms would undoubtedly be arduous. As demonstrated above, Canada's extreme weather responses are largely inconsistent. Assuming the scientific evidence about climate change holds, climate disaster events will continue to increase in frequency. In this context, Canada is at a turning point since it has little infrastructure in place to deal with climate damages. Therefore, there is a need to socialize these risks through effective mitigation and adaptive measures. There are various examples to guide Canadian efforts on socializing climate disaster risks. The objective of this section is to examine models that pool multiple catastrophic risks into structured and cohesive response programs. This is particularly relevant given that Canada suffers losses from various catastrophic events such as floods, ice storms and forest fires. There are three applicable categories for these models: fully public regimes, public-private insurance regimes and compensation funds based on strict liability.

[56] Michael M'Gonigle and Louise Takeda, *supra* note 22 at p 1063.
[57] *Ibid.*

Unfortunately, none of these perfectly integrate mitigation measures and often lack comprehensive coverage. On the one hand, I argue that governments need to take responsibility for part of the damages and effect measures to mitigate the impacts of climate change. This claim is aligned with GLT principles, since governments are responsible for facilitating the growth dynamic responsible for anthropocentric climate change. On the other hand, responsibility for such risks must be shared between government, private actors and individuals. This argument is consistent with the socialization of risks. To properly synthesize a response system that both compensates victims and attenuates the impacts of climate change, the liberal notion of self-reliance must be challenged to allow state intervention. The following models, although imperfect, provide a roadmap for creating a model that encompasses accountability and compensation.

1) Fully Public Regimes

Fully public insurance catastrophe models vary between voluntary and mandatory adhesion. These regimes are typically designed to serve solidaristic and collective risk sharing functions. For example, the Spanish *Consorio de Compensacion de Seguros* (CCS) was established to help with the costs of reconstruction of the Spanish Civil War.[58] It was later transformed to deal with natural and human induced catastrophes in the 1950s. Coverage for natural disasters is offered through the CCS and participation in the insurance program is mandatory for homeowners and other individuals. Disasters such as

[58] Youbaraj Paudel**. "**A Comparative Study of Public—Private Catastrophe Insurance Systems: Lessons from Current Practices", (2012) *The Geneva Papers* (2012) 37**,** 257–285, at p 266 online: <http://www.palgrave-journals.com/>.

flood, pandemics and earthquakes are covered through the CCS.[59] Premiums are collected through insurers on behalf of the CCS and then added to a reserve fund for paying losses. In Switzerland, state insurance for natural disasters is compulsory. Coverage is offered as an extension of property and casualty insurance by state institutions known as Cantonal Insurance Monopolies.[60] Premiums are collected through insurance contracts and added to a publicly owned reinsurance pool.[61] The funds are used to pay for losses are disbursed from this pool. Both these systems use traditional insurance methods to cover catastrophic risks but are characterized as being public systems. However, similar to public-private partnerships presented below, the Spanish and Swiss systems do not integrate mechanisms that collect funds from polluting industries.

2) Public-Private Arrangements

There are various natural disaster regimes that function under a public-private shared basis. These partnerships typically entail cost sharing between the government and insurers. The New Zealand natural catastrophe regime exemplifies this approach. Earthquakes, volcanic eruptions, tsunamis and floods are a major threat to the country. Coverage for such risks are restricted to (NZ)$100 000 for residential property and (NZ)$20 000 for contents.[62] If homeowners want extra coverage they must obtain it through a private insurer. Coverage is available only to those who have purchased homeowners insurance in the private market. This requirement is aligned with the liberal

[59] *Scope of Activity*, Extraordinary Risks, online: *Consorio de Compensacion de Seguros*, <http://www.consorseguros.es/web/ad_re_fy>.
[60] Paudel, *supra* note 56 at p 265.
[61] *Ibid.* at p 266. The reinsurance institution that Switzerland uses is the Interactional Reinsurance Union.
[62] *Earthquake Commission Act* 1993 (NZ), 1993/84, s 18 (1)(c). The premium for the private earthquake insurance includes a levy payable to the government insurer for the disaster coverage.

notion that individuals should be self-reliant and limit their dependence on government. In this scenario, the government is an insurer of last resort but only for those that participate in the market. Thus, in the case of an earthquake causing more than (NZ)$100 000, the private insurer is liable for losses exceeding this amount.[63] The New Zealand model demonstrates the cost-sharing approach found in public-private partnerships. However, this model does not encompass a mechanism by which industries are levied to share a portion of the cost resulting from their emissions. In addition, only homeowners are compensated in this regime and businesses and the uninsured still face hardships in the aftermath of a catastrophic event. Thus, New Zealand is not an example of a comprehensive system.

An alternative form of private-public partnerships is one that provides coverage for individuals through government programs but that transfers a significant portion of the financial responsibility to reinsurers or the capital markets. The Government of Mexico has been at the forefront of developing such complex and comprehensive disaster management systems. Mexico is exposed to a number of increasing catastrophic perils including floods, hurricanes and earthquakes. The Fondo Nacional para el Desarrollo Nacional (FONDEN) is Mexico's principle source of disaster funding and management. FONDEN's mandate is threefold: it finances immediate and urgent disaster relief for affected individuals, it funds post-disaster assistance for reconstructing public infrastructure (including education, health and roads) and it finances the rehabilitation of low-income housing.[64] It covers financial losses resulting from floods, tropical cyclones and storm surges. In 2006, a federal law committing an annual percentage of no less than

[63] *Ibid.* s 20 (a).
[64] FONDEN: Mexico's Natural Disaster Fund- A Review, (2012) online: The World Bank <https://www.gfdrr.org/sites/gfdrr.org/files/publication/FONDEN_paper_M4.pdf>, at p10

0.4 percent of the budget to FONDEN was introduced to address a shortfall in disaster funding. [65] Funds are transferred to FONDEN from the Federal budget to execute a multitude of *ex ante* mitigation and *ex post* reconstruction based projects.[66] In contrast to the approach in Canada whereby the DFAA transfers funds to the provinces, FONDEN resources are disbursed through federal agencies. Decisions are made after a disaster to determine the local infrastructure that will be financed with FONDEN resources.[67] The remainder of the infrastructure, not covered by FONDEN, is the responsibility of the local or state-level government. As a preventative measure, FONDEN resources are put towards utilizing state of the art technology to produce and assess risk data.[68] This allows governments to monitor risk exposure to public infrastructure and vulnerable populations.

The Mexican approach to disaster management is perhaps best known for its creative use of capital markets. The federal government transfers some of the financial responsibility for catastrophic risks through insurance linked securities instead of solely relying on FONDEN's budget for natural disasters. In 2006 it was the first federal authority to create and sponsor the issuance of cat bonds.[69] These insurance linked securities allowed the Mexican government to pool multiple large-scale risks and provide loss payments in the aftermath of a disaster. Similar to other cat bonds, the funds in the Mexican MultiCat bond program are released by parametric triggers, including wind

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[65] *Ibid,* at p 7.
[66] *Ibid*., at p10. The federal budget also allows for exceptional allocations to FONDEN from the state's oil surpluses.
[67] *Ibid.,* at p 27.
[68] Improving the Assessment of Disaster Risks to Strengthen Financial Resilience Washington "Disaster Risk Management in Mexico: from Response to Risk Transfer" (2012), online: <http://www.gfdrr.org/sites/gfdrr.org/files/Overview_Message_from_G20_Presidency_Message_from_World_Bank_and_Executive_Summary.pdf>.
<http://www.gfdrr.org/sites/gfdrr.org/files/Overview_Message_from_G20_Presidency_Message_from_World_Bank_and_Executive_Summary.pdf>, at p 20.
[69] *Ibid*., at p 7.

speed and earthquake force. FONDEN also uses traditional reinsurance to cover shortfalls from major disasters but cat bonds add another layer of protection. In this sense, Mexico uses a myriad of financial instruments including federal budget allocations, reinsurance and the capital markets to cover losses from major disasters.

In chapter IV, I explored the theoretical considerations of transferring financial responsibility to the capital markets for disaster risks. In summary, I argued that insurance linked securities might be a suitable method to transfer large catastrophic risks but do not encompass principles of responsibility or accountability. That same argument applies to governmental cat bonds. Indeed, the FONDEN model incorporates practices that are compatible with the socialization of risks. Namely, it guarantees that funds are disbursed to public entities and individuals that require financial assistance. FONDEN also offers important risk prevention strategies including local community educational programs and the identification of vulnerable populations. However, there is no element of accountability in the FONDEN model. Transferring risk to the capital markets does not address the broader issue of reducing carbon consumption. The Government of Mexico and FONDEN's efforts could become futile if it does not address its air pollution problems. In 2008, Mexico's air pollution was responsible for over 15000 deaths in that country.[70] Rapid economic growth and vehicle emissions are largely responsible for this

[70] "Air Quality in Latin America: An Overview", online: Clean Air Institute <http://www.cleanairinstitute.org/calidaddelaireamericalatina/summary-airquality-la.pdf>, at p 2. Mexico has dramatically improved its air quality in recent years. Nonetheless, it is still an important issue that requires further attention. See Anne-Marie O'Conner, "Mexico City Drastically Reduced Air Pollutants Since 1990's", (April 1 2010) online: *New York Times* <http://www.washingtonpost.com/wp-dyn/content/article/2010/03/31/AR2010033103614.html?sid=ST2010033103622>. Also, the federal government has recently introduced a carbon-offset market to deal with these issues but there have been major issues arising from this program. See Elizabeth Nussbaumer, "Mexico's Fake Carbon Tax: A Scheme to Dump Offset Credits and Cater to Industry", (December 3rd, 2013), online: Food and Water Watch < http://www.foodandwaterwatch.org/blogs/mexicos-fake-carbon-tax-a-scheme-to-dump-offset-credits-and-cater-to-industry/>.

poor air quality.[71] Similar to the New Zealand model, Mexico's is not a comprehensive system but it does provide insight into the cost-sharing approach of public-private partnerships.

3) Absolute Liability Regimes

Absolute, or strict, liability regimes are perhaps the most practical mechanism for collecting funds from actors found accountable for contributing to climate change disasters. In this context, scholars have argued that this type of regime is perhaps the only method to incentivize industries to reduce emissions.[72] The existing Canadian Nuclear liability fund serves as a precedent for this type of regime. According to the *Nuclear Liability Act* an operator of a nuclear facility is "without proof of fault or negligence, absolutely liable for a breach of the duty imposed on him by [the] Act".[73] The liability ceiling for coverage is $75 million.[74] Anything exceeding this amount would likely be borne by the federal government. This is an extremely low level, considering the potential for devastation during a nuclear disaster. For example, although the clean up from the 2014 Fukishima nuclear disaster is not complete, the cost is expected to top $200(US) billion.[75] In addition, Canadian operators are expected to obtain liability insurance for $75 million to guarantee liability.[76] There are a few situations where the

[71] *Ibid.*
[72] Catriona McKinnon, "Climate Change and Future Justice: Precaution, Compensation, and triage", (Taylor and Francis: New York 2012), at p 88.
[73] *Nuclear Liability Act,* RSC 1985, c N-8. The federal government plans to update the liability limit to $1 billion. See "Nuclear operators' liability limit rising to $1B", online: Canadian Broadcast Corporation < http://www.cbc.ca/news/politics/nuclear-operators-liability-limit-rising-to-1b-1.1385741>.
[74] *Ibid*., s 31.
[75] Rebecca Smith, "Panel Finds U.S. Needs to Prepare Nuclear Plants for Bigger Threats", (June 24 2014) *Wall Street Journal,* online: < http://online.wsj.com/articles/panel-finds-u-s-needs-to-prepare-nuclear-plants-for-disasters-1406236339>.
[76] *Ibid.,* s 15(1)(a)

operator may escape liability.[77] The Act is the closest blueprint for a Canadian absolute liability fund. Attributing absolute liabilities to polluters based on the harm principle could ultimately circumvent the causality issues posed in tort claims.

In the climate change context, however, there are significant problems with determining which emissions are culpable and, as a result, who should be placed responsible. Experts have suggested that we must first determine acceptable and wrongful emissions categories.[78] For example, luxury consumption enjoyed by a wealthy individual, such as flying a private jet, would be wrongful. Conversely, the struggling farmer using her or his truck to deliver produce should be in the acceptable category. Almost every activity in our modern economy results in emissions. Therefore, making determinations on what is acceptable and wrongful might entail a tremendous amount of work. For this reason, a strict liability regime would make the task of assigning responsibility much simpler. The actor in question would be responsible for any harm they cause, even though they are not at fault. The next exercise becomes determining which actors are responsible.

Scholars have created hypothetical models for a climate liability fund. Outside of Canada, specialists have argued for an international liability regime, funded by private industrial polluters. Rosemary Lyster argues that such a system would comprise funds derived from a levy placed on the world's top two hundred fossil fuel companies.[79] The United Nations would administer the fund and state claimants would be processed

[77] *Ibid.* s 7-9(2)
[78] David A Weisbach, "Negligence , Strict Liability , and Responsibility for Climate Change Responsibility for Climate Change" (2012) Iowa LR 97 521, at p 551.
[79] See Rosemary Lyster, "A fossil fuel-funded Climate Disaster Response Fund under the UNFCCC loss and damage mechanism", Legal Studies Research Paper no. 13/17, University of Sydney, October 2013 (forthcoming).

through a selective claims mechanism.[80] Lyster argues that perhaps only developing countries should be entitled to obtain this compensation since they are unlikely to have private reinsurance coverage.[81] Her argument is based on the idea that it is no longer equitable for taxpayers to bear the brunt of disaster recovery through government program. Although a strict liability might eliminate the problem in attributing fault, there are still problems with attributing responsibility. Such liability would be difficult to place on global industrial actors with their market and political clout.

[80] *Ibid.* at p 2.
[81] *Ibid,* at p 42.

Conclusion

Responses to natural disaster naturally entail some coordination between state and private actors given the hybrid nature of our economic system. The bases for determining whether individuals are covered for such calamities depend largely on the composition of the laws governing the compensation regime. This thesis project offers a reflection on the state of Canadian natural disaster law. I have attempted to uncover how our current systems function through analysing the specific institutions facilitating responses to these harms. There are three salient facts about Canadian extreme weather responses illustrated in this thesis project: Case law for climate damages is unfavourable for plaintiffs, the private insurance market cannot guarantee compensation for victims yet it appears that it could be useful for mitigating pollution, and the federal government has yet to develop its capacity for emergency management.

All these variables have contributed to the fragmented nature of Canada's natural disaster responses. Strong and coordinated disaster laws are needed to govern these issues. This thesis project employed systemic and contextual approaches to examine the state of affairs in this emerging area of the law. Without understanding these dynamics, we cannot begin to shape our laws and reform our approaches to these issues. The contextual methodology used in this thesis project reveals one further crucial fact about the nature of responses to extreme weather events in Canada: the cultural and theoretical principles driving our responses are governed by the pursuit of economic self-interest, thereby resulting in a fragmented state of affairs in our responses to extreme weather. We have attempted to understand this conundrum by considering how economic liberalism has shaped our culture and behaviour. In this sense, GLT and the socialization of risks

provide insight into the fractures of our system. These theories expose the anthropocentric nature of our extreme weather responses. The main tenets of liberalism are grounded in market fundamentalism, the notion of the autonomous individual and minimum state intervention. These are precisely the opposite principles needed to manage a solidaristic response to climate change and extreme weather. Moreover, our cultural orientation towards economic growth must be addressed in these responses. Without considering this important factor, our efforts to adapt to climate change and its consequences would be ineffective.

This thesis project contributes to the literature on disaster law by offering a detailed self-examination of the Canadian situation. There is a dearth of literature on Canada's natural disaster laws. The goal of this thesis has been to provoke a reaction in the academy and instigate discussions regarding the fragmented nature of this area of the law. The thesis project challenges the typical mechanistic approaches to disaster law scholarship by contextualizing our analysis and considering the systemic factors at play. Despite the depth of the present critique, the development of this thesis project does not advocate an outright rejection of our disaster laws and extreme weather systems but their transformation towards strategic action against climate change. As explained above, there are existing systems that might mitigate its affects. For example, the insured (namely, industrial companies) could affect an insurer's bottom line by undertaking conduct that is harmful to the earth's climate. In this instance, the insurance industry could effectively act as a regulator against carbon emissions because insurers may be liable for some of the related losses (i.e. those associated with extreme weather events). Insurers could refuse to provide coverage for insured or insure at high rates, which may force industrial

companies to modify their behavior in order to obtain coverage or favorable rates. Therefore, insurers would alter the standards for pollution.[1] The insurance industry has significant influence on social and economic behaviour by insisting that businesses and individuals conform to policy terms. Governments should anticipate these market reactions and attempt to coordinate effective responses to extreme weather. Lessons from US case law demonstrate the difficulties in establishing liability for climate or weather damages, particularly in relation to plaintiffs' ability to establish duty of care and causation. Thus, governments need to examine the feasibility of legislation supporting plaintiffs that seek legal recourse against industrial polluters. Alternatively, governments could attempt to place liability on polluters and redress victims of extreme weather to circumvent tort claims. Finally, there are various public, public-private and absolute liability systems that could act as a roadmap for Canada.

There is further research to be undertaken in this novel area as a result of this critique and exploration of responses to extreme weather damage. Namely, there is potential for examining the experiences of the individuals, communities and organizations that suffer extreme weather harms. By drawing on such experiences, we can attempt to further assess the institutional gaps that these stories reveal. This research would be particularly worthwhile for examining populations that are vulnerable to extreme weather harms. In 2013, elderly and low-income individuals living in high-rises were extremely vulnerable during and immediately after the floods in southern Alberta.[2]

[1] See, for example, *The AES Corporation v Steadfast Insurance Company*, [2012] VA S Ct No 100764.
[2] Jeff Lewis, "Senior citizens say flood-ravaged Calgary 'not prepared' to help city's most vulnerable residents", *National Post* (23 June 2013), online: <http://news.nationalpost.com/2013/06/23/senior-citizens-say-flood-ravaged-calgary-not-prepared-to-help-citys-most-vulnerable-residents/>.

An examination of the recovery process the individuals underwent could be utilized to formulate further conclusions on whether the Canadian system is adequate. In addition, the interplay between First Nations communities and extreme weather should be explored. Reports have recently come to light concerning sub-standard housing in these communities, resulting in significant health issues.[3] This research would be relevant for determining the specific circumstances of First Nations communities.

Most importantly, research must be dedicated to conceptualizing an insurance scheme rooted in the social objective of pollution internalization and fair compensation. This exercise could be informed by the interactions between insurance and climate change uncovered in this thesis project. The proposal of such an insurance scheme would require extensive empirical research both domestically and internationally.[4] To this extent, prospective models could be designed to hold both governments and polluters accountable, setting levies, in the form of premiums, to reflect the organization's emissions. Thereafter, these premiums could be disbursed to claimants. Although it is beyond the scope of this thesis to present details regarding such a regime, my research demonstrates the need for reform. It is my contention that a crucial part of this reform should include a national or international insurance scheme that correlates premiums to climate risk to compensate climate disaster victims. As demonstrated previously with *Steadfast*, private insurers are beginning to limit coverage for climate damage claims. Thus, the industry is reacting by creating a culture of exclusion, and creating hurdles for

[3] "First Nations Start Legal Action Against Canada Over Unsafe Drinking Water", (June 16 2014), Press Release, online: Stockhouse
< http://www.stockhouse.com/news/press-releases/2014/06/16/first-nations-start-legal-action-against-canada-over-unsafe-drinking-water>

[4] In Craig Brown & Sara Seck, "Insurance Law Principles in an International Context : Compensating Losses Caused by Climate Change" (2013) Alta L Rev 50:3 1, at p 18, the authors discuss international responses to climate change damages and where Canada's responses fit within this global framework.

industrial polluters to undertake a business-as-usual approach to climate change. However, this is not enough. Victims must be properly compensated for their losses through publicly controlled mechanisms.

This operational change, however, requires a cultural shift towards accepting climate change as tangible threat. Responses to extreme weather are likely to improve if Canadian governments were able to work together on the issue of climate change. Similarly, the rethinking of our natural disaster responses would allow Canadian governments to assess the realities of climate change. Therefore, self-examination is necessary. After all, climate change is the most pressing issue of our time and extreme weather is its most dramatic expression.

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