

April 25, 2019

OSGOODE HALL
LAW SCHOOL

4700 Keele St.
Toronto ON
Canada M3J 1P3
Tel 416 736 5030
Fax 416 736 5736
www.osgoode.yorku.ca

Councillor James Pasternak
Chair, Infrastructure and Environment Committee, City of Toronto
Via email: iec@toronto.ca

Re: Pursuing Compensation for the Cost of Climate Change to the City of Toronto

Dear Councillor Pasternak and Committee Members,

On behalf of Osgoode Hall Law School's Environmental Justice and Sustainability Clinic, we are writing to provide comments on Infrastructure and Environment Committee Item IE4.4. We are faculty and students affiliated with the Clinic.¹ Our aim is to contribute to the creation of law and policy that enacts principles of justice and sustainability for everyone in Toronto, and Ontario.

We understand the Committee is considering a motion to explore legal avenues for compensation for the costs of climate change from major greenhouse gas emitters. In our assessment there are two main reasons Toronto should consider legal action against major greenhouse gas emitters:

1. Toronto is already paying for the costs of climate change and these costs, and the costs of adaptation and mitigation, will increase over time; and,
2. Climate change disproportionately impacts vulnerable groups and exacerbates existing environmental justice issues in Toronto.

Toronto should not be responsible for the increasing costs of climate change. We encourage you take this opportunity make Toronto a leader in addressing the major policy concerns arising from climate change.

Cities and Climate Change

According to the Environmental Commissioner of Ontario [ECO], "Municipalities are often the first to feel the impacts of climate change" and they "bear the responsibility of preparing and protecting communities against these impacts, and bear significant costs after a disaster disappears."² Yet,

climate change action has generally been focused on the national or international level. While international cooperation and national action on climate change is essential, these commitments have had limited results. For example, while Canada ratified the Kyoto Treaty greenhouse gas emission goals, we still emit more than the United States, which has not. This may in part be due to the complications of the constitutional division of powers in Canada, as is currently being disputed in the ongoing carbon tax litigation between Canada and various provinces, including Ontario.³

In the context of ongoing inaction at both the federal and provincial levels, a focus on the role of cities in responding to climate change is both necessary and important. A strong role for cities is also consistent with the principle of subsidiarity, which has been interpreted by the Supreme Court of Canada to mean “law making and implementation are often best achieved at a level of local government that is not only effective, but also closest to the citizens affected and thus most responsive to their needs, to local distinctiveness, and to population diversity.” The Supreme Court endorsed subsidiarity as a basis for upholding municipal action on environmental issues.⁴ In the United States, mayors of 238 cities have signed the U.S. Mayors Climate Protection Agreement stating that these cities will move to meet the emission goals set out in the Kyoto Protocol.⁵ In British Columbia, 18 Municipalities and the Association of Vancouver Island and Coastal Communities, representing 53 local governments, have sent climate accountability letters asking fossil fuel companies to pay their “fair share” of climate costs.⁶

The impacts of climate change are global, but they will be felt locally, giving cities the motivation that global actors may lack.

Climate Change Litigation

We note at the outset that litigation is only one tool available to municipalities to deal with climate change impacts. We support exploring the possibility of climate change litigation only as part of a broader political strategy for social and environmental justice. It should not come at the expense of other strategies, including holding other levels of government to account for their own climate policies and inaction, and calling on them to fund immediate municipal responses to climate change. Torontonians cannot wait for a lawsuit to work its way through the courts before action is taken on climate change at the local level.

Canada does not have a history of climate change litigation against major greenhouse gas emitters.⁷ However, as noted above, momentum is building in British Columbia where municipalities are incurring costs from increasingly frequent forest fires and rising sea levels. Climate change lawsuits have been filed against fossil fuel producers in other jurisdictions, including in the United States. This includes actions by the state of Rhode Island, King County, Washington, and ten US cities including New York, Baltimore, Boulder, and several cities and counties in California.⁸

Cities are choosing different avenues to pursue their legal actions by emphasizing particular types of harm or conduct, or the desire to hold particular actors accountable. There are a range of causes of action on which

climate litigation has been based: in tort law, negligence, misrepresentation, or strict liability;⁹ in property law, public nuisance, private nuisance, and trespass;¹⁰ equitable remedies such as restitution and unjust enrichment;¹¹ and, statute based claims.¹² There are many different mechanisms in law for ensuring people who have caused harm compensate those whom they have harmed. At this stage it is unnecessary to determine which pathway Toronto should pursue. Indeed, the City should likely consider a combination of these causes of action and forms of accountability.

To elaborate on just one example, Environmental law Professor Stepan Wood, the founding academic director of our clinic, has noted the promise of public nuisance as a basis for climate change litigation in Ontario.¹³ He particularly cites its broad scope and the potential to overcome causation issues. In *Ryan v Victoria (City)*, the Supreme Court of Canada held that public nuisance captures “any activity which unreasonably interferes with the public’s interest in questions of health, safety, morality, comfort or convenience,” including the public’s use of public lands, resources or highways and its exercise of public rights of navigation or fishing.¹⁴ It protects “the rights of the public generally to live their lives unaffected by inconvenience, discomfort or other forms of interference.” When determining whether a particular interference with public rights is unreasonable the court will consider “the inconvenience caused by the activity, the difficulty involved in lessening or avoiding the risk, the utility of the activity, the general practice of others, and the character of the neighbourhood.”¹⁵ As Professor Wood notes, “Few would disagree that anthropogenic GHG emissions are altering the global atmosphere and negatively affecting the climate, nor that these changes will cause (or are causing) inconvenience or discomfort, to say the least, to members of the Canadian public.”¹⁶ In *Canadian Forest Products v British Columbia*, the Supreme Court confirmed that public nuisance could be used to enforce public rights in respect of the environment.¹⁷

Establishing causation has been an issue in climate change litigation as a plaintiff must prove the defendant caused or contributed to the harm in question.¹⁸ This has been a barrier in earlier US litigation such as *Comer v Murphy Oil* and *Kivalina v ExxonMobil*, where the plaintiffs (resident of Louisiana in *Comer* and Inupiat peoples from Alaska in *Kivalina*) argued the defendant companies were responsible for the adverse impacts of climate change.¹⁹ Although causation is likely to be an issue in future litigation, it is possible that the “second wave” of climate litigation outlined above may be more successful in this regard.²⁰ The reports given by the Intergovernmental Panel on Climate Change (IPCC) are being accepted as evidence by some courts and being given significant weight.²¹ Furthermore, we are now able to quantify the emissions from carbon majors as well as linking them to climate change, a big step forward in dealing with the causation issue and passing the “but for” test in tort law.²² Accurate and reliable data about climate change impacts and vulnerabilities will be essential to the success of any action brought by Toronto. In the context of a public nuisance claim, environmental lawyer Andrew Gage has argued, the causation issue can be simplified by understanding “damage to the health of the global atmosphere” as the nuisance. Therefore, the causation question shifts from linking the harms caused by a particular climate-related event to the defendant’s emissions to proving the defendant “impacted the natural state of the atmosphere.”²³

Beyond the United States examples of climate change litigation include *Leghari* in the Lahore High Court in Pakistan, as well as *Urgenda* in the Netherlands.²⁴ In *Urgenda*, the court overcame the problem of causation by simply adopting the evidence and findings from the IPCC reports. The court also firmly denied the state's argument that reducing Dutch emissions would have a negligible effect on global greenhouse gas emissions and thus they are not responsible for the damages.²⁵

The Effects of Climate Change on Toronto

The global effects of climate change are well documented. The IPCC has noted climate change impacts on “natural and human systems on all continents and across oceans.”²⁶ Impacts range from rising sea levels to extreme weather events to the unprecedented loss of ecosystem integrity and biodiversity.²⁷

Toronto has already begun to feel these effects and they will only get worse. The three extreme weather events that are most likely to occur in Toronto are significant flooding (100 mm of rain in less than a day), heat waves (at least three consecutive days where the temperature is at least 35 degrees Celsius), and winter ice storms (30 mm of ice).²⁸ In 2018, Toronto had to set up cooling centers to deal with extreme heat. While we currently have an average of sixteen days a year above thirty degrees Celsius, in a “business-as-usual scenario” Toronto could see this increase to 51 by 2050. Although this will also result in warmer winters, this means a greater likelihood of costly and dangerous freezing rain events.²⁹ Such events are examples of impacts that can and should be carefully tracked in order to quantify the costs of climate change specifically borne by Toronto.

The health effects of a warming climate are also an important concern for Toronto.³⁰ The spread of Lyme disease from black-legged ticks who are moving north and West Nile Virus by mosquitoes who thrive in warm, humid weather have already been documented.³¹ According to the ECO, the 2013 Toronto flood caused up to a billion litres of sewage, in addition to garbage and debris, to be washed into our rivers and Lake Ontario. This has implications for both human health and the health of aquatic species. Indeed, flooding events were a factor in the deadly Walkerton *E. coli* outbreak. This kind of flooding also creates shoreline and riverbank erosion issues with long term impacts on our natural spaces. Indoor and outdoor air pollution are also risks involved in a warming climate.³² Toronto Public Health has examined the impact of extreme weather events on the food system. While they found that an “extended, widespread food supply disruption is relatively low,” they concluded that resulting interruptions in electricity and transportation will have an adverse effect, especially on vulnerable people.³³

Climate change impacts and extreme weather events may also lead to an increase in mental health issues. One recent study on the effects of the Fort McMurray wildfire reported that over 40% of Canadian will be exposed to a major disaster in their lifetime, and an increased number of them will suffer post-traumatic stress disorder, depression, generalized anxiety disorder, and

possibly increased substance abuse.³⁴ US environmental law scholar Colin Crawford has noted the connection between urban violence, environmental scarcity and climate change, suggesting that the costs may be social as well as economic.³⁵ As discussed below, these social costs will likely be born by the City's most vulnerable residents.

The Costs of Climate Change for Toronto

Canada's Commissioner of the Environment and Sustainable Development has reported in 2016 that federal disaster-related spending between 2009 and 2015 was more than in the previous 39 years combined.³⁶ The ECO has particularly noted the potential for municipal areas of jurisdiction and service delivery to be impacted by climate change, such as stormwater management, transit, road, planning and land use, public health and emergency management, and parks and recreation.

The most costly effect of climate change in Toronto to date has been flooding. The flooding that occurred in August of 2018 cost the city roughly \$80 million. The July 2013 flood was the most expensive natural disaster in Ontario's history, resulting in more than \$940 million in costs.³⁷ The 2017, Toronto Island flooding has cost the city approximately \$16 million, with the ECO predicting an additional \$25 million in repair and resilience costs in the future. The ECO concluded that Ontario's estimated stormwater infrastructure deficit of \$6.8 billion is in fact much higher in light of increased extreme weather events.³⁸ The authors of an article on infrastructure resiliency in *Water Canada* noted, "many municipalities feel they are in limbo when it comes to predicting what a changing climate demands of system design and capacity."³⁹ Recent cuts to Conservation Authorities flooding programs will only exacerbate the burden on municipalities to respond to flood events.⁴⁰ Ice storms will also have disastrous effects. The 2013 storm cost the city approximately \$106 million. Indeed municipalities demanded emergency funding for the damage and recovery.

Blair Feltmate, head of the Intact Centre on Climate Adaptation at the University of Waterloo stated that from 1983 to 2008 the cost of natural disasters in Ontario ranged from \$250-\$500 million, but since 2009 the average is \$1.8 billion.⁴¹ These are only the direct costs without accounting for the far reaching effects such as impacts on food systems or social and mental health issues. Further, according to the ECO, climate change is also a source of increased municipal liability, noting recent class actions against Ontario municipalities and the province for flooding and high water levels.⁴²

Further, implementing recommended adaption to climate change will require significant resources. In relation to flooding the ECO has noted the need for restoration and protection of wetlands and woodlands, shifting to pervious materials for surface areas, including green parking lots, updating and maintaining flood plain maps, all of which require significant financial investments from local governments.⁴³

While the former provincial government made progress on climate change through the phase out of coal fired utilities, the provincial government has repeatedly failed to heed calls to action on climate change related

infrastructure issues and adaptation.⁴⁴ Unfortunately we are concerned not only that the lack of leadership and guidance on climate change impacts will persist in the current provincial context, but that progress on climate change more generally will halt or even move backwards.⁴⁵

Toronto residents and those who are directly impacted by climate change cannot continue to bear these costs. Increased support and guidance from other levels of government is essential; however, all levels of governments should be holding those responsible for, and profiting from, carbon emissions to account.

Climate Change Creates and Exacerbates Environmental Justice Issues

As Canadian environmental and disaster law scholar Jocelyn Stacey argues, “while the trigger or hazard may be of natural origin (a wildfire or an earthquake), what makes the event a disaster is the community’s inability to cope with the event.”⁴⁶ Research has documented the ways in which race, gender, ability and socioeconomic status affect the vulnerability of individuals to disasters.⁴⁷ In particular, research demonstrates the vulnerability of marginalized or disadvantaged groups during disasters.⁴⁸ Social determinants of health such as housing and income change the way individuals interact with the environment and therefore will shape how individuals and entire communities will be affected by climate change.⁴⁹ This requires us to examine climate change impacts through an environmental justice lens.

Environmental justice merges issues of “health, economic equality, and species preservation, as well as diversity, democracy and human rights.”⁵⁰ The effects of environmental injustice can disproportionately affect the lives of “indigenous, lower-income, racialized, and immigrant communities in Canada.”⁵¹ Climate change can affect a variety of human rights including, but not limited to, the right to life, adequate food, the highest attainable standard of health adequate housing, and to safe drinking water.⁵²

Toronto can learn from other cities in helping to identify vulnerabilities in its own population.⁵³ For example, the 1995 Chicago heat wave showed that housing conditions and low-income status made it difficult for many households to keep cool.⁵⁴ Toronto’s Medical Officer of Health has noted that extreme heat events will disproportionately impact already vulnerable people:

Those most vulnerable to heat include isolated seniors, people with chronic and pre-existing illnesses, children, and people who are marginally housed or homeless. In Toronto, in addition to those who are homeless or underhoused, people who live in older apartment buildings may be at particular risk from heat. The majority of these buildings are not air conditioned, many are home to low income families and newcomers, and more than half of residents surveyed say that they experience symptoms of heat-related illness.⁵⁵

The ECO has also noted the link between climate change and increasing food costs and predicted Ontario will experience above average food price increases due to climate change.⁵⁶ Air quality issues, access to clean water, and exposure to insect-borne diseases are also likely to be disproportionately

experienced by Toronto's most vulnerable.

As Stacey points out, “[V]ulnerability requires a responsive and responsible state. Nowhere is this expectation clearer than in the aftermath of a disaster.”⁵⁷ While clearly this responsibility does not sit entirely at the municipal level, the City's responsibility for public health, housing, planning and land use law, and transit make it a site of particular responsibility in the context of climate change. The IPCC has released a framework cities are using to help assess local vulnerabilities to climate change.⁵⁸ This framework includes aspects of exposure, sensitivity, and adaptive capacity which provides a “useful way to conceptualize how and why some residents are more vulnerable to climate hazards than others.”⁵⁹ The framework can also help cities identify opportunities to adapt to climate change impacts for a more resilient city for all.⁶⁰

An environmental justice approach to climate change adaptation requires individual attention to marginalized and vulnerable communities in designing and implementing mitigation and adaptation in order to ensure their human rights are upheld and protected.⁶¹

Conclusion

We recommend the City of Toronto explore the potential for litigation against fossil fuel producers as part of a broader climate change policy agenda. Accurate and reliable data about climate change impacts and vulnerabilities will be essential to the success of any action brought by Toronto. Therefore, we recommend immediate steps be taken to accurately track the impacts and costs of climate change. Finally, we recommend the costs and benefits of litigation be explored through an environmental justice lens to ensure any future steps account for particular vulnerabilities and needs across Toronto's communities.

Sincerely,



Dr Estair Van Wagner
Assistant Professor
Osgoode Hall Law School
Co-Director, Environmental Justice and Sustainability Clinic

¹ Estair Van Wagner is co-director the Environmental Justice and Sustainability Clinic. She researches and teaches in the areas of property, planning, and natural resource law. Dayna Nadine Scott is an Associate Professor at Osgoode Hall Law School and the Faculty of Environmental Studies, and a co-director of the clinic. Emily King and Madhavi Gupta are JD students at Osgoode Hall Law School who provided research assistance for these submissions.

² *2018 Greenhouse Gas Progress Report of the Environmental Commissioner of Ontario* (Toronto: Environmental Commissioner of Ontario, 2018) at 184. [*GHG Report 2018*]

³ Brendan Burke & Margaret Ferguson, “Going Alone or Moving Together: Canadian and American Middle Tier Strategies on Climate Change” (2010) 40:3 *Publius: The Journal of Federalism* at 438; Dayna Nadine Scott, “The Environment, Federalism and the Charter” in Natalie Des Rosiers, Patrick Macklem and Peter Oliver (eds.), *The Oxford Handbook of the Canadian Constitution* (Oxford University Press, 2017) 493-516. See for example, Reference re Greenhouse Gas Pollution and Pricing Act, ONCA. Documents and recordings of the proceedings available online: <<http://www.ontariocourts.ca/coa/ggppa/>>.

⁴ Eugénie Brouillet, “Canadian Federalism and the Principle of Subsidiarity: Should We Open Pandora’s Box?” (2011) 54:21 *SCLR* at 626 citing *Canada Ltée (Spraytech, Société d’arrosage) v. Hudson (Town)*, [2001] 2 SCR 241.

⁵ Kristin Choo, “Feeling THE HEAT: The Growing Debate Over Climate Change Takes on Legal Overtones” (2006) 92:7 *ABA J* at 35.

⁶ See for example the letters posted by West Coast Environmental Law: <<https://www.wcel.org/campaign-update>>.

⁷ Alastair Spriggs & Frances Bula, “City of Victoria recommends class-action lawsuit against the oil and gas industry”, *The Globe and Mail* (21 January 2019), online: <<https://www.theglobeandmail.com/canada/british-columbia/article-city-of-victoria-recommends-class-action-lawsuit-against-the-oil-and/>>.

⁸ Geetanjali Ganguly, Joana Setzer & Veerle Heyvaert, “If at First You Don’t Succeed: Suing Corporations for Climate Change” (2018) 38:4 *Oxford J Leg Stud* at 849-850. [*If at First You Don’t Succeed*]

⁹ See for example the claim by the City of Baltimore <http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2018/20180731_docket-118-cv-02357_notice.pdf>

¹⁰ See for example, the claim filed by New York City: <http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2018/20180109_docket-118-cv-00182_complaint-1.pdf>, or see the action by Colorado local governments: <http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2018/20180417_docket-2018CV030349_complaint.pdf>

¹¹ See for example the action by Colorado local governments, which pleads unjust enrichment: <http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2018/20180417_docket-2018CV030349_complaint.pdf>

¹² See the claim by the City of Baltimore, which includes a cause of action based on consumer protection law <http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2018/20180731_docket-118-cv-02357_notice.pdf>. Ontario has similar consumer protection legislation, *The Consumer Protection*, S.O. 2002, c30, Sched A..

¹³ Stepan Wood, “Hot Topics in Climate Change: Ontario in the National and International Contexts, OBA Institute, February 3 2016: <http://ejscclinic.info.yorku.ca/files/2016/03/S-Wood-OBA-Institute-2016-climate-change-litigation.pdf> [Wood, “Hot Topics”], at 1.

¹⁴ [1999] 1 SCR 201, 1999 CanLII 706, para 66.

¹⁵ *Ryan v Victoria (City)*, [1999] 1 SCR 201, 1999 CanLII 706, para 66.

¹⁶ Wood, Hot Topics, at 1.

¹⁷ 2004 SCC 38, para 66 [*Canfor*]

¹⁸ Shi-Ling Hsu, “A Realistic Evaluation of Climate Change Litigation through the Lens of a Hypothetical Lawsuit” (2008) 79 *U Colo L Rev* 701.

¹⁹ *If at First You Don’t Succeed*, *supra* at 846.

²⁰ *If at First You Don’t Succeed*, *supra* at 849-850.

²¹ *If at First You Don’t Succeed*, *supra* at 851.

²² *If at First You Don’t Succeed*, *supra* at 854.

²³ Andrew Gage, “Climate Change Litigation and the Public Right to a Healthy Atmosphere” (2013) 24 *J Env’tl L & Prac* 257, reprinted by West Coast Environmental Law Association (October, 2014): <

<https://www.wcel.org/sites/default/files/old/files/publications/CCPN%20Report.pdf>>, at 12.

²⁴ *If at First You Don’t Succeed*, *supra* at 862.

²⁵ *Urgenda Foundation v State of Netherlands*, [2015] C/09/456689 / HA ZA 13-1396 (Hague Dist. Ct.) at 4.79, 4.9.

²⁶ *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Summary for Policymakers*, 2014, online (pdf): <https://www.ipcc.ch/pdf/assessment-report/ar5/wg2/ar5_wgII_spm_en.pdf>.

²⁷ Margaret R Grossman, “Climate Change and the Law” (2010) 58 *Am J Comp L* at 226.

²⁸ Kimberly Zeuli et al, “The Impact of Climate Change on the Food System in Toronto” (2018) 15:11 *Intl J Environmental Research & Public Health* at 2344-2346. [*Impact on Food Systems*]

²⁹ Nicole Mortillaro, “Here’s what climate change could look like in Canada”, *CBC News* (31 October 2018), online: <<https://www.cbc.ca/news/technology/climate-change-canada-1.4878263>>. [*CBC*]

³⁰ *Annual Greenhouse Gas Progress Report 2015 of the Environmental Commissioner of Ontario* (Toronto: Environmental Commissioner of Ontario, 2015).

³¹ Government of Canada, *Degrees of Change: Climate Warming and the Stakes for Canada*, (Ottawa: National Roundtable on the Environment and the Economy, 2010) at 60; See also, William Gough, Kristen Herod and Vidya Anderson, University of Toronto, report, *Climate Change Related Health Risks for Ontario’s Health Units*, p.2, February 2015; Public Health Agency of Canada. “Risk of Lyme disease to Canadians”, (14 August 2018), online: *Canada.ca* <<https://www.canada.ca/en/public-health/services/diseases/lyme-disease/risk-lyme-disease.html#map>>

- ³² Alain Bourque et al, *From Impacts to Adaptation: Canada in a Changing Climate 2007*, ed by Donald Lemmen et al (Ottawa, ON: Natural Resources Canada, 2008), ch 6 at 247, Figure 11; Medical Officer of Health and Deputy City Manager, Internal Corporate Services, *Report for Action: Reducing Health Risks from Traffic-Related Air Pollution (TRAP) in Toronto*, (Toronto: Medical Officer of Health and Deputy City Manager, 2017) at 1.
- ³³ *Impact on Food Systems*, *supra* at 2344, 2356.
- ³⁴ Vincent I O Agyapong et al, “Prevalence Rates and Predictors of Generalized Anxiety Disorder Symptoms in Residents of Fort McMurray Six Months After a Wildfire” (2018) 9 *Frontiers in Psychiatry*. [*GAD Fort McMurray*]
- ³⁵ Colin Crawford, “Our Bandit Future? Cities, Shantytowns and Climate Change Governance” (2009) 36:2 *Fordham Urb LJ* at 214-215.
- ³⁶ *2016 Spring Reports of the Commissioner of the Environment and Sustainable Development* (Ottawa: Commissioner of the Environment and Sustainable Development, 2016) at 2.1.
- ³⁷ *Annual Greenhouse Gas Progress Report 2014 of the Environmental Commissioner of Ontario* (Toronto: Environmental Commissioner of Ontario, 2014) at 20 [*GHG Progress Report 2014*]; Carys Mills, “Toronto's July flood listed as Ontario's most costly natural disaster”, *Toronto Star* (14 August 2013), online: <https://www.thestar.com/business/2013/08/14/july_flood_ontarios_most_costly_natural_disaster.html>.
- ³⁸ *GHG Progress Report 2014*, *supra* at 20.
- ³⁹ *GHG Progress Report 2014*, *supra* at 72.
- ⁴⁰ Allison Jones, “Ontario cuts conservation authority funding for flood programs”, *CBC News* (22 April 2019), online: <<https://www.cbc.ca/news/canada/toronto/ontario-flooding-cuts-conservation-1.5105897>>.
- ⁴¹ *CBC*, *supra*.
- ⁴² Natalia Moudrak & Blair Feltmate, “Weathering the Storm: Developing a Canadian Standard for Flood-Resilient Existing Communities.” (2019) Prepared for Standards Council of Canada and National Research Council of Canada. Intact Centre on Climate Adaptation, University of Waterloo. At pg 11.
- ⁴³ *GHG Report 2018*, *supra* at 184.
- ⁴⁴ *GHG Report 2014*, *supra*; *GHG Report 2018*, *supra*.
- ⁴⁵ *GHG Report 2018*, *supra* at 67
- ⁴⁶ Jocelyn Stacey, “Vulnerability, Canadian Disaster Law and ‘The Beast’”, (2018), *Alberta Law Review* 55: 4 [Stacey, “The Beast”]
- ⁴⁷ Susan L Cutter, Bryan J Boruff & W Lynn Shirley. “Social Vulnerability to Environmental Hazards” (2003) 84:2 *Social Science Quarterly* 242 [Cutter 2003]; Farber et al, *supra* note 11 at 281. Intergovernmental Panel on Climate Change, “Summary for Policymakers” in C.B. Field, et al, eds, *Climate Change 2014 Impacts, Adaptation, and Vulnerability: Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, UK and New York, NY: Cambridge University Press, 2014) at 6 .
- ⁴⁸ Stacey, *The Beast*.
- ⁴⁹ *Cities, Climate Change & Health Equity*, *supra* at 1.
- ⁵⁰ Cheryl Teelucksingh et al, “Environmental justice in the environmental non-governmental organization landscape of Toronto (Canada)” (2016) 60:3 *Canadian Geographer* at 381-393 [*Environmental Justice*] citing Andil Gosine & Cheryl Teelucksingh, *Environmental justice and racism in Canada: An Introduction* (Toronto, ON: Edmond Montgomery Publications Limited, 2008).
- ⁵¹ *Environmental Justice*, *supra* at 381-393 citing Jeffrey Masuda et al, “Environmental health and vulnerable populations in Canada: Mapping an integrated equity-focused research agenda” (2008) 52:4 *Canadian Geographer* at 427-450; Julian Agyeman et al, *Speaking for ourselves: Environmental justice in Canada* (Vancouver, BC: University of British Columbia Press, 2009) at 1-26.
- ⁵² Savaresi, Annalisa, “The Paris Agreement: a new beginning?” (2016) 34:1 *J of Energy & Natural Resources L* at 16-26.
- ⁵³ *Cities, Climate Change & Health Equity*, *supra* at 3.
- ⁵⁴ *Cities, Climate Change & Health Equity*, *supra* at 4.
- ⁵⁵ Medical Officer of Health, *Report for Action: Reducing Vulnerability to Extreme Heat in the Community and at Home* (Toronto: Medical Officer of Health, 2017).
- ⁵⁶ *GHG Reports 2018*, *supra*.
- ⁵⁷ Stacey, “The Beast”, 11.
- ⁵⁸ *Cities, Climate Change & Health Equity*, *supra* at 3.
- ⁵⁹ *Cities, Climate Change & Health Equity*, *supra* at 3.
- ⁶⁰ *Cities, Climate Change & Health Equity*, *supra* at 3.
- ⁶¹ Rebecca Tsosie, “Indigenous people and environmental justice: the impact of climate change.” (2007) 78 *U Colo L Rev* at 1625.