

FEDERAL COURT

BETWEEN:

SAFE FOOD MATTERS INC.

Applicant

AND:

ATTORNEY GENERAL OF CANADA and MINISTER OF HEALTH

Respondents

AFFIDAVIT OF DR. JASON MACLEAN

I, Dr. Jason MacLean, Assistant Professor in the Faculty of Law, University of New Brunswick, and Adjunct Professor in the School of Environment and Sustainability, University of Saskatchewan, MAKE OATH AND SAY THAT:

Background

1. My complete *Curriculum Vitae* is attached to this affidavit as **Exhibit A**.
2. I obtained a Ph.D. in Law from the University of Alberta in 2021. I obtained a LL.B. (Bachelor of Common Law) and B.C.L. (Bachelor of Civil Law) from McGill University in 2006. Before studying law I earned undergraduate and graduate degrees in Anthropology, and I also pursued doctoral studies in Sociology.
3. I am presently an Assistant Professor in the Faculty of Law at the University of New Brunswick, a position I have been in since 1 July 2020. I am also an Adjunct Professor in the School of Environment and Sustainability at the University of Saskatchewan, a position I have been in since 1 July 2020. Before that, I was an

Assistant Professor in the College of Law at the University of Saskatchewan from 1 July 2017 until 30 June 2020; I was also an Associate Member of the School of Environment and Sustainability at the University of Saskatchewan beginning in 2019. Before taking those positions, I was an Assistant Professor in the Faculty of Law at Lakehead University from 1 July 2013 until 30 June 2017. Prior to becoming a university law professor, I practised law in Canada and the United States. I also clerked for the Honourable Madame Justice Marie Deschamps at the Supreme Court of Canada from 1 July 2007 until 30 June 2008.

4. With respect to teaching, I have throughout my career to date taught Administrative Law, Business Associations and Corporate Governance Law, Civil Procedure, Constitutional Law, Environmental Law, Natural Resources Law, and Property Law, among other subjects and special seminar topics.
5. With respect to research, I focus primarily on environmental law and policy. I am recognized as a leading expert in Canada on the phenomenon of regulatory capture, which I examine in respect of agricultural law and policy, environmental law and policy, energy law and policy, and corporate law and accountability.¹
6. In my work, I have become familiar with the subject matter of this affidavit by virtue of having been retained in 2022 as an expert witness in US civil litigation cases focused on the design and regulation of glyphosate, including Bayer/Monsanto's Roundup-branded glyphosate-based herbicides. As part of my mandate as an expert witness in these cases, I have examined in-depth the regulation of glyphosate and glyphosate-based herbicides not only in the United States but also Canada, the European Union, Australia, New Zealand, Brazil, Japan, and South Korea. Specifically, I have examined whether or not these countries' regulation of glyphosate and glyphosate-based herbicides are subject to regulatory capture.
7. I have been asked to provide a report on the issues set out in the letter of engagement provided to me by counsel for Safe Food Matters, which is attached as

¹ For further and specific details, please see my *Curriculum Vitae*, which is attached as **Exhibit A** of this report.

Exhibit B. My certificate concerning the Code of Conduct for Expert Witnesses is attached as **Exhibit C.**

8. In preparing this affidavit I have reviewed and relied on the following sources of information:
- a. The Amended Notice of Application filed 14 March 2023;
 - b. *Safe food Matters Inc. v. Canada (Attorney General)*, 2022 FCA 19 (CanLII);
 - c. Notice of Objection dated 27 June 2017;
 - d. Response to Notice of Objection dated 22 September 2022;
 - e. The PowerPoint Presentation entitled “Glyphosate Notice of Objection” dated 21 June 2018, Kimberly Low (24 pages);
 - f. The Certified Tribunal Record;
 - g. Exhibit A of Affidavit #1 of Jodi Kaldestad dated 19 April 2023;
 - h. The relevant academic literature on the public health and environmental impacts of glyphosate and glyphosate-based herbicides;
 - i. US case law and case records concerning the design and regulation of pesticides, including glyphosate and glyphosate-based herbicides; and
 - j. Publicly available documents arising out of litigation commenced and ongoing against Bayer/Monsanto, including but not limited to the “Monsanto Papers.”

Opinion in Respect of Questions Posed

What is Regulatory Capture?

9. “Regulatory capture” is the result or process by which regulation, in law or application, is consistently or repeatedly directed away from the public interest and

toward the interests of the regulated industry (or firm), by the intent and action of the industry (or firm) itself.²

10. The reality of regulatory capture is well established.³ It has foundations in the discipline of Economics, which is concerned with explaining the political-economic processes that shape state intervention in the economy,⁴ as well as Political Science,⁵ Organizational Studies,⁶ History,⁷ and Law.⁸ Early analyses of regulation enacted in the public interest of protecting consumers from monopolistic abuse discovered that regulation is susceptible to being “captured” by the firms it is supposed to constrain.⁹ This includes the early foundational work of George Stigler, who was awarded the Nobel Prize in Economics for his work on regulatory capture.¹⁰

² Daniel Carpenter & David A Moss, eds, “Introduction,” in *Preventing Regulatory Capture: Special Interest Influence and How to Limit It* (New York: Cambridge University Press, 2014) at 13.

³ Ernesto Dal Bó, “Regulatory Capture: A Review” (2006) 22:2 *Oxford Review of Economic Policy* 203. See also Brink Lindsey & Steven M Teles, *The Captured Economy: How the Powerful Enrich Themselves, Slow Down Growth, and Increase Inequality* (New York: Oxford University Press, 2017); Gernot Wagner, *Geoengineering: The Gamble* (New York: Polity, 2021).

⁴ *Id.*

⁵ Carpenter & Moss, *supra* note 2. See also Martin Gilens & Benjamin I Page, “Testing Theories of American Politics: Elites, Interest Groups, and Average Citizens” (2014) 12:3 *Perspectives on Politics* 564; Jacob S Hacker & Paul Pierson, *Winner-Take-All Politics: How Washington Made the Rich Richer—and Turned its Back on The Middle Class* (New York: Simon & Schuster, 2011).

⁶ Elizabeth Popp Berman, *Thinking Like an Economist: How Efficiency Replaced Equality in U.S. Public Policy* (Princeton: Princeton University Press, 2022).

⁷ Bart Elmore, “Monsanto’s Superfund Secret,” *Dissent* (1 April 2017); Bartow J Elmore, “Roundup from the Ground Up: A Supply-Side Story of the World’s Most Widely Used Herbicide” (2019) 93:1 *Agricultural History* 102. More generally see Bartow J Elmore, *Seed Money: Monsanto’s Past and Our Food Future* (New York: W.W. Norton & Company, 2021); Paul Sabin, *Public Citizens: The Attack on Big Government and the Remaking of American Liberalism* (New York: W.W. Norton & Company, 2021).

⁸ Lawrence Lessig, *The USA is Lesterland* (CC-BY-NC (4.0), 2013); Lawrence Lessig, *Republic, Lost: How Money Corrupts Congress—and a Plan to Stop It* (New York: Twelve, 2015); Zephyr Teachout, *Corruption in America: From Benjamin Franklin’s Snuff Box to Citizens United* (Cambridge, MA: Harvard University Press, 2014); Lee Drutman, *The Business of America is Lobbying: How Corporations Became Politicized and Politics Became More Corporate* (New York: Oxford University Press, 2015); Wendy E Wagner, “Administrative Law, Filter Failure, and Information Capture” (2010) 59 *Duke Law Journal* 1321.

⁹ George J Stigler, “The Theory of Economic Regulation” (1971) 2 *Bell Journal of Economics and Management Science* 3.

¹⁰ Stigler was awarded the Nobel Prize in Economics in 1982 “for his seminal studies of industrial structures, functioning of markets and causes and effects of public regulation”: The Royal Swedish Academy of Sciences, Press Release, “The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1982” (20 October 1982), online: www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1982/press.html. See also Steven J Balla, Martin Lodge & Edward C Page, eds, *The Oxford Handbook of Classics in Public Policy and Administration* (Oxford: Oxford University Press, 2015). In 1977 the University of Chicago Booth School of Business established the George J. Stigler Center for the Study of the Economy and the State. The Center describes its work as follows: “Through research support, analysis of data and economic trends, and a wide range of courses, events, initiatives, and resources, the Stigler Center has become an intellectual destination for research on regulatory capture,

Following Stigler's influential analysis,¹¹ the definition of regulatory capture and the methods of capture research have been refined, its application has been enhanced and expanded in a number of ways, and regulatory capture is now recognized and analyzed across a wide range of different areas of public policy and regulation.¹²

11. The reality of regulatory capture is also well established *outside* of academia. In 2010, for example, the United States Senate conducted a hearing on regulatory capture (also sometimes referred to as agency capture). Senator and Committee Chair Sheldon Whitehouse summarized the common ground among the expert witnesses on regulatory capture as follows:

When we have a panel of witnesses—I have read carefully through all of your testimony, and I like to try to identify the places in which everybody seems to agree, and I found in your testimony six areas that I believe are areas of common agreement.

crony capitalism, and the various forms of subversion of competition by special interest groups." Online: <https://www.chicagobooth.edu/research/stigler/about>.

¹¹ *Id.*

¹² Bó, *supra* note 3 at 204. See also Sam Peltzman, "Toward a More General Theory of Regulation" (1976) 19 *Journal of Law and Economics* 211. In fact, scholarly recognition of, and attention to, law, policy, and regulatory issues subject to regulatory capture appears to be growing. See e.g. Rebecca Giblin & Cory Doctorow, *Chokepoint Capitalism: How Big Tech and Big Content Captured Creative Labor Markets and How We'll Win Them Back* (Boston: Beacon Press, 2022). For a recent application of regulatory capture to government regulation in Canada, see Bruce Campbell, ed, *Corporate Rules: The Real World of Business Regulation in Canada: How government regulators are failing the public interest* (Toronto: James Lorimer & Company Ltd., Publishers, 2022). Full disclosure: I contributed the leading chapter to this collection: Jason MacLean, "Chapter 1: Energy and Climate: Capturing the Imagination of Canada's Climate Policy." I have utilized the concept and methodology of regulatory capture to help explain how Canadian environmental law and policy, including climate change and energy laws and policies, have been directed away from the broad public interest in environmental protection toward the narrow, special interests of private industries. See e.g. Jason MacLean, "Striking at the Root Problem of Canadian Environmental Law: Identifying and Escaping Regulatory Capture" (2016) 29 *Journal of Environmental Law and Practice* 111; Jason MacLean, "Regulatory Capture and the Role of Academics in Public Policymaking: Lessons from Canada's Environmental Regulatory Review Process" (2019) 52:2 *UBC Law Review* 479. I have also examined regulatory capture in respect of US environmental law, including the Environmental Protection Agency: Jason MacLean, "Learning how to overcome political opposition to transformative environmental law" (2020) 117:15 *Proceedings of the National Academy of Sciences* 8243. Most recently, I have published an analysis of Monsanto's capture of Canada's Pest Management Regulatory Agency's (PMRA) regulation of glyphosate and Monsanto's GBH Roundup: Jason MacLean, "Judicial Review and Administrative Law Reform: *Safe Food Matters Inc v Canada (Attorney General)*" (April 2022) *Toronto Law Journal* 20.

The first is this problem ***of agency capture is a widely accepted phenomenon***, to quote Dr. Troy's testimony just now, "a real phenomenon." Professor Bagley cited, you know, Stigler, Huntington, Posner. There is a wide array of very prestigious names that for decades have accepted that this is, again to quote Dr. Troy, "***a real phenomenon.***"

The second is that ***there is a lot at stake here for the regulated industries***. This is a matter of millions, tens of millions, even hundreds of millions of dollars in some cases.

The third point is that there is a mismatch out there, whether you describe it as an enormous organizational advantage, the way Professor Bagley did, or describe that ***certain actors do have greater interest and put more effort into the process***, as Dr. Troy did.

The fourth is that some of the mechanisms of administrative procedure lend themselves to abuse, and, therefore, ***the system can be gamed***.

The fifth is that regulatory capture is by its nature done in the dark and done as quietly as possible. ***No one plants a flag when they have captured an agency. In fact, they will do their utmost to deny it.***

And, finally, it is that the potential damage from agency capture, as MMS and the SEC have shown, can be huge, both in terms of Government principles, of openness, candor, and responsiveness to the electorate and all of that, but more to home in terms of the ***terrible potential outcomes*** that the gulf has seen and that

families in Rhode Island and across the country have seen as the tsunami of misery that flowed out from the Wall Street meltdown, hit town after town, city after city, county after county.¹³

12. More recently, United States Supreme Court Justice Neil Gorsuch opined on the broad democratic obstacles to ensuring the accountability of administrative agencies:

Nor does everyone suffer equally. Sophisticated entities may be able to find their way. They or their lawyers can follow the latest editions of the Code of Federal Regulations—the compilation of Executive Branch rules that now clocks in at over 180,000 pages and sees thousands of further pages added each year. The powerful and the wealthy can plan for and predict future regulatory changes. More than that, they can lobby agencies for new rules that match their preferences. ***Sometimes they can even capture the very agencies charged with regulating them.*** But what about ordinary Americans?¹⁴

13. Whether capture exists in respect of any given area of regulation, and the degree of any such capture, are complex and contextually sensitive empirical questions. Evidence of the following three phenomena constitutes “the gold standard for a diagnosis of capture”:

(i) The public interest at stake;

¹³ US Senate, Hearing 111-905, “Protecting the Public Interest: Understanding the Threat of Agency Capture,” Hearing before the Subcommittee on Administrative Oversight and the Courts of the Committee on the Judiciary, United States Senate, One Hundred Eleventh Congress, Second Session, 3 August 2010, at 11-12, available online: <https://www.congress.gov/111/chrg/CHRG-111shrg64724/CHRG-111shrg64724.pdf> [emphasis added] See also Senator Sheldon Whitehouse with Melanie Wachtell Stinett, *Captured: The Corporate Infiltration of American Democracy* (New York: The New Press, 2017).

¹⁴ *Thomas H Buffington v Denis R McDonough, Secretary of Veteran Affairs*, On Petition for Writ of Certiorari to the United States Court of Appeals for the Federal Circuit, No. 21—972 (November 7, 2022) (Gorsuch, J. dissenting from denial of certiorari), online: https://www.supremecourt.gov/opinions/22pdf/21-972_mkhn.pdf [emphasis added].

(ii) An observable policy or regulatory shift away from the public interest and toward industry (special) interest; and

(iii) Action and intent by an industry or firm (special interest) in pursuit of this policy or regulatory shift capable of materially contributing to the shift, in whole or in part.¹⁵

14. There are several well established indicia of regulatory capture,¹⁶ including factors that make capture more likely than not, and factors that affect the degree of regulatory capture in any given case. The following six most common indicators¹⁷

¹⁵ This is my application of the methodology described by Carpenter & Moss, *supra* note 2 at 15. Carpenter & Moss further explain the diagnostic method and evidentiary requirements of regulatory capture scholarship thus:

EVIDENCE

Our definition suggests a set of standards for making statements about whether capture has occurred in the case of a given regulation or agency. We offer a more detailed analysis of these empirical standards for detection and measurement (or what we more casually call *diagnosis*) in the third chapter of this volume. Yet three general empirical standards follow straightforwardly from our definition. To claim capture, an argument ought to:

- Provide a defeasible model of the public interest
- Show a policy shift away from the public interest and toward industry (special) interest
- Show action and intent by the industry (special interest) in pursuit of this policy shift sufficiently effective to have plausibly caused an appreciable part of the shift

If an argument that capture has occurred lacks one of these necessary components, then scholars making claims about capture should exhibit considerable circumspection about what exactly has been established. Showing all three components is, we believe, the gold standard for a diagnosis of capture (*id* at 15; emphasis in original).

See also David Freeman Engstrom, “Corralling Capture” (2012) 36:1 Harvard Journal of Law & Public Policy 31 at 34 (Engstrom writes that the distinction between “strong” and “weak” capture – which I also discuss below in this report – “is an important one, for it helps us to understand what remedies might be implicated upon a ‘capture’ diagnosis”).

¹⁶ *Id.*

¹⁷ This description of regulatory capture’s multidimensionality is supported by other scholars, including Andrea Saltelli *et al.*, “Science, the endless frontier of regulatory capture” (2021) 135 Futures <https://doi.org/10.1016/j.futures.2021.102860>, and Barry M Mitnick, “Capturing ‘Capture’: Definitions and Mechanisms” in David Levi-Faur (ed), *Handbook on the politics of regulation* (Edward Elgar, 2011) 34-49.

tend to interact with one another in cases of capture, particularly in cases of “corrosive capture,” where capture results in less public-interest-serving regulation and reduced – or entirely eliminated – regulatory-compliance costs borne by industries and firms. Put another way, “[c]orrosive capture occurs if organized firms render regulation less robust than intended in legislation or than what the public interest would recommend.”¹⁸ These common indicators include (i) concentrated costs; (ii) information complexity, costs, and asymmetry; (iii) coziness between the regulator and the regulated, which tends to be produced through (1) the “revolving door” between the regulator and the regulated, (2) frequent formal and informal interactions between the regulator and the regulated, and (3) shared understandings between the regulator and the regulated of problems and solutions, also known in the regulatory capture literature as “cultural capture”;¹⁹ (iv) squawking (*i.e.*, frequent and/or strategic and aggressive complaining by the regulated about the regulator); (v) inadequate operational budgets and staffing levels among regulators; and (vii) regulatory *inaction*.

Bayer/Monsanto has Captured EPA, PMRA and Other Pesticide Regulators

15. Bayer/Monsanto and related entities (*e.g.*, CropLife Canada, an agrochemical industry lobby group) engage in activities that result in the regulatory capture of PMRA as well as other foreign pesticide regulators, including EFSA (European Food Safety Authority), EChA (European Chemicals Agency), BfR (Germany’s Federal Institute for Risk Assessment), APVMA (Australian Pesticides and Veterinary Medicine Authority), NZEPA (New Zealand Environmental Protection Authority), ANVISA (Brazil’s Health Regulatory Agency), FSC (Japan’s Food Safety Commission), RDA (South Korea’s Rural Development Administration), and JMPR (the UN WHO/FAO Joint Meeting on Pesticide Residues). These activities include,

Because regulatory capture is highly context-sensitive, the nature and number of its indicators – as well as its categories and mechanisms – is not fixed. As Mitnick (at 37) aptly observes, “[i]t is likely that additional mechanisms may be described and later added.” But there is a marked level of overlap and agreement regarding the core indicators of regulatory capture across different disciplinary methodologies and vocabularies. This reflects regulatory capture’s high level of conceptual validity and reliability.

¹⁸ Carpenter & Moss, *supra* note 2 at 16.

¹⁹ James Kwak, “Cultural Capture and the Financial Crisis” in Carpenter & Moss, *supra* note 2 at 80.

but are not limited to, lobbying (direct and indirect, including, politically, lobbying the highest levels of government); securing and participating in frequent formal and informal meetings with regulators' leadership and staff members; communicating – including, in some instances, complaining aggressively – frequently with regulators' leadership and staff members; commissioning private laboratories to conduct toxicological studies in line with what are called the Good Laboratory Practices (GLP); commissioning, publishing, and “ghostwriting” academic articles that are supportive of its pesticide products, and critical of academics, health and environmental organizations, and public officials that question the health and environmental safety of its products; enlisting third parties to write gray literature articles supportive of its products, and critical of academics, health and environmental organizations, and public officials that question the health and environmental safety of its products; and enlisting in some instances the assistance of certain regulators to influence other regulators, and to respond to academics.

16. Bayer/Monsanto also employs a set of tactics that it uses to protect what it calls its Freedom to Operate (FTO). Those tactics are cast by Bayer/Monsanto as (i) actively tell our story, (ii) build the right relationships, (iii) let nothing go, and (iv) discomfort our opposition.

17. Bayer/Monsanto and its lobbyists also achieve regulatory capture by facilitating what is known as the “revolving door” – noted above – between regulators and regulated entities by hiring – and holding out the prospect of hiring – regulatory staff members. CropLife Canada, for example, a lobbyist for Bayer/Monsanto, has hired several former staff members of PMRA and other members of Canadian government agencies (see Exhibit A of Affidavit #1 of Jodi Kaldestad dated 19 April 2023).

PMRA Is Heavily Reliant on EPA's Captured Assessment of Glyphosate

18. PMRA is neither technically nor directly subject to regulatory capture by foreign pesticide regulators. PMRA is subject to regulatory capture by Bayer/Monsanto. Bayer/Monsanto has captured PMRA, in part, via Bayer/Monsanto's earlier capture

of EPA in the United States, which has long collaborated closely with and heavily influenced Health Canada and PMRA.

The Agreement Among Regulators on Glyphosate is a Product of Capture

19. The presence of concurrence among certain pest control regulators, including PMRA, EPA, EFSA, and others is not an indication that there is no scientific dispute or doubt regarding glyphosate. This is so for at least five reasons.
20. First, my research has uncovered that Bayer/Monsanto has captured these regulators in respect of glyphosate and glyphosate-based herbicides including Bayer/Monsanto's Roundup-branded products. The apparent agreement among these regulators is better explained by regulatory capture, not their putative congruent independent assessments of glyphosate and glyphosate-based herbicides.
21. Second, these regulators have not in fact independently assessed glyphosate and glyphosate-based herbicides. To the contrary, there are patterns of inter-agency regulatory influence. EPA strongly influences Health Canada and PMRA, as well as EFSA. In turn, EFSA strongly influences APVMA, ANVISA, and NZEPA.
22. Third, all of these agencies rely either exclusively or heavily on industry-commissioned studies, which, by virtue of being bought and paid for by the pesticide industry, are (i) not publicly available for review, (ii) not subject to independent academic peer review (the leading method for assessing scientific work), and (iii) not subject to experimental reproducibility analysis (the gold standard for assessing experimental research); they are, however, subject to a significant conflict of interest. Moreover, regulators lack the expertise and capacity to independently assess these industry-commissioned studies, and as a result, they tend to blindly trust and rely on industry submissions. It is a matter of public record, for example, that BfR and EPA have cut-and-paste industry submissions into their ostensibly independent assessment reports.

23. Fourth, as discussed below, in 2015 the World Health Organization's International Agency for Research on Cancer (IARC) conducted an independent and comprehensive "structured expert judgment" review of the publicly available and peer-reviewed literature on the toxicology and epidemiology of glyphosate and glyphosate-based herbicides, and classified glyphosate as a "probable human carcinogen." IARC's methodology for conducting systematic literature reviews is considered to be best in class, and is presented as such in a guide produced for US Federal Court judges on the interpretation of scientific evidence (see the Federal Judicial Center's *Reference Manual on Scientific Evidence, Third Edition*).
24. IARC's review of glyphosate considered three bodies of evidence: (i) laboratory animal toxicology studies; (ii) cellular mechanistic studies of genotoxicity; and (iii) human epidemiology studies.²⁰ IARC concluded that there is (i) "sufficient" (*i.e.*, convincing) evidence that glyphosate causes cancer in laboratory animals. IARC also concluded that there is (ii) "strong" evidence that glyphosate is genotoxic (*i.e.*, causes DNA and chromosomal damage in human cells). Finally, IARC concluded that there is (iii) "limited" evidence of carcinogenicity in humans for non-Hodgkin lymphoma. The evidence in humans is from studies of exposures, mostly agricultural, in the USA, Canada, and Sweden published since 2001.²¹ On the basis of this evidence, IARC classified glyphosate as a "probable human carcinogen."
25. Since IARC's 2015 classification of glyphosate as a "probable human carcinogen," the independent, peer-reviewed academic literature on glyphosate has grown rapidly, and most of that literature supports IARC's classification and/or identifies other serious adverse health and environmental impacts of glyphosate and glyphosate-based herbicides; much of this literature is also critical – directly or indirectly – of the regulatory approvals of glyphosate. For example, the Ramazzini Institute, based in Bologna, Italy, is conducting an entirely independent "Global

²⁰ Kate Z Guyton *et al.*, "Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate" (2015) 16 *The Lancet Oncology* 490; IARC, "IARC Monographs Volume 112: Evaluation of five organophosphate insecticides and herbicides." Press release (20 March 2015): www.iarc.fr/wp-content/uploads/2018/07/MonographVolume112-1.pdf.

²¹ *Id.*

Glyphosate Study,” and has already published a number of initial findings, including multiple harmful effects from exposure to glyphosate – including Roundup – at levels presently considered safe by European regulatory standards.²² As of this writing, the study has observed and confirmed in humans findings previously observed in animals, including that glyphosate can have disruptive effects on sexual development in newborns.²³ Early results also include observed disruptions to the endocrine system, including increased testosterone levels in females exposed to glyphosate.²⁴ Glyphosate exposure at doses considered safe by regulators also trigger alterations in the microbiome, impacting beneficial gut bacteria and fungi.²⁵ According to Dr. Mandrioli, the Ramazzini Institute’s coordinator of research, “[w]hen disrupted, many metabolic conditions, many diseases, have been connected with these alterations.”²⁶ The evidence, says Dr. Mandrioli, is “solid.”²⁷

26. Fifth, as of this writing 33 countries have banned glyphosate and glyphosate-based herbicides in whole or in part, including Canada, and others are considering doing so in light of the growing independent and peer-reviewed scientific evidence concerning the adverse public health and environmental impacts of glyphosate-based herbicides.

A Consensus Within PMRA on Glyphosate is Indicative of Regulatory Capture

27. The presence of a consensus among federally employed scientists within PMRA is not an indication of a lack of scientific dispute or doubt, for the reasons discussed above. Given the growing independent and peer-reviewed evidence concerning the serious adverse public health and environmental impacts of glyphosate and glyphosate-based herbicides around the world, given the number of countries that

²² See Carey Gillam, “Postcard from Brussels: Spotlight again on world’s most widely used weed killer,” *UnSpun* (13 April 2023), online: <https://careygillam.substack.com/p/postcard-from-brussels-spotlight>” quoting Dr. Daniele Mandrioli, coordinator of research on glyphosate at the Ramazzini Institute, who presented new findings of the Global Glyphosate Study to members of the European Parliament in April of 2023.

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

have already banned glyphosate in whole or in part (including Canada), and given IARC's 2015 classification of glyphosate as a "probable human carcinogen," a consensus among PMRA staff scientists that glyphosate is *not* carcinogenic and *not* otherwise harmful to human health and the environment is strongly suggestive of a flawed and captured regulatory assessment of glyphosate and glyphosate-based herbicides.

The PMRA Transformation Law Reform Project

28. The "PMRA Transformation Agenda" is a law reform project being carried out by the federal government of Canada. The origins of this law reform project are as follows. In or around 2017, Monsanto asked PMRA to increase the acceptable level of glyphosate and glyphosate-based pesticide products including Monsanto's Roundup products in food.²⁸ PMRA agreed, but it did so without ministerial authority or public support.²⁹ The proposal was subsequently paused, and to the best of my knowledge it remains paused at this writing.³⁰
29. In the interim, PMRA admitted that it heavily relies on industry-supplied studies and data for decisionmaking, including ghostwritten studies that are part of the so-called "Monsanto Papers."³¹ In response, the federal government committed \$42 million to PMRA to "strengthen its human and environmental health and safety oversight and protection."³² Indeed, the Prime Minister of Canada specifically identified the need to

²⁸ Thomas Gerbet, "Glyphosate: c'est le géant Bayer qui a demandé au Canada de revoir les limites," Radio Canada (23 July 2021), online: <https://ici.radio-canada.ca/nouvelle/1811085/glyphosate-bayer-canada-limites-pesticides-legumineuses>.

²⁹ See for further details Environmental Defence, "Media Backgrounder: Health Canada's re-evaluation of glyphosate and the Monsanto papers" (November 2018) at 2-3, online: https://ecojustice.ca/wp-content/uploads/2018/11/FINAL_Monsanto-Papers-background.pdf?x89810.

³⁰ Government of Canada, "Government of Canada pauses decision on Glyphosate as it strengthens the capacity and transparency of review process for pesticides" (4 August 2021), online: <https://www.canada.ca/en/health-canada/news/2021/08/government-of-canada-pauses-decision-on-glyphosate-as-it-strengthens-the-capacity-and-transparency-of-review-process-for-pesticides.html>.

³¹ *Id.* See also Environmental Defence, *supra* note 29.

³² Government of Canada, *supra* note 30. This funding is intended to support PMRA's "transformation agenda," the four pillars of which include: (1) "improved transparency," (2) "increased use of real-world data and independent advice," (3) "strengthened human health and environmental protection through modernized pesticide business processes," and (4) "targeted review of the *Pest Control Products Act*." See Government of Canada, "How we are transforming the Pest Management Regulatory Agency" (21 March 2022), online: <https://www.canada.ca/en/health-canada/corporate/about-health-canada/branches->

overhaul PMRA in his 2021 mandate letter to the then newly appointed Minister of Health: “I ask that you achieve results for Canadians by delivering the following commitments,” including: “To ensure Canadians are protected from risks associated with the use of pesticides and to better protect human health, wildlife and the environment, modernize and strengthen the *Pest Control Products Act* to ensure it supports transparency, use of independent scientific evidence and input to the decision-making process.”³³

30. Yet, in my opinion, the federal government has not yet committed to providing PMRA with funding sufficient to enable its staff scientists to independently conduct systematic reviews of the scientific literature and stay abreast of ongoing developments.³⁴ PMRA remains captive to the pesticide industry.

31. Unless the federal government makes significant changes to PMRA’s budget, capacity, and agency culture, PMRA will most likely **continue** to manifest the hallmarks of regulatory capture concerning Monsanto and glyphosate-based pesticide products including Monsanto’s Roundup-branded products. Indeed, PMRA has long been considered a captured and compromised regulator. In May 2012, for example, the British Columbia provincial Legislative Assembly issued a special committee report on pesticides. The special committee’s report summarized the evidence that it heard regarding PMRA’s regulation of pesticides in the following terms: “Submitters contended that the federal Pest Management Regulatory Agency fails to protect Canadians for four reasons: because the testing processes are incomplete, because the precautionary principle is not adequately applied, because

[agencies/pest-management-regulatory-agency/transforming/how-we-are-transforming.html](https://www150.com/eng/pestmra/transforming/how-we-are-transforming.html). My review of PMRA and its regulatory reform is ongoing. The analysis I report here significantly informs my first published academic analysis of PMRA, Monsanto, and regulatory capture: MacLean, “Judicial Review and Administrative Law Reform,” *supra* note 12.

³³ Office of the Prime Minister of Canada, Mandate Letter to the Minister of Health dated 16 December 2021 at 6, online: <https://pm.gc.ca/en/mandate-letters/2021/12/16/minister-health-mandate-letter>.

³⁴ Environmental Defence, *supra* note 29.

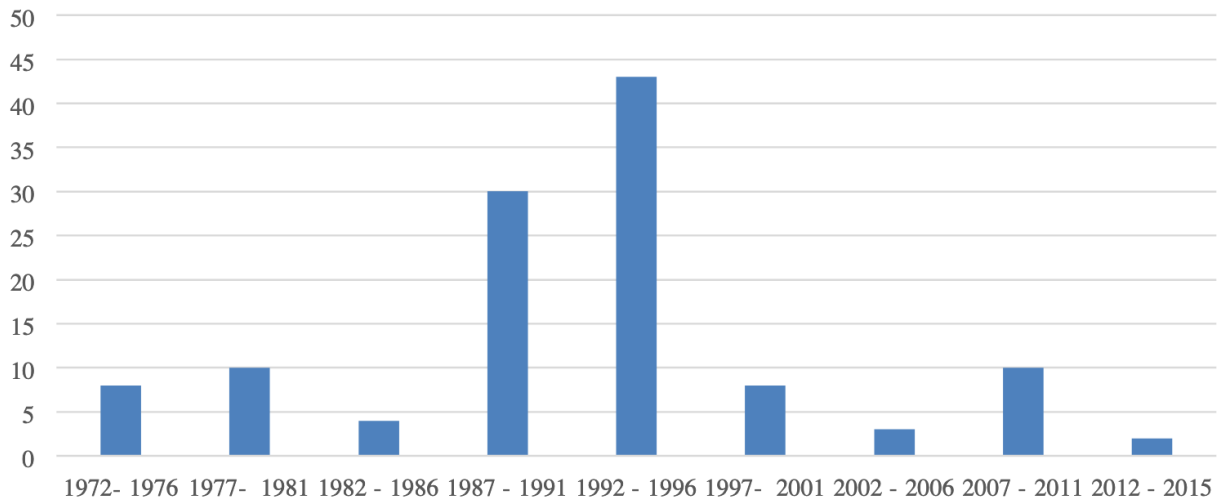
pesticide labelling is flawed, and because the Agency is a captive of pesticide manufacturers.”³⁵

32. This characterization of PMRA as being captive to pesticide manufacturers finds further support in an independent academic analysis of PMRA’s 2017 re-evaluation decision on glyphosate, which observes that “Given the considerable weight, to put it mildly, of industry-derived references in PMRA document PRDV2015-01 [PMRA’s assessment of the health impacts of glyphosate], confidential documents, we recall, not subject to independent counter-assessment, and in the almost total absence of clearly identified scientific articles, to dare claim at the opening of RDV2017-01, that “Health Canada’s primary objective concerning pesticide regulation is to protect the health and safety of Canadians and their environment” is tantamount to deception.”³⁶
33. Consider, moreover, the dates of the confidential industry-commissioned toxicology reports on glyphosate considered by PMRA as part of its 2017 re-evaluation decision (see Fig. 1, below). The studies considered by PMRA are significantly dated, meaning that PMRA’s assessment of glyphosate and glyphosate-based pesticide products is not keeping pace with developments in science or the cumulative public health and environmental impacts that develop over time as glyphosate use and exposures increase.

³⁵ Legislative Assembly, Province of British Columbia, Fourth Session, Thirty-Ninth Parliament, “Special Committee on Cosmetic Pesticides” (17 May 2012) at 26 [emphasis added]. The Committee further observed (at 32) that “PMRA’s practice of using toxicological data submitted by pesticide manufacturers was a source of concern among some participants in the e-consultation. Members of the public argued that since toxicology data submitted by pesticide registration often comes from applicants’ internal or contracted laboratories, there is the possibility that the data could be manipulated to guarantee pesticide registration.”

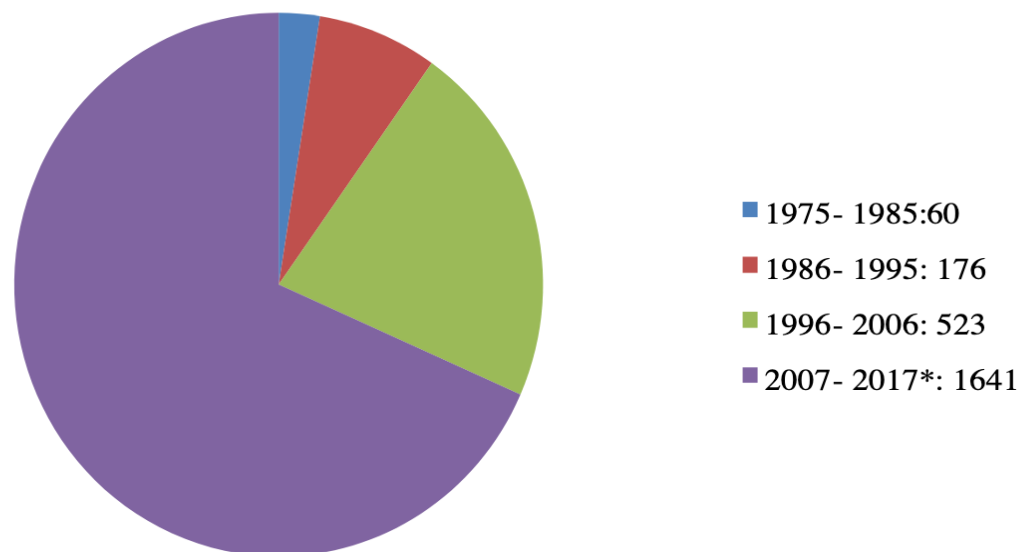
³⁶ Louise Vandelac & Marie-Hélène Bacon, “Notice of Objection to Re-assessment Decision RDV2017-01 on Glyphosate” (June 2017) at 16, online: https://www.researchgate.net/publication/351335446_Notice_of_Objection_to_Re-assessment_Decision_RDV2017-01_on_Glyphosate.

Fig. 1. Industry toxicology studies considered by PMRA in 2017 by year: 1972-2012³⁷



Consider next the significant growth over time in independent academic studies on glyphosate and glyphosate-based herbicides (see Fig. 2, below):

Fig. 2. Number of scientific studies on glyphosate and GBHs, 1975-2017³⁸



³⁷ Adapted from *id* at 5.

³⁸ Adapted from *id* at 6. Data are complete up to April 2017.

34. Monsanto and other agricultural companies' outsize regulatory influence is a matter of public record in Canada.³⁹ In response to evidence showing record levels of pesticide use in Canada in 2015, including use of Monsanto's Roundup products, Quebec's Minister of Agriculture told the news media that "Monsanto is more powerful than the government."⁴⁰ This is an unusually candid admission of strong regulatory capture.⁴¹

35. Making matters worse still, Pesticide regulators, including PMRA, unduly employ different criteria for evaluating studies – be they industry commissioned or independent and peer-reviewed academic studies – of pesticides. Since the late 1970s, following the discovery of the massive fraud at the corporate laboratory (Industrial Bio-Test Laboratories, Inc., or IBT) that produced, *inter alia*, the initial toxicological studies used by Monsanto to secure the regulatory approval and registration of glyphosate and its glyphosate-based Roundup products in 1974 from EPA and 1976 from Health Canada, the US Food and Drug Administration, in close cooperation with the pesticide industry, created what are called Good Laboratory Practices (GLP). GLP was originally intended to help prevent fraud; GLP was not originally intended as new or superior set of criteria for scientific research excellence or reliability. But that is how captured regulators like EPA, PMRA, and EFSA have come to view GLP, which is so expensive to implement that typically only industry – and not independent academic laboratory researchers – can afford to conduct GLP-compliant studies.

³⁹ Thomas Gerbet, "Monsanto est plus puissante que le gouvernement", dit le ministre de l'Agriculture," Radio Canada (22 October 2015), online: <https://ici.radio-canada.ca/nouvelle/745694/monsanto-pesticides-quebec-paradis-heurtel>.

⁴⁰ *Id.* The Minister further stated: "Ils sont encore plus puissants que le gouvernement du Québec [...] Monsanto et les autres de ce genre. La pression économique sur les agriculteurs est très forte, notamment dans le context des accords commerciaux internationaux." Author's translation: "They are even more powerful than the government of Quebec [...] Monsanto and others like it. The economic pressure on farmers is very strong, especially in the context of international trade agreements."

⁴¹ There is additional evidence that Monsanto employed the same sorts of regulatory capture techniques in Canada that it used to capture EPA in respect of glyphosate and other GBH products including Monsanto's Roundup, including reaching out directly to government agencies and academics. See Environmental Defence, "Media Backgrounder: Health Canada's re-evaluation of glyphosate and the Monsanto papers" (November 2018) at 2-3, online: https://ecojustice.ca/wp-content/uploads/2018/11/FINAL_Monsanto-Papers-background.pdf?x89810.

36. Indeed, “[t]he complexity and logistics of these designs can make them prohibitively expensive for researchers outside of industry, often leaving industry [and some industry-funded academics] as the only entity that can afford to conduct the research to the USEPA’s specifications or is knowledgeable of the requirements. Therefore, all or most of the data used in risk assessments may come from industry-supplied research, despite clear COIs [conflicts of interest].”⁴² GLP-based studies were originally intended to ensure greater accountability with strict data documentation and further logistical controls in studies provided to regulatory bodies, including basic guidelines for the care and feeding of laboratory animals, standards for facility maintenance, calibration and care of equipment, personnel requirements, inspections, study protocols, and the collection and storage of raw data.⁴³ But GLP-based studies have not only under-delivered in this regard, yielding studies that are nonetheless fraudulent (e.g., the Craven Laboratories fraud associated with Monsanto’s glyphosate-based products in the 1980s and early 1990s was committed in the early GLP era, and spurred GLP *reforms*), but they also do not set rules or standards for excellence, reliability, or validity in scientific research.⁴⁴ The Good Laboratory Practices were created for industry research laboratories without any expectation that GLP-based studies would be subject to blind peer review and the reliance on experimental replication to establish reliability, the cardinal rules of *independent* academic research but not industry-based research. Pesticide corporations, however, have managed to capture regulators’ very idea of superior scientific reliability, associating it with GLP-compliance and not independent, peer-reviewed, and replicated science.⁴⁵ As a practical and consequential result of this

⁴² Michelle D Boone *et al.*, “Pesticide Regulation amid the Influence of Industry” (2014) 64:10 *BioScience* 917 at 918. See also JP Myers *et al.*, “Why Public Health Agencies Cannot Depend on Good Laboratory Practices as a Criterion for Selecting Data: The Case of Bisphenol A” (2009) 117 *Environmental Health Perspectives* 309.

⁴³ Dexter S Goldman, “Chemical aspects of compliance with Good Laboratory Practices” in Willa Y Garner & Maureen S Barge, eds, *Good Laboratory Practices: An Agrochemical Perspective* (Washington, DC: American Chemical Society, 1988) 13-23.

⁴⁴ Eva Novotny, “Glyphosate, Roundup and the Failures of Regulatory Assessment” (2022) 10 *Toxics* 321.

⁴⁵ JP Myers *et al.*, “Why Public Health Agencies Cannot Depend on Good Laboratory Practices as a Criterion for Selecting Data: The Case of Bisphenol A” (2009) 117 *Environmental Health Perspectives* 309.

aspect of this cultural capture, “more than 90% of the scientific literature on glyphosate had been ruled unreliable or irrelevant by the regulators, leaving the assessment of risk based on data provided by industry.”⁴⁶ Hence the Ramazzini Institute in Italy – noted above – has initiated an integrated experimental research project on glyphosate and glyphosate-based pesticide products, including end-use formulations of Roundup, that is independent of industry support and entirely sponsored by worldwide crowdfunding (the Global Glyphosate Study). The aim of the Ramazzini Institute’s Global Glyphosate Study is to examine comprehensively the effects of exposures to glyphosate and glyphosate-based products at current real-world levels on multiple toxicological endpoints, including carcinogenicity, long-term toxicity, neurotoxicity, endocrine disrupting effects, prenatal developmental toxicity, the microbiome, and multi-generational effects.⁴⁷

37. The need – as of 2018 and presently – for such a study like the Global Glyphosate Study is a direct result of Bayer/Monsanto’s capture of EPA, PMRA, EFSA, and other pesticide regulators. Despite the fact that glyphosate is the most heavily and widely used herbicide in history, it is a chemical subject to astonishingly little regulatory rigor due to worldwide regulatory capture and regulatory failure. It is extraordinary but also, given these facts, not surprising that an independent, non-profit cooperative – the Ramazzini Institute – has had to take it upon itself to conduct the first-ever comprehensive study on glyphosate and glyphosate-based herbicides “[t]o help guide the public and regulators[.]”⁴⁸ Glyphosate, the Ramazzini Institute explains, has never been comprehensively studied to find out: (i) What levels of glyphosate are safe or not – including levels the public is exposed to; and (ii) What specific harm is being caused to human health – if any.

⁴⁶ Claire Robinson & Jonathan Matthews, “Independent Expert Bodies Contest Key Assertions of Favourable EU Glyphosate Assessment” (February 2022), online: <https://www.gmwatch.org/en/106-news/latest-news/19995-independent-expert-bodies-contest-key-assertions-of-favourable-eu-glyphosate-assessment>.

⁴⁷ Philip J Landrigan & Fiorella Belpoggi, “The need for independent research on the health effects of glyphosate-based herbicides” (2018) 17: 51 Environmental Health, <https://doi.org/10.1186/s12940-018-0392-z>.

⁴⁸ Ramazzini Institute, “FAQs: Glyphosate” (no date), online: <https://glyphosatestudy.org/faqs-glyphosate/>.

38. To fill this enormous gap left by captured national environmental regulators, including PMRA, data from the Global Glyphosate Study will include: (i) full clear long-term data on the **toxicity** of glyphosate and a glyphosate-based herbicide at real-life exposures; (ii) full clear long-term data on the **carcinogenicity** of glyphosate and a glyphosate-based herbicide at real-life exposures; (iii) full clear long-term data on the **multi-generational** effects of glyphosate and a glyphosate-based herbicide at real-life exposures; (iv) full clear long-term data on the **neurotoxicology** effects of glyphosate and a glyphosate-based herbicide at real-life exposures; (v) full clear long-term data on the **endocrine disrupting** effects of glyphosate and a glyphosate-based herbicide at real-life exposures; (vi) full clear long-term data on the **prenatal developmental toxicity** effects of glyphosate and a glyphosate-based herbicide at real-life exposures; and (vii) full clear long-term data on the effects of glyphosate and a glyphosate-based herbicide at real-life exposures on the **microbiome**.⁴⁹

39. According to the Ramazzini Institute, “The Global Glyphosate Study will supply valuable data of unprecedented power to enable regulators, governments and the general public of every country to answer the question: Are glyphosate and Roundup safe at real-world levels of exposure?”⁵⁰

“Desiccant” versus “Pre-Harvest” Pesticide Use

40. The distinction between use of a pesticide product as a “desiccant” versus “pre-harvest,” and the implications – if any – of this distinction in respect of the assessment of human-health risks, is beyond the scope of my expertise.

What are the Monsanto Papers?

41. The “Monsanto Papers” are a series of internal Bayer/Monsanto documents, including internal company communications, communications between company employees and external parties (including regulators), private studies (including

⁴⁹ The Ramazzini Institute, “FAQs: The Study” (no date), online: <https://glyphosatetestudy.org/faqs-the-study/> [emphasis original]. Initial publications arising from this fully independent study are cited and discussed earlier in this report.

⁵⁰ *Id.*

discontinued and nondisclosed studies disclosing harmful effects of glyphosate), presentations, and reports, and financial information, disclosed – “produced,” in legal nomenclature – in response to the multi-district litigation (MDL) commenced against Monsanto in the United States following IARC’s 2015 classification of glyphosate as a “probable human carcinogen.” The Monsanto Papers are voluminous, comprising millions of pages of documentation. The Monsanto Papers are also highly revealing of Monsanto’s efforts to capture the regulation of glyphosate and its glyphosate-based Roundup-branded products, including the “ghostwriting” of ostensibly independent academic papers. These ghostwritten papers are signed by independent academics but largely written, edited, and controlled by internal Monsanto scientists and scientists working for firms consulting for Monsanto who were not listed as authors. These papers are supportive of glyphosate and critical of independent, peer-reviewed research that questioned the health and safety of glyphosate, and are intended to lend an independent academic imprimatur to what are in reality self-serving company-produced documents.

42. The Monsanto Papers have been discussed and analyzed extensively in a number of books, including: Chadi Nabhan, *Toxic Exposure: The True Story Behind the Monsanto Trials and the Search for Justice* (Baltimore: Johns Hopkins University Press, 2023); Carey Gillam, *The Monsanto Papers: Deadly Secrets, Corporate Corruption, and One Man’s Search for Justice* (Washington: Island Press, 2021); Bartow J Elmore, *Seed Money: Monsanto’s Past and Our Food Future* (New York: W.W. Norton & Company, 2021); and Carey Gillam, *Whitewash: The Story of a Weed Killer, Cancer, and the Corruption of Science* (Washington: Island Press, 2017).

The Monsanto Papers and PMRA

43. As noted above, so extensively and uncritically has PMRA relied on certain of the Monsanto Papers, including studies commissioned by Monsanto (as well as other pesticide manufacturers), studies ghostwritten by Monsanto employees, and data and studies originally collected and conducted, respectively, for a putatively separate

and independent – but in reality intimately intertwined and interdependent – regulatory review by EPA, as noted above the federal government of Canada initiated a major law reform project (prioritized in the Prime Minister of Canada’s official mandate letter to the Minister of Health) to “transform” PMRA to make it transparent, science-based, and democratically accountable.

44. The Monsanto Papers also disclose a very close and cooperative relationship between Monsanto and PMRA, including Monsanto’s confident disposition and prediction prior to the beginning of PMRA’s re-registration review of glyphosate commencing – along with EPA’s review – in 2009 that PMRA would renew its approval of glyphosate.
45. The Monsanto Papers further disclose PMRA’s acceptance – like EPA’s acceptance – of Monsanto’s position that what matters in the regulatory assessment of glyphosate are studies of technical glyphosate as a chemical in isolation from the actual product formulas – *i.e.*, technical glyphosate plus other chemicals, such as surfactants – to which people and the environment are actually exposed. This is not a science-based position; it is an industry-based position that serves industry’s interest to the detriment of the public interest. In the US context, a number of environmental organizations are as of this writing challenging EPA’s refusal to require testing of formulated pesticide products, a regulatory refusal notwithstanding the growing independent and peer-reviewed scientific evidence that pesticide adjuvants and surfactants are orders of magnitude more toxic than pesticide’s so-called “active ingredients” (*e.g.*, glyphosate), from hundreds of times more toxic to thousands of times more toxic. Indeed, this evidence further suggests that these chemicals, when combined in actual product formulations, act synergistically to exponentially increase those formulations’ toxicity.
46. The specific facts surrounding this US administrative law challenge are highly relevant to Safe Food Matters’ application for judicial review before this court. The Center for Food Safety petitioned EPA in 2017 to require data on and testing of actual pesticide product formulations and mixtures as part of its regulation of

pesticides under the US *Federal Insecticide, Fungicide, and Rodenticide Act* (FIFRA), as opposed to only pesticide products' "active" ingredients (e.g., glyphosate is deemed to be the "active" ingredient in Monsanto's Roundup products). The 2017 citizen petition is a comprehensive, 22-page scientific and legal document supported by 147 citations describing multiple adverse public-health and environmental impacts of formulated, end-use pesticide products as compared to the impacts of so-called active ingredients in isolation.⁵¹ The Center's petition explains that inert pesticide ingredients *are not actually biologically inert*, and that they can be highly toxic and hazardous. Moreover, so-called inert ingredients increase both the effectiveness and the toxicity of active ingredients, acting "synergistically" to increase the toxicity of pesticides; the Center's petition examines a patent application made by Monsanto in 2010 in respect of novel surfactants for its glyphosate-based pesticide product Roundup to demonstrate these effects.⁵² In some instances, for example, pesticide formulations can be over 1,000 times more toxic than active ingredients in isolation.⁵³ But EPA acknowledges that "[u]nlike active ingredients, inert ingredients do not have a 'required' data set."⁵⁴ This also

⁵¹ Center for Food Safety, "Citizen Petition to the United States Environmental Protection Agency Seeking Revised Testing Requirements of Pesticides Prior to Registration" (10 July 2017), online: https://www.centerforfoodsafety.org/files/2017-7-9-whole-formula-petition-to-epa-final_18181.pdf. EPA has received and refused earlier such petitions, bowing to industry's putative concerns about confidentiality and competitiveness. See e.g. Bob Weinhold, "Mystery in a Bottle: Will the EPA Require Public Disclosure of Inert Pesticide Ingredients?" (2010) 118:4 *Environmental Health Perspectives* A169. Dr. Caroline Cox, one of the earlier petitioners, argues that the market experience of other products that require transparent disclosure of ingredients demonstrates that the pesticide market would remain viable were the EPA to mandate disclosure: "Toothpaste lists all the ingredients," according to Dr. Cox, "and that hasn't stopped there being a very competitive toothpaste market" (at A171).

⁵² *Id* at 12-13.

⁵³ *Id* at 11-12. See also *Center for Food Safety, Californians for Pesticide Reform, Center for Environmental Health, and Pesticide Network North America v United States Environmental Protection Agency and Michael Regan, Administrator, United States Environmental Protection Agency*, Case No. 3:22-cv-6001 (United States District Court for the Northern District of California) at para 4.

⁵⁴ EPA, "Inert Ingredient Frequently Asked Questions," (6 May 2014), online:

<https://www.epa.gov/sites/default/files/2014-05/documents/faqs.pdf>.

. Nor does Monsanto (Bayer) make these data publicly available, despite its stated commitments to "transparency." Bayer makes certain parts and summaries of studies supporting the registration of glyphosate in Europe under the regulatory authority of the EFSA available for public review subject to strict terms and conditions (<https://www.bayer.com/en/agriculture/transparency-terms-and-conditions>). Second, those terms and conditions clearly stipulate that "**These Study Documents may be redacted to protect personal data and/or confidential business information**" [emphasis original]. The terms and conditions also stipulate that "**Study Reports are provided individually on request. However, Bayer is not obliged to provide any Study Reports**" [emphasis original]. The terms and conditions further stipulate that "The license [regarding Study Reports provided] can be revoked any time by Bayer, without

appears to be PMRA's practice, despite legal obligations to the contrary under the *Pest Control Products Act*.

47. The Center's citizen petition also outlines EPA's authority and obligation under FIFRA to regulate the formulated end-use pesticide products to which people, endangered species, and the environment are actually exposed. The petition also explains why EPA's current approach – also discussed earlier in this report – of requiring only data and testing of active ingredients along with some “inert” ingredients in isolation does not prevent “unreasonable adverse effects on the environment,” FIFRA's mandatory safety standard (which is similar to but arguably even weaker than the standard that PMRA must apply under the *Pest Control Products Act*).

48. The Center for Food Safety cites glyphosate as a case in point. The Center argues that amphibians are particularly susceptible to glyphosate-based pesticide product formulations because those formulations eventually runoff into wetlands inhabited by amphibians. A number of studies show that varying glyphosate-based pesticide formulations are highly toxic to amphibians.⁵⁵ But as the Center and independent academic studies explain, EPA establishes current mitigation measures applicable

the need to state any reasons.” The terms and conditions reiterate that “BAYER IS NOT OBLIGED TO PROVIDE ANY STUDY REPORTS” [emphasis original]. I have reviewed each of the documents made publicly available by Bayer that presently support the registration of glyphosate in Europe under the regulatory authority of the EFSA, along with Bayer's guidance document entitled “How to read a study report.” In the study report entitled “MON 52276 (360 g/L glyphosate Acid) DOCUMENT M-CP, Section 7, TOXICOLOGICAL STUDIES ON THE PLANT PROTECTION PRODUCT,” Bayer notes that “Information on the detailed composition of MON 52276 can be found in the Confidential Section (See Doc J CP: Doc ID 110054-JCP_GRG_Jun_2020)” (at page 7 of 121). I was not able, however, to locate Doc J CP: Doc ID 110054-JCP_GRG_Jun_2020 on Bayer's website (<https://www.bayer.com/en/agriculture/safety-results-crop-protection-products>). I made several requests to Bayer (Monsanto) for all of its available toxicological studies on glyphosate supporting its registration, including a request for a specific document (“Doc J CP: Doc ID 110005454-JCP_GRG_Jun_2020”) that Bayer (Monsanto) describes as containing “Information on the detailed composition of MON 52276.” In making my request for this particular document I indicated that I was seeking “Information on the detailed composition of MON 52276. What are the inert ingredients (i.e., the specific adjuvants) in this formulation, including their specific ratios compared to the active ingredient and all other ingredients.” In response on 10 January 2023 Bayer (Monsanto) instead sent me the “SAFETY DATA SHEET” for MON 52276 (i.e., its MSDS). In doing so, the company notified me that “in the attachment you can find the MSDS from MON 52276 with detailed information about the compound, anything more is considered confidential information by us.” The information that Bayer (Monsanto) described and that I originally requested is not included in the MSDS for MON 52276.

⁵⁵ Center for Food Safety, “Citizen Petition,” *supra* note 51 at 14-15.

to glyphosate – and thus glyphosate-based end-use pesticide products – such as the size of the buffer to prevent pesticide spraying near wetlands based on toxicity estimates of the active ingredient glyphosate alone and in isolation.⁵⁶ The Center argues that EPA’s refusal to consider the synergistic effects of “inert” and “active” pesticide products in their actual formulated combinations means that the buffers that EPA establishes may be too small to adequately protect vulnerable amphibians.⁵⁷

49. In contrast to Monsanto’s easy and frequent access to EPA officials, and EPA officials’ eager interventions on Monsanto’s behalf, over five years have passed since Center for Food Safety filed its citizen petition, and EPA has as of this writing still not issued a formal response.⁵⁸

50. Accordingly, the Center for Food Safety and other non-profit environmental organizations commenced on October 12, 2022 a legal challenge of EPA’s regulatory inaction.⁵⁹ They argue that EPA’s ongoing refusal to respond to the 2017 citizen petition violates the *Administrative Procedure Act* (APA) because EPA cannot unlawfully withhold or unreasonably delay a petition response.⁶⁰ They further argue that EPA’s current regulatory approach violates FIFRA in two important ways.

51. First, EPA shall not register a pesticide under FIFRA unless EPA can reasonably determine that “when used in accordance with widespread and commonly recognized practice it will not generally cause unreasonable adverse effects on the environment.”⁶¹ But because pesticides are commonly and widely – indeed primarily – used as formulated end-use products, EPA’s refusal to assess end-use product

⁵⁶ *Id.*

⁵⁷ *Id.*; see also *Center for Food Safety, Californians for Pesticide Reform, Center for Environmental Health, and Pesticide Network North America v United States Environmental Protection Agency and Michael Regan, Administrator, United States Environmental Protection Agency*, Case No. 3:22-cv-6001 (United States District Court for the Northern District of California, 2022) at para 55.

⁵⁸ *Id.* On December 21, 2018 EPA opened a 90-day public-comment period in response to the Center for Food Safety’s 2017 petition. The comment period ran until March 21, 2019. EPA has not taken any action, or made any response, since. See EPA, “Petition Seeking Revised Testing Requirements of Pesticides Prior to Registration; Request for Comment,” 83 Fed. Reg. 65672 (December 21, 2018).

⁵⁹ Center for Food Safety’s APA case, *supra* note 53.

⁶⁰ *Administrative Procedure Act*, 5 U.S.C. § 706(1).

⁶¹ Center for Food Safety’s APA case, *supra* note 53 citing 7 U.S.C. § 136(a)(c)(5)(D).

formulations violates FIFRA. The same practice obtains in Canada under PMRA's oversight of glyphosate alone, as opposed to actual, real-world glyphosate-based pesticide product formulations.

52. Second, EPA's pesticide-registration decisions based on isolated active ingredients are not and cannot be supported by substantial evidence, as FIFRA requires.⁶² The same conclusion follows in Canada under PMRA's current practice.

53. EPA's ongoing inaction on formulated end-use pesticide products is a critically important public-interest issue. As the Center for Food Safety originally explained in its 2017 citizen petition,

Broader Public Interest

The massive use of pesticides in nearly all aspects of industrial agricultural production negatively impacts the environment and public health. Currently registered pesticide products have not been fully tested, and many of those products can severely damage agricultural land, human health, and threatened and endangered species. The use of pesticides impacts the broader public interest by impacting our food, water, land, and products.⁶³

54. The only stakeholders that derive any benefit from EPA's and PMRA's ongoing regulatory inaction are pesticide product manufacturers and distributors, including Bayer/Monsanto. And they benefit handsomely, not only from the significantly reduced costs of unlawfully and unreasonably waived scientific studies, but also from the revenues and profits they garner from their pesticide products' continued registration and sale. At this writing, for example, Bayer (Monsanto) reported better-than-expected quarterly earnings in the final quarter of 2022 due to "its glyphosate-based weedkillers" making up for a decline in sales of its stroke-prevention pill Xarelto. The company said that third-quarter adjusted earnings in 2022 before

⁶² *Id* citing 7 U.S.C. § 136n.

⁶³ Center for Food Safety, "Citizen Petition," *supra* note 51 at 4.

interest, taxes, depreciation, and amortization (EBITDA) “rose 17.3% to 2.45 billion euros, above analysts’ average estimate of 2.31 billion euros.”⁶⁴ *Reuters* called the reported earning a “weedkiller windfall.”⁶⁵

55. To the best of my knowledge, however, the PMRA Transformation Agenda law reform project notwithstanding, PMRA has not disavowed the Monsanto Papers and the studies – including ghostwritten studies – and perspectives included in those Papers. To the best of my knowledge, PMRA has not disavowed its reliance on conflicted and confidential industry-commissioned and GLP-compliant studies of technical glyphosate in isolation over and above independent, publicly available and peer-reviewed studies of the glyphosate-based pesticide product formulations actually applied in the real world. To the best of my knowledge PMRA has not put in place assessment protocols and data requirements that would suffice to ensure that its assessment of glyphosate and glyphosate-based pesticide products, including Bayer/Monsanto’s Roundup-branded products, is truly independent of EPA’s assessment and tailored to Canadian dietary, environmental, and public health data.
56. Indeed, PMRA’s reliance on Monsanto, and the Monsanto-captured EPA, should give this court and all Canadians significant pause. The US Ninth Circuit Court of Appeals concluded in June of 2022 that EPA’s Interim Registration Review Decision for glyphosate issued by EPA in January 2020 could not be upheld. The Interim Decision repeats EPA’s earlier determination – echoed by PMRA, EFSA, and other foreign pesticide regulators – that glyphosate poses no serious human-health risks and that glyphosate should be classified as “not likely to be carcinogenic to humans.”⁶⁶ The EPA’s 2020 Interim Decision also contains a brief cost-benefit analysis asserting that – without demonstrating how – the benefits of glyphosate use outweigh its costs when glyphosate-based products are used according to their label instructions. The Interim Decision sets out various mitigation measures in the form of

⁶⁴ Ludwig Burger, “Weedkiller windfall helps Bayer top profit forecasts,” *Reuters* (8 November 2022), online: <https://www.reuters.com/business/bayer-q3-earnings-up-173-agriculture-sales-2022-11-08/>.

⁶⁵ *Id.*

⁶⁶ *Natural Resources Defense Council et al v. U.S. Environmental Protection Agency*, No. 20-70787 (9th Cir. 2022), and *Rural Coalition et al v U.S. Environmental Protection Agency et al.*, No. 20-70801 (9th Cir. 2022) at 16.

label changes to reduce potential ecological risks. Finally, the Interim Decision states that EPA still plans to complete an assessment of glyphosate's effect on endangered and threatened species. EPA's Final Decision for its statutory registration review of glyphosate was originally due by October 2022. Following the US Ninth Circuit Court of Appeal's finding that EPA's decision was arbitrary and capricious and not supported by substantial evidence, EPA withdrew its Interim Review Decision on September 21, 2022.⁶⁷ In doing so, EPA signaled that it may need another four years to revise and complete its assessment, which it commenced thirteen years earlier in 2009, as did PMRA in what EPA, PMRA, and Monsanto, and other manufactures of glyphosate-based pesticide products treated as a "joint" re-registration review.

PMRA's Scientific Approach Versus The Independent Scientific Approach

57. In PMRA's assessment of EFSA's review of glyphosate following IARC's 2015 classification of glyphosate as a "probable human carcinogen" as disclosed in Part 1 of PMRA's Certified Record in this case ("Glyphosate Notice of Objection," June 21, 2018 by Kimberly Low), PMRA embraces an industry-based approach to pesticide research. Moreover, PMRA appears to uncritically endorse and adopt EFSA's review.
58. In 2017, Dr. Christopher Portier, a leading toxicologist, wrote an open letter to the President of the European Commission; Dr. Portier participated in IARC's 2015 review of glyphosate, and he and a number of his colleagues have published several analyses critical of EFSA's, ECHA's, and EPA's approach to glyphosate assessment, both before and after IARC's 2015 review.⁶⁸ In the 2017 open letter

⁶⁷ EPA, Memorandum re: "Withdrawal of the *Glyphosate Interim Registration Review Decision*" dated September 21, 2022, online: <https://www.epa.gov/pesticides/epa-withdraws-glyphosate-interim-decision>.

⁶⁸ See e.g. Christopher J Portier, "A comprehensive analysis of the animal carcinogenicity data for glyphosate from chronic exposure rodent carcinogenicity studies" (2020) 19:18 *Environmental Health*, <https://doi.org/10.1186/s12940-020-00574-1>; Christopher J Portier *et al.*, "Differences in the carcinogenic evaluation of glyphosate between the International Agency for Research on Cancer (IARC) and the European Food Safety Authority (EFSA)" (2016) 70:8 *Journal of Epidemiological Community Health* 741. See also Charles M Benbrook, "How did the US EPA and IARC reach diametrically opposed conclusions on the genotoxicity of glyphosate-based herbicides?" (2019) 31:2 *Environmental Sciences Europe*, online: <https://doi.org/10.1186/s12302-018-0184-7>.

referenced by PMRA, Dr. Portier is attempting to convince EFSA to reconsider its assessment of glyphosate. In particular, Dr. Portier identified in the raw data released by EFSA, ECHA, and BfR using scientifically accepted methods, additional significant increases in tumors following exposure among laboratory animals to glyphosate.⁶⁹ Dr. Portier also reiterated several other scientific errors committed by these European regulators, including improper use of historical control data, comparisons across different strains and study durations (also improper, and unlikely to yield the consistent results putatively sought by the regulators), and their improper review of the genotoxicity studies and the human epidemiology studies.⁷⁰

59. These very same inconsistencies would later be identified by the US Ninth Circuit Court of Appeals as errors in EPA's assessment of glyphosate studies, inconsistencies not only with accepted scientific methods but also EPA's and EFSA's own internal regulatory guidelines. The US Ninth Circuit Court of Appeal identified several flaws in EPA's reasoning regarding glyphosate in EPA's 2020 Interim Re-registration decision.⁷¹ First, the Ninth Circuit found that EPA did not follow its own scientific analysis or its internal "Cancer Guidelines" that EPA purports to follow.⁷² In its earlier "Cancer Paper,"⁷³ EPA explained that "a conclusion regarding the association between glyphosate exposure and risk of NHL [non-Hodgkin's lymphoma] cannot be determined based on the available evidence."⁷⁴ EPA reached this conclusion in its Cancer Paper due to the evidentiary limitations it identified in the relevant epidemiological studies. According to EPA's Cancer Guidelines, however, the hazard description of "not likely to be carcinogenic to humans" is appropriate only when EPA determines that "available data are

⁶⁹ Dr. Christopher J Portier, "Open Letter: Review of the Carcinogenicity of Glyphosate by ECHA, EFSA and BfR" dated 28 May 2017.

⁷⁰ *Id.*

⁷¹ *Natural Resources Defense Council et al v. U.S. Environmental Protection Agency*, *supra* note 66.

⁷² "Cancer Guidelines" is the Court's short form for EPA's "2005 Guidelines for Carcinogen Risk Assessment." As the court explains, the Cancer Guidelines are intended to guide EPA in classifying chemicals according to their carcinogenic potential (*id.* at 14).

⁷³ "Cancer Paper" is the court's short form for EPA's 2017 "Revised Glyphosate Issue Paper: Evaluation of Carcinogenic Potential" (*id.* at 15).

⁷⁴ *Id.* at 22.

considered robust for deciding that there is no basis for human hazard concern.”⁷⁵

Based on this plain contradiction, the Ninth Circuit concluded “EPA therefore cannot reasonably treat its inability to reach a conclusion about NHL risk as consistent with a conclusion that glyphosate is ‘not likely’ to cause cancer within the meaning of the Cancer Guidelines.”⁷⁶ EFSA committed the very same error.

60. The Ninth Circuit further concluded that EPA’s reasoning regarding historical-control data and statistical significance is also internally inconsistent, contrary to EPA’s own internal Cancer Guidelines. The court found that EPA relies on historical-control data “only to discount studies indicating that glyphosate may cause tumors” rather than “using historical-control data both when the data bolster and when the data undermine studies’ results, as would be supported by the Cancer Guidelines.”⁷⁷ EFSA committed the same error.

61. The Ninth Circuit further noted that EPA contradicts its own Cancer Guidelines when EPA relies on the absence in studies of pairwise statistical significance despite the presence of statistical significance revealed by trend tests.⁷⁸ Yet EPA acknowledged in its earlier Cancer Paper that, according to the agency’s Cancer Guidelines, “[s]ignificance in *either* kind of test is sufficient to reject the hypothesis that chance accounts for the result.”⁷⁹ The court further observed that the FIFRA SAP [Scientific Advisory Panel] raised the same objection to EPA’s reasoning: “the [SAP] noted that requiring a significant pairwise comparison ... *in addition to* a significant trend is neither consistent with the [Cancer Guidelines] nor a conservative approach for

⁷⁵ *Id.* at 24.

⁷⁶ *Id.* at 24. Notably, the Ninth Circuit reached a similar conclusion in an earlier case where EPA had erroneously argued “that since studies are inconclusive as to the risks of sulfoxaflor for bees, the studies affirmatively prove that sulfoxaflor does *not* cause unreasonable adverse effects on bees”: *Pollinator Stewardship Council v. EPA*, 806 F.3d 520 (9th Cir. 2015) at 531. Sulfoxaflor is a systemic pesticide that affects all insects when they come into contact with it or ingest plants that have absorbed the pesticide. See Alex Trabolsi, “*Pollinator Stewardship Council v. EPA* and the Duty to Research FIFRA Applications” (2016) 42 Ecology Law Quarterly 503. The Ninth Circuit identified yet another example of EPA’s flawed reasoning in respect of another pesticide, chlorpyrifos, and its effects on children: *League of United Latin Am. Citizens v. Regan*, 966 F.3d 673 (9th Cir. 2021) at 701.

⁷⁷ *Id.* at 26.

⁷⁸ *Id.* at 27.

⁷⁹ *Id.* at 27 [emphasis added by the court].

public health protection.”⁸⁰ EFSA committed the same error. For its part, PMRA blithely and misleadingly states that there “is a debate regarding the appropriate statistical tests” (at page 1515 of Part 1 of its Certified Record). But “debate” is highly misleading, given that EPA’s and EFSA’s own internal guidelines conform with the accepted standards set out by Dr. Portier. Those agencies simply decided not to follow them, and PMRA appears to have blindly and uncritically followed their lead, much to the benefit of Bayer/Monsanto, and much to the detriment of transparent and robust scientific pesticide regulation in the public interest.

62. Finally, the Ninth Circuit found that EPA’s disregard of tumor results occurring at high doses also conflicts with the guidelines that EPA purports to follow. The court specifically noted the FIFRA SAP’s conclusion that EPA’s selection of “1,000mg/kg/day *a priori* as the limit dose appears to be an *ad hoc* decision that is not well-justified, and is not justified on the basis of the [Cancer Guidelines].”⁸¹ But as the court further observed, “[d]espite the SAP’s criticism, EPA declined to change its approach or to meaningfully respond.”⁸² PMRA, worse still, refuses even to convene a scientific review panel to reconsider its assessment of glyphosate, notwithstanding growing scientific evidence of glyphosate’s harmful effects to public health and the environment.

63. The Ninth Circuit concluded that EPA’s description of glyphosate and Monsanto’s GBH Roundup products as not likely to be carcinogenic to humans “is not supported by substantial evidence. Despite EPA’s repeated invocation of its Cancer Guidelines, the Interim Decision fails to abide by those Guidelines. Inconsistent reasoning is, absent explanation, the hallmark of arbitrary action.”⁸³

64. In short, PMRA’s approach to science and statistical interpretation is unduly based on and favourable to industry perspectives and industry priorities. Equally, PMRA’s approach discounts the otherwise universally accepted criteria of research

⁸⁰ *Id.* at 27 [emphasis added by the court].

⁸¹ *Id.* at 33.

⁸² *Id.* at 33.

⁸³ *Id.* at 33 (quotation marks and citations omitted).

excellence and reliability. PMRA's view of "well-constructed studies" does not accord with the virtually universal criteria of independence, public availability, which allows for replication and reproducibility, and peer review. Instead, PMRA favours GLP-compliant studies. GLP, as I explain above, was a response to the massive IBT fraud, including fraudulent glyphosate studies. The purpose of GLP is to prevent fraud and enhance accountability, not to supplant the well established and subsisting criteria of research excellence and reliability.

65. The following public comment on PMRA's glyphosate re-evaluation decision and PMRA's response is telling. First, the public comment:

Comment

A number of comments stated that the PMRA, in its review of glyphosate, appeared to consider only "seller sponsored science". The comments referred the PMRA to a number of published studies that link glyphosate to health effects. Overall, these comments emphasized support for the use of "third-party" data in assessing the health effects and making the final re-evaluation decision for glyphosate, in lieu of manufacturer-supplied data.⁸⁴

66. PMRA responded as follows:

PMRA Response

Regulatory authorities world-wide regard studies that are performed under conditions of good laboratory practices (GLP) and according to internationally agreed upon study designs, such as the OECD test guidelines, as the most reliable, reproducible, and scientifically sound. Studies conducted according to these guidelines are of sufficient statistical power to detect effects of concern, they investigate many potential endpoints of toxicological

⁸⁴ PMRA, "Re-evaluation Decision – RVD2017-01" at 31.

concern, and have detailed individual animal results that enable regulatory authorities to thoroughly evaluate and interpret the data in an independent manner. Adherence to these guidelines produce studies in which regulators have a high degree of confidence.

67. PMRA's response is not accurate, and finds no independent scientific support. Quite the contrary, as I explain above. GLP does not guarantee the quality or reliability of scientific studies.

68. Moreover, PMRA's response misleadingly elides the fact the industry-sponsored studies, be they GLP-compliant or not, are typically confidential; they are not publicly available. Accordingly, they cannot be replicated – a scientist cannot replicate a secret study. Consequently, industry-based studies cannot be reproduced. Reproducibility verified by peer review, and not GLP, is the gold standard of scientific excellence and reliability.

69. Were GLP really the gold standard of research excellence, one would expect to see it applied broadly, beyond the production of industry-based pesticide studies. But this too is not the case, contrary to PMRA's response to public comment.

70. PMRA makes a further inaccurate claim about GLP in response to public criticism of its disproportionate reliance on industry-sponsored studies and data. According to PIMRA:

As stated in RVD2017-01 section 1.1.14 on the use of independent studies, the PMRA and other regulatory authorities rely on industry-sponsored studies performed under conditions of good laboratory practices (GLP) and according to international study guidelines such as those developed by the OECD. This ensures that studies provide high-quality data of sufficient statistical strength for a wide range of endpoints. These studies are then evaluated and interpreted in an independent manner. Part of the PMRA review process includes conducting a

contemporary literature search. Other study sources, such as the published literature, tend to have lower statistical power, do not investigate as wide a range of endpoints and lack sufficient detail to be properly analyzed.

71. This is an untenable critique of publicly available, independent, and peer-reviewed science, which appears to be deficient when it comes to pesticide effects but otherwise among the most powerful, if not *the* most powerful, tool that modern society possesses. Put another way, PMRA's position is that there is one standard for scientific quality, reliability, and weight-of-evidence determinations that obtains in academia and other areas of scientific research (including medical and pharmaceutical research), and another, special and putatively superior standard applicable specifically to the regulation of chemicals, including pesticide products. But PMRA's position, which is shared by other pesticide regulators including EPA and EFSA, has no scientific basis or support.
72. I am unable to find any evidence, however, supporting PMRA's novel claim that GLP-compliance enhances statistical quality or power. Indeed, logic suggests that PMRA may have its statistical power argument backwards. If independent, non-GLP studies have less statistical power and yet, despite this defect, still show positive and statistically significant associations between glyphosate exposure and various endpoints (*e.g.*, tumor formation, cell damage), that in itself should be surprising, and we would correspondingly expect GLP-compliant studies to do the same. Yet they appear not to. According to the US agricultural economist and glyphosate regulation expert Dr. Charles Benbrook, 99 percent of studies on glyphosate's cancer risks sponsored by pesticide manufacturers (most of them GLP-compliant) came back negative for carcinogenic effects, whereas 70 percent of independent, peer-reviewed, and open-access studies (most of them non-compliant with GLP) came back as positive.⁸⁵ How to explain this apparent anomaly in statistical power

⁸⁵ Charles M Benbrook, "How did the US EPA and IARC reach diametrically opposed conclusions on the genotoxicity of glyphosate-based herbicides?" (2019) 31:2 Environmental Sciences Europe, online: <https://doi.org/10.1186/s12302-018-0184-7>. Benbrook also notes that EPA's conclusion is based largely on studies of technical glyphosate, whereas the IARC places heavy weight on analyses of formulated

over and across these studies' various endpoints? In my opinion, the conflict of interest that is inherent in industry-sponsored studies, and neither GLP-compliance nor statistical power nor the range of endpoints studied, explains this striking incongruence of results. Indeed, it is yet further evidence of regulatory capture in respect of glyphosate regulation.

73. PMRA's response to IARC's 2015 classification of glyphosate and glyphosate-based pesticides helps to bring PMRA's capture into clear relief. In its 2017 Re-evaluation Decision on glyphosate, PMRA explains that in its review, in contrast to IARC's review,

studies conducted with glyphosate alone were considered more relevant in characterizing its inherent toxicity than were studies on formulated products reported in the scientific literature, as the latter contained a variety of other constituents that, in most cases, were not identified.⁸⁶

74. Of course, as PMRA immediately proceeds to explain, those other constituents cannot be identified because regulators, including PMRA, agree with pesticide manufacturers that manufacturers' product formulations must be treated as confidential business information.⁸⁷ PMRA's view that it is more relevant to assess studies of technical glyphosate alone – to which neither people nor the environment

GBH products and aminomethylphosphonic acid (AMPA). Benbrook explains that formulated GBH products account for all commercial uses and human exposures (including Monsanto's Roundup), as opposed to technical glyphosate, which is less toxic (*id* at 3). In a separate peer-reviewed article, Benbrook adds that EPA's Office of Pesticide Program's analysis of the cancer risks of glyphosate is limited to general public exposures via diet, while IARC's analysis includes all routes of exposure to GBHs, including the generally higher exposures experienced by applicators based on how the herbicide is typically used by consumers, which, I would hasten to add, is more in line with the requirements of FIFRA discussed above in this report: Charles Benbrook, "Shining a Light on Glyphosate-Based Herbicide Hazard, Exposures and Risk: Role of Non-Hodgkin Lymphoma Litigation in the USA" (2020) 11 *European Journal of Risk Regulation* 489-519. at 499-502, 507-508, 514-517.

⁸⁶ PMRA Re-evaluation Decision on Glyphosate at 18.

⁸⁷ For further details about PMRA's approach to the confidentiality of studies and data submitted to it by pesticide manufacturers, including Bayer/Monsanto, see Government of Canada, "Inspection of Confidential Test Data Supporting Pesticide Registration Decisions – Guidance Document" (last modified on 28 March 2023), online: <https://www.canada.ca/en/health-canada/services/consumer-product-safety/reports-publications/pesticides-pest-management/policies-guidelines/inspection-confidential-test-data-supporting-pesticide-registration-decisions-guidance-document.html>.

is ever actually exposed – than studies on formulations that are not completely transparent is not unlike the cognitive heuristic bias known as the “streetlight effect,” which describes situations where people search for something only where it is easiest to look.⁸⁸

75. PMRA goes on to assert that, “[a]lthough it is argued that formulated glyphosate products are more representative of ‘real life’ conditions, it is important to keep in mind that many different products (pesticide and non-pesticide) share many of the same constituents.”⁸⁹

76. But this problem can easily be solved: Regulators like PMRA simply have to require sufficient disclosure of formulated pesticide products’ constituent ingredients (*both “active” and “inert”*), their specific ratios, and any other data necessary to allow for fully transparent and independent scientific testing.

77. Indeed, PMRA’s approach misunderstands its own statutory mandate under the *Pest Control Products Act*. Section 4(1) sets out that mandate in the following terms: “In the administration of this Act, the Minister’s primary objective is to prevent

⁸⁸ This principle is also known as the “drunkard’s search principle” and is founded on the well-known joke that goes as follows:

A policeman sees a drunk man searching for something under a streetlight and asks what the drunk has lost. He says he lost his keys and they both look under the streetlight together. After a few minutes the policeman asks if he is sure he lost them here, and the drunk replies, no, and that he lost them in the park. The policeman asks why he is searching here, and the drunk replies, “this is where the light is.”

See David H Freedman, *Wrong: Why Experts Keep Failing Us* (New York: Little, Brown and Company, 2010).

⁸⁹ PMRA, Re-evaluation Decision for Glyphosate at 18.

unacceptable risks to individuals and the environment from the use of pest control products.”

78. PMRA’s Re-evaluation Decision on glyphosate, however, discloses that PMRA misconstrues its mandate. PMRA explains that

In order to fully characterize a pesticide active ingredient, it is necessary to understand its inherent toxicity, which can only be characterized in the absence of these other constituents.⁹⁰

79. Neither people nor the environment, however, are ever exposed to the inherent toxicity of an active ingredient such as technical glyphosate in isolation, in the absence of a glyphosate-based pesticide product’s other constituent ingredients, which are already known to be highly toxic. By focusing only on technical glyphosate in isolation, PMRA cannot possibly satisfy its public health and environmental safety mandate.⁹¹ PMRA’s misinterpretation of its mandate promotes the special interests of companies like Bayer/Monsanto to the detriment of the public interest in public health and environmental safety.

Conclusion


80. In conclusion, it is my opinion that the relationship between Bayer/Monsanto and PMRA is one of regulatory capture because (i) the relationship bears all of the most common hallmarks of regulatory capture, including the presence of the revolving door and a close relationship, as well as an asymmetry in resources and expertise; and (ii) PMRA unduly promotes the perspectives and priorities of Bayer/Monsanto over the public interest, including PMRA’s own statutory public interest mandate.

⁹⁰ *Id* at 18.


⁹¹ In forming this opinion I am mindful of the definition of a pest control product under section 2 of the *Pest Control Products Act* as appearing to refer to either an active ingredient or a formulated product. That definitional ambiguity notwithstanding, my opinion stands for the reasoning set out above. An active ingredient alone poses no risks to people or the environment; only formulated pest control products pose such risks. Accordingly, PMRA must assess the risks of formulated products to meet its statutory mandate.

81. The opinions expressed herein are my own and I hold them with a reasonable degree of professional certainty.

AFFIRMED BEFORE ME in the City of)
Fredericton, in the Province of New)
Brunswick, this 20th day of April, 2023)



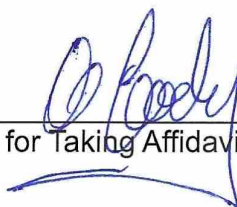
A Commissioner for taking Affidavits)
in the Province of New Brunswick)



Jason MacLean, Ph.D.)

Anthony Coady
Commissioner Of Oaths
My Commission expires
December 31st 2025

This is Exhibit "A" referred to in the
Affidavit of Dr. Jason MacLean
sworn (or affirmed) before me at
Fredericton, NB,
this 20th day of April, 2023,



A Commissioner for Taking Affidavits in New Brunswick

Anthony Coady
Commissioner Of Oaths
My Commission expires
December 31st 2025

City of Fredericton
County of York
Province of New Brunswick
Date: *April 20 2023*

JASON MACLEAN

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EDUCATION

- | | |
|------|--|
| 2021 | Ph.D. Law, University of Alberta Faculty of Law |
| 2006 | B.C.L. / LL.B. McGill University Faculty of Law |
| 2000 | Ph.D. Sociology, University of Toronto (ABD) |
| 1995 | M.A. Anthropology, University of Toronto |
| 1994 | B.A. First Class Honours Anthropology. St. Francis Xavier University |

EMPLOYMENT

- | | |
|-----------|--|
| 2020— | Assistant Professor, University of New Brunswick Faculty of Law (tenure track)
Adjunct Professor, School of Environment and Sustainability, University of Saskatchewan (five-year term) |
| 2017-2020 | Assistant Professor, University of Saskatchewan College of Law (tenure track)
Associate Member, School of Environment and Sustainability (2019-2020) |
| 2013-2017 | Assistant Professor, Bora Laskin Faculty of Law, Lakehead University (tenure track) |
| 2008-2013 | Litigation Associate, Osler, Hoskin & Harcourt LLP, Toronto |
| 2008-2010 | Legal Consultant, Expert Panel on Securities Regulation & the Canadian Securities Transition Office, Toronto |
| 2007-2008 | Law Clerk, Justice Marie Deschamps, Supreme Court of Canada, Ottawa |
| 2005-2007 | Litigation and International Commercial Arbitration Associate, Shearman & Sterling LLP, New York and Paris |

BAR ADMISSIONS

- | | |
|------|---|
| 2009 | State of New York (inactive) |
| 2009 | Law Society of Ontario (active; “Not Practising Law - Employed” status) |

HONOURS, GRANTS & AWARDS

- 2021 Genome Canada Grant, 2020 Large-Scale Applied Research Project Competition: Genomic Solutions for Natural Resources and the Environment, “Application of Genomics to Enhance Wetland Treatment Systems for Remediation of Processed Water in Northern Environments” (as a co-PI my role on this large interdisciplinary research project is to examine the law and policy dimensions of genomic solutions to oil sands remediation; final budget of \$6.2 million)
- 2020 Canadian Association of Law Teachers (CALT) Scholarly Paper Award (for “Manufacturing Consent to Climate Inaction: A Case Study of *The Globe and Mail’s* Pipeline Coverage” (2019) 42:2 *Dalhousie Law Journal* 283): https://www.acpd-calt.org/awards_prix
- The CALT award committee made the following comments on the paper, delivered by Professor Angela Cameron of the University of Ottawa Faculty of Law:
- Prof. MacLean’s paper stood out from an extraordinarily large field of truly excellent scholarship for a number of reasons. First the socio-legal methodology was well executed, from the research question to the thoughtful multi-methods execution. Second the analysis was compelling and engaging, while also including excellent doctrinal coverage – the paper was both interesting and informative. Finally, the paper was well-written, moving from complex methodology to pithy coverage of a timely topic in easy to read prose.
- Merit Award, College of Law, and President’s Review Committee, University of Saskatchewan (\$7,500)
- Curriculum Innovation Community Grant, Gwenna Moss Teaching and Learning Centre, University of Saskatchewan (\$3,000)
- 2019 University of Saskatchewan Continuous Research Grant (\$21,500)
- Merit Award, College of Law, and President’s Review Committee, University of Saskatchewan (\$9,000)
- 2018 Foundation for Legal Research Grant for “*Dunsmuir, Doré, and Indefeasible Deference: Is Canadian Administrative Law Doomed?*” (\$5,000)
- 2018 Law Foundation of Saskatchewan Fellowship for “The Intersection of Indigenous and Canadian Natural Resources Laws: Conflict and Comity on Common Ground” (\$10,000)
- 2016 University of Alberta Faculty of Law Graduate Entrance Scholarship (\$4,000)
- 2016 Lakehead University Contribution to Teaching Award

- 2005 Desjardins Ducharme Stein Monast Scholarship for Commercial Law of Obligations, McGill Faculty of Law (for highest grade in common law and civil law obligations course)
- 2004 Magna International, *As Prime Minister Awards* Finalist (\$10,000)
- 2004 The Mr. Justice Harry Batshaw Prize, McGill Faculty of Law (for highest grade in Foundations of Canadian Law, a required first-year course)
- The David Litner, Q.C. Prize (for combining academic achievement and extracurricular contributions to the McGill Faculty of Law)
- 1995-1999 Social Sciences and Humanities Research Council of Canada (SSHRC) Doctoral Fellowship
- 1994 Governor General's Medal, St. Francis Xavier University

PUBLICATIONS – PEER-REVIEWED ARTICLES¹

2023

“Cryptocurrencies and Climate Change: A New Net-Zero Challenge” (2023) 20 *Canadian Journal of Law and Technology* 129-151

“Overcoming power in climate policymaking: target setting and implementation at two Canadian universities,” *Sustainability* (forthcoming Fall 2023)

“Introduction to Special Issue on Climate Change and Cinema: Imagining Failure, or a Failure of the Imagination?” *Canadian Journal of Film Studies* (forthcoming Fall 2023, with André Loiselle, my co-editor and co-author of this special issue, to which we are also contributing an article: <https://www.filmstudies.ca/2022/02/cjfs-special-issue-cfp-climate-change-and-cinema>)

“Review Essay: A Research Agenda for Corporate Accountability”, *Canadian Business Law Journal* (forthcoming Fall 2023)

2022

“Transnational Corporations and Climate Governance: A Case Study of Amazon.com’s Net-Zero Climate Pledge” (2022) 42:5 *Dalhousie Law Journal* 469

2021

“Can Litigation Close the Transnational Corporate Accountability Gap? *Nevsun Resources Ltd. v Araya*” (2021) 65 *Canadian Business Law Journal* 124

¹ Most of my papers (with the exception of certain forthcoming papers and papers under review) are available on my ResearchGate profile page (https://www.researchgate.net/profile/Jason_Maclean2).

2020

“Curriculum Design for the Anthropocene: Review of Meinhard Doelle & Chris Tollefson, *Environmental Law: Cases and Materials*, Third Edition” (2020) 16:1 *McGill Journal of Sustainable Development Law* 1

“Polar Bears and the Politics of Climate Change: A Response to Simpson” (2020) 23:2 *Journal of International Wildlife Law & Policy* 141 (lead author, with Doug Clark *et al*)

“Learning to overcome political opposition to transformative environmental law” (2020) 117:15 *Proceedings of the National Academy of Sciences* 8243

“The Political Reality of Corporate Law” (2020) 62:3 *Canadian Business Law Journal* 283

“Rethinking the Role of Nonstate Actors in International Climate Governance” (2020) 16:1 *Loyola University Chicago International Law Review* 21

2019

“Courts, Constitutions, and Climate Change: *Reference Re Greenhouse Gas Pollution Pricing Act* and Beyond” (2019) 82:2 *Saskatchewan Law Review* 147

“Manufacturing Consent to Climate Inaction: A Case Study of *The Globe and Mail’s* Pipeline Coverage” (2019) 42:2 *Dalhousie Law Journal* 283

“The Crude Politics of Carbon Pricing, Pipelines, and Environmental Assessment” (2019) 70 *University of New Brunswick Law Journal* 129

“Regulatory Capture and the Role of Academics in Public Policymaking: Lessons from Canada’s Environmental Regulatory Review Process” (2019) 52:2 *UBC Law Review* 479

“The Science, Law, and Politics of Canada’s Pathways to Paris: Introduction to *UBC Law Review’s* Special Section on Canada and Climate Change” (2019) 52:1 *UBC Law Review* 225 (lead author and co-editor with Chris Tollefson & Meinhard Doelle)

2018

“Public Policy is an Unruly Horse and the Law of Contract is an Ass: A Comment on *Douez v Facebook, Inc.*” (2018) 96:3 *Canadian Bar Review* 526

“Troubled Waters: Reinvigorating Great Lakes Governance through Deliberative Democracy” (2018) 9:3 *Sea Grant Law & Policy Journal* 9

“Paris and Pipelines? Canada’s Climate Policy Puzzle” (2018) 32:1 *Journal of Environmental Law and Policy* 47

“Will We Ever Have Paris? Canada’s Climate Change Policy and Federalism 3.0” (2018) 55:4 *Alberta Law Review* 889

This paper was cited in the legal materials of the Canadian Taxpayers Federation before the Supreme Court of Canada in *Attorney General of*

Canada v Attorney General of Canada, SCC File No. 40195:
[https://www.scc-csc.ca/WebDocuments-
 DocumentsWeb/40195/FM090_Intervener_Canadian-Taxpayers-
 Federation.pdf](https://www.scc-csc.ca/WebDocuments-DocumentsWeb/40195/FM090_Intervener_Canadian-Taxpayers-Federation.pdf)

“Climate-Proofing Judicial Review After Paris: Judicial Competence, Capacity, and Courage” (2018) 31:3 *Journal of Environmental Law and Policy* 245 (equal co-author with Chris Tollefson)

“The Zombie Theory of Contractual Consideration: *Richcraft Homes v Urbandale Corporation*” (2018) 62:2 *Canadian Business Law Journal* 260

“You Say You Want and Environmental Rights Revolution: Try Changing Canadians’ Minds Instead (of the *Charter*)” (2018) 49:1 *Ottawa Law Review* 183

2017

“Autonomy in the Anthropocene? Libertarianism, Liberalism, and the Legal Theory of Environmental Regulation” (2017) 40:1 *Dalhousie Law Journal* 279

“Battered Women Under Duress: The Supreme Court of Canada’s Decision in *R. v. Ryan*” (2017) 29:1 *Canadian Journal of Women and the Law* 60 (lead author, with Nadia Verrelli & Lori Chambers)

2016

“Polyjural and Polycentric Sustainability Assessment: A Once-In-A-Generation Law Reform Opportunity” (2016) 30:1 *Journal of Environmental Law and Practice* 36 (lead author, with Meinhard Doelle & Chris Tollefson)

This paper was cited and quoted by the Alberta Court of Appeal in its advisory opinion on the constitutional validity of the *Impact Assessment Act*. See Reference re *Impact Assessment Act*, 2022 ABCA 165 at para 698 (page 194, note 236) and para 763 (page 209, note 252), online: <https://www.canlii.org/en/ab/abca/doc/2022/2022abca165/2022abca165.html?resultIndex=1>

“The Death of Contract, Redux: Boilerplate and the End of Interpretation” (2016) 58:3 *Canadian Business Law Journal* 289

“Canadian Law and the New Economic and Environmental Global Realities: *Chevron Corp. v. Yaiguaje*” (2016) 57:3 *Canadian Business Law Journal* 367

“Striking at the Root Problem of Canadian Environmental Law: Identifying and Escaping Regulatory Capture” (2016) 29 *Journal of Environmental Law and Practice* 111

2015

“Au Revoir, Monsieur Big? Confessions, Coercion, and the Courts” (2015) 23:1 *Criminal Reports* 184 (lead author, with Frances E. Chapman)

“Parasomnia, Sexsomnia, and Automatism in *R v. Hartman*” (2015) 21(2) *Criminal Reports* 299 (with Frances E. Chapman)

“‘Pulling the Patches’ of the Patchwork Defence of Duress: A Comment on *R. v. Aravena*” (2015) 62:4 *Criminal Law Quarterly* 420 (with Frances E. Chapman)

“The Past, Present, and Future of Canadian Environmental Law: A Critical Dialogue” (2015) 1 *Lakehead Law Journal* 89 (lead author, with Meinhard Doelle & Chris Tollefson)

“Like oil and water? Canada’s administrative and legal framework for oil sands pipeline development and climate change mitigation” (2015) 2 *The Extractive Industries and Society* 785

2014

“Hanover Shoe, Retreaded: Economic Complexity, Judicial Competence and Procedural Purity in Canadian Competition Law (Part Two)” (2014) 7:2 *Global Competition Litigation Review* 79

“The Cult of Corporate Personality: *Yaiguaje v. Chevron Corporation*” (2014) 55 *Canadian Business Law Journal* 283

2013

“Going Down the Illinois Brick Road (if the Hanover Shoe Fits?) Economic Complexity and Judicial Competence in the Context of Canadian Competition Law’s Possible Futures (Part One)” (2013) 6:2 *Global Competition Litigation Review* 85

2005

“No Toilets in Park” (2005) 50:4 *McGill Law Journal* 721 (equal co-author, with Roderick A. Macdonald)

2001

“Globalization and the Failure of the Sociological Imagination” (2001) 26:3 *Critical Sociology* 329

PUBLICATIONS – ONLINE CASE COMMENTS

“Real-World Administrative Law and Judicial Review: The Ontario Court of Appeal’s Decision in *Ali v Peel (Regional Municipality)*, forthcoming in *Toronto Law Journal* (June 2023)

“Yet Another Trojan Horse: The Alberta Court of Appeal’s Politicized Opinion on the *Impact Assessment Act*” (2022) *Toronto Law Journal*:

<https://tlaonline.ca/uploaded/web/TLA%20Journal/2022/Toronto%20Law%20Journal-Jun2022.pdf>

“Judicial Review and Administrative Law Reform: *Safe Food Matters Inc v Canada (Attorney General)*” (2022) *Toronto Law Journal*:

https://www.researchgate.net/publication/360631622_Judicial_Review_and_Administrative_Law_Reform_Safe_Food_Matters_Inc_v_Canada_Attorney_General_Toronto_Law_Journal_April_2022

“Comment on the Supreme Court of Canada’s Decision in *Sherman Estate v Donovan*, 2021 SCC 25” (2021) *Toronto Law Journal*:

<https://tla.in1touch.org/uploaded/web/TLA%20Journal/2021/The%20Public%20Interest%20in%20Privacy.pdf>

“A Narrow and Myopic National Concern: Climate Change and the Supreme Court of Canada’s Decision in *References re Greenhouse Gas Pollution Pricing Act*” (2021) *Toronto Law Journal*:

<https://tlaonline.ca/uploaded/web/TLA%20Journal/2021/Case%20Comment%20re%20GGPPA%20References.pdf>

“The Methodology of Reasonableness Review in Administrative Law: *Hillier v. Canada*” (2019)

Toronto Law Journal: [https://tlaonline.ca/site/2019_archived_journal_issues%20\(copy\)](https://tlaonline.ca/site/2019_archived_journal_issues%20(copy))

“‘Don’t Be Evil’: Boilerplate Contract Theory and Public Policy – *Douez v Facebook, Inc.*” (2017)

Toronto Law Journal: <http://myemail.constantcontact.com/Toronto-Law-Journal---September-2017.html?soid=1107293291635&aid=raJOixO8ar4#LETTER.BLOCK61>

“Consideration is Dead! Long Live Consideration! *Richcraft Homes Ltd. v. Urbandale Corporation* and the Zombie Theory of Canadian Contract Law” (2017) *Toronto Law Journal*:

http://myemail.constantcontact.com/Toronto-Law-Journal---June-2017.html?soid=1107293291635&aid=_XEsIfno0lo#LETTER.BLOCK61

“The Enduring Evil of Slavery and the Emergence of Transnational Corporate Law: *Araya v. Nevsun Resources Ltd.*” (2016) *Toronto Law Journal*:

<http://myemail.constantcontact.com/Toronto-Law-Journal---November-2016.html?soid=1107293291635&aid=ZwDqJQvZzt0>

“Gateway to Nowhere: Environmental Assessment, the Duty to Consult, and the Social License to Operate in *Gitxaala Nation v. Canada (Northern Gateway)*” (2016) *Toronto Law Journal*:

<http://archive.constantcontact.com/fs158/1107293291635/archive/1125455087928.html#LETTER.BLOCK57>

“Sudoku Puzzles or Sausages? Statutory versus Contractual Interpretation in *Heritage Capital Corp. v. Equitable Trust Co.*” (2016) *Toronto Law Journal*:

<http://archive.constantcontact.com/fs158/1107293291635/archive/1125137355437.html>

“*Chevron Corp. v. Yaiguaje*: Canadian Law and the New Economic and Environmental Global Reality” (2015) *Toronto Law Journal*:

<http://archive.constantcontact.com/fs158/1107293291635/archive/1122858693337.html>

“Municipal Law Caught Between Renewable Energy and Public Health: *Wpd Sumac Ridge Wind Inc. v. Corporation of the City of Kawartha Lakes*” (2015) *Toronto Law Journal*:

<http://archive.constantcontact.com/fs158/1107293291635/archive/1122381853726.html#LETTER.BLOCK61>

“Prosecutorial Charter Disclosure and Good Governance: *Henry v. British Columbia (Attorney General)*” (2015) *Toronto Law Journal*:

<http://archive.constantcontact.com/fs158/1107293291635/archive/1121317091002.html#LETTER.BLOCK57>

“Antitrust, but Verify: The Supreme Court of Canada’s Clarification of the Efficiencies Exception to Anti-Competitive Mergers in *Tervita Corp. v. Canada (Commissioner of Competition)*” (2015) *Toronto Law Journal*:

<http://archive.constantcontact.com/fs158/1107293291635/archive/1120367359526.html#LETTE R.BLOCK57>

“Throwing the Precautionary Principle to the Wind? Determining the Constitutionality of Ontario’s *Green Energy Act* in *Dixon v. Director, Ministry of the Environment*” (2015) *Toronto Law Journal*:

<http://archive.constantcontact.com/fs158/1107293291635/archive/1119832853882.html#LETTE R.BLOCK57>

“No Deference Without Independence: *Ernst v. Alberta (Energy Resources Conservation Board)*” (2014) *Toronto Law Journal*:

<http://archive.constantcontact.com/fs158/1107293291635/archive/1119157804184.html#LETTE R.BLOCK57>

“Falling Out of Love with the Conventional Trial: The Supreme Court of Canada’s Interpretation of Ontario’s Summary Judgment Rule in *Hryniak v. Mauldin*” (2014) *Toronto Law Journal*:

<http://archive.constantcontact.com/fs158/1107293291635/archive/1117383425879.html#LETTE R.BLOCK61>

“One Small Step Toward Corporate Accountability: *Choc v. Hudbay Minerals Inc*” (2013) *Toronto Law Journal*

“Double Dereliction of Duty? Judicial Oversight of Police Trickery in *R. v. Welsh*” (2013) *Toronto Law Journal*

“Hard Cases Make Bad Law, or Bad Law Makes Hard Cases? The Supreme Court of Canada’s Defining-down of Duress in *R. v. Ryan*” (2013) *Toronto Law Journal*

“More ‘Inconvenient Indians’? Métis and Non-Status Indian Status under Section 91(24) of the *Constitution Act, 1867* in *Daniels v. The Queen*” (2013) *Toronto Law Journal*

“Calumny in Context: The Supreme Court of Canada Upholds the ‘Hallmarks of Hate’ in *Saskatchewan (Human Rights Commission) v. Whatcott*” (2013) *Toronto Law Journal*

PUBLICATIONS – BOOK CHAPTERS

2024

“Chapter 13: Environmental Assessment in the European Union, the United Kingdom and Canada. In Daniel R. Mandelker, ed, *NEPA Law and Litigation, 2024* (Danvers, MA: Thomson Reuters)

“Indigenizing Environmental Assessment and Imagining Good Development” (with Jaime Lavallee) in Aimée Craft & Jill Blakley, eds, *Megaprojects and Extractivism in Indigenous Territories: “What is Good Development?”* (forthcoming from University of British Columbia Press, 2024) (peer reviewed)

2023

“Chapter 13: Environmental Assessment in the European Union, the United Kingdom and Canada. In Daniel R. Mandelker, ed, *NEPA Law and Litigation, 2023* (Danvers, MA: Thomson Reuters)

2022

“Chapter 1. Energy and Climate: Capturing the Imagination of Canada’s Climate Policy” in Bruce Campbell, ed, *Corporate Rules: The Real World of Business Regulation in Canada* (Toronto: James Lorimer Publishers, 2022), 20-34 **(peer reviewed)**

“Chapter 13: Environmental Assessment in the European Union, the United Kingdom and Canada. In Daniel R. Mandelker, ed, *NEPA Law and Litigation, 2022* (Danvers, MA: Thomson Reuters)

2021

“Chapter 18: Strategic Environmental Assessment” in Meinhard Doelle & John Sinclair, eds, *The New Canadian Impact Assessment Act (IAA): An Edited Volume* (Toronto: Irwin Law, forthcoming 2021) (lead author, with Bram Noble & Jill Blakley) **(peer reviewed)**

“Chapter 10: The Scope and Focus of Cumulative Effects and Regional Assessment” in Meinhard Doelle & John Sinclair, eds, *The New Canadian Impact Assessment Act (IAA): An Edited Volume* (Toronto: Irwin Law, forthcoming 2021) (with Jill Blakley & Bram Noble) **(peer reviewed)**

“Industry-Indigenous IBAs, Confidentiality, and Sustainability” in Dwight Newman & Ibrionke Odumosu-Ayanu, eds, *Indigenous-Industry Agreements, Natural Resources and the Law* (New York: Routledge, 2021) **(peer reviewed)**

“Reorienting the Role of Nonstate Actors in Global Climate Governance” in Kathleen Claussen, Charles-Emmanuel Côté, Atsuko Kanehara & Karen Scott, eds, *Changing Actors in International Law* (Leiden: Brill/Nijhoff, 2021) **(peer reviewed)**

“Chapter 13: Environmental Assessment in the European Union, the United Kingdom and Canada. In Daniel R. Mandelker, ed, *NEPA Law and Litigation, 2021* (Danvers, MA: Thomson Reuters)

2020

“Foreign Wrongs, Corporate Rights, and the Arc of Transnational Law” in Oonagh E. Fitzgerald, ed, *Corporate Citizen: New Perspectives on the Globalized Rule of Law* (Waterloo, ON: Centre for International Governance Innovation, 2020) (lead author, with Chris Tollefson) **(peer reviewed)**

“Chapter 13: Environmental Assessment in the European Union, the United Kingdom and Canada. In Daniel R. Mandelker, ed, *NEPA Law and Litigation, 2020* (Danvers, MA: Thomson Reuters)

“Cumulative effects assessment requirements in selected developed and developing countries” In Jill Blakley, ed, *Handbook of Cumulative Effects Assessment and Management* (forthcoming in 2020, Edward Elgar) **(peer reviewed)**

“How Not to Think in an Emergency” in Shauna Van Praagh & David Sandomierski, eds, *Collage sur le droit et le savoir au temps de la pandémie / Law and Learning in the Time of Pandemic – A Collage* (Lex Electronica, 2020) pp. 140-146

2019

“Chapter 13: Environmental Assessment in the European Union, the United Kingdom and Canada. In Daniel R. Mandelker D.R., ed, *NEPA Law and Litigation, 2019* (Danvers, MA: Thomson Reuters) at 1045-1072.

2009

“Principle 5 – Precautionary Principle” in C. Pitts, ed., *Corporate Social Responsibility: A Legal Analysis* (Toronto: LexisNexis, 2009), pp. 347-416

“Principle 6 – Accountability” in C. Pitts, ed., *Corporate Social Responsibility: A Legal Analysis* (Toronto: LexisNexis, 2009), pp. 417-496

2004

“Taking Care of Business the Canadian Way: Securing Prosperity at Home and Abroad” in G. Marsland, ed, *At Stake: As Prime Minister, I Would...* (Toronto: Magna International, Inc., 2004), pp. 50-59

2001

“The New Capitalism” in Clive Cockerton & Melanie Chaparian, eds, *The Human Project: Readings on the Individual, Society, and Culture* (Toronto: Prentice Hall, 2001), pp. 90-104

PUBLICATIONS – BOOK REVIEWS

Review of Penelope Simons & Audrey Macklin, *The Governance Gap: Extractive industries, human rights, and the home state advantage* (New York: Routledge, 2014) (2016) 3:1 *The Extraction Industries and Society* 262

Review of Michel Maffisoli, *The Contemplation of the World: Figures of Community Style* (Minneapolis: University of Minnesota Press, 1997) (2000) 26:1-2 *Critical Sociology* 166

Review of Chris Knight, *Blood Relations: Menstruation and the Origins of Culture* (New Haven: Yale University Press, 1991) (1995) 15:1 *Culture* 100

KNOWLEDGE MOBILIZATION – PUBLIC POLICY SUBMISSIONS**2022**

“Letter from scientists, academics, and energy systems modellers: Prevent proposed CCUS investment tax credit from becoming a fossil fuel subsidy” (19 January 2022), online: https://www.researchgate.net/publication/363485567_Letter_from_scientists_academics_and_energy_system_modellers_Prevent_proposed_CCUS_investment_tax_credit_from_becoming_a_fossil_fuel_subsidy

Note: Following the publication of this letter, I did a series of interviews with CBC Radio, and I was invited to give testimony before the House

of Commons' Standing Committee on Environment and Sustainable Development as part of its study on fossil fuel subsidies: <https://www.ourcommons.ca/Committees/en/ENVI/StudyActivity?studyActivityId=11504305>

I subsequently translated my testimony and the questions I answered before the Committee into a knowledge-mobilization piece for *The Energy Mix* online newsletter: <https://theenergymix.com/2022/05/01/may-3-day-of-action-pushes-canada-to-end-fossil-fuel-subsidies/>

2021

“Cumulative Effects Assessment in Court: A Report on How Canadian Courts Cast Federal, Provincial, Territorial, and Industry Obligations around Cumulative Effects, specifically in relation to Indigenous Interests” prepared for the Department of Indigenous Services Canada (31 March 2021), 114 pp.

Note: This report, which I could not have prepared without the very capable assistance of my Winter 2021 Natural Resources Law students, was very well received by the Department:

As for the report, on behalf of the Environment Directorate I would like to extend gratitude to you and your team for the comprehensive and detailed review of cumulative effects case law. Under the stressors of COVID-19 you managed to coordinate a team, conduct extensive research, and produce a detailed report, all of which deserve particular acknowledgement.

The final report provides the content we need to assess the current legal landscape as well as identify areas in which we may need to focus. I notice not only did you identify and summarize case law and highlight potential policy gaps, but you also outlined each jurisdiction's regulatory regime. Given the level of detail and organization, I foresee this report being relied upon as a key reference moving forward.

Thank you again for the exceptional work, it has been a pleasure coordinating with you and being a recipient of your knowledge and research.

Danielle Jeddore
Jr Policy Analyst, Lands and Economic Development
Indigenous Services Canada

2017

“Strengthening Canada’s Environmental Assessment and Regulatory Processes: Recommendations and Model Legislation for Sustainability” (16 August 2017), online: <<https://t.co/6WxDKmc1BE>> (with Martin Olszynski, Jocelyn Stacey, Arlene Kwasniak & Robert Gibson)

KNOWLEDGE MOBILIZATION – EXPERT REPORTS FILED IN LITIGATION MATTERS

2022

“Expert Report of Jason MacLean, Ph.D., on Behalf of Plaintiffs in *Susan M. Brought v. Monsanto Company, et al.* (21 April 2023)

“Expert Report of Jason MacLean, Ph.D., on Behalf of Plaintiffs in *William August et al. v. Monsanto Company*” (17 February 2023)

“Expert Report of Jason MacLean, Ph.D., on Behalf of Plaintiffs in *Melford Berns et al. v. Monsanto Company*” (11 November 2022)

“Supplemental Expert Report of Jason MacLean, PhD, on Behalf of Plaintiffs in *Michael Evard, et al, v. Monsanto Company, et al*” (22 June 2022)

“Expert Report of Jason MacLean, PhD on Behalf of Plaintiffs in *Michael Evard, et al, v. Monsanto Company, et al*” (7 April 2022)

KNOWLEDGE MOBILIZATION – MEDIA COMMENTARIES

The Conversation:

“How a Supreme Court case that could decide the future of Canadian climate policy” (13 April 2023), online: <https://theconversation.com/how-a-supreme-court-case-could-decide-the-future-of-canadian-climate-policy-202233>

“Canada’s new climate plan is reckless, but a better way forward is still possible” (14 April 2022), online: <https://theconversation.com/canadas-new-climate-plan-is-reckless-but-a-better-way-forward-is-still-possible-180846>

“Canada needs to cut carbon, not try to capture it” (9 February 2022), online: <https://theconversation.com/canada-needs-to-cut-carbon-not-try-to-capture-it-175987>

“Notwithstanding the notwithstanding clause, the *Charter* is everyone’s business” (26 July 2021), online: <https://theconversation.com/notwithstanding-the-notwithstanding-clause-the-charter-is-everyones-business-163143> (with Kerri Froc)

“Why the youth climate court case failed, and what’s next for Canadian climate policy” (3 November 2020), online: <https://theconversation.com/why-the-youth-climate-court-case-failed-and-whats-next-for-canadian-climate-policy-149064>

“Supreme Court case on carbon price is about climate change, not the Constitution” (22 September 2020), online: <https://theconversation.com/supreme-court-case-on-carbon-price-is-about-climate-change-not-the-constitution-146471> (lead author, with Nathalie Chalifour)

“COVID-19: Don’t make university students choose between education and legal rights” (3 August 2020), online: <https://theconversation.com/covid-19-dont-make-university-students->

[choose-between-education-and-legal-rights-142960](#) (with Hilary Young)

“At the ballot box, cast a vote for climate change innovation and investment”, *The Conversation* (18 October 2019), online: <https://theconversation.com/at-the-ballot-box-cast-a-vote-for-climate-change-innovation-and-investment-125411> (lead author, with Catherine Potvin and members of Sustainable Canada Dialogues)

“Work on climate, not weaponizing the Constitution”, *The Conversation* (7 May 2019), online: <https://theconversation.com/work-on-climate-not-weaponizing-the-constitution-116710> (lead author, with Nathalie Chalifour & Sharon Mascher)

“Kill Bill C-69 – it undermines efforts to tackle climate change”, *The Conversation* (25 October 2018), online: <https://theconversation.com/kill-bill-c-69-it-undermines-efforts-to-tackle-climate-change-105118>

The Globe and Mail:

“The carbon tax case is a dangerous political game”, *The Globe and Mail* (13 February 2019), online: <https://www.theglobeandmail.com/business/commentary/article-the-carbon-tax-case-is-a-dangerous-political-game/>

“The constitutional complexity of pipelines: It’s as clear as bitumen”, *The Globe and Mail* (5 February 2018), online: <https://www.theglobeandmail.com/opinion/the-constitutional-complexity-of-pipelines-its-as-clear-as-bitumen/article37849206/>

“Corporate Canada: Start contributing to sustainability through innovation”, *The Globe and Mail* (25 August 2017), online: <https://beta.theglobeandmail.com/report-on-business/rob-commentary/corporate-canada-start-contributing-to-sustainability-through-innovation/article36091143/?ref=http://www.theglobeandmail.com&>

“Here is why B.C. must do its own review of the Trans Mountain pipeline”, *The Globe and Mail* (23 May 2017), online: https://www.theglobeandmail.com/opinion/why-bc-must-do-its-own-review-of-the-trans-mountain-pipeline/article35095482/?utm_source=Shared+Article+Sent+to+User&utm_medium=E-mail:+Newsletters++E-Blasts++etc.&utm_campaign=Shared+Web+Article+Links (with Chris Tollefson)

Vancouver Sun:

“Trans Mountain’s only certainty – death and carbon taxes”, *Vancouver Sun* (17 April 2018), online: <http://vancouversun.com/opinion/op-ed/jason-maclean-trans-mountains-only-certainty-death-and-carbon-taxes>

Toronto Star:

Jason MacLean, “How to restore trust in Canada’s environmental regulations”, *Toronto Star* (23 June 2016), online: <https://www.thestar.com/opinion/commentary/2016/06/23/how-to-restore-trust-in-canadas-environmental-regulations.html>

Jason MacLean, “Ontario’s cap-and-trade regime off to a shaky start”, *Toronto Star* (March 3, 2016), online: <http://www.thestar.com/opinion/commentary/2016/03/03/ontarios-cap-and-trade->

[regime-off-to-a-shaky-start.html](#)>

Jason MacLean, “How to evaluate Energy East? Try evidence”, *Toronto Star* (February 7, 2016), online: <<http://www.thestar.com/opinion/commentary/2016/02/07/how-to-evaluate-energy-east-try-evidence.html>>

Maclean’s:

“Alberta’s support of the national climate plan is nice, but hardly necessary”, *Maclean’s* (24 February 2018), online: <https://www.macleans.ca/news/canada/albertas-support-of-the-national-climate-plan-is-nice-but-hardly-necessary/>

“We can’t build pipelines and meet our climate goals”. *Maclean’s* (December 9, 2016), online: <<http://www.macleans.ca/economy/economicanalysis/we-cant-build-pipelines-and-meet-our-climate-goals/>>

“No, carbon pricing alone won’t be enough to lower emissions: A response to economist Trevor Tombe’s argument against blocking pipelines”, *Maclean’s* (November 29, 2016), online: <<http://www.macleans.ca/economy/economicanalysis/no-carbon-pricing-alone-wont-be-enough-to-lower-emissions/>>

Policy Options:

“Courts should not have to decide climate policy”, *Policy Options* (21 December 2018), online: <http://policyoptions.irpp.org/magazines/december-2018/courts-not-decide-climate-change-policy/> (with Nathalie Chalifour)

“The problem with Canada’s gradual climate policy”, *Policy Options* (26 October 2018), online: <http://policyoptions.irpp.org/magazines/october-2018/the-problem-with-canadas-gradual-climate-policy/>

“The Trans Mountain saga as a public policy failure”, *Policy Options* (13 April 2018), online: <http://policyoptions.irpp.org/magazines/april-2018/trans-mountain-saga-public-policy-failure/>

“Sustainability in Canada’s environmental assessment”, *Policy Options* (5 September 2017), online: <http://policyoptions.irpp.org/magazines/september-2017/sustainability-in-canadas-environmental-assessment-and-regulation/> (equal co-author, with Martin Olszynski, Jocelyn Stacey, Arlene Kwasniak & Robert Gibson)

“A plan that promotes environmental sustainability”, *Policy Options* (30 May 2017), online: <<http://policyoptions.irpp.org/magazines/may-2017/plan-promotes-environmental-sustainability/>> (lead author, with Jocelyn Stacey, Aerin Jacob, Caroline Fox, Chris Tollefson & Martin Olszynski)

“Trudeau’s carbon price clever politics, not credible climate policy”, *Policy Options* (12 October 2016), online: <<http://policyoptions.irpp.org/magazines/october-2016/trudeaus-carbon-price-clever-politics-not-credible-climate-policy/>>

“The misleading promise of ‘balance’ in Canada’s climate change policy”, *Policy Options* (29 March 2016), online: <<http://policyoptions.irpp.org/magazines/march-2016/the-misleading-promise-of-balance-in-canadas-climate-change-policy/>>. Note: This piece was included in Policy

Options' Special Feature on "After Paris, Next Steps on Climate Change", online:
<<http://policyoptions.irpp.org/magazines/march-2016/after-paris-next-steps-on-climate-change/>>

The Energy Mix

"May 3 Day of Action Pushes Canada to End Fossil Fuel Subsidies", *The Energy Mix* (1 May 2022), online: <https://theenergymix.com/2022/05/01/may-3-day-of-action-pushes-canada-to-end-fossil-fuel-subsidies/>

Canadian Bar Association National Magazine:

"Greening the *Charter*? Why trying to constitutionalize a right to a healthy environment is misguided", *CBA National* (28 February 2017), online:
<<http://nationalmagazine.ca/Articles/February-2017/Greening-the-Charter-Why-trying-to-constitutionalize.aspx>>

Chronicle-Journal:

From August 2013 to April 2016 I wrote a bi-weekly column called "Sustainability Matters" for the *Chronicle-Journal*, the primary newspaper both of Thunder Bay and Northwestern Ontario.

KNOWLEDGE MOBILIZATION – LAW BLOGGING

Oxford Business Law Blog post (by invitation): <https://www.law.ox.ac.uk/business-law-blog/blog/2016/05/judicial-innovation-vs-studied-inertia-canadian-corporate-law-and-new>

University of Faculty of Law Blog: <http://ualbertalaw.typepad.com/>

I have been a guest contributor to this blog. Major research posts include the following:

- <http://ualbertalaw.typepad.com/faculty/2016/05/developing-best-practices-for-legal-analysis-symposium-part-one.html>
- <http://ualbertalaw.typepad.com/faculty/2016/05/developing-best-practices-for-legal-analysis-symposium-part-two.html>

CONFERENCE PRESENTATIONS & INVITED TALKS

2023

"Establishing Capture in Court: US and Canadian Case Studies," invited talk to be given at the International Workshop on Regulatory Capture, University of York, York, UK, September 14-15, 2023

"Challenging Regulatory Capture in Court: The Un/Intended Consequences for Trust in Public Governance Emerging from US and Canadian Litigation," paper to be presented at the Biennial Conference of the Standing Group on Regulatory Governance, University of Antwerp, Antwerp, Belgium, July 12-14, 2023

“Establishing Capture in Court: US and Canadian Case Studies,” paper to be presented at the Biennial Conference of the Standing Group on Regulatory Governance, University of Antwerp, Antwerp, Belgium, July 12-14, 2023

“Establishing Regulatory Capture in Court: US and Canadian Litigation Case Studies,” invited talk given at the Emerging Issues in Environmental Law Conference co-hosted by the Dalhousie University Environmental Law Society and UNB Environmental Law Society, Halifax, NS, March 18, 2023

“Establishing and Escaping Regulatory Capture,” invited talk given to the Centre for Environmental Law and Litigation’s (CELL) Winter 2023 Environmental Litigation Experiential Learning Program, Victoria, BC, March 6, 2023

“Regulatory Capture by Fossil Fuel Corporations,” invited webinar panelist, The Group of 78, Ottawa, ON, February 8, 2023

“Rounding Up Regulators: Escaping Monsanto’s Global Capture of Glyphosate Regulations,” invited research seminar, Schulich Faculty of Law, Dalhousie University, Halifax, NS, February 2, 2023

2022

“Weather and work: how climate change relates to workers’ rights,” invited conference presenter, Osgoode Hall Law School, Toronto, ON, December 8, 2022

“Establishing and Escaping Regulatory Capture,” invited talk given to the Centre for Environmental Law and Litigation’s (CELL) Fall 2022 Environmental Litigation Experiential Learning Program, Victoria, BC, November 14, 2022

“Green Rights & Warrior Lawyers: Virtual Academy & Inspirathon,” invited academic commentator, Allard Faculty of Law, UBC, Vancouver, BC, November 10, 2022

“UNB Sustainability Policy Forum: Interdisciplinary Approaches to Climate Change,” invited panel presenter and participant, University of New Brunswick Student Union, Fredericton, NB, October 26, 2022

“Regulatory Capture, Complexity, and Academics: Lessons from the Agrochemical and Energy Sectors,” invited presentation, Final International Conference of VIRTEAU (Vat fraud: Interdisciplinary Research on Tax crimes in the European Union), Manchester Metropolitan University, Manchester, UK, June 24, 2022

“Corporate Rules and Big Energy,” York University, Faculty of Environmental and Urban Change panel, invited panelist, May 11, 2022, available online: <https://sei.info.yorku.ca/youtube>

“Negotiating Individualized Student-Centred Learning Pathways: An Application of Active Learning and Universal Design Theory In Law School,” Dalhousie Conference in University Teaching and Learning, May 5, 2022

“Corporate Rules: The Real World of Business Regulation in Canada,” Toronto Metropolitan University Centre for Free Expression panel, invited panelist, April 26, 2022, available online: <https://cfe.ryerson.ca/events/corporate-rules-real-world-business-regulation-canada>

Testimony before the House of Commons' Standing Committee on Environment and Sustainable Development, April 26, 2022, available online:

<https://www.ourcommons.ca/Committees/en/ENVI/StudyActivity?studyActivityId=11504305>

“Cryptocurrency and the Environment,” invited presenter, Dalhousie University Schulich School of Law, Decoding Cryptocurrencies conference presented by the Purdy Crawford Chair in Business Law and the Law Technology Institute, March 25, 2022.

“Climate Change and the Right to Protest: An International Law Association and Nathanson Centre collaboration” (online), invited panelist, January 20, 2022

2021

“International Law at the Crossroads of State and Nonstate (In)Action on Climate Change: Where Do We Go from Here?”, paper given at the 2021 Annual Conference of the Canadian Council on International Law, Ottawa, ON, November 2021

“The Future of Climate Action in Saskatchewan Following the Supreme Court of Canada's Carbon Pricing Decision”, invited talk given to the Saskatoon Public Library, Saskatoon, SK, November 16, 2021

“Lunch and Learn: UNB as a Living Laboratory of Sustainability, invited lecture given at the UNB Student Union, Fredericton, New Brunswick, October 5, 2021

“Greta Thunberg, #FridaysforFuture, and the Lessons of Youth Climate Activism”, invited presentation given as part of Tertulias Fredericton public lecture series, April 14, 2021

Invited Panelist, Western Law Students' Charter Society Panel: Rights-Based Climate Change Litigation, Western University Faculty of Law, April 2, 2021

2020

“Carbon Pricing: The Silver Bullet for the Energy Transition?”, invited presentation given as part of a webinar in the 8th Vienna Forum on European Energy Law, November 30, 2020

“Human Rights and the Corporation”, invited presentation given as part on a virtual panel series on “The Corporate Citizen in the Time of COVID-19”, October 28, 2020

“Second Generation Climate Change Litigation”, invited presentation at the National Judicial Institute, Civil Law Seminar on “Frontiers of Liability”, Calgary, AB, May 13-15, 2020

“Paris of the Prairies: Making the Paris Agreement a Reality at the University of Saskatchewan”, presented to Grade 10 History Class of Mount Collegiate High School, Saskatoon, SK, January 22 & 27, 2020

“Paris of the Prairies: Making the Paris Agreement a Reality at the University of Saskatchewan”, paper presented at the Third Annual People Around the World Conference, University of Saskatchewan, Saskatoon, SK, February 7, 2020

2019

“Paris of the Prairies: Making the Paris Climate Agreement a Reality at the University of Saskatchewan”, paper presented to the University of Saskatchewan Senate Education Committee Panel on Climate Change Education, Marquis Hall, University of Saskatchewan, Saskatoon, SK, October 26, 2019

“Reorienting the Role of Nonstate Actors in Global Climate Governance”, paper presented at the Purdy Crawford Workshop on the Role of Business Regulation in Advancing the Sustainable Development Goals, Dalhousie University Schulich School of Law, Halifax, NS, September 27, 2019

“The challenges of climate policy in Canada”, presentation made at the Meeting of the Québec Secrétariat aux relations canadiennes on federalism and climate change, Montréal, QC, September 12, 2019

“The World has Problems, the University has Departments”, paper presented at the International Sustainability Transitions Conference, Carleton University, Ottawa, ON, June 26, 2019

“Learning to Think Like a Lawyer and Forget about Justice: Field Notes from Teaching First-Year Contract Law”, paper presented at the Law of Obligations Conference, University of New Brunswick Faculty of Law, May 11, 2019

“Death and Taxes: The Law and Economics of Putting a Price on Carbon”, presentation made as part of the Saskatchewan Environmental Society Public Lecture Series, Saskatoon Public Library, Saskatoon, SK, March 19, 2019

“Balancing Religious Freedom with Equality: A post *Trinity Western University* discussion”, talk given on behalf of the Runnymede Society, University of Saskatchewan College of Law, Saskatoon, SK, March 8, 2019

2018

“Rethinking the Role of Nonstate Actors in International Climate Governance”, paper presented at the University of Alberta Faculty of Law Research Seminar Series, November 20, 2018

“The People’s Pipeline: Manufacturing Consent to Climate Inaction”, paper presented at the Purdy Crawford Emerging Business Scholars Workshop, Schulich School of Law, Dalhousie University, Halifax, Nova Scotia, October 19-20, 2018

Panelist, invited to discuss *The Constitution of the Environmental Emergency*, by Jocelyn Stacey, Joint Annual Meeting on Law and Society, Toronto, Ontario, June 7-10, 2018 (by invitation)

“Can Civil Society Solve Climate Change: *PostCarbon* as a Case Study of the Capacity of Non-State Actors to Enhance International Environmental Lawmaking”, paper presented at the Seventh International Four Societies Conference *Changing Actors in International Law*, International Conference Center, Waseda University, Tokyo, Japan, 2-3 June 2018

“Invoking s. 33: Democracy or Disaster? A Debate on Charter Rights and the Notwithstanding Clause”, talk given with Professor Dwight Newman & Dr. Geoffrey Sigalet on behalf of the

Runnymede Society at the College of Law, University of Saskatchewan, March 27, 2018 (by invitation)

“Suppressing Free Speech, Past and Present: Pieties, Politics, and Professors”, talk given with Professor Moin Yahya on behalf of the Institute for Liberal Studies at the College of Law, University of Saskatchewan, March 8, 2018 (by invitation)

“The Role of Academics in International Climate Governance”, paper presented at the *Loyola University Chicago International Law Review Symposium: The Global Response to Climate Change: A Common Concern of Humankind*, Loyola University Chicago School of Law, February 9, 2018 (by invitation)

2017

“Speech Has Never Been Free: The Right to Speak, the Responsibility to Listen and Learn”, talk given on behalf of the Institute for Liberal Studies, Western University, London, Ontario, November 16, 2017 (by invitation)

“Impact and Benefit Agreements, Confidentiality, and Sustainability”, paper presented at the “Law and Politics of Indigenous-Industry Agreements Workshop,” College of Law, University of Saskatchewan, October 14, 2017 (by invitation)

“A Network of Energy Transition Experiments to Support Efficient, Evidence-Based Decision-Making in Canada”, Workshop Participant, University of Winnipeg, October 10, 2017 (by invitation)

“Climate-Proofing Judicial Review After Paris: Judicial Competence, Capacity, and Courage”, paper presented at the Ontario Association of Impact Analysis (OAIA) 2017 Conference, Toronto, Ontario, October 17, 2017

“Regulatory Capture and the Role of Academics in Public Policymaking”, paper presented at the University of Alberta Faculty of Law Research Seminar Series, September 21, 2017 (by invitation)

“Paris *and* Pipelines? Canada’s Climate Policy Puzzle”, 6th Biennial Conference of the Journal of Environmental Law and Practice, Schulich School of Law, Dalhousie University, June 16-17, 2017

“Climate-Proofing Judicial Review After Paris: Judicial Competence, Capacity, and Courage” (2017) (equal co-author with Chris Tollefson), ”, 6th Biennial Conference of the Journal of Environmental Law and Practice, Schulich School of Law, Dalhousie University, June 16-17, 2017

“The Lost Law School: Toward a Truly Transformative Reform of Legal Education”, paper presented (with Frances E. Chapman) at the ACCLE / CATLT Annual Conference, “The Whole Lawyer and the Legal Education Continuum”, University of Victoria Faculty of Law, Victoria, British Columbia, June 8-10, 2017

Centre for Law & the Environment, *The Future of the Legal Academy in Canadian Environmental Law*, Workshop Participant, Peter A. Allard School of Law, Vancouver, British Columbia, May 12, 2017 (by invitation)

“Against Constitutionalizing Environmental Rights”, paper presented at “The Charter and Emerging Issues in Constitutional Rights and Freedoms: From 1982 to 2032” Conference

(“*Charter* and the Environment” panel), University of Ottawa Faculty of Law, Ottawa, Ontario, March 9, 2017

“Autonomy in the Anthropocene? Libertarianism, Liberalism, and the Legal Theory of Environmental Regulation”, paper presented at the University of Western Ontario Faculty of Law, London, Ontario, February 7, 2017 (Job Talk, by invitation)

Interview for the McGill Journal of Sustainable Development Law and Policy podcast on oil pipeline development in Canada, McGill University, Montreal, Quebec, January 20, 2017 (by invitation)

“International Law versus The Rule of Law”, Institute of Liberal Studies, McGill University, Montreal, Quebec, January 19, 2017 (by invitation, with Bruce Parry)

“Autonomy in the Anthropocene? Libertarianism, Liberalism, and the Legal Theory of Environmental Regulation”, paper presented at the University Saskatchewan College of Law, Saskatoon, Saskatchewan, January 11, 2017 (Job Talk, by invitation)

2016

“Toward a Sustainability Model of Environmental Assessment,” presentation to Expert Panel: Review of Environmental Assessment Processes, Thunder Bay, Ontario, November 14, 2016

“Building an Environmental Legacy: A Guide to Participating in the Expert Environmental Assessment Panel”, workshop organized by West Coast Environmental Law, Thunder Bay, Ontario, November 1, 2016 (invited workshop co-leader)

“Polyjural and Polycentric Sustainability Assessment,” paper presented at “Hitting the Reset Button...,” Ontario Association for Impact Assessment (OAIA) Conference, Toronto, Ontario, October 25-26 (by invitation)

“Environmental Law vs. the Rule of Law: A Debate on Water & Oil”, Runnymede Society, Bora Laskin Faculty of Law, Lakehead University, September 20, 2016 (by invitation, with Bruce Parry)

Philippe Kirsch Institute, Expert Panel on Business & Human Rights, “The Social License to Operate,” Ted Rogers School of Management, Ryerson University, Toronto, Ontario, May 31, 2016 (by invitation)

Pipeline Safety Trust, “Pipeline Safety Indicators and Transparency Forum,” Calgary, Alberta, May 19th, 2016 (invited participant)

“Multi-Jurisdictional and Polycentric Environmental Assessment: A Once-in-a-Generation Law Reform Opportunity,” paper presented (with Meinhard Doelle & Chris Tollefson), Federal Environmental Assessment Reform Summit, West Coast Environmental Law (WCEL), Ottawa, Ontario, May 1-3, 2016 (by invitation)

“The Root Problem of Environmental Protection: Identifying and Escaping Regulatory Capture,” The Vulnerability and the Human Condition & The Feminism and Legal Theory Workshop, Emory University & Smith College, Northampton, MA, April 8, 2016

“Green Industrial Policy for Great Lakes Governance: Institutionalism, International

Environmental Law, and the IJC,” Upper Great Lakes Law & Policy Symposium, University of Minnesota at Duluth, March 24, 2016 (by invitation)

“The Legitimacy of the Welfare State: Governments in Pursuit of the Public Good,” Runnymede Society Debate, University Toronto Faculty of Law, March 21, 2016 (by invitation)

“Musings over What’s Next in Canadian Environmental Law,” Environmental Law Clinic Associates Teleconference Panel, University of Victoria Faculty of Law, February 29, 2016 (by invitation)

“Is Canada Really Back? Trudeau, Climate Change, and the Future of Canadian Environmental Law,” Lakehead Law Journal Launch Panel (with Meinhard Doelle & Chris Tollefson), Bora Laskin Faculty of Law, Lakehead University, February 8, 2016 (by invitation)

“Response to Bruce Pardy’s *Ecolawgic: Markets, Ecosystems and the Rule of Law*,” Queens University Faculty of Law, January 18, 2016 (by invitation)

2015

“The Procedural and Substantive Elements of Sustainable Development,” Bora Laskin Faculty of Law Conference on the “Ring of Fire,” October 30, 2015

“The Economic Benefits of Environmental Regulations: Constructing an Index of Canadian Environmental Law Stringency,” Canadian Association of Law and Economics, University of Toronto Faculty of Law, September 25, 2015

“Free, prior and informed consent (FPIC) & developing international, transnational & domestic law frameworks for relationships between extractive industries and Indigenous peoples,” Centre for International Governance Innovation International Law Research Program 1st Consultation Workshop on Emerging International Transnational and Domestic Law Issues in the Relationship between Extractive Industries and Indigenous Peoples, University of Waterloo, June 25, 2015

“Striking at the Root Problem of Canadian Environmental Law: Identifying and Escaping Regulatory Capture,” 5th Biennial Conference of the Journal of Environmental Law and Practice, University of Calgary Faculty of Law, June 5-6, 2015

2014

“Sustainable Resource Development and Environmental Issues,” Aboriginal Law Conference, Bora Laskin Faculty of Law, Lakehead University, November 7, 2014

“How Not to Hire a Hitman: The Failure of the Supreme Court of Canada to Protect Battered Women in *R. v. Ryan*” (with Nadia Verrelli), Lakehead University Women’s Studies Brown Bag Speaker Series, October 19, 2014 (by invitation)

“Aboriginal Title and Sustainability in *Tsilhqot’in v. British Columbia*,” University of Alberta Faculty of Law, August 28, 2014 (by invitation)

“The Promise and Peril of Producing ‘Practice Ready’ Lawyers: Curricular Reform, Decolonization, and Access to Justice,” Canadian Association of Law Teachers Conference, Faculty of Law, University of Manitoba, June 7, 2014

“The Constitutional Right to Change Your Mind”, informal presentation made during *The Unbounded Level of the Mind: Rod Macdonald’s Legal Imagination*, McGill University Faculty of Law, February 7-8, 2014 (by invitation)

LAW COURSES TAUGHT

Faculty of Law, University of New Brunswick

- 2022-2023 Environmental Law (Fall); Natural Resources Law (Fall 2021); Administrative Law (Winter 2023); Global Climate Change Governance (Winter 2023)
- 2021-2022 Environmental Law (Fall); Natural Resources Law (Fall 2021); Administrative Law (Winter 2022); Global Climate Change Governance (Winter 2022)
- 2020-2021 Property Law (Fall and Winter); Environmental Law (Fall 2020); Natural Resources Law (Winter 2021)

College of Law, University of Saskatchewan:

- 2019-2020 Contract Law (Fall and Winter); Environmental Law (Fall 2019)
- 2018-2019 Contract Law (Fall 2018); Environmental Law, Administrative Law (Winter 2019)
- 2017-2018 Contract Law, Environmental Law (Winter 2018); Administrative Law (Fall 2017)

School of Environment and Sustainability (SENS), University of Saskatchewan

- 2021 Fundamentals of Environmental Law and Policy (Master of Sustainable Environmental Management Programme, January 2021)
- 2020 Fundamentals of Environmental Law and Policy (Master of Sustainable Environmental Management Programme, January 2020)

Bora Laskin Faculty of Law, Lakehead University:

- 2016-2017 Contract Law (2016-2017); Constitutional Law (Fall 2016); Environmental Law (Fall 2016); Business Organizations; International Environmental Law (Winter 2017)
- 2015-2016 Contract Law; Property Law; Environmental Law (Fall 2015); International Environmental Law (Winter 2016); Corporate Social Responsibility and the Law (Winter 2016)
- 2014-2015 Civil Procedure (Fall 2014 section); Contract Law; Environmental Law; International Environmental Law (Winter 2015) (Lakehead University)
- 2013-2014 Contract Law; Property Law

McGill Faculty of Law:

2006 Art of the Deal, Student Seminar, McGill University Faculty of Law (I created and led this simulation of a public company takeover as a third-year law student)

PROFESSIONAL TEACHING DEVELOPMENT

2022 Diploma in University Teaching, University of New Brunswick

2021 Centre for Enhanced Teaching and Learning Workshops on Alternative Assessment, and Starting the Term on a Positive Note, workshop participant, University of New Brunswick

2020 Gwenna Moss Curriculum Innovation Community programme participant, University of Saskatchewan

2019 Planetary Boundaries, taught by members of the Stockholm Resilience Centre, EdX (Online Verified Certificate of Achievement issued August 31, 2019). Course webpage: <https://www.edx.org/course/planetary-boundaries>.

2016 HarvardX, ContractsX: From Trust to Promise to Contract, taught by Professor Charles Fried, Harvard Law School (Online Verified Certificate of Achievement issued August 14, 2016). Course webpage: <https://www.edx.org/course/contract-law-trust-promise-contract-harvardx-hls2x-0>.

UNIVERSITY SERVICE**Faculty of Law, University of New Brunswick**

2022-2023 Chair, Teaching and Research Excellence Committee
Member of Law Library and Curriculum Committees
Member, University of New Brunswick Climate Action Plan Advisory Committee

2021-2022 Chair, Teaching & Research Excellence Committee
Member of Law Library, Law Clinic, and Curriculum Committees
Member, University of New Brunswick Climate Action Plan Advisory Committee
Member, University of New Brunswick Climate Action Plan Advisory Committee's Subcommittee on Curriculum

2020-2021 Chair, Teaching & Research Excellence Committee
Member of Law Library, Law Clinic, and Curriculum Committees
Member, University of New Brunswick Climate Action Plan Advisory Committee
Member, University of New Brunswick Climate Action Plan Advisory Committee's Subcommittee on Curriculum

College of Law, University of Saskatchewan:

2021-2022 Member, President's Advisory Circle on Sustainability, and Lead, Operations

subgroup:

<https://sustainability.usask.ca/plan.php#PresidentsAdvisoryCircleonSustainability>

2020-2021 Member, President's Advisory Circle on Sustainability, and Lead, Operations subgroup

<https://sustainability.usask.ca/plan.php#PresidentsAdvisoryCircleonSustainability>

2019-2020 Member, President's Advisory Circle on Sustainability, and Lead, Operations subgroup

<https://sustainability.usask.ca/plan.php#PresidentsAdvisoryCircleonSustainability>

Member, College of Law Curriculum Committee

Member, College of Law Speakers Committee

2018-2019 Member, College of Law Curriculum Committee
Member, College of Law Mental Health and Wellness Committee
Elected Member-at-Large, University Council (2018-2021)

2017-2018 Member, College of Law Mental Health and Wellness Committee
Member, College of Law Aboriginal Engagement Committee

Bora Laskin Faculty of Law, Lakehead University:

2016-2018 Member, Lakehead University Sustainability Stewardship Council

2016-2017 Chair, Lakehead University Sustainability Stewardship Council Working Group on Public Engagement
Chair, Bora Laskin Faculty of Law Committee on Environmental and Natural Resources Law
Chair, Bora Laskin Faculty of Law Curriculum, IPC, and Law Clinic Committee

2015-2016 Chair, Faculty Council, Bora Laskin Faculty of Law
Co-Chair, Guest Speakers Committee, Bora Laskin faculty of Law
Member, Faculty Hiring Committee, Bora Laskin Faculty of Law
Member, University Senate, Lakehead University
Member, University Senate Academic Committee, Lakehead University
Member, University Senate Academic Subcommittee on Regulations

2014-2015 Chair, Guest Speakers Committee, Bora Laskin Faculty of Law
Member, Faculty Hiring Committee, Bora Laskin Faculty of Law

2013-2014 Chair, Guest Speakers Committee, Bora Laskin Faculty of Law
Member, Faculty Hiring Committee, Bora Laskin Faculty of Law

COMMUNITY SERVICE

2021— Member, Board of Directors, East Coast Environmental Law (Halifax, Nova

Scotia)

- 2017— Member, Board of Directors, Pacific Centre for Environmental Law and Litigation (CELL)
- 2015-2017 Academic member, Earthcare Climate Adaptation Working Group, City of Thunder Bay, Ontario

SERVICE TO THE LEGAL PROFESSION & ACADEMIA

- 2021— Review Editor, *Frontiers in Climate – Climate Change Law and Policy*
- 2021— Editorial Board Member, *Grassroots Journal of Natural Resources*
- 2018— Book Review Editor, *Canadian Business Law Journal*
- 2013— Peer reviewer for the Alberta Law Review, Canadian Journal of Communication, Canadian Journal of Law and Society, Canadian Journal of Political Science, Canadian Bar Review, Canadian Legal Education Annual Review (CLEAR), CIGI Paper Series, Dalhousie Journal of Legal Studies, Dalhousie Law Journal, Journal of Environmental Law and Practice, McGill Law Journal, McGill Sustainable Development Law Journal, Osgoode Hall Law Journal, Review of European, Comparative & International Environmental Law, UBC Law Review, University of New Brunswick Law Journal, Windsor Yearbook of Access to Justice, and Yale Law Journal
- 2013-2017 Member, Thunder Bay Law Association
- 2010— Administrative and Constitutional Law Section Editor and Contributor, *Toronto Law Journal* (publication of the Toronto Lawyers Association, which publishes online case comments for its 3,000-plus members)

PROFESSIONAL ASSOCIATIONS

- 2017— Member, Sustainable Canada Dialogues
<http://www.sustainablecanadadialogues.ca/en/scd/mobilizing-canadian-scholars-expertise>)

Date: 20 April 2023



Jason MacLean, Ph.D.

This is Exhibit "B" referred to in the
Affidavit of Dr. Jason MacLean
sworn (or affirmed) before me at
Fredericton, NB,
this 20th day of April, 2023,



A Commissioner for Taking Affidavits in New Brunswick

Anthony Coady
Commissioner Of Oaths
My Commission expires
December 31st 2025

City of Fredericton
County of York
Province of New Brunswick
Date: *April 20 2023*

GRATL & COMPANY

BARRISTERS AND SOLICITORS

January 15, 2023

By Electronic Mail (j.maclea@unb.ca)

Prof. Jason MacLean
167 Neill Street
Fredrickton, NB E3A 2z7

Attn: Prof. Jason MacLean

Dear Sir:

Re: Expert Retainer

Thank you for agreeing to be retained by my firm to act as an expert adviser and consultant in respect of environmental and legal issues dealing with the Pest Control Products Act.

I confirm that your engagement by our firm remain confidential and we formally request that you assert solicitor-client and litigation privilege in respect of your retainer by our firm. I further confirm that your engagement will be kept confidential by our firm and we will assert privilege in respect of your engagement.

Thank you for your attention.

Sincerely,

*Jason Gratl**

JBG/tim

This is Exhibit "C" referred to in the
Affidavit of Dr. Jason MacLean
sworn (or affirmed) before me at
Fredericton, NB,
this 20th day of April, 2023,



A Commissioner for Taking Affidavits in New Brunswick

Anthony Coady
Commissioner Of Oaths
My Commission expires
December 31st 2025

City of Fredericton
County of York
Province of New Brunswick
Date: *April 20/2023*

Court File No. T-2292-22

FEDERAL COURT

BETWEEN:

SAFE FOOD MATTERS INC.

Applicant

AND:

ATTORNEY GENERAL OF CANADA and MINISTER OF HEALTH

Respondents

**CERTIFICATE CONCERNING CODE OF
CONDUCT FOR EXPERT WITNESSES**

I, Dr. Jason MacLean, having been named as an expert witness by the Plaintiff in this matter, certify that I have read the Code of Conduct for Expert Witnesses set out in the schedule to the *Federal Courts Rules* and agree to be bound by it.

Dated this 20th day of April, 2023


Anthony Coady
Commissioner Of Oaths
My Commission expires
December 31st 2025



Jason MacLean, PhD

City of Fredericton
County of York
Province of New Brunswick
Date: April 20 2023