

A paradox of public engagement: The discursive politics of environmental justice in Canada's Chemical Valley

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Abstract

For over a decade, members of the Aamjiwnaang Nation have continued to fight for the recognition and redress of their unique environmental health concerns in a region known as Canada's Chemical Valley. From a critical policy studies lens, this article addresses the discursive policy challenges faced by those who are most affected by the toxic policy assemblage of enduring pollution exposure. In response to the research question: how can the voices and lived experiences of those living in pollution hotspots like Chemical Valley contribute to the theory and practice of environmental justice, this article draws upon findings from extensive field-work in the surrounding region of Lambton County as well as policy advocacy including participation in Senate of Canada hearings. This analysis examines how the omission of community-based knowledge and expertise reproduces inequities. The article concludes with strategies for improved environmental justice and lessons learned for policy justice in Canada and beyond.

KEYWORDS

Aamjiwnaang Nation, air pollution, Canada, Chemical Valley, community-engaged research, environmental health concerns, environmental justice, environmental political theory, First Nations, indigenous communities, interpretive policy analysis, policy activism, pollution hotspots, reproductive justice, sacrifice zone, toxic exposure

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INTRODUCING CHEMICAL VALLEY AS A “SACRIFICE ZONE”: AN INTERNATIONAL AND VISCERAL MATTER OF ENVIRONMENTAL JUSTICE

On March 21, 2024, before the Senate of Canada to provide testimony on Bill C-226, *An Act respecting the development of a national strategy to assess, prevent and address environmental racism and to advance environmental justice*, Aamjiwnaang Chief Chris Plain explained: “I’m here today to share our community’s experience of living in an environmental sacrifice zone” (“The Standing Senate Committee on Energy, The Environment and Natural Resources,” 2024). His opening testimony explained how the United Nations has characterized Aamjiwnaang as a sacrifice zone, meaning an “extremely contaminated area where residents who are often compromised vulnerable and marginalized groups experience devastating physical and mental health consequences and human rights violations as a result of living in pollution hot spots and heavily contaminated areas” (“The Standing Senate Committee on Energy, The Environment and Natural Resources,” 2024). He continued to explain how Aamjiwnaang has experienced disproportionate environmental health impacts from toxic industrial pollution in their territory, which is located in the heart of Canada’s “Chemical Valley,” at the south end of Lake Huron, on the east side of the St. Clair River across the Canada–US border in Port Huron, Michigan. For over a decade, Aamjiwnaang has been classified as a “sacrifice zone”; as many community members explain: “that is what we feel like.”¹

Just 2 years prior to Chief Plain’s testimony, Canada’s House of Commons Standing Committee on Environment and Sustainable Development called Aamjiwnaang band member Silvia Plain to testify about her lived experiences in Chemical Valley on November 22, 2022. Seated next to a representative from the Mining Association of Canada, Silvia spoke alongside other stakeholders to discuss Bill S-5 *An Act to amend the Canadian Environmental Protection Act, 1999, to make related amendments to the Food and Drugs Act, and to repeal the Perfluorooctane Sulfonate Virtual Elimination Act*, or as more widely known, the *Strengthening Environmental Protection for a Healthier Canada Act*. Noting the Aamjiwnaang First Nation’s location in the midst of Canada’s Chemical Valley—the densest concentration of petrochemical and polymer facilities in the country—she urged the Members of Parliament present to note how “Children in Aamjiwnaang are being born pre-polluted, and continued to be exposed throughout crucial periods of their development.” Despite these ongoing testimonies, continuous activism efforts, and requests for environmental policy transformation, the everyday pollution continues. This paper thus argues that Aamjiwnaang community members’ involvement in formal legislative and policy processes can be understood as a paradox of public engagement: at once they are called to

¹Silvia Plain, testimony before the Standing Committee on Environment and Sustainable Development, Friday November 25, 2022. House of Commons. Evidence available at <https://www.ourcommons.ca/DocumentViewer/en/44-1/ENVI/meeting-39/evidence>.

give an account of their lived experiences while the inequitable status quo remains in place. As such, their concerns are heard, but not listened to with transformative policy outcomes. Hearing is not enough. Transformative listening and action are critical to address these persistent environmental injustices. The unfolding analysis explains why this sacrifice zone scenario exists, and how it might be otherwise.

In the heart of the Great Lakes, where waters flow between Canada and the United States, located at the southernmost tip of Lake Huron on the Ontario side of the Canada-US border, an indigenous community fights for its life and the right to breathe clean air. The experiences and struggles of the Aamjiwnaang First Nation, an Anishinabek community whose home is occupied by Chemical Valley, Canada's densest concentration of petrochemical and polymer facilities reveals tensions over varying interpretations of the effects of toxic exposure on humans and the local environment. Daily, Aamjiwnaang citizens struggle to recognize their environmental and reproductive health concerns while living in this pollution hotspot. In 2011, a World Health Organization study covering 91 countries and 1100 cities documented Sarnia as home to the highest amount of particulate matter per cubic meter of air in all of Canada, ranking it as Canada's top spot for air pollution in the country (“Canada's Air among the World's Best: WHO | CTV News,” 2011). While Canada's air quality ranked third highest, Sarnia ranked the worst in the country. Policy makers at all levels of government navigate the many layers of Canadian governance for indigenous environmental health and justice as they determine how best to respond to this multidimensional matter of environmental and reproductive justice.²

Just 7km south of Sarnia's city center, approximately 800 Anishinabek citizens live in the middle on Chemical Valley on the Aamjiwnaang First Nation reserve. Though this place has long been their home, they articulate ongoing environmental and reproductive health concerns in a struggle for environmental reproductive justice, a fledgling field of study in Canada and globally (Altamirano-Jiménez, 2020; Ecojustice, 2007; Hoover et al., 2012; McGregor, 2009; Schlosberg, 2013; Scott, 2008, 2009; Wiebe, 2016, 2020). Responding to the lack of recognition for the community's compromised environmental health and the incessant exposure of their bodies and lands to harmful pollutants, including benzene, particulate matter, toluene, sulfur dioxide, and xylene, two local citizens of this community joined with Ecojustice to demand the right to a clean environment.³

Locally in the surrounding region of Lambton County, Aamjiwnaang community members were at once invited to participate in an inclusive health study that marginalized their small-scale, situated concerns. In 2017, following a joint investigation from the *Toronto Star*, *Global News*, *National Observer*, *Ryerson and Concordia*, the provincial Government of Ontario committed to funding a health study to examine the environmental impacts of Chemical Valley. However, at the time of writing in 2024, the health study still does not make the link between environmental and human health, which the Aamjiwnaang Nation and surrounding Lambton County have called for now for over a decade (Craig et al., 2017; “Toxic Secret | News, Videos & Articles,” n.d.). Thus, the time is ripe for critical reflection and creative imagination on how to improve environmental justice and participatory public health processes to address systemic pollution exposure and the legacy of colonialism in Canada.

²For a more detailed discussion of environmental reproductive justice in Canada, see Altamirano-Jiménez, “Free Mining, Body Land, and the Reproduction of Indigenous Life,” and Wiebe (2020).

³Ecojustice represented two individuals, Ada Lockridge and Ron Plain in a Charter of Rights and Freedoms challenge under sections 7 and 15, noting that the “cumulative effects” of pollution's impact on their community—in other words their geopolitical location in the polluted heart of Canada's ‘Chemical Valley’—infringes upon their right to life, liberty, and security of the person and the right to equality (Ecojustice, see <https://ecojustice.ca/news/cross-examinations-continue-in-chemical-valley-charter-challenge/>. Accessed online April 18, 2023).

When we take into consideration the Aamjiwnaang First Nation's geopolitical location and ongoing health concerns, encompassing physical, psychological, and cultural impacts, residents of Sarnia and surrounding areas within Lambton County experience a quality of life unlike their Sarnia neighbors (Ecojustice, 2007; Mackenzie et al., 2005; Wiebe, 2016). Frustrated with the location of their reserve's encroachment of Chemical Valley, community members continue to seek justice. In response, this study asks how can the expertise, lived experiences, and voices of those living in pollution hotspots like Chemical Valley contribute to the theory and practice of environmental justice?

PARTICIPATORY INCLUSION AS A PARADOX OF ENGAGEMENT: A CRITICAL POLICY STUDIES LENS

Public engagement processes in Canada present a site of critical investigation for the practice of environmental justice. These processes include affected communities' involvement in formal proceedings such as appearing before the Senate of Canada and House of Commons committees federally, as well as participating in community health studies locally. This article argues that Aamjiwnaang band members continue to encounter a paradox of engagement through these administrative processes at local and federal scales: their knowledge is *heard* but not *listened to* for meaningful action and change to address their concerns. Informed by a critical policy studies lens (Durnová, 2022; Orsini, 2007, 2021; Orsini & Smith, 2010) and the guiding scholarship of critical race theorists such as Sara Ahmed (2012), this analysis examines the political work of such a paradox, insofar as there is a gap between procedural invitations extended by legislative bodies to participate in regulatory processes or public health studies and the lived experiences of community members whose concerns are heard but not listened to or accommodated through substantive policy and public health outcomes.

This research aims to (a) critique the practical application of environmental justice policy in Canada and (b) enrich the study of environmental justice in Canada, to learn about how distributive, procedural, and discursive facets have marginalized Aamjiwnaang's lived experiences, expertise, and concerns since a countywide health study began in 2005 in their community. At the same time, I propose alternative policy pathways and directions to substantively address these. The concept of facet draws from Jennifer Mason's discussion of facet methodology, which refers to “flashes of insight” that help to define the specific object of concern, such as how the discourse of scientific expertise accentuates the edges of environmental reproductive justice and the “policy assemblage” of environmental injustice in Canada (Mason, 2011; Wiebe, 2016).

A critical approach is vital to understand the colonial and oppressive underpinnings of Canadian institutions and their impacts on communities in practice. Following Ahmed (2012, p. 29): “Structures of governance make an institution into a body or machine,” where there is a system of distribution, with pathways that transfer materials to each part, “each assumed to have their own function or purpose, each participating in the overall health of the body or machine.” As such, this study offers a cautionary tale for the administration of environmental justice broadly speaking by drawing upon the experiences of Aamjiwnaang community members' participation in federal and local policy processes specifically, as a nonindigenous academic and environmental justice policy advocate seeking to engage in environmental justice policy advocacy alongside the community.

Yet, this analysis does not end with critique. It aims to be constructive, imaginative, and future-oriented. Through the critical policy assessment presented here, these contributions aim to improve public engagement processes of this kind in the future, oriented to policy justice and radical policy futures (Cattapan et al., 2020, p. 244; Levac & Wiebe, 2020, pp. 5–6). In doing so, I focus on each facet of environmental justice (distributive, procedural,

and discursive) with particular attention paid to the discursive dimensions. This analysis builds upon the policy justice framework developed by Levac and Wiebe in conversation with existing scholarship from intersectionality-based policy analysis (“An Intersectionality-Based Policy Analysis Framework,” 2012; Dhamoon, 2011; Hankivsky & Jordan-Zachery, 2019) reproductive justice (Hoover et al., 2012; Saurette & Gordon, 2013; “SisterSong,” 2013), settler-colonial studies and decolonization (Alfred, 2009; Coulthard, 2014; Simpson, 2011). A critical policy studies lens informs the interpretive and intersectional analysis that guides the discursive approach advanced here to assess the public administration of environmental justice generally and public engagement specifically in Canada's Chemical Valley.⁴

Further, I argue that the lens of policy justice, informed by intersectionality-based policy analysis and interpretive policy analysis, can enhance public engagement on difficult matters of social and environmental justice by creating space for the inclusion of indigenous expertise, stories, and knowledge into collaborative policy development and environmental decision-making (Hankivsky & Jordan-Zachery, 2019; Schwartz-Shea & Yanow, 2013; Yanow & Schwartz-Shea, 2014). As such, this justice-oriented, radical policy futures approach aims to move policy beyond the “illusion” of collaboration and deliberation, while highlighting systemic relations of colonialism and power in participatory, deliberative processes that perpetuate the paradox of “being included,” and affected communities are “expected to adopt the terms of dialogue or debate,” but this may not provide a meaningful context for action on specific claims (Ahmed, 2012; Cattapan et al., 2020; Fuji Johnson, 2015; Levac & Wiebe, 2020; MacDonald & Levasseur, 2014; Wiebe, 2016, p. 147). There is a wide and vast literature discussing the promise of the public arena for reasonable communication, interaction, and governance (Dryzek, 2006; Fischer, 2003, 2007, 2009; Fischer & Forrester, 1993). At the same time, responding to this deliberative democracy literature, critical race and democratic theory scholars evoke caution about the promise of deliberative spheres as rationally ordered realms oriented to consensus-based deliberation, which may gloss over embedded and uneven power relations (Ahmed, 2012; Fuji Johnson, 2015; Mouffe, 2005). This study offers a cautiously optimistic approach to the application of deliberative democracy principles to the practical craft of public engagement that follows.

AN INTERPRETIVE POLICY ANALYSIS OF ENVIRONMENTAL JUSTICE'S DISCURSIVE DIMENSIONS IN PRACTICE

Within the fields of Canadian public administration, policy studies, and political science, the theory and practice of environmental justice remain understudied. Canada's legacy of colonization, the effects of the 1876 *Indian Act* and its ongoing impacts on indigenous communities today leave many questioning the authority and legitimacy of government and state officials. Drawing upon relevant literature in critical policy studies, environmental justice, and intersectionality-based policy analysis, an applied interpretive approach serves to analyze and examine a site-specific problem of environmental injustice in Canada, with particular implications for the indigenous citizens of Aamjiwnaang living in their homelands which are occupied today by Chemical Valley. Their concerns are expressed through public testimonies and in-depth interviews.

⁴See also Dhamoon, “Considerations on Mainstreaming Intersectionality” and “An Intersectionality-Based Policy Analysis Framework”; Hankivsky and Jordan-Zachery, *The Palgrave Handbook of Intersectionality in Public Policy*; Orsini, “Discourses in Distress: From ‘Health Promotion’ to ‘Population Health’ to ‘You Are Responsible for Your Own Health’”; Orsini and Smith, “Social Movements, Knowledge and Public Policy: The Case of Autism Activism in Canada and the U.S.”

Interpretive inquiry

With theoretical origins in critical theory, postmodernism, phenomenology, and hermeneutics, an interpretive lens contributes to the study of public administration broadly and public engagement more acutely in five core ways: (a) it presents a critique of dominant or universal metanarratives; (b) focuses on site-specific context and local processes of meaning-making; (c) examines the subtle expression of power through an assemblage of facets which include institutions, discourses and practices; (d) imagines how to create space for a meaningful exchange of ideas, concepts and perspectives; and (e) has a social and environmental justice orientation (Yanow, 2007).⁵ Building upon this lens, policy justice is an interpretive approach to the study of public administration and public engagement that examines the lived effects of public bodies and aims to improve policy processes by centering the importance of embodied knowledge and citizen stories into meaningful, deliberative space of engagement.

Critical discourse analysis

When citizens engage in participatory, deliberative processes, they encounter discursive facets of knowledge. In both federal and local administrative and policy proceedings, Aamjiwnaang's struggles for knowledge were bound up within discursive facets of contested forms of science and expertise. Citizens entered a “complex field of contingent governance” external and internal to their own community as they formed partnerships with governments and researchers (Hobson, 2013, p. 63). These processes are not neutral but significantly charged with political meaning. Numerous scholars demonstrate how power relations extend beyond institutional parameters and manifest through discourse as a technology of power (“An Intersectionality-Based Policy Analysis Framework,” 2012; Fiske & Browne, 2008; Hankivsky, 2011; Hankivsky & Jordan-Zachery, 2019; Hudon & Rouillard, 2015; Orsini, 2007; Orsini & Smith, 2010; Saurette & Gordon, 2013). As Paul Saurette and Kelly Gordon (2013, p. 157) have demonstrated, “how we talk” indeed matters to the study of politics. This critical, interpretive, and discursive approach to political science and public administration draws into focus how language contains, carries, and transmits subtle messages that shape social and political meaning.

Centering community voices

In order to create space for alternative perspectives, to amplify community voices that have been marginalized, and to counter hegemonic narratives, an interpretive lens first critiques uneven power relations. Building upon the work of poststructural scholars, as Pierre-André Hudon and Christian Rouillard (2015, p. 533) discuss, this critical lens borrows from Michel Foucault's concept of governmentality to examine the expression and practices of power beyond institutions by interrogating discourse and language as instruments of power. These power relations take shape in multiple directions beyond the formal institutional realm and also manifest in the civic sphere.

A poststructural lens offers a word of caution to any political process. In particular, Foucault's work on governmentality “dissects the concept of the State” and also “identifies the type of

⁵For a more detailed discussion of postmodern policy analysis, see Bacchi and Goodwin (2016). Also see an elaboration of the “policy assemblage concept” in Sarah Marie Wiebe (2016), *Everyday Exposure: Indigenous Mobilization and Environmental Justice in Canada's Chemical Valley*, Vancouver: UBC Press.



knowledge it relies on” (Hudon & Rouillard, 2015, p. 536). As a critical approach, governmentality studies warn of the “democratic danger” apparent in decision-making processes which have the potential to reinforce dominant knowledge systems and posture a process of depoliticization while marginalizing embodied knowledge, lived experience, and stories (Hudon & Rouillard, 2015, p. 531). The interpretive analysis and approach presented here go further than poststructuralism to imagine possibilities for the creation of counternarratives that enhance opportunities for meaningful public engagement on matters of social and environmental justice. This requires both an investigation of hierarchical top-down state-driven policies and reconsideration of horizontal forms of authority, expertise, and decision making, as well as careful engagement with those directly affected by injustice in their everyday lives.

Political ethnography

This analysis builds upon over 10 years of community-engaged research as a nonindigenous academic-activist working closely with the Aamjiwnaang Nation to advocate for environmental justice (Wiebe, 2016, 2018, 2019). Involvement includes a formal period of political ethnography and community immersion (2010–2012), ongoing policy activism (2012–present), participation in one Senate of Canada hearing to offer expert witness testimony on Bill C-226 about environmental racism and environmental justice in Canada (2024) and contributing to the implementation strategy of this Bill following its passage during an Environmental Justice Symposium convened by the federal Ministry of Environment and Climate Change Canada (ECCC) alongside leaders from the Aamjiwnaang Nation.⁶ As such, my role as a community-engaged researcher includes being both a participant observer of formal administrative proceedings and policy responses to Aamjiwnaang's health concerns, as well as being an engaged and observing participant including the presentation of testimony along with Chief Plain in formal Senate of Canada deliberations and joining a policy advocacy panel with members of the Aamjiwnaang Environment Department in Ottawa.

Public hearing transcripts and interview findings discussed here focus on the perspectives of those who participated in both formal administrative proceedings such as Senate of Canada and House of Commons deliberations as well as local public health deliberations within Lambton County. Interviews include the Lambton Community Health Study board members, Aamjiwnaang policy officials, and local officials from Lambton County. Pseudonyms replace participant names to maintain confidentiality.

Drawing upon findings from extensive fieldwork in Lambton County between September 2010 and September 2012, including participant observation at townhall meetings, in-depth interviews, and document analysis, ongoing struggles for the recognition of Aamjiwnaang's environmental and reproductive health concerns simultaneously reveal a struggle between expert and community forms of knowledge. From a participatory action research and political ethnography approach (Schatz, 2009; Wiebe, 2016; Wiebe & Taylor, 2014), this study involved participant observation during the LCHS townhall meetings in the Fall of 2010 and attending monthly board meetings as an observer (January–December 2011). Ethical review included institutional approval from the author's academic institution as well as from the Aamjiwnaang Environment Committee and Band Council. The author met with an indigenous advisory committee monthly during the initial study period. Upon invitation and with consent, immersion included attendance at open houses as well as events and gatherings in Aamjiwnaang. Relationships continue to this day with the community, as residents still fight for their right to breathe clean air and have more meaningful policy

⁶For an elaboration of this strategy, see <https://enviroequity.ca/>.

relationships with local, provincial, federal, and international decision makers, as Chief Plain and Silvia Plain's opening remarks quoted in the article's introduction draw into focus.

FINDINGS: A COMMUNITY PROFILE OF CANADA'S CHEMICAL VALLEY, AAMJIWNAANG, AND THE "POLITICS OF DILUTION"

The administration of environmental justice: Distributive, procedural, and discursive facets

Environmental justice is a theoretical framework and an applied policy concept that often pivots around three facets: distributive, procedural, and discursive. The distributive dimension highlights the uneven location of environmental harms. As David Schlosberg and environmental justice scholars in a Canadian setting discuss in greater detail, attention to the distributive dimension of environmental justice reveals how "some communities receive more environmental risks than others" (Agyeman et al., 2009; Schlosberg, 2013, p. 38). In broad terms, distributive justice generally refers to the "distribution of benefits and burdens" (Sager, 2012, p. 58). This scholarship entails examining what resources are distributed and how, the principles of allocation, identification of sites for struggle, and an examination of the conditions under which citizens make their claims. This approach focuses on state-institutional parameters for redistribution among a citizenry.

Procedural dimensions of environmental justice center upon structural and participatory processes that bring citizens into deliberation with institutions. Such deliberative processes are forms of public engagement, which generally begin by recognizing the scope and parameters of existing injustices, further seek to identify citizen concerns, needs and wants; and, subsequently gesture toward mitigating and responding to affected communities' concerns and rights (Levac & Wiebe, 2020). A concrete example of this becomes apparent in the official responses to Aamjiwnaang's controversial birth ratio study (Mackenzie et al., 2005). Findings from this study were generated from data based upon community-led participatory mapping activities, which documented a declining rate of male births in Aamjiwnaang.

With respect to the discursive dimensions, following the flurry of media attention that poured over Aamjiwnaang in the wake of the sex ratio study's release in 2005, local policy makers began to generate their own findings (Mittlestaedt, 2004, 2005). In 2007, Lambton County's Community Health Services Department, Health Promotion and Program Support Unit produced its own reproductive health report, showing no correlation of a skewed birth ratio when scaled from the local population of Aamjiwnaang to the county as a whole, thus disregarding Aamjiwnaang lived experience and expertise (Lambton County, 2014). While the report's findings did not address the acute features of Aamjiwnaang's reproductive health concerns, representatives from Aamjiwnaang began a conversation with affected parties (i.e., "stakeholders"), community leaders, and policy makers within the City of Sarnia and Lambton County about persistent health concerns on reserve and elsewhere within the county. Between 2005 and 2007, informal meetings evolved into the formation of a health study board, comprised of First Nations, union, labor, industry, occupational health, community association, and public health spokespeople. The Lambton Community Health Study (LCHS) was born with a mandate to study the health effects associated with exposure to environmental emissions as a public health priority across the county.

In addition to the distributive and procedural dimensions of justice, the discursive dimensions of environmental justice highlight the transmission of power through deliberation and language, referred to here as discourse. The following sections emphasize the discursive politics of environmental reproductive justice by focusing on official responses to Aamjiwnaang's



health concerns, and the need to reframe expertise. The purpose of this section is not to simply critique administrative and public health responses for their uneven power dynamics; rather, the policy justice lens advanced here, informed by interpretive and intersectional policy analysis, contributes to the study of public engagement to offer some actionable avenues for more environmentally just, collaborative and decolonial policy making. Schlosberg calls for environmental justice scholars to “expand the sphere of a discourse” toward communities and their situated lived experiences (Schlosberg, 2013, p. 40). At the same time, contributing to the improvement of the public engagement processes on social and environmental justice matters requires a close investigation of both structural and discursive factors shaping the public engagement process.

A struggle for environmental reproductive justice: The birth ratio study

Tensions became most apparent during the controversy following the publication of a 2005 *Environmental Health Perspectives* (EHP) birth ratio study, which was co-authored with Aamjiwnaang experts including leading activist Ada Lockridge (Mackenzie et al., 2005). The administrative health data regarding Aamjiwnaang's birth rates published in the EHP article were self-reported to the government. While this indicated a skewed ratio over time, the data did not account for place of residence and thus the findings were considered by public health authorities to be scientifically insignificant.

At a bare minimum, as one official explained, “you have to link exposure in the particular geographic location” to be able to look at particular outcomes.⁷ Health Canada sought to conduct a follow-up community exposure assessment but did not receive support from Chief and Council, so that concluded this effort. As environmental health exposure assessment would require federal public surveillance of community health data, which made many community members nervous, given the legacy of colonial efforts to take from communities without consent. A revised study of this nature would require collaborative, continuous, iterative consent from all stages of a public health study, from conception to dissemination of findings.

Gathering reliable data is an ongoing challenge in Aamjiwnaang, Lambton County and across levels of government. One county health official noted the significance of designing an appropriate approach to generate reliable data. In his words, “Any epidemiological study it's about 95% argument about methodology and 5% about the results.”⁸ Within Lambton County, the health unit is responsible for public health. In this capacity, county staff gather health statistics and write reports. Staff with epidemiological expertise collect, analyze, and report on public health topics, such as health promotion, infectious disease, and chronic disease, and conduct surveillance as needed. Adding a health study into this mix falls upon the already overburdened shoulders and capacities of local staff.

After the 2005 birth ratio study was released, the Lambton County public health unit recruited an Environmental Health Specialist. Their first in-depth research task required an examination of the available reproductive health data across the county. The scale of this study moved beyond what was perceived to be the small area geographical analysis of Aamjiwnaang (Wiebe, 2018). The Lambton County health unit monitors data by drawing from available data sets. The administrative reproductive health data from Aamjiwnaang was questionable, as one official claimed, because it couldn't be replicated.⁹ Reproductive

⁷Daniel, personal communication with author, 2011.

⁸Glen, personal communication with author, 2011.

⁹Glen, personal communication with author, 2011.

health findings from Lambton County differed significantly from Aamjiwnaang's 2005 study.

Aamjiwnaang's birth ratio findings were contested locally and across levels of government due to concerns with their scope, scale, and self-reported administrative data. The federal government also conducted a study in response: "StatsCan did an internal analysis on the basis of postal code—they haven't seen the same picture that was shown in the article."¹⁰ Evidently, the environmental and reproductive health data of Aamjiwnaang and Lambton County is contested. As a result, Aamjiwnaang's data sets were deemed inconclusive.

To obtain substantive government investment into a health study of this scope, LCHS board members discussed the need to gather reliable, scientifically sound data. Because Aamjiwnaang's sample size was considered too small, the local health unit would not delve further into Aamjiwnaang's environmental, reproductive, respiratory, or cancer-related concerns. Instead, public health efforts centered on health promotion. One health official noted that Aamjiwnaang community members "are welcome to anything that we put on for educational events."¹¹ The epidemiological model builds upon the requirement for large sample sizes to generate generalizable results (Wiebe, 2016). In doing so, this methodology—this scaling up and away—discredits the smaller-scale health concerns of local communities, as Aamjiwnaang experienced.

The county as a whole bears a different mandate than that of a municipality or a reserve. According to one county official, "we just wanted to make sure that this wasn't a problem on a wider scale that we should be doing something about."¹² By widening the scope and scale of the study, Aamjiwnaang's unique concerns become *diluted* (Wiebe, 2018).¹³ These contested data sets highlight the need for public health approaches and policy justice-oriented tools that account for situated knowledge, lived experience, and community expertise.

Aamjiwnaang's sample size renders the small-scale population vulnerable to being "eclipsed" by larger studies with a broader scope and mandate (Wiebe, 2016, p. 152). These tensions over the contested composition of the community sample size became apparent during an interview with one LCHS board member: "the problem I have with the First Nations is the 'population,' the 'N' factor—the sample size is not big enough."¹⁴

The Lambton Community Health Study

In 2007, the LCHS Board began a multi-pronged mandate with three distinct phases. The first phase completed by 2008 entailed the establishment of a community-based governance structure, including municipal, industry, occupational health, and First Nations representatives. Comprised of 13 local delegates in addition to ex-officio observers from Lambton County's Health Department, an observer from Health Canada, and an Independent Process Observer, the structure remained relatively constant over the years (Lambton County, 2014). In 2010, the Board began Phase II, which included a review of scientific and epidemiological literature, community engagement, the development of research questions, and a call for proposals.

Through an online survey and phone survey, in addition to townhall meetings, the Board entered a deliberative period of citizen consultation and public engagement (Lambton County, 2014). While this phase sought to develop specific research questions and a call for proposals for a more focused health study that would lead into Phase III, at the time of writing

¹⁰Daniel, personal communication with author, 2011.

¹¹Glen, personal communication with author, 2011.

¹²Dawn, personal communication with author, 2011.

¹³A conversation with Band Member Christine Rogers about the "politics of dilution," something we have discussed together over a decade-long period greatly influenced my thinking and analysis of this concept. I am grateful to her for her friendship and for sharing her expertise with me as a friend and advisor over the years.

¹⁴Elliott, personal communication with author, 2011.



in 2024—over a decade after the start of the LCHS, making the transition between Phase II and III remains outstanding, despite local efforts to seek funding from Health Canada for the study.¹⁵ As observations and interview findings revealed, the issue of financial responsibility and jurisdiction for funding a community health study both on and off reserve caused some frustration among the board and community members.

In January 2012, the LCHS entered into a partnership with a provincial Ontario Health Study, thus widening out the scale even further away from the situated reproductive health concerns in Aamjiwnaang (Wiebe, 2016, 2018). As a result, several alternative options emerged as possible avenues through which Aamjiwnaang could potentially seek acknowledgment of its ongoing health concerns. These range in format and scope from focused bio-monitoring studies in partnership with organizations such as the Assembly of First Nations or liaising with university researchers like Dr. Basu, whose scientific study of the impacts of chemicals and metals including polychlorinated biphenyls on 43 mother–child pairs honed in on the impacts of toxins on local population health (Basu et al., 2013). The study's findings not only revealed elevated rates of PCBs and metals including mercury and cadmium, some perfluorinated chemicals, and the pesticides hexachlorocyclohexane and DDT were also located within the bodies of mothers and children (Basu et al., 2013). Blood, hair, and urine samples served as biomarkers of the community's reproductive vulnerability to contamination, highlighting how toxic matter affects them on all fronts through their atmospheres, homes, and bodies.

As these research findings reveal, participatory processes like the LCHS convey mechanisms that reproduce discourses and knowledge that structure and constrain the parameters for meaningful public engagement, transformative policy outcomes, and environmental justice. Processes are “embroiled” within governmentality, an advanced liberal form of governance, which relies on active citizens who assume the responsibility for addressing injustice with limited state intervention to structurally revise the underlying conditions that produce injustice in the first place (Hobson, 2013, p. 64; Wiebe, 2016, p. 146). Seemingly inclusive participatory processes like the LCHS can be interpreted as civic mechanisms that reproduce discourses and knowledge, which shape and constrain the potentiality of citizen behavior as they mobilize for social change. In this context of public engagement, some citizen's claims paradoxically become disengaged as they contend with dominant, hegemonic narratives, in this case, pertaining to contested facets of scientific expertise.

Bill C-226: An act respecting the development of a national strategy to assess, prevent and address environmental racism and to advance environmental justice

Bill C-226 was first introduced in Canada's federal House of Commons by Green Party Leader Elizabeth May on February 2, 2022. After 2 years of deliberations, including with committee hearings in the House of Commons and Senate of Canada, it received royal assent on June 20, 2024, one day before National Indigenous Peoples Day in Canada.¹⁶ Committee deliberations include hearing from a range of expert witnesses, such as civil servants, community activists, and researchers. On March 21, Aamjiwnaang Chief Christopher Plain presented his oral testimony before the Standing Committee on Energy,

¹⁵On November 19, 2014, a delegation from Lambton County including a representative from the Aamjiwnaang First Nation met with Health Canada officials to request federal funding (Lambton Community Health Study, Press Release November 27, 2014, www.lambtonhealthstudy.ca).

¹⁶All transcripts, submitted briefing materials, and video recordings of the proceedings can be found at the Parliament of Canada's LEGISinfo site here: <https://www.parl.ca/legisinfo/en/bill/44-1/c-226>.

the Environment, and Natural Resources. Each speaker was invited to provide 5-min opening remarks, to be followed by discussion from the senators. The author attended this session both as an expert witness and an observer, aiming to engage in ongoing policy activism with community members and leaders. Chief Plain's opening remarks highlighted how:

For over a century, the people of Aamjiwnaang have been forced to endure disproportionate environmental health impacts from toxic industrial pollution in our territory. The constant pollution has caused disturbing health effects for our people, and has affected cultural relationships with the land and waters by impacting our ability to engage in traditional practices that are constitutionally protected Aboriginal and treaty rights under section 35 of the Constitution Act of 1982.

("The Standing Senate Committee on Energy, The Environment and Natural Resources," 2024)

His opening testimony provided critical historical context for the encroachment of industrial development and consequent pollution on his Nation's territory, and how this situation violates treaty agreements and relations. He further explained the role of the federal Government of Canada in enabling the development of Chemical Valley, now resulting in a situation of "over-exploitation," where "All facets of Aamjiwnaang's environment are polluted, including air, land and water." Chief Plain's remarks noted the ongoing conditions of environmental racism, which means that some marginalized communities, like Aamjiwnaang, become "excluded from dominant cultures and denied full citizenship. This marginalized status leaves communities politically powerless and without representation in the policy-making process."

Further, when the United Nations Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes visited Canada, including Aamjiwnaang and Sarnia, their November 27, 2020 report noted issues related to physiological and mental stress due to impending explosions or disasters, the lack of regulatory protections for the health of Aamjiwnaang members, and thus their members "live on the fringes of protection from toxics," resulting in unjust encounters with harmful discursive framings, such as that they are at fault and that it is their "lifestyle choices" to blame for their circumstances (Human Rights Council, 2020). The report continues to note how this discursive framing often serves to "dismiss, discredit and even blame victims of discriminatory toxic exposure who develop diseases and disabilities, instead of placing the burden on polluting actors to demonstrate that they did not contribute to adverse health impacts." Moving forward, Chief Plan cited the final report's recommendations to highlight some avenues for improvement, which include

Recognize the right to a healthy environment in its legislation, eventually, through a constitutional amendment, and ensure that that right includes the duty to prevent exposure to hazardous substances;

Bring federal, provincial and territorial legislation fully into line with the United Nations Declaration on the Rights of Indigenous Peoples;

Ensure that environmental standards on reserves are as strong as or stronger than the standards on neighbouring provincial, territorial and federal lands, to ensure equal protection for indigenous persons;



Amend the federal Impact Assessment Act to require consideration of the impacts of proposed projects and policies on human rights, particularly the rights of vulnerable populations;

Improve the capacity of the Canadian Human Rights Commission to initiate investigations and pursue environmental and human rights-based initiatives, including on toxic exposure, including through budgetary allocations and research promotion;

Require the protection of vulnerable populations at all stages of the review of the Canadian Environmental Protection Act and categorize chemicals as toxic based on their hazard, not their risk;

Implement legal requirements for robust mandatory human rights due diligence and provide redress where activities of business enterprises both at home and abroad are associated with impacts of toxic exposure, with a cause of action for victims both in the host country and in Canada;

Revise the avenues available to access justice, to give full effect to the justiciability of economic, social and cultural rights through the court system in Canada, engaging civil society and indigenous peoples in that revision;

Establish a sound environmental justice framework based on the principles of procedural justice, geographic justice and social justice;

Involve indigenous peoples and other population subgroups in self-assessments to complement assessments by members of other population subgroups.

Thus, this report has direct implications for the framework and implementation of Bill C-226. Articles 21, 24, and 29 further elaborate how the UN declaration applies to legislative activities such as Bill C-226. Colonialism must be considered in the implementation of this Bill, as well as an intersectional planetary health approach, along with meaningful avenues for input from directly affected communities in co-designing the policy and management strategies that emerge from this legislation.¹⁷

ANALYSIS AND DISCUSSION

Contested expertise

Epidemiology is a scientific, systematic, and data-driven public health approach that aims to identify the distribution or frequency and patterns of health outcomes across populations as well as underlying causes and risk factors. Generally, epidemiology examines health factors across particular units of analysis, such as at the neighborhood, school, municipal, provincial, federal, or international level. With respect to the Lambton Community Health Study, epidemiological expertise emphasized health outcomes across the county without a specific focus on Aamjiwnaang's unique health concerns. While scientific expertise is often assumed to

¹⁷An elaboration of intersectional planetary health and collaborative governance is available in a policy discussion paper prepared by the author as part of their expert witness testimony before the Senate of Canada to discuss Bill C-226 on March 21, 2024. For details, see <https://sencanada.ca/en/committees/ENEV/witnesses/44-1>.

be neutral, as demonstrated by the lack of state initiative—at any level, municipal, provincial, or federal—to actively fund Aamjiwnaang's health study, this case reveals how in fact decisions about what kind of study to fund and when, is political.

As critical policy scholars Michael Orsini and Miriam Smith (2010) discuss, communities who mobilize knowledge to achieve policy aims may end up privileging scientific knowledge and expertise as an external resource to the mobilizing actors, which separates knowledge from those actively seeking change. Over the years, Aamjiwnaang community members generated their own scientific expertise by conducting body mapping, bio-monitoring, and community-health studies; however, these data have yet to translate into evidence to persuade responsible public officials to act and fund a health study.

Across a variety of settings, communities seeking to better understand their environmental reproductive health concerns maintain complicated relationships with institutional and technocratic forms of expertise, ranging from governments to scientists and academics. In Lambton County, an LCHS Board member explained how governments bear the responsibility to create healthier political environments: “the best thing you can do is get the government to tighten up their regulations to make it more stringent.”¹⁸ The Federal Government of Canada, under the ministerial authority of Health Canada, maintained a fiduciary responsibility for First Nations health in Canada, now governed by Indigenous Services Canada as of 2017. On numerous occasions, representatives from this ministry approached Aamjiwnaang to offer guidance and assist them to better understand the relationship between their health and the environment. These efforts were not well received as the community rejected the manner in which these public health officials did so in what was perceived to be a hierarchical, elite, top-down approach, without creating spaces for meaningful engagement or dialogue, which would look more like ongoing, collaborative consent. A collaborative approach would offer Aamjiwnaang health representatives an opportunity to provide input on the scope and design of the study, and to lead its direction, not simply participate in it as objects of inquiry.

Deep-rooted tensions between local, grounded expertise and that of external fly-in “scientific experts” persist. On numerous occasions, communities like Aamjiwnaang have contested the manner in which outsiders show up in indigenous communities, extract data or knowledge, and then tell them how to deal with it (Wiebe, 2016). There exists a long legacy of skepticism on all angles of this complicated expertise narrative, with a problematic binary that grants primacy to externally generated scientific knowledge rather than local indigenous knowledge.

DISCUSSION AND IMPLICATIONS: LISTENING TO SITUATED BODIES OF KNOWLEDGE AND EXPERTISE

We seem like ground zero as the worst-case scenario for Canadian environmental issues, but we don't want to be that. We should be an example of how you can fix that, and how we can collaborate together.

—Silvia Plain (testimony before the Standing Committee on Environment and Sustainable Development, November 25, 2022)

The situation of Aamjiwnaang is not a knowledge problem; it's an inaction problem.

—Aamjiwnaang Chief Plain (testimony on Bill C-226, March 21st 2024)

¹⁸Edward, personal communication with author, 2011.



("The Standing Senate Committee on Energy, The Environment and Natural Resources," 2024)

To enhance environmental justice, the root causes of environmental racism and colonialism must be addressed. As Chief Plain explained to the Senate of Canada in March 2024: "we need to mend the treaty relationship between Aamjiwnaang and the Crown, where Aamjiwnaang has an equal voice in decision making affecting our lands and waters, and decisions that directly affect our members." His remarks are a call to action for administrators, policy designers, and researchers to respect community leadership, expertise, and wisdom. Band member Silvia Plain concluded her opening statement before the federal government in 2022 to emphasize the need for enriched public engagement beyond the existing tokenism of her community's leadership:

Aamjiwnaang citizens would like to be included at the decision-making tables, and to be informed and consulted without delay. We would like to see the fines collected by the polluters in 'Chemical Valley' reinvested back to Aamjiwnaang. Furthermore, we would like to contribute our regional, gendered, and intergenerational knowledge to support all levels of government in ensuring that we are meeting the highest standards of air quality, water quality and human rights.¹⁹

Her remarks signal the need for a substantive and policy-oriented discussion of environmental justice in Canada, with actionable, radical, transformative regulatory changes.

Inviting those directly affected by toxic exposure in Lambton County to contribute to a participatory health study is a starting point on the path to decolonial policy justice. However, the connected systemic issues of responsibility and securing adequate funds continue to be an issue. Questions pertaining to the jurisdictional responsibility for providing actual dollars for an environmental health study that accounts for the unique environmental reproductive health concerns experienced in Aamjiwnaang continue to be in limbo. Going forward in pursuit of alternative, decolonial, "radical policy futures" requires reframing to account for indigenous self-determination in health studies (Cattapan et al., 2020, pp. 244–255). Standardized models of investigation and environmental health studies must include a transformative approach that looks beyond simply large-scale sample sizes and studies to take affected communities stories, narratives, and lived experiences seriously as evidence.

In practical terms, this means creating a shared antioppressive, situated, justice-oriented narrative about environmental reproductive justice that honors and respects affected communities situated knowledge and lived experience, across all levels of government. This is critical to the success of Bill C-226 as it moves into its implementation stage while seeking to improve the environmental health, justice, and well-being of communities like Aamjiwnaang and elsewhere. Reframing radical policy futures for environmentally just ends in applied policy terms entails the following components: (a) a disruption of power hierarchies; (b) public engagement including nonconventional methods, such as storytelling; (c) the inclusion of hard-to-reach publics; and (d) established relationships of trust to build collaboration and solidarity. This policy justice-oriented approach to radical policy futures also requires upholding community knowledge and expertise in high regard, seeing this knowledge as just as credible as large-scale epidemiological medical knowledge.

A practical, grounded policy justice approach to environmental justice builds upon the groundwork laid by Aamjiwnaang community advocates like Silvia Plain and Ada Lockridge,

¹⁹Silvia Plain, testimony before the Standing Committee on Environment and Sustainable Development, Friday, November 25, 2022. House of Commons. Evidence available at <https://www.ourcommons.ca/DocumentViewer/en/44-1/ENVI/meeting-39/evidence>.

alongside intersectional scholars, to focus on intimate lived experiences in order to inform and improve policy outcomes in pursuit of environmental reproductive justice (“An Intersectionality-Based Policy Analysis Framework,” 2012; Hankivsky & Jordan-Zachery, 2019). Specifically, an intersectional approach emphasizes that “struggles for justice do not arise in isolation but are instead deeply interrelated to one another because they are constituted and sustained in relational and interactive ways through a matrix of power” (Hankivsky & Dhamoon, 2013, p. 901). These matrices of power impact citizen's daily lives as they encounter systems of inequality, which require multi-layered analytical tools to assess. To be clear: directly affected communities' voices, knowledge, and forms of expertise must inform environmental policy development in Canada.

As Silvia Plain elaborated in her November 25 remarks, “it's like we're out of sight, out of mind.”²⁰ Instead of discrediting the community's data, she urged those listening to acknowledge how they “have intergenerational data. We know what's going on. We can provide that data” based on land-based activities and oral traditions.²¹ Taking a cue from the voices of community advocates, this article examined how discursive encounters with public institutions, healthcare systems and environmental policy processes are contested political spaces charged with uneven power dynamics. Designers of environmental policy making and public engagement processes must thus develop new strategies to incorporate affected community's situated knowledges.

A decolonial approach to environmental justice and policy must recognize and respect indigenous self-determination, leadership, and expertise. As design scholarship informs us, this requires collaborative policy making, sharing power in decision making, and co-designing both participatory processes of community engagement and defining outcomes (Costanza-Chock, 2020). In response to the existing colonial policy paradigm, to enhance environmental justice, those most directly affected by public policies in their daily lives must have opportunities to provide meaningful input in all stages of environmental health policy from design to dissemination of findings. Bill C-226 is a starting point for this, with the development of a national framework. This is necessary in order to transform the distributive, discursive, and procedural dimensions of environmental justice in pursuit of decolonial policy making and public engagement now and for the generations to follow.

Innovative policy development requires consideration of diverse forms of expertise and local knowledge. An orientation to radical policy futures calls for a more relationship-focused, justice lens that respects community knowledges and accounts for local, experiential, situated lived experiences. Not just hearing concerns and carrying on but *listening* to the stories of parties affected by unjust policies, to learn and improve policy design is required. Refining the discursive dimensions of environmental justice in Canada involves collaboratively defining problems as matters of environmental justice while attending to procedural aspects of public engagement and policy recommendations.

CONCLUDING REMARKS ON POSSIBLE DIRECTIONS FOR RADICAL POLICY FUTURES

Deliberative and participatory policy processes illuminate the contested representation of diverse forms of knowledge. Engaging community expertise may include formats such as an online and phone surveys, townhall-style open houses, and ongoing monthly board meetings. Public engagement processes like these are not neutral. They actively (re)produce discursive

²⁰Plain, testimony, House of Commons, November 25, 2022.

²¹Plain, testimony, House of Commons, November 25, 2022.



forms of power relations and knowledge, which shape and constrain citizen agency as they advocate for environmental action, change, and justice.

The lived experiences and voices of indigenous residents and leaders from Aamjiwnaang located next to Canada's Chemical Valley highlight the need for a revitalized conversation about how colonialism impacts strategies for environmental justice. As Dr. Ingrid Waldron informs us, we must address environmental racism for environmental justice to flourish (Waldron, 2018). Moving forward to implement environmental justice policy in Canada and elsewhere requires acknowledging colonial harms that persist and endure through everyday exposure to harmful pollutants. Pollution exposure both exposes the enduring legacy of colonialism and environmental injustice in Canada (Liboiron, 2021; Wiebe, 2016). But the story does not end with these harms.

Community leaders enact and articulate strategies and solutions. Researchers, policy designers, and public officials must listen to and learn from their efforts. Moving forward in a good way for environmentally just policy outcomes means honoring indigenous stories as meaningful conduits of knowledge. Collaboratively co-designed environmental policy must support possibilities for self-determination, as articulated in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). This radical act of co-creation can transform hierarchical governance structures for more collaborative policy development. It requires a commitment to relationship-building and negotiating policy processes that apply the principle of “collaborative consent” (Phare et al., 2016). Pathways for such innovative and imaginative decolonial policy making require a willingness from authoritative governing bodies to restructure procedural responses to injustice while amplifying indigenous communities' voices, leadership, and governance.

The decolonization and democratization of knowledge is critical for policy justice and radical policy futures. Such a policy approach aligns with what Iris Marion Young refers to as “communicative democracy,” which emphasizes the affective, emotional realities of political life and expression (Young, 2002). Policy justice further chimes with this collaborative and dialogical emphasis, to conceptualize community members and leaders of communities affected by environmental injustice as experts. This “sensing policy” approach appeals to the senses to take embodied and sensory knowledge seriously in policy creation (Wiebe, 2019). For transformative policy development to take shape, participatory community health studies across levels of government must creatively engage with affected communities on their own terms as co-designers at every step of the process.

The transformation of environmental justice policies in Canada necessitates radical reframing and attention to its multifaceted discursive dimensions. This discursive shift draws attention to the following critical components: accounting for community expertise, co-designing studies, and strategies that transcend diverse bureaucracies to move beyond silos (i.e., health, environment, justice departments) and ensuring collaborative governance and leadership. Such a shift in governance must complement new ways of working together for environmental and epistemic justice. This is vital for the success of environmental justice in theory and practice. It means incorporating elements of scientific and indigenous knowledge by inviting in a range of voices, lived experiences, and forms of expertise to the policy process from study design through to the dissemination of findings.

A sensory, affective, and storied approach to public engagement signals to policy makers across levels of government the need to emphasize local expertise and the specificity of knowledge while attending to sites of difference. Cultivating avenues for collaborative governance must include the co-creation of policy with affected communities. When decision makers and governing bodies create pathways to incorporate the leadership that situated experts bring to this contested environmental justice policy conversation, it enriches actionable avenues for community well-being. Doing so is urgently vital for our collective planetary health and flourishing.

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CONFLICT OF INTEREST STATEMENT

The author confirms no conflict of interest to publish this original research.

ETHICS STATEMENT

I confirm that this research received academic and community approval at the research proposal development stage. Ethical review included institutional approval from the author's home institution as well as from the Aamjiwnaang Environment Committee and Band Council.

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