

# SARNIA, ONTARIO



**ENVIRONMENTAL INJUSTICE  
CASE STUDY | JULY 2021**



**Disaster  
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## ABOUT

This case study report was developed by students at the Goethe University Frankfurt, for the graduate class, “Archiving for the Anthropocene,” taught by Tim Schütz. The case study framework was adapted from the course “[Environmental Injustice](#)”, taught by Prof. Kim Fortun, Department of Anthropology, University of California, Irvine.

## COVER IMAGE

[User:TheKurgan, Aajimwnaang Resource Centre right next to Dow Chemical in Chemical Valley, CC BY-SA 3.0](#)

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# INTRODUCTION

This case study reports on industrial disasters (fast and slow) in Sarnia, Ontario. The area is also known as Canada's "Chemical Valley". The analysis focuses on Lambton County, situated on the native homelands of Canada's Anishinabewaki, Mississauga, and Attiwonderonk (Neutral) First Nations (Fig. 1).

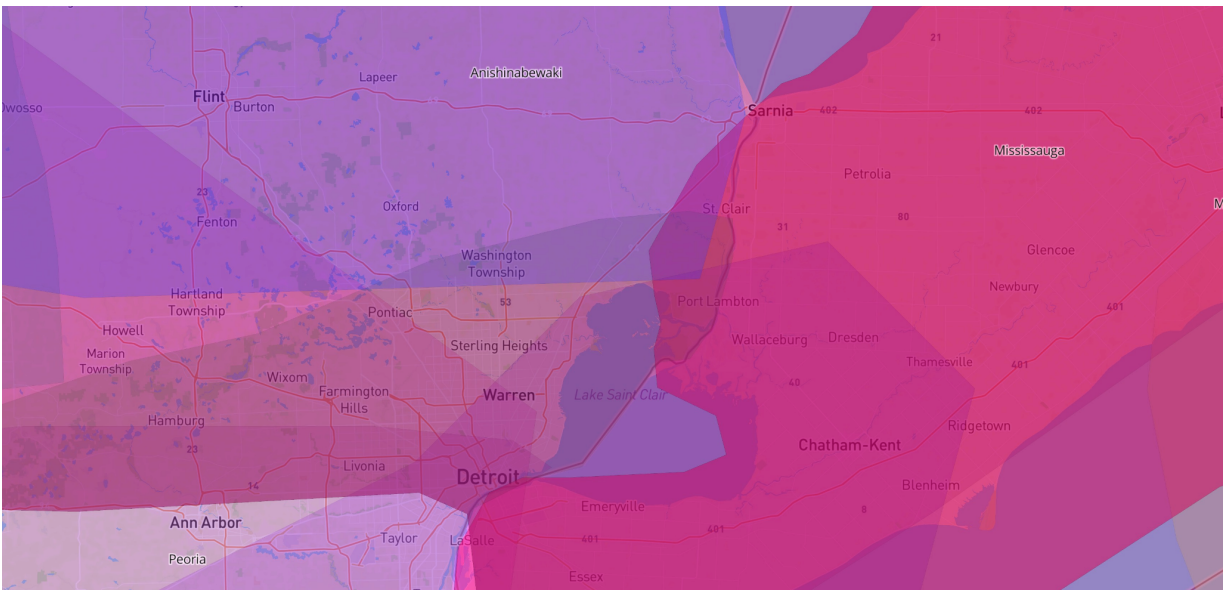


Figure 1. Map showing the indigenous lands native to this site, including: Anishinabewaki, Mississauga, and Attiwonderonk (Neutral). Source: <https://native-land.ca>

The report addresses a series of ten questions (Fig. 2) that draw out local details in a manner that encourages comparison with other places. The research has been done quickly (within the constraints of a semester-long graduate class) so is limited to and points to the need for further research and community engagement. The goal is to help build both a body of research on environmental injustice and a network of researchers ready to help conceptualize and implement next-generation environmental protections.

## ENVIRONMENTAL INJUSTICE CASE STUDY FRAMEWORK

1. What is the setting of this case? What are its assets?
2. What environmental health threats (from explosions, everyday pollution, climate change, etc ) are there in this setting?
3. What intersecting factors -- social, cultural, political, technological, ecological -- contribute to environmental health vulnerability and injustice in this setting?
4. Who are stakeholders, what are their characteristics, and what are their perceptions of the problems?
5. What have different stakeholder groups done (or not done) in response to the problems in this case?
6. How have environmental problems in this setting been reported by media, environmental groups, companies and government agencies?
7. What local actions would reduce environmental vulnerability and injustice in this setting?
8. What extra-local actions (at state, national or international levels) would reduce environmental vulnerability and injustice in this setting and similar settings?
9. What kinds of data and research would be useful in efforts to characterize and address environmental threats in this setting and similar settings?
10. What, in your view, is ethically wrong or unjust in this case?

Figure 2. This is the analytic framework that guided research for this case study.

In environmental policy, a “worst case scenario” refers to the potential for catastrophic, fast, often explosive disaster at industrial facilities that handle more than a certain (“threshold”) amount of extremely hazardous substances. In the United States, provisions

of the Clean Air Act require companies to submit worst case scenarios for their facilities to the Environmental Protection Agency (EPA). The information provided isn't fully online because of concerns that it could be useful to terrorists. This makes it particularly important that researchers, residents, workers, media, local officials and emergency managers work together to ensure that risks are understood, managed and continually reduced.

In this research, "worst case scenarios" are considered "fast disasters" to contrast them with the "slow disaster" of everyday pollution. It needs to be emphasized however, that even though fast disasters erupt in a dramatic way – often with an explosion or gas cloud that requires an emergency response – this doesn't mean that fast disasters occur suddenly. Investigations have shown that all fast disasters have a deep backstory: they were years in the making. These backstories need to be documented to understand where things went wrong and where changes could prevent future disasters.

While research on disasters is an ever growing field and Sarnia is a site that has already been studied, we hope to draw attention to it once again on the grounds of another disaster: the COVID-19 pandemic. The fact that disasters are interrelated are well known; technological issues (lack of equipment, lack of proper care facilities, lack of knowledge) created by political problems (political instability, corruption, embargos) hinder efforts to counter disasters (relief efforts, humanitarian missions, cleanup operations). They also allow for new moves to be made by stakeholders, and new disastrous consequences to archive. We would like to show how the effects of the pandemic were employed in the case of the chemical valley, in order to present perhaps a starting point for future research and a detail to be jotted down in its history.

As non-indigenous graduate students, our aim is not to "solve" or "explain" the Chemical Valley, nor do we argue that the knowledge we produce here is of any unique quality in either of those regards. The Chemical Valley and its pollution has already been known,



confronted, ignored, combatted, explained and solved (away), re-investigated and so on. We had the opportunity to learn of the people who live in and with the Valley and their efforts to reclaim their lives and their land. Exactly the question, whose lives, whose land, from whom? As indigenous scholar Max Liboiron puts in their work “Pollution is Colonialism” (2021), there is no universal “we” to speak of, therefore there is no universal “they” to attribute a certain decolonial and/or ecological potential to. However, there is the possibility of solidarity without “We” and “They”. It is “our” hope that in this paper we attempt to build just that, opening a certain corridor for those who did not know of Sarnia before, like us, to those who have been living with Sarnia and similar sites for all their lives.

By presenting how the Chemical Valley is unique we wish to call attention to it at a time when media presentation may make it appear as a solved case. ([Reid & Hopton, 2021](#)) By presenting how the Chemical Valley is *anything but unique* we wish to call attention to the colonial history of pollution in Canada. Short historiographies of many similar sites will be presented in the Compound Vulnerabilities (3rd) section.

This paper included recommendation actions on the local and extra-local level. We know of the colonial history of “recommendations”. The land in question is not ours to act on, and if we were to acknowledge sincerely that people with situated knowledge actually “know”, there is no need for our recommendations. However, (not a however that destroys all that it precedes, we assure you) we can use the recommendation part to investigate how “possible” and “impossible” solutions are created within *capitalist realism*. Who decides what is doable and how? How does a proposition become utopian? What has already been proposed and how were they classified by whom? What would a generality implemented in this regard show us? We discuss all these in hopes that it fosters solidarity with the Valley’s residents without stepping on or attempting to steal their shoes.

# 1. COMMUNITY ASSETS & SETTING

## From natural paradise to Chemical Valley

*Carly Rospert*

Nestled along the St. Clair River in Ontario, CA are over 60 oil and chemical plants, accounting for 40% of Canada's chemical industry ([McDonald & Rang, 2007](#)). This concentration of toxic industry, and the resulting pollution it creates, has garnered this area its name: Chemical Valley. This pollution hotspot threatens the nearby Aamjiwnaang First Nation reserve members and Sarnia residents with looming issues of both water and air contamination ([McDonald & Rang, 2007](#)). Even with this major threat (and more, discussed in the next section), Chemical Valley is a unique area of natural, cultural, and industrial assets.

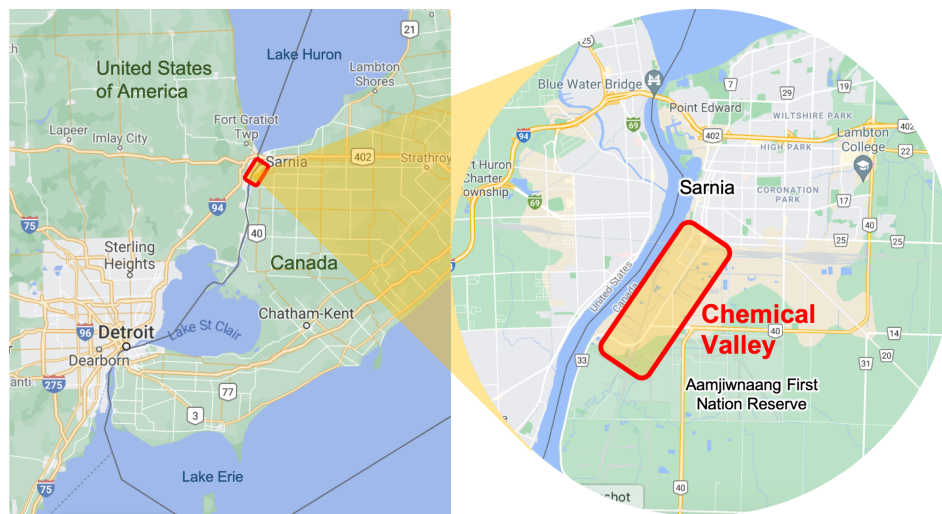


Figure 3. Chemical Valley is located in South Sarnia, bordered to the west by Lake St. Clair, to the south by the Aamjiwnaang reserve and to the north by the city of Sarnia and Lake Huron. Source: Google Maps.

Chemical Valley is situated in Lambton County, which includes two of the most impacted areas: the city of Sarnia, Ontario and the Aamjiwnaang First Nation Reserve, which abuts Sarnia to the south (Fig. 3). Sarnia's population is around 71,500 people and the Aamjiwnaang First Nation reserve is made up of about "2,300 people, of which about 850 live on reserve land" ([McDonald & Rang, 2007](#)). This area is also uniquely along the international border between Canada and the United States, with Port Huron, Michigan to the west and Detroit, Michigan to the southwest. It also is along a major water connection, with the St. Clair river connecting Lake Huron to Lake St. Clair and ultimately to the Detroit River and Lake Erie. This area thus serves as the connection point between the upper and lower great lakes.



Figure 4. Wawanosh Wetland Conservation Area, photo from St. Clair Conservation Authority. Source: <https://www.scrca.on.ca/portfolio/wawanosh-wetland-conservation-area/>

### **Natural Assets**

Sarnia is bordered to the north by Lake Huron and west by the St. Clair river, making fresh water an abundant asset for the area. The city of Sarnia also boasts an impressive amount of greenspace with "over 90 parks and over 1000 acres of parkland" ([City of Sarnia, n.d.](#)). It is home to the Wawanosh Wetland Conservation Area, an important site of biodiversity, protected habitat, and major migratory route stop for native waterfowl (Fig 4.).



Figure 5. Vanessa Gray, a protester from Aamjiwnaang, Source: <https://www.vice.com/en/article/4w7gwn/the-chemical-valley-part-1>

### **Cultural Assets**

The area surrounding Chemical Valley has deep history with the Aamjiwnaang people, members of the Anishnaabek First Nation (Fig. 5). The word Aamjiwnaag, the reserve located just to the south of Sarnia, is an “Ojibwa word denoting an important gathering place that had been used by First Nations for millennia” ([History. n.d.](#)). Though the lands reserved for the Aamjiwnaag community have significantly decreased over the years through cessation treaties and encroachment, the Aamjiwnaag “remains a vibrant, prosperous community” ([History. n.d.](#)). The history of the Aamjiwnaag is uniquely entangled with Chemical Valley, where shrinkages of reservation land are directly tied to an expanding industrial complex (Plain, *In Retrospect*). Another cultural asset is the Sarnia Historical Society, which is “committed to the principle that public knowledge of its past is fundamental to its future” and takes effort to share Sarnia’s history and preserve its artifacts ([Ethos. n.d.](#)).



Figure 6. Petrochemical industry of Sarnia's Chemical Valley. Source:

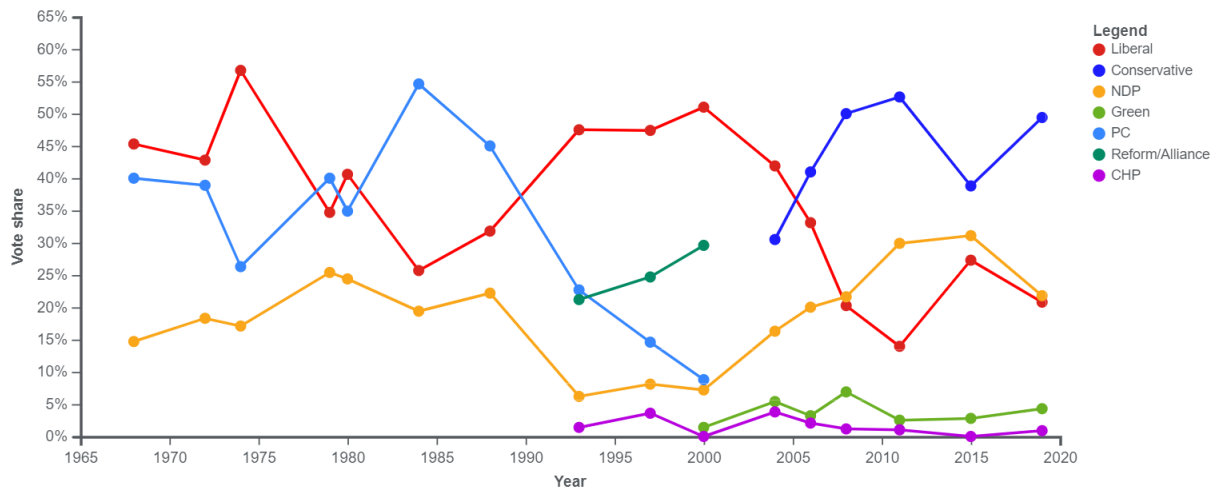
<https://ejatlas.org/conflict/chemical-valley-sarnia-ontario-canada>

### **Industry Assets**

Sarnia serves as a major hub for petrochemical production, accounting for 40% of Canada's chemical industry. This concentration of industry includes companies like Cabot Canada, Lanxess Inc., INEOS Styrolution, Arlanxco, and Imperial Oil. Another hub of industry for Sarnia stems from Sarnia Harbour, with port activities and ship repair/maintenance (Fig. 6).

## Figures 7 and 8 Party Based Voter Distribution in Sarnia

### General information on Sarnia's Demography and Voter Turnout



## Sarnia--Lambton

**Electoral District:**  
Sarnia--Lambton

**Province/Territory:**  
Ontario

- **Population:** 105,337
- **Area:** 1,478/km<sup>2</sup>
- **Population density:** 71.00/km<sup>2</sup>
- **Population change:** -0.9%
- **Average age:** 44
- **Average income:** \$49,727
- **Voter turnout:** 68%

### Language spoken most often at home:

- **English:** 100,165
- **French:** 560
- **Indigenous language:** 10
- **Most popular other language:** Italian: 245
- **All others:** 1,855



## 2. FAST DISASTER & OTHER ENVIRONMENTAL THREATS

**A state of exception that becomes normality**

*Franziska Prantner*

Waking up to the sound of alarm sirens that go off due to a spill seems like an everyday occurrence for residents of Chemical Valley. A request to stay inside and to not leave the house is nothing atypical for the residents to the point where you could stumble on a [YouTube Channel](#) that documents different sirens from different facilities, with siren enthusiast commentators discussing makes and models. Sirens are inseparable from life in Sarnia. One of the main reasons is the impressive density of the chemical industry in Sarnia (Figure 9). Each of these facilities could potentially put people's lives at risk. The air pollution of individual companies would be bad enough, but there is also the problem of the cumulative effects of air pollution. In this “capital of air pollution” (Wiebke, 2016), dangerous incidents like chemical spills, fire and explosions can be found on a daily basis. In the following, I will describe some of the worst events and accidents that have happened.

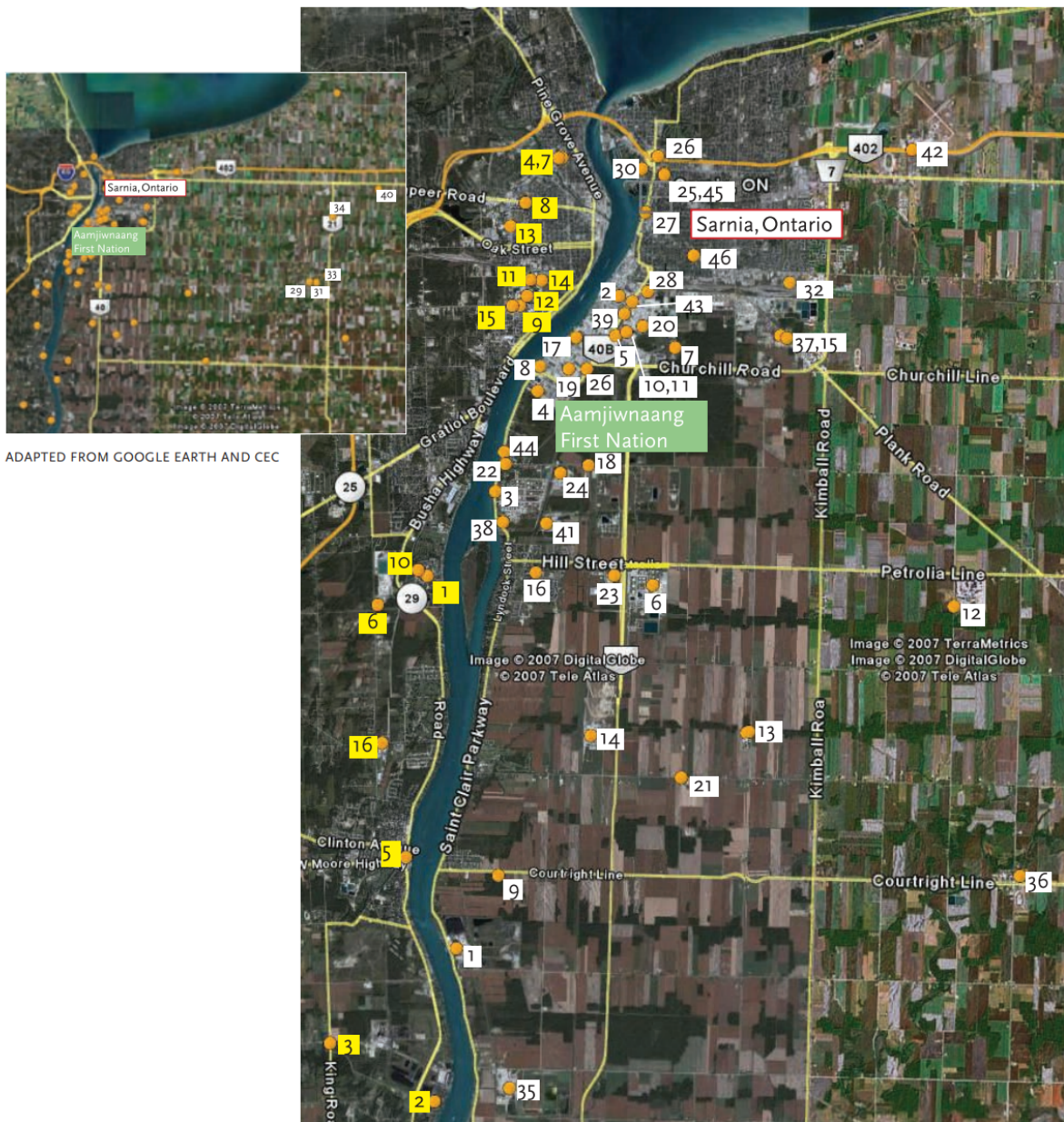


Figure 9. Density of the chemical industry in Sarnia. Source:  
<https://ecojustice.ca/wp-content/uploads/2015/09/2007-Exposing-Canadas-Chemical-Valley.pdf>



One of the first and also most significant explosions in Chemical Valley is [The Polymer Explosion of 1951](#). This disaster had such an enormous scale, in a radius of 2 km no window remained whole and the explosion came along with an audible noise within a radius of 100 km and visible glow of the fire within a radius of more than 130 km. Some people even thought that the reason for this damage was a atomic bomb ([Gowdy, 2021](#))

People were left with panic and confusion, because there were no plans for response to such an accident, and no good infrastructure to inform the public about what happened. One half tried to flee, other onlookers even drove in the direction of the accident site which caused an even bigger chaos. The awareness for the needed existence of such a plan was created and shortly after, the Sarnia Firefighting Mutual Aid Committee and the Chemical Valley Traffic Control Committee were founded. Today, these two operate under the name “Community Awareness Emergency Response” (CAER). With the operating CAER, Sarnia Historical Society Editor-In-Chief Phil Egan states that “the city certainly wasn’t prepared in 1951, we certainly are today.” ([Gowdy, 2021](#))

Another disastrous event is the spill caused by the Shell refinery (Figure 10) on January 11, 2013 ([Ecojustice, 2015](#)). During that accident, people were able to smell “rotten eggs” in the surrounding area of the facility for hours, which is typical for exposure with hydrogen sulfide, without getting any warning about what was going on. Shell reported the spill that also contained the dangerous chemical benzene. By that time, however, people already experienced physical symptoms and illnesses like headaches, shortness of breath and skin irritations ([Siskinds LLP, 2015](#)).

In turn, the company faced a lawsuit for the spill that led to the “shelter-in place” policy. and regulation on health issues for the residents. Later, the company had to face a fine over 500,000\$ ([Siskinds LLP, 2016](#)). 200,000\$ were paid to the Aamjiwnaang First Nation community intended to be used for better air monitoring, especially around the community center and the daycare ([Kula, 2015](#)).



Figure 10. Shell Facility in the Chemical Valley. Source:

<https://ecojustice.ca/charge-laid-against-shell-canada-for-refinery-spill-in-chemical-valley>

A more recent spill happened in November, 2017 and led to an evacuation of around 500 employees. It was caused by a hydrogen sulfide leak at Nova Chemicals. Figure 11 shows that plant from a perspective out of the adjacent forest. The exact time and cause are not really public and, like in the case described above, it seems like there was a lack of public warnings and complete information for the nearby living community ([The Star, 2017](#)).



Figure 11. Nova Chemicals. Source:

<https://www.thestar.com/news/queenspark/2017/11/08/sarnia-area-plant-evacuated-after-chemical-leak.html>.

Figure 12 shows an incredible huge fire that leaves no doubt in relating to residents that feared the plant would blow up ([Jarvis, 2019](#)). However, the fire that took place on February 23, 2017 has had no consequences for the company Imperial Oil Ltd and after an investigation of the incident nothing was done about it. The only information about the cause of the fire that is found in the media is that it erupted due to an “operating issue” ([Dickinson, 2017](#)).



Figure 12. Fire at Imperial Oil Ltd. Source:

<https://blackburnnews.com/sarnia/sarnia-news/2017/02/23/imperial-responds-operating-issue-grass-fire>

# 3. COMPOUND VULNERABILITIES

## Carved Between a Home and a Toxic Place

*Efe Cengiz*

### Historiography of Sarnia as a Settled Site

The air pollution in Sarnia is well known and documented since the 1960s. In the settler history of the valley the story of invention and discovery of a terra nullius is laid bare ([Ford, 2015](#)). A usual American story by all accounts: shortly after first white settlement on the site occurs, “small bands of indians” who “roam” the site “gave up” their land through a “treaty”. Soon followed the discovery of gumbeds, then oil wells, inventors, entrepreneurs, companies, markets, infrastructures, disasters, business takeovers, economic depression, second world war, peace, pipelines, company expansions into other fields, petrochemicals, new refineries, fluctuations in international markets, environmental pollution... Patriotic entrepreneurs, smart risk takers, “find” the land, “discover” its potential, “create” the market, and ride it out through thick and thin. Yes, some spillage over here and some fires over there, some relocation over here and some pollution over there; some economic crisis over here and some environmental disaster over there but how can we make an omelette without breaking a few eggs?!

Sandy Grande declares the beliefs and logics of colonial societies as such (as quoted in

Liborion, 2021, 16)

- 1) belief in progress as change and change as progress
- 2) belief in the effective separateness of faith and reason
- 3) belief in the essential quality of the universe and of “reality” as impersonal, secular, material, mechanistic, and relativistic
- 4) subscription to ontological individualism
- 5) belief in human beings as separate from and superior to the rest of nature

I will try to show how all of these can be seen in the construction of the chemical valley, alongside the vulnerabilities they cause. I implore the reader to keep them in mind as they read through the paper.

To start with, the Sarnia Historical Society closes its history by saying:

*“What does the future hold? The only constant will be more change. New and improved products and processes will replace the old. New players will appear and old ones will disappear. World and domestic economic conditions will continue to affect the health of the local industry. But through it all, the chemical industry will remain both vital and vibrant.”* (Ford,2015)

We can tick off the first box right here. Of course the construction of this “progress as change” entails many disasters and many events which are selectively made visible and invisible.

### **Historiography of Air Pollution in Sarnia**

According to Temby (2020) when the pollution within Sarnia was first brought up in the 1960s, the doctor who brought it up was publicly scrutinised by a chemical corporations-city partnership. This is still a story of daring intrigue, but more in the sense

of a True Crime than a documentary. We follow our hero Dr. William van Hoogenhuize as he battles the forces of crooked city officials who are in bed with the industry, the media; their ever barking watchdog, and scientists on the company's payroll. My attempt is not to trivialise it but to make a point of how actors and stakeholders are nominated and how a history is produced in either case.

The environmental movement of the “first green wave” in 1968-1972 comes hundreds of years after the first critiques against settler’s use of land were raised, by the people who not only lived there but had the right to space; to the Land. The fact of the matter is that as long as we consider the use of indigenous land, decide on building a factory to produce petrochemicals or an incinerator to recycle plastics, whether we are the entrepreneurial capitalist or the green activist; we remain colonial. This is of course not an argument then, to let corporations do as native lands as they see fit. However it is important to point out how colonial histories, by assuming the terra nullius, remove the agency of indigenous actors from time and space. See Liboiron, 2021. As the indigenous is forced into the Nature as part of the Nature, unimportant in its capacity to act (not react), it becomes removed from the position of the subject (were they ever a part of it?) separated from Culture (the place of politics) just like the rest of the Nature. This turns the fifth position of the colonial mindset “belief in human beings as separate from and superior to the rest of nature” into a self fulfilling prophecy. Temby speaks of humans, and their politicking in reference to nature, and I will do the same in the next paragraph to comment on the site, but without keeping in mind what lacks in these stories, what we can get out of them is perhaps, polluted.

Temby paints us a picture of the 60’s Sarnia: a city that wants to stand on two legs; industry and tourism, a great mix for any first world nation provided there is access to a heterotopia do contain/process/forget about the waste; a prize to pay -well as long as we dont pay out of our own pocket- for civilisation. The claims of air pollution in Sarnia, thus were not received well by those who pollute Sarnia, and were presented as exaggerated,

as solvable and as a prize to pay for progress.

The Observer, a local newspaper, published page after page of how the industry was good for Sarnia, and that without it, the city would have no future (Temby, 2020) Their papers also spoke at length about how much the corporations did for the city (building of the commercial district, infrastructure, festivals) and how they were already aware of the “nuisance” (Temby, 2020) in the air and were employing scientists and working with the State to solve it. Dr Hoogenhuize instead was characterised as a bad doctor and a political agent employed to create problems. The same three pronged approach was present in the City Council meetings and in other official bureaus that were related. This is how companies in disaster sites operate: they present themselves as a necessity, something you cannot do without, and they build relations by building parks and organising festivals to make the place resonate with them; the Chemical Valley does not operate in, exploit or employ Sarnia, it (becomes) *is* Sarnia. Finally, we see how epistemic injustices operate in such a disaster: story goes: by proposing to “take care of it internally” companies solve “away” ecological issues. In 60s in Sarnia, we realise, there is no interior of the company (the private) and exterior of the State (the public). The Chemical Valley (namely Imperial Oil, Polymer Corporation, and Dow Chemical of Canada) founded and funded their own research group “St. Clair River Research Committee” to investigate the pollution in Sarnia. Any data they collected was the companies’ IP, and -surprise- they found that the pollution was not bad enough to warrant extreme changes. With some new filters, new technologies to freeze the Chemical Valley in time and space, everyone could simply continue on as is; the pollution was solved.

When companies implement themselves into the public (and as this case shows this is nothing new) it is not only parks and infrastructure and factories they build, nor is it only a public relations effort. They build knowledge, they build and control the very language we speak to claim pollution. Two points to be made here, an epistemological one and a bureaucratic one.



- 1) What is pollution and who decides how?
- 2) How does bureaucracy operate in disasters?

In their book, *Pollution is Colonialism*, Max Liboiron tackles the scientific practice of pollution, how this practice was constructed and what it entails. When the scientific method for discovering pollution was first invented, it relied on access to indigenous land and was dependent on the self-purification capacity of the water (Liboiron, 2021) It is only when the water contains more pollutants than it could purify we can speak of pollution. Anything short of this is called contamination and is permissible. Who decides what is permissible and how? If we consider the third belief that constructs the colonial mindset; *“belief in the essential quality of the universe and of “reality” as impersonal, secular, material, mechanistic, and relativistic”* maybe we can begin to answer it.

In the case of Sarnia in the 60s, and for many other sites in many other times, this “proof” of pollution is hard to acquire because of epistemic injustices. The indigenous people often do not have the same access to institutions -- institutions of knowledge production and its application -- which limits their ability to produce proof. Corporations on the other hand (and alongside cities who wish to “not scare off investors”) do have access to funding and researchers and therefore knowledge; its production and its use. One thing to keep in mind is that pollution is never as simple as “yes there is pollution” or “no there isn't”. There are local, national, global standards of contamination set, there are guidelines and protocols, there are goals of contamination by the end of year X to achieve; proving pollution is never an end and it does not stop the use of indigenous land by and for settler interests; often cleanups are as colonialism as pollution.

As for how bureaucracy plays into this, according to David Graeber;

*“The Iron Law of Liberalism states that any market reform, any government initiative intended to reduce red tape and promote market forces will have the ultimate effect of increasing the total number of regulations, the total amount of paperwork, and the total number of . bureaucrats the*

*government employs” Graeber, 2015, p. 9)*

In Sarnia, this same practice led to the construction of the St. Clair River Research Committee with its ties to the corporations and the city. Note that I write “corporations and the city” for clarification purposes. Again as Graeber argues the myth of the private and public separation is nothing but another support beam in the construction of bureaucracy; take any institution today and with all the subcontracts and external fundings, it is impossible to locate where one ends and the other begins (Graeber, 2015). In Sarnia in the 60s, this was called “Official Sarnia” (Temby, 2020) A group of the city elite in high up institutional positions that could employ the tools of bureaucracy -after all they were bureaucrats themselves- to effect the public opinion on the matter and scientific knowledge production on pollution. What are we to do with the chief administrator of the Lambdon County Medical Society, who was quite cosy with the city council, (Temby, 2020) adamantly refusing to call the air pollution anything but “nuisance” and the press using this to play that good old expertise card “well, if the experts don't call it polluted...” ?

Important to note also that bureaucratization of knowledge production is not only a way of denying it can also be a way of affirming; the importance is in its obscuration. In the 60s, when the pollution became undeniable, the city-corporate strategy was to then take the reins in its control. Bureaucrats created more bureaus with more paperwork to set goals. “The SCRRC agreed to cooperate with Port Huron on its proposed investigation of regional air pollution, while asserting that no evidence of a health threat existed.” (Temby, 2020, p. 402) Filters were going to be placed, routine checks were to be enacted and scientific knowledge were to be produced and checks and balances were to be enacted. With that, they could claim, “it is being taken care of”. It is done. Of course we know now that it was not “done” because of the Ecojustice report in 2007 for example. But checks and balances were enacted for that as well. Is it done now? Who could blame us for being cynical? More importantly, what about those who never bought the lie that it was “solved” as “solving” entailed nothing but continuation of permissible contamination? What about the Aamjiwnaang who have lived and are stuck now at their homes that became toxic? If

our solutions continue to decide what we do on their land, be it for profit or for ecology, and even for justice, they remain colonial. Temby's paper shows us the True Crime of environmental activism; how an honest doctor who stumbles upon an issue goes in over his head when it upsets some very powerful people.

*"Sarnia's local politicians and business leaders did not want the air pollution problem raised. They knew there were no easy solutions. Seeking to avoid publicity that would give the city a bad reputation and challenge the polluting industry that underpinned the economy, they forestalled and snuffed out activism."* (Temby, 2020, p. 410)

Temby shows us all this but their analysis lacks any mention of the indigenous; here is our attempt to introduce them to this case.

## **Histories of Similar Sites**

### **Ontario**

The Asubpeeschoseewagong First Nation in Northern Ontario suffered from decades of mercury poisoning of their water and soil, through the contamination of the English-Wabigoon River system since the 60s when the Dryden Chemical Company dumped pollutants used in the bleaching of paper into it. The estimate of dumped mercury is over 9000 kilograms ([Porter, nd.](#)). The Ontario government ordered the mill to stop dumping mercury in the river in 1970 but no restriction was placed on the airborne emissions of mercury which continued until 1976, when the mill shut down.

The local pollution led to what is now called "Ontario Minamata Disease", a neurological disease caused by mercury poisoning. Minamata was a fishing town in Japan that was devastated by mercury poisoning. Asubpeeschoseewagong First Nation also relied on fishing, which has become extremely risky now that even the tap water is undrinkable. A report in 2015 found that mercury levels were still rising in some of the local lakes and 90% of the indigenous population showed signs of mercury poisoning. ([Porter, 2015](#)) [A summary can be found here](#) Compared to the general wellness of non-indigenous people

in Ontario, of which 60% reported their health as “good or excellent” the number for Asubpeeschoseewagong members were 21% ([Prokopchuk, 2018](#)) The First Nation declared state of emergency in August of same year when the local government failed to properly address the water pollution. ([Porter, 2015](#)) [This announcement can be found here](#) In 2018 they commissioned their own health report which found that their residents were six times more likely to have debilitating health issues when compared to other first nations in the province. (Porter, 2015) The pollution of the English-Wabingoon river also affected the Wabaseemoong Independent Nations in similar fashion. In 2017 an environmental protection report by Ontario’s Environmental Commissioner stated: *“After accepting financial responsibility for the mercury contamination, the Ontario government declined to take action for decades, largely ignoring the suffering of the Grassy Narrows First Nation and Wabaseemoong peoples”*. (Prokopchuk, 2015)

With this statement, Commissioner Saxe was referring to the 1982 settlement between Canada and Wabaseemoong (2.2 million dollars) and 1984 settlement with Asubpeeschoseewagong (4.4 million dollars), that contained “exhaustive indemnity”, which protected any future owners of the mill from liability. Saxe also stated that only about a quarter of the applicants were able to receive disability pensions because of how restricted it was. In June 2017 the government of Ontario finally decided to pledge 85 million dollars to clean up the “contamination”, starting in 2018. ([Porter, 2017](#)) Soon followed a 19.5 million dollars federal commitment to build an on site reserve care facility in Wabaseemoong grounds, to treat and study the mercury poisoning. In 2019 the United Nations Special Rapporteur on human rights and hazardous substances, Baskur Tuncak, toured eight indigenous communities in two weeks to evaluate the federal government's progress in cleaning up the sites. He reported that the indigenous people were describing their situation as living in “sacrifice zones” and “cultural genocide”. ([CBC, 2020](#)) Another community poisoned with mercury in Ontario is the Wauzhusk Onigum, they were on boil water orders for years at end. ([Turner, 2020](#)) In 2018 negotiations began to connect the reserve’s plumbing to the nearby city of Kenora, and the construction was completed in

2020, which cost 14.6 million dollars. ([Miller, 2020](#)) In 2021 the Asubpeeschoseewagong and Wauzhusk Onigum were finally able to drink clean tap water. (Turner, 2020) The city of Sarnia with its Chemical Valley and The Aamjiwnaang Nation which it pollutes are also located in Ontario.

## **Nova Scotia**

The Northern Pulp Mill in Abercrombie Nova Scotia was shut down in January 2020, and “took hundreds of jobs with it”. ([Parsons, 2020](#)) Freeman Lumber was also closed in 2020, citing lack of wood chip markets as the cause and arguing that their closure will damage the local economy in millions of dollars. ([Gorman, 2020](#)) The Northern Pulp Mill has dumped its waste (90 million litres a day) in the Boat Harbour lagoon for 52 years (since 1965). The federal government has allocated 100 million dollars to restore the lagoon, and the chief of Pictou Landing stated that just three months after the mill’s shutdown the air and water quality is already visibly better ([Smith, 2020](#))

## **Historiographies of Similar Sites**

Histories such as these are a dime a dozen. Take a look at this project which has mapped sites of pollution in Nova Scotia with regards to their proximity to indigenous communities and settler towns:

<https://www.arcgis.com/home/webmap/viewer.html?webmap=d12d5f8cc46f40e5918f6072ab0e4d7c&extent=-63.6247,45.1665,-62.6105,45.5669>

No case study will ever be enough to do justice to each and every single one of these events, less so if we do not realise temporal and spatial generalities in such events; i.e. colonialism.

If we delve into how these histories are presented we not only see the Iron Law of Liberalism in action: local reports, federal projects, company scientists producing onsite data, global regulatory boards interfering, calls for more regulation, calls for de-regulation,

calls for more checks and balances, calls for less checks and balances; bureaucracy runs rampant as pollution remains constant. When all else fails, the pollution is “solved” by settlements. Companies pay next to nothing and move on, the government apologises and moves on. What is lost cannot be regained, there is no going back to the land as it was pre devastation, there is only hope of building something new in these blasted landscapes by the survivors. They already know that there has been no justice for them, however we should not let this cloud our judgement of them.

When the CBC reported on the settlement between the Asubpeeschoseewagong and the federal government in 1985, [Nash, 1985](#) an image of the “Indian” was being constructed; this image is sadly still around today. This construction is as dangerous as any pollutant, and just as environmentalism is colonialism at times, so is our pitiful look towards “the Indian”. This image of the downtrodden-so-alcoholic, ruined-so-abusive to children, hopeless-so-suicidal Indian not only captures all the agency the indigenous people have and stores them in the lockbox of the victim, it also begs the question of biopolitical responsibility. The people of Pictou Landing organised a blockade in 2014, when the mill’s pipeline ruptured and 47 million litres of waste was spilling over their sacred burial grounds. ([CBC, 2014](#)) Their blockade to disallow the repair of the pipeline was the act that forced the Nova Scotia government to close the mill (by not renewing its contract) and pledge money for a clean up. In Sarnia we can witness similar acts, acts of agents, not victims that only we could act for, but survivors who act themselves. It is this poisonous image that forces the people of Asubpeeschoseewagong to make sure the study they commission on their health compares their health with other indigenous communities around so that “self sabotaging Indian lifestyle” cannot be blamed and used to explain away their mercury poisoning. So we can see that this image seeps into the very epistemology of pollution in colonised lands, becoming part of the bureaucracy of the land and the stabilisation of pollution. When the pollution is “solved away” (rather promised to be solved away) all that remains are “helped victims” and “trust building”. Settlements secure injustice, and cleanups promise continued settler control on indigenous land. We

must never look at these cases as “finished”, an outlook that is famous for Sarnia in 2018 as well. If we know that no amount of settlement money could secure environmental justice, and no amount of clean up could unmake colonial history, one must ask, who gains and what is obscured if we were to approach these cases as finished?

To finish this part with an example :The disability board for Asubpeeschoseewagong was established in 1986 as part of the settlement with local and federal governments and the two paper companies involved in the contamination. *“Neither the companies, the governments nor the disability board has ever admitted that anyone at Grassy Narrows has been poisoned – only that some people experience symptoms of Minamata disease.”* (Porter, nd.)

## **Before we speak of Vulnerability in the Chemical Valley**

In their article, *Intimacies of global toxins: Exposure & Resistance in ‘Chemical Valley’* Bagelman & Wiebe attempt to stretch Foucault's concept of the heterotopia (other place) with the concept of “everyday terror”. Pain’s concept of everyday terror (Bagelman & Wiebe, 2017) calls attention away from grand acts of terror to ones we experience daily. Showing how daily life is political has long been a task of feminist social sciences and it is surely a welcome one when considering disaster and also is perfectly applicable to the chemical valley; however a failure of the term is that it does not approach terror itself critically. “We” “know” that “over there in the desert” terror happens, no need to problematize this, we know there are terrorists “over there in the Orient”, but would it surprise you to know there are those who feel terrorised daily!? The indigenous protestors who blocked the roads to protest the pipeline were also called terrorists, and were themselves terrorised by the Canadian police; as we look at quotidian enactments of terror we cannot take it as is, lest we run the risk of reproducing the same old discourses.

Bagelman & Wiebe argue that the Ecojustice report of 2007 focuses exclusively on the victimhood of the indigenous people and fails to address the neoliberal and colonial

aspects of the disaster. They point that both the agency of the indigenous people and the effects of neoliberal and colonial projects of progress can be seen in everyday life of the Chemical Valley other-space. They criticise how Canada's economic viability is presented as tied/dependent on these other spaces of pollution. This can remind us of the Tembley text; how the corporations build themselves as part and the foundation of daily life in industrial towns. It could also remind us of capitalist realism, Fisher's term that suggests *"the widespread sense that not only is capitalism the only viable political and economic system, but also that it is now impossible even to imagine a coherent alternative to it."* If there is no other way then some contamination has to become admissible. So comes into play the regulations, the regulators, the paperwork, the projects; the bureaucracy of stabilising pollution. The terra nullius becomes a self fulfilling prophecy as it becomes the only outcome possible. We must resist this reduction into a single answer. So Bagelman & Wiebe focuses on the specificity of the site and the people. They argue that the reserve is produced through everyday acts of colonialism which has over hundreds of years generated specific, local knowledge practices and experiences: situated knowledge and their historic contexts.

They take the reserve as a historical site of knowledge and self production. In colonial history, reserves serve as zones of exclusion where the indigenous people are forced into and isolated from the settlers. They are also isolated from access to and agency on the Land. This prison is made toxic by the way the land surrounding the sites were chosen to be used. There was always a choice there, to build those factories in that manner, no amount of capitalist realism or settlements can wash away the burden of choosing to toxicate native lands. However, as a certain spectacular version of "their own way of life" takes hold in the reserve, the reserve becomes home. If there is/was an "indian way of life" it was tied with agency on "Indian Land". With the loss of this agency and rise of toxic relations this way of life has to go through changes. The usual colonial chauvinistic want-to-help researcher's mistake occurs in assuming then these reserves are and must be sites of total loss and victimhood. But the indigenous way of life persists as it shifts,



without a necessity of being “as it was” it retains agency in resistance, it retains agency in remembrance and it retains agency in the very bonds of the communal identities. These acts full of agency are exactly those acts that make everything from settlements to papers such as this one possible. It is precisely these acts Bagelman & Wiebe choose to focus on. As they carve routes of agency in their homes and within toxicity, our papers would be nothing but the reminiscing of a hunter over the death of the last Dodo, if we do not let their agency show us the way to follow.

*The way in which knowledge about modernity is constructed in this paradoxical zone is revealing about the limits and boundaries of Canadian geopolitics. The illusion of a ‘reserve’ reveals how with heavy technological and industrial advancement, there will be few places left e parks, reserves e to master or to protect. The quest to colonize ‘unruly’, ‘immoral’, ‘chaotic’ or ‘ungodly’ spaces in the past, justifies an insatiable desire for advancement and perfection. The limits of progress and production in Canadian society are exposed in Aamjiwnaang” (Bagelman & Wiebe, 2017, p. 82)*

Bagelman & Wiebe identify the protestors putting their bodies on the pipeline (such as Vanessa Gray who appears in figure 5) and toxic tours given by Ada Lockridge (another indigenous activist from Aamjiwnaang) as precisely these types of practices. Another practice they identify is the community body mapping, where bodies are taken as sites of pollution and mapped to show the body burdens: total accumulation of toxins in the body. In December 2012, by blockading access to CN rail line near Sarnia, indigenous activists demanded the Prime Minister to meet with Chief Theresa Spence (who was on a liquid only hunger strike at the time, indigenous bodies are becoming sites of resistance again and again), in a move that reportedly cost companies 5 million dollars of loss per day. ([Patterson, nd](#)) ([CBC, 2012](#)) This was part of the Idle No More movement against the Bill C-45 that eliminated the protection status of federal waterways and facilitated the sale of reserve lands without consultation. ([CBC, 2012](#)) The blockade ended after two weeks when the CN Rail launched court action against Ron Plain, an Aamjiwnaang member who was

acting as the spokesperson of the protest. ([CTV News, 2013](#)) The prior correspondences between CN Rail and the city officials state “*concern with workers losing work and pay, especially during the holidays*”. ([National Post, 2013](#)) Nothing but attempts to strong-arm the local government into disbanding the protests, by enacting capitalist realism once again; creating a false dichotomy of workers vs Indigenous people. Has how the corporations act in Sarnia changed since the 60s?

I start with a mention of the papers of Temby, Bagelman & Wiebe, their approaches and practices, as I do not wish to reproduce victims as I speak of vulnerabilities. No one is vulnerable, or made vulnerable, there are simply choices that pollute the bodies/ spaces/ histories/ knowledge practices of others, and there are discourses that stabilise and refuse them, just as they are agents who refuse or operationalise the pollution of their own bodies.

## **Vulnerability in the Chemical Valley**

In Sarnia, there are 60 Industrial facilities located within a 25 kilometer radius of the Aamjiwnaang reserve. These facilities make up 40% of Canada’s chemical industry. (Bagelman & Wiebe, 2017) (Ecojustice, 2007) Oil pipelines 67 (Alberta / Clipper) , 5 (Lake Michigan /Lake Huron) , 61 (Wisconsin / Illinois) and 6B [Indiana / Ontario (through Sarnia, this is the line that caused the infamous Kalamazoo River oil spill; largest inland oil spill in US history)] supplies the chemical valley with oil. (Sarnia has the worst air quality in the country (Wiebe, 2007). Pollutant measurements (not only air pollutants) range over 100 million kilograms, well above the World Health Organization standards. (Crydeman et al., 2016)

Problems caused by the pollution in Sarnia are spread on time and space, some are random everyday occurrences that can happen anywhere in Sarnia, some are site specific and occur in long periods of time. For example, the soundscape of Sarnia is polluted with

sirens; whether they are warning of imminent danger or simply being tested to see if they work, sirens and all the anxiety they bring are part of daily life in Sarnia. You can find some of these sirens on youtube:[Sirens & Thunderbolts](#)

According to a recent study ([Radhakrishnan et al., 2021](#)) higher air pollution on site, causes higher risk of asthma in newborns in Sarnia. The health of Sarnian children born between 93-09 were compared to those from London and Windsor, results show that 24% of all children in Sarnia were diagnosed with asthma. In Windsor it was 21% and in London 17%. See Fig. 8 Even when factors such as sex, socioeconomic position and urban/rural localities were adjusted, the difference remained still. Findings were especially clear in children aged 0-2 but could also be seen as just as clearly in persisting asthma beyond age 6.. According to the study, higher exposure to polluted air (hormone blocking pollutants in said air) during pregnancy could be the main factor behind the asthma cases.

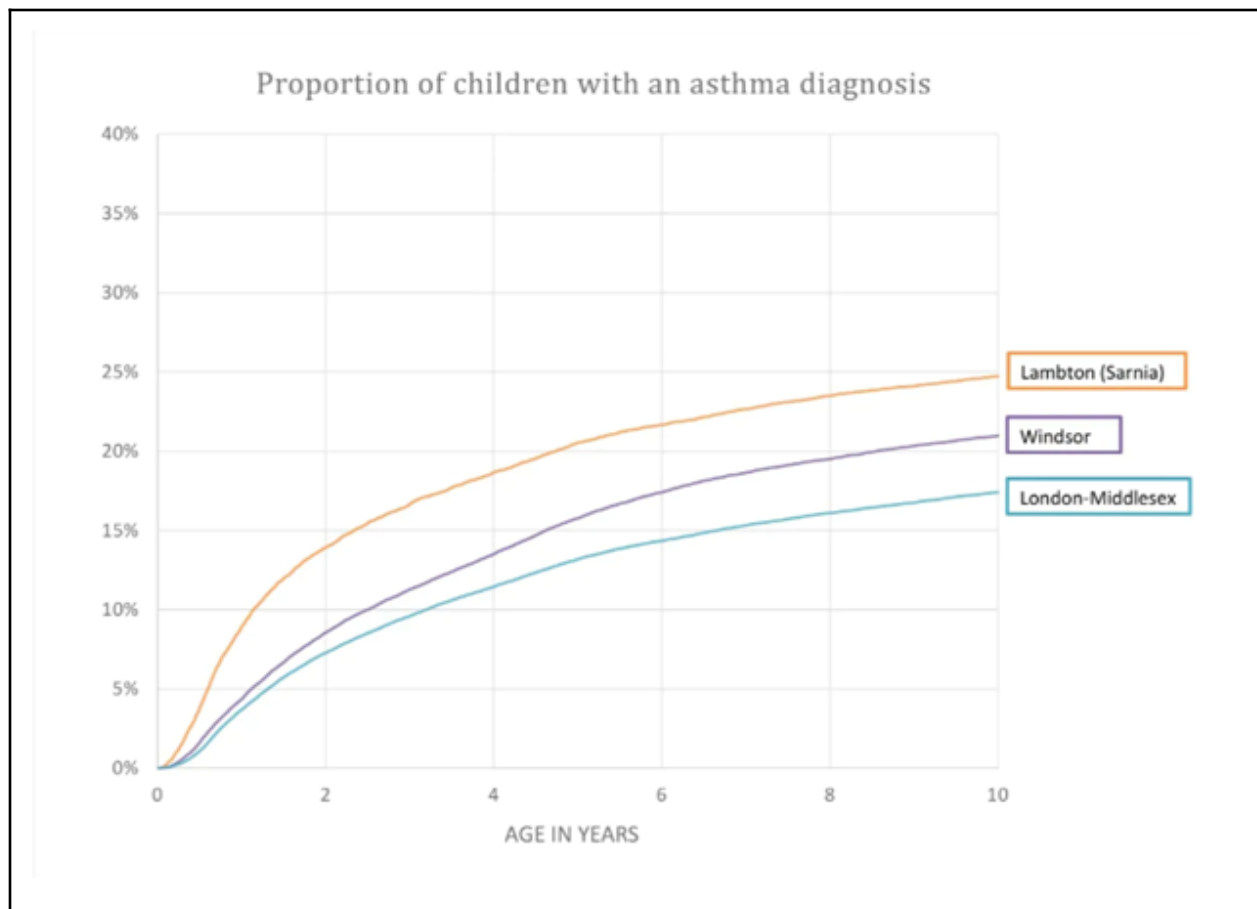


Figure 13. Comparison of Asthma cases in children born between 1993-2009 in Sarnia, Windsor and London

The study is not one of its kind, rather it reproduces findings of earlier studies such as [\(Cryderman et al., 2016\)](#) The CBC article mentions that the members of Aamjiwnaang First Nation have been “warning” about the pollution in Sarnia for years. [\(CBC, 2021\)](#) To put these “years” in context, the initial problematization of Chemical Valley in the 60s was also a result of extremely high frequency of asthma cases. After 80 years, the song remains the same.

The research was conducted at the behest of Aamjiwnaang members who have been conducting their own studies which showed 40% of members requiring the use of inhalers and 2 girls being born for each boy. [\(CBC, 2013\)](#) (Cryderman et al., 2016)

Another paper published in 2019 argues that cases of acute myeloid leukemia present geographical differences in Sarnia and other industrial border cities in Canada. [\(Ghazawi et al., 2019\)](#) This links risk of cancer with living in towns such as Sarnia. Remember when the visitor from the UN was surprised to hear about the indigenous people mentioning living in “zones of sacrifice”, if Canada builds its economy on cancer ridden bodies, at the cost of cancer ridden bodies, how can these locations be anything but zones of sacrifice?

The study found 18.085 AML patients in Canada, 30,61 cases per million inhabitants between the years 1992 and 2010 (Ghazawi et al., 2019) In Sarnia the same rate is 106.81, which puts it as over three times higher than the national average. Yet Sarnia is not unique in the sense that other border industrial cities (Sault Ste. Marie, Thunder Bay, Catharines and Hamilton) also show higher than average rates.

Another study conducted on the site of Aamjiwnaang reserve maps air concentrations to determine Lifetime Excess Risk of Cancer (LECR). Study shows that in 2015-2016 Aamjiwnaang had a higher concentration of cancerogenes compared to provincial averages. [\(Larsen et al., 2020\)](#) This could be read as implying the racial factors of

environmental injustice. Even in a province that has one of the worst air in the country, the indigenous suffer more. Benzene levels were over twice the provincial levels and 1,3-Butadiene levels were over six times higher. The study also investigated a 20 year time frame (1995-2016) and found that air pollution levels around Aamjiwnaang did decrease over time, yet still remained above the provincial levels. See Figure 9. The LECR findings show over 1 in a million risk. The authors suggests that this warrants future research, and also warn that LECR does not account for occupational risk and is not a well fitting method to smaller populations (The AAmjiwnaang are 850 people)

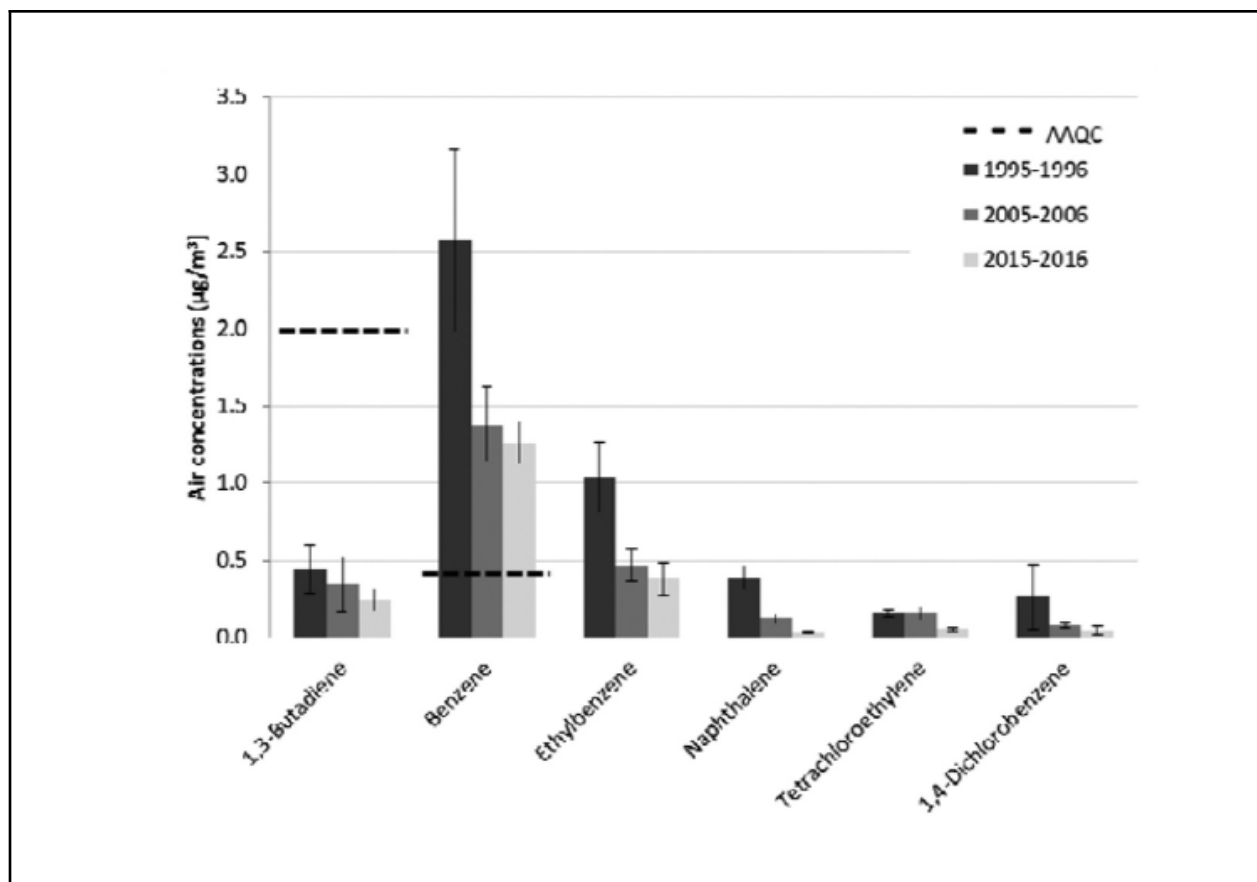


Figure 14. Trends in annual average ambient air concentrations of six VOC air pollutants in and around Aamjiwnaang First Nation over a twenty-year period.

In her paper *A Perfect Storm: embodied workers, emplaced corporations, and delayed reflexivity*

*in a Canadian 'Risk Society'*, Deborah Davis Jackson investigates how the Chemical Valley “fails” as a risk society. (Jackson, 2020) In Ulrich Beck’s risk society approach “all hell breaks loose politically” after the people who are under risk -risk of bodily harm from industrial sites mostly- realise the “politics of knowledge” at play in the stabilisation of these risks in everyday life. By politics of knowledge Beck means how the research of the risks are controlled by technocrats, similar in fashion to what I have called epistemic injustice so far. For Beck, the politics of knowledge leads to uninformed citizens who are also unable to inform themselves, they cannot take action to produce change. The hell breaking loose politically” leads often not to radical or systematic changes but small incremental ones, small steps in the line of progress.

Jackson questions how the site of Sarnia, despite presenting every quality to be the poster child for Risk Societies, does not fit in such an analysis, by not having this “breaking loose” moment.

Jackson cites a 2009 study that compares numbers of workers filing for compensation for mesothelioma and those in the national cancer registry to argue that the filing rates were rising steadily in 20 years and has reached reached over 43% in Ontario, with the highest count being located in Lambdon ([Payne & Pichora, 2009](#)), and a 2004 study that maps workers who were occupationally poisoned by asbestos, in chemical industry sites which saw “thousands of levels above legal limit” use of asbestos ([Keith & Brophy, 2004](#)) to present the vulnerabilities workers in Sarnia faced daily. The reason this biohazardous lifestyle does not lead to the “breaking loose” Beck aspired to, according to Jackson, is caused by:

- a) the performances of masculinity that dominated the factories and therefore interaction between nearly entirely white male workers who were not open to outside collaborations even when the Unions were relatively strong because of a general “pride” in the image of the blue collar worker in its ideal postwar American dream/way of life
- b) the social construction of Sarnia as the site of these performances and ideology
- c) Ontario becoming neoliberal in the 1980s despite Canada moving in a more socially democratic direction

- d) the geology and history of the location being fitting to produce exactly these sorts of relationships
- e) the prominent media at the time being a watchdog for corporate interests
- f) the institutions that were supposed to produce knowledge on the environment in Sarnia being funded and run by the corporations (Jackson, 2020)

This is the perfect storm that is raging in Sarnia. Jackson, despite all the cynicism of her paper attempts to end it with a cautiously hopeful tone, will things change for Sarnia soon? Perhaps the readers of this archive could find out for themselves, perhaps the bill C-230 that is currently being looked as “the solution” will change things, or perhaps it is cynical to expect a colonial power to shift relations of colonial power in its own accord, perhaps another venues of resistance must be sought, like those sought by the indigenous activists; there are after all more than one way of all hell breaking loose; like a pandemic.

The Narwhal reports in 2021 of the new landscape of activism being formed during pandemic times. In February 2020, RCMP (Royal Canadian Mounted Police) arrested Wet’suwet’en matriarchs blocking the construction of yet another pipeline in their lands. ([Delisle, 2021](#)) This event became the origination point of the Shut Down Canada movement; fitting in more ways than one as the pandemic literally shut the country down just months later. The Narwhal report of an interaction between a pipeline worker who uses the threat of the virus to make an activist uncomfortable, by putting his maskless body next to her. Let us remember Pain’s concept of everyday terror for a second here. Police and those who wish to police presenting terror by the using of their body is nothing new; posturing, grandstanding, hunching over, screaming, breaking inanimate objects etc. What is also not new is the use of the virus as the invisible but promised agent in this terror; during the George Floyd protests police put apprehended protestors in detainment areas where no social distancing were possible. ([Manson, 2020](#)) In England, a protest concerning a colonial statue was met with police boxing the protestors in and refusing to let anyone leave the tightened area. Mainstream media was also quick in using the coronavirus as a cudgel to dampen outrage; by generating fear of increasing infection rates and ascribing them to the protests. ([Glenza, 2020](#))

My point is that bodily harm, visible or invisible, is not created or enacted in scientific research alone; the enforcers of said harm know exactly what they are doing. They knew it when they were poisoning Sarnian workers with asbestos, and they knew it when they threatened indigenous communities with the pandemic (note that indigenous people are already more vulnerable to airborne diseases because of decades long health injustices) ; methods change, song (in this case environmental racism) remains the same as colonial relations in the neoliberal system remains stable. The aforementioned UN representative Basker Tuncak stated in his report: “There exists a pattern in Canada whereby marginalized groups, and Indigenous peoples in particular, find themselves on the wrong side of a toxic divide, subject to conditions that would not be acceptable in respect of other groups in Canada”. (Stefanovich, 2019) This is as wrong as can be expected of the UN, the “marginalised groups” are on the correct side of the toxic divide, the one that is carved out for them to live in, they do not “find themselves” in it, the conditions that would not be acceptable for settlers are the same conditions that produce the toxic homes of the indigenous. There is no other way to read for example, figure 10; of the Environmental Noxiousness, Racial Inequities and Community Health (ENRICH) Project, founded by Ingrid Waldron to “collaboratively research and engage in projects on environmental racism in Mi’kmaq and African Nova Scotian communities” <https://www.enrichproject.org/>

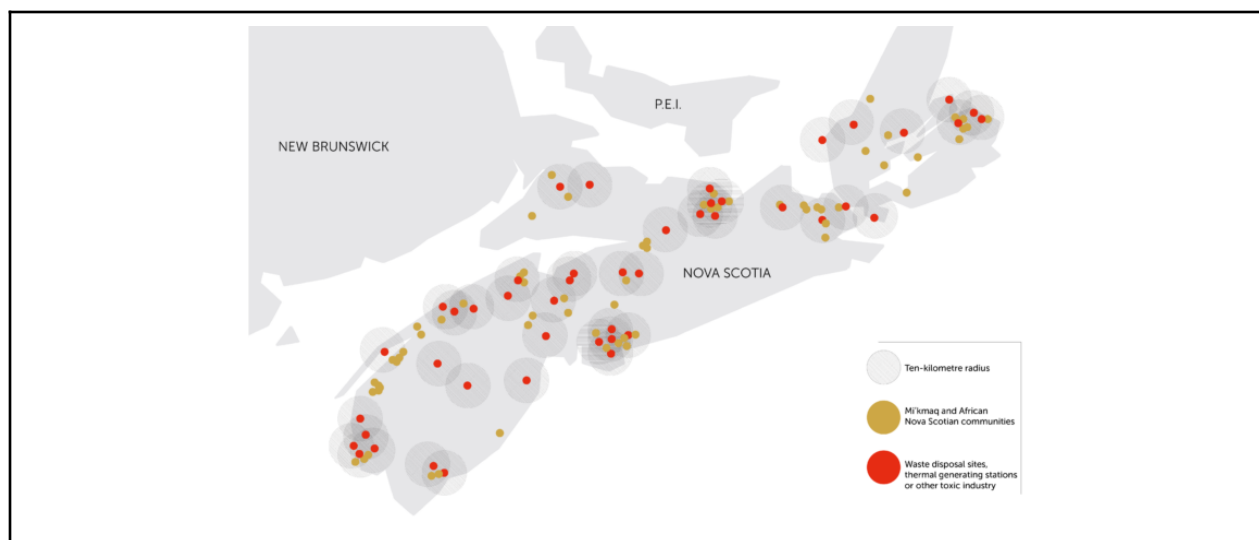


Figure 15. ENRICH project map, proximity of polluting industries and racialised communities within 10 mile radius of each other in Nova Scotia



## 4. STAKEHOLDER ANALYSIS

### Many actors, many visions in Chemical Valley

#### *Carly Rospert*

The disaster in Chemical Valley has occurred and continues to occur over many years, and over these years has accumulated many different stakeholder groups involved in small or large pieces of the situation. To focus the efforts of this case study, we have outlined six stakeholder groups who have played and continue to play a role over the many years of this slow disaster:

1. **Petrochemical Industry:** Companies like Shell Canada, Imperial Oil Ltd, Suncor Energy, and Nova chemicals make up Canada's petrochemical industry and are concentrated in Sarnia's Chemical Valley. These stakeholders are businesses who ultimately are concerned about profit and output, even if they also desire the appearance of being 'good neighbors.' In many of the interviews with representatives for this stakeholder group conducted by other researchers or journalists, the petrochemical industry is careful as to not share more information than necessary that could make them liable for damages. For this stakeholder group, the situation at Chemical Valley could be seen as a balancing act that doesn't quite add up: to conduct business profitably, environmental, health, and emissions standards demanded by citizens and activists are not realistic or practical.

2. **Sarnia City Government:** The city of Sarnia has been headed by Mayor Mike Bradley since 1991 ([City of Sarnia, n.d.](#)) who expresses sympathy towards the historical and current situation of the Aamjiwnaang members while also recognizes the need for the petrochemical industry, who produce all the products necessary to function in our daily lives ([The Chemical Valley, 2013](#)). The petrochemical industry not only makes important products for modern life, it is also the major industry of Sarnia, meaning jobs and funding for the city and its residents. The City of Sarnia's website paints this picture of the small shoreside city in Ontario: a place with booming industry, no shortage of employment, beautiful natural assets and many recreational activities. The city's website names Sarnia as "The Place You Want To Be" ([City of Sarnia, n.d.](#)) with little to no mention of its other nickname, the 'Chemical Valley'. To Sarnia's city government, the issue of the chemical valley is another balancing act- this time between the benefits of a needed industry (profit, jobs, tax base) with the negative outcomes of that same industry (perception, environmental, health).
  
3. **Petrochemical Plant Workers & Families:** With the petrochemical industry being one of the major industries and employers in Sarnia, this means many Sarnia and area workers have made their living in this dangerous industry. Unfortunately, a 'good job' at one of Sarnia's petrochemical plant came with high amounts of exposure to toxic substances that many workers were not fully or in any way informed of. The community has been devastated with high incidence rates of cancers, including mesothelioma, an "exceedingly rare cancer -- but one that is exceedingly common around Sarnia" ([Mittelstaedt, 2004](#)). Widows of the petrochemical industry, like Sandy Kinart whose husband who was a millwright in Canada's chemical valley and died of mesothelioma, founded the Victims of Chemical Valley Foundation, to support victims and their families who are in a similar tragic situation ([The Chemical Valley, 2013](#)). This stakeholder group

experience Chemical Valley in a complicated, evolving relationship, first as a source of livelihood, then as a source of death. But as Sandy Kinkade's husband noted before his death, "I didn't go to work to die;" many workers and their families feel petrochemical plants knowingly exposed workers to dangerous chemicals yet are not taking responsibility for the illness and death this exposure caused, treating workers as disposable assets.

4. **Aamjiwnaang First Nations Members:** Directly to the south, and thus in the direct line of exposure to hazardous emissions from Chemical Valley, is the Aamjiwnaang reserve. The Aamjiwnaang First Nations (AFN) community is one of Canada's indigenous communities and part of the Anishnaabek First Nation, consisting "of about 2400 Chippewa (Ojibwe) Aboriginal peoples (850 of which live on Reserve)" ([About Us, n.d.](#)). This community has a deep cultural connection with the area as it is an important gathering place on the ever-shrinking land occupied by this indigenous community. Canada has a violent and tragic history with indigenous populations; the environmental violence of Chemical Valley is another example in which this history is continuing to play out and impact the Aamjiwnaang. Chemical Valley pollution disproportionately affects AFN peoples and the community is plagued with linked health impacts including serious illness such as cancer as well as high rates of miscarriage/stillbirth ([The Chemical Valley, 2013](#)). The experience of the Aamjiwnaang, related to Chemical Valley, has been labeled environmental racism by several Canadian media sources, noting that the violence made against this community is linked to their indigenous status. One article cites the former executive director of the Sarnia Occupational Health Clinic, Jim Brophy noting that: "There's no question, this would never be tolerated in a white community" ([Craig et al 2017](#)). This stakeholder group, while likely the most impacted, is also one of the most organized and mobilized. AFN members sit on major advocacy organizations and committees on Chemical Valley. In 2002, they organized an Environmental Committee that worked with partners such as Ecojustice, to advocate for

environmental justice in Sarnia. Individual members also take action to collect data on air quality, encourage reporting of spills, create an app to track spills and inform the community on pollutants, host toxic tours, organize protests, among many other actions. This stakeholder community wants polluters to be held responsible and to prioritize the life of humans over profits.

5. **Environmental Justice/Advocacy Organizations:** The devastating environmental violence of Chemical Valley has necessitated the involvement and creation of organizations and groups interested in taking action to improve the situation, including: EcoJustice, Aamjiwnaang Environment Committee, St Clair Conservation Authority, Victims of the Chemical Valley, Sarnia against Pipelines, and Environmental Defence. These organizations all have slightly different goals and missions, but are all ultimately focused on the fact that Chemical Valley industries are releasing harmful emissions that cause environmental damage and illness in nearby communities. These organizations aim to hold companies responsible and/or take action to bring about environmental or human justice.
  
6. **USA/Michigan Government:** Chemical Valley is uniquely situated along the international border between Canada and the United States. Because of this boundary location, the US Government, and particularly the state of Michigan are key players and stakeholders in Sarnia's Chemical Valley. One player in this international situation is pollution, specifically US-generated pollution. Pollution in Sarnia is not coming just from Canada based industries, one article states that "roughly half of Sarnia's pollution has floated into the city from American smokestacks" ([The Chemical Valley, 2013](#)). Pollution is not the only thing that transcends borders, decisions made by US governments also have implications that ripple into Canada. A recent dispute regarding the potential revocation of an easement by the Michigan governor for a petroleum pipeline (Line-5) that allows for petroleum in Canada to be shipped across North America, including in the US,

has the potential for dramatic impacts for Sarnia and Chemical Valley. This dispute, if acted upon, would disrupt the flow of fossil fuel products to and from Sarnia, ultimately devastating or “killing” the biggest industry for the city and significantly impacting the operations of Chemical Valley. Union workers, the mayor, and Canadian officials want to keep the pipeline in place, and are prepared to invoke a treaty from 1977 between the US and Canada that supports the unrestricted flow of hydrocarbons through the pipeline, except in case of a disaster ([View Treaty-E101884, n.d.](#)). Isn't what is happening in Chemical Valley a disaster? But definitions of disaster do not flow so readily across stakeholders and borders. Also less fluid across international demarcations are emission standards and benchmarks. Ecojustice's 2019 report highlights the international difference in refinery emissions, stating that “Canadian refineries are emitting significantly more pollution than comparable refineries in the United States” and suggests efforts to make “benchmarking data [...] publically available and be used to require refineries to reduce emissions to narrow the gap between air pollution emissions from Canadian refineries and refineries in the United States” ([MacDonald, 2019](#)).

The various stakeholders of Chemical Valley acknowledge the need for change, but a unified voice on what that change looks like and how to arrive at it in a way that is just for the environment and the people is still yet to be seen. Ecojustice, in collaboration with AFN members, attempted to lay a foundation for what this collective future vision for Chemical valley might entail by advocating for the Government of Ontario and/or the Government of Canada to recognize the right to “a healthy and ecologically-balanced environment” for the Chemical Valley community ([MacDonald, 2019](#)). This more than 10 year effort has not resulted in the recognition of this basic right by Canada's governmental bodies.

## 5. STAKEHOLDER ACTIONS

### Is any action ever enough?

#### *Carly Rospert*

In 2011, a World Health Organization report named Sarnia's air the "the most polluted air in Canada" ([The Chemical Valley, 2013](#)). With a title like that, inaction would be inexcusable. Efforts from community members, environmental advocacy groups, and local stakeholders have been numerous over the years, but have they been impactful?

#### **Advocacy Action**

Mass amounts of pollution call for mass amounts of advocacy and the Aamjiwnaang community has stepped up to this challenge, organizing toxic tours, demonstrations, collecting their own data, collaborating on the creation of apps and engaging in legal action. The toxic tours have been hosted by Aamjiwnaang members for over five years to bring awareness to the pollution the community faces on an everyday basis. Tour go-ers can walk through the Chemical Valley and the Aamjiwnaang reserve, experiencing the noise and air pollution first-hand, while also learning from guides about the impact of this constant exposure ([Garrick, 2015](#)). Demonstrations and events have also been organized, often by Aamjiwnaang youth, to voice concerns and outrage over many Chemical Valley issues including pipeline proposals, indigenous rights and environmental policy. The AFN community, in collaboration with Ecojustice, has also engaged in legal action to advocate for rights and policies pertaining to Chemical Valley. One of these legal actions was in the

Supreme Court of Canada where members of the Aamjiwnaang community participated in a collective effort to assert their rights as indigenous peoples for clean water, healthy communities and oppose Enbridge's Line 9 pipeline project in 2015 ([Chippewas Solidarity, n.d.](#)). More recently, in 2020, three AFN youth were part of a seven person group, backed by Ecojustice, engaged in a lawsuit against Canadian Government. Lawyers representing this group of young people argued that the Canadian government's action to lower climate change targets "violate[s] portions of the Canadian Charter of Rights and Freedoms that protect rights to life, liberty, and security of the person, and are therefore unconstitutional" ([Graf, 2020](#)). The advocacy efforts around Chemical Valley have certainly resulted in attention and awareness of the inhuman conditions created by petrochemical industries for nearby communities, but translating that awareness into policy or lasting change has been limited. One of the most basic asks of advocates- the recognition by the Canadian government to "a healthy and ecologically-balanced environment" for the Chemical Valley community- is still yet to be accomplished ([MacDonald, 2019](#)).

### **Data Action**

In Ecojustice's 2007 report: Exposing Canada's Chemical Valley, authors identified the need for more data collection, greater public access to data, and the limitations to existing data as key recommendations for action. Since the publication of this report, different stakeholders have organized and collaborated to start to bridge some of these data gaps. In 2008, the Ontario Ministry of the Environment and Climate Change (MOECC) worked with AFN members to set up an air monitoring station at Aamjiwnaang First Nations Reserve. Until 2017, most of the air quality data from stations like these was not publicly available. Clean Air Sarnia and Area (CASA) was formed in 2015 as "representatives from the public, government, First Nations, and industry, who are dedicated to providing the community with a clear understanding of ambient air quality in the Sarnia area" ([Clean Air Sarnia and Area, 2021](#)). This group of key stakeholders collaborated to create the <https://reporting.cleanairsarniaandarea.com/> website that makes real-time data from nine

air quality monitoring stations around chemical valley publicly available. Another key data action was the creation of the pollution reporter app by the Environmental Data Justice Lab at the Technoscience Research Unit at the University of Toronto. This lab is an indigenous-led group of both university and community researchers as well as developers from the City as Platform Lab and Reflekor ([Pollution Reporter, 2019](#)). The pollution reporter app allows users to: (1) make a pollution report of something they see or sense, (2) search different polluters in Chemical Valley and access data on their emissions, (3) look up health symptoms and see what chemical pollutants might be linked to these symptoms, and (4) learn about specific chemical pollutants ([Pollution Reporter, 2019](#)). This technical tool helps not only to create data that better represents the true number of pollution events in Chemical Valley, but also attempts to meaningfully link pollution data with health data to provide impacted people with crucial information for advocacy efforts. Data action in and around chemical valley is still going on. Sarnia Area Environmental Health Project (SAEHP) has made public presentations announcing their intentions to conduct three studies: an Air Exposure Review, a Plant Study, and an Environmental Stressors Review. These studies aim to create an increased and more comprehensive understanding of the impacts of Chemical Valley on the surrounding environment and community ([Clean Air Sarnia and Area, 2021](#)).

### **Emissions Standards Action**

Additional action that has been called for, yet has been mostly met with inaction, has been to create stronger standards (or any standard at all) on dangerous pollution emissions that are in-line with current scientific recommendations. Multiple organizations layer their regulatory authority over Chemical Valley and the surrounding area with the creation of emissions standards, to varying degrees of enforcement. Ministry of the Environment Conservation and Parks (MECP) is an Ontario governmental body that is responsible for creating a public record of pollution events/spills (this is the agency that is contacted through the pollution reported app), but this ministry also sets standards for Ambient Air Quality in Ontario that are both not legally binding and “usually out of date” ([MacDonald,](#)



[2019](#)). In addition to weak standards, the MECP has failed to create any standard for PM (Fine Particulate Matter). The Canadian Councils of Ministers of the Environment (CCME) sets standards that are often “more up to date” than the MECP’s standards but are still not legally binding ([MacDonald, 2019](#)). This agency also has failed to set a standard for benzene. Ontario’s framework for legally binding air quality standards was actually created under the Ontario Environmental Protection Act (originally passed in 1971, but with subsequent revisions and updates), however this legal framework also leaves out a set standard for both PM and Ozone. Additionally, this legislation provides for exceptions for companies who cannot meet a standard, allowing the companies to request a site-specific standard that is based on the lowest concentration the facility can reach, based on technical and economic consideration, but not on safety ([MacDonald, 2019](#)). Multiple companies take advantage of this loophole in Chemical Valley. Ontario government took one small step in the creation of emission standards in 2018 when it clarified “regulations to ensure that companies actually assessed acid gas flaring emissions at petroleum refineries and petrochemical facilities,” however in December, these changes were reversed ([MacDonald, 2019](#)).

### **Policy Action Amidst the Pandemic**

Just as the different pollutants layer the air in Chemical Valley, so do the injustices. The global pandemic of COVID-19 in early 2020 was another layer of disaster made worse by actions taken by the Canadian government to “roll back environmental regulations” ([Bui, 2020](#)). In April of 2020, the Ontario government cited the burgeoning pandemic as reason to temporarily suspend “the requirement for public consultation and participation before approving projects or laws that could impact the environment” ([Bui, 2020](#)). This shift is especially concerning following the Cap and Trade Cancellation Act in 2018 which allowed for weaker climate targets to be put in place than originally designed, in effect allowing “significantly more greenhouse gas emissions to be emitted” ([Page, 2019](#)). Outraged at the act and its implications for the climate and environment, Ecojustice and seven young activists sued the Ford government for weakening the climate targets in 2019. Amidst the

pandemic in 2020, the young activist group had to fight many attempts to throw out the case, but in March 2021 won their right to appear before the court to argue their case, and hopefully overturn the policy ([O'Shea, 2021](#)).

Not even a pandemic can stop both the compounding injustices of Chemical Valley, as well as the efforts to fight back against them. However, considering all of the efforts in play at Chemical Valley, now and over the many years of this disaster, has meaningful change come about? It is clear that more data is collected and made publicly available, especially in regards to air quality, but the standards and policies that govern that data are still out of touch with current science and sometimes altogether non-existent. Advocates have been fighting through informal and formal means, gathering a lot of media attention along the way, but still do not have their right to a healthy and ecologically-balanced environment recognized by the Canadian Government. The question remains: what action is required to meaningfully improve the experience of those most impacted by Chemical Valley?

# 6. ROLE OF MEDIA AND BIG ENVIRONMENTAL ORGANIZATIONS

## Change and improvement through high media attention?

### *Franziska Prantner*

This chapter focuses on how and by whom the chemical valley is displayed in the media. To start, I want to point out that the chemical valley is a place that has an extensive media coverage. Mostly reports of countless incidents where chemicals have been released into the environment and series in newspapers on the pollution that is happening there, but also scientific research and video documentaries. The environmental impact of the chemical industry in Sarnia even got its own [Wikipedia page](#).

The National non-profit organization [Ecojustice](#) released two highly informative reports that built on each other and show also how the situation in Chemical Valley changed over a decade. The first one, [Exposing Canada's Chemical Valley](#) was published in October 2007 and draws attention to all the problems there. In the second report published in 2019, which has the title [Return to Chemical Valley](#) Ecojustice states “while pollution has decreased significantly over the past 11 years, there are still ongoing concerns and overall pollution levels remain high” ([MacDonald, 2019](#)).



Figure 16 Monument for “Victims of Chemical Valley” Source:

<https://assets.tvo.org/prod/s3fs-public/media-library/Current%20Affairs/On%20The%20Road/Sarnia/Photo%20essay/Picture%204.jpg>

Figure 16 shows a Monument for workers that got killed or hurt on their job created by artist Shawn McKnight for the group “Victims of Chemical Valley”. The statue reminds of workers that died because of diseases like cancer caused by asbestos or mesothelioma, and is now hidden behind a fence because of dangerous pollution that was discovered in the area of the park ([TVO, 2016](#)). This contradiction fits very well into the picture that has emerged for me during research in the media on Chemical Valley. Answering the question of what is not covered by the media turns out rather difficult, because my research was conducted online and I only know what media makes available. So even if it seems like everything is covered because there is this huge media attention and a numerous presence of data, it cannot be ruled out that parts of it are being concealed by the media.

# 7. RECOMMENDED LOCAL ACTIONS

## Following and Supporting

### *Efe Cengiz*

By recommending local actions I will choose to understand two things: what I would recommend to the reader, and what the locals would like to see done in their locality. I refuse to recommend the locals anything, they have nothing to learn from me.

Take a quick glance at any part of the Chemical Valley disaster site, three things make themselves painfully clear: The near comic book villain level moral horror of the situation (putting 65 petrochemical factories next to each other sounds like the work of Dr. Doom), the oscillation of media attention (disaster is made known through new reports, media pick them up, technocrats recommend solutions, media report on them, a discourse of the problem as solved is enacted, media attention dwindles), and the consistency of epistemic injustice that is being combatted (local activists call for research to be made, evidence to be gathered and they try to gather data, provide proof of the severity of the pollution etc. make knowledge themselves with the hope that this knowledge will lead to any actual change. In just three little strokes of the mouse wheel, the “AAmjiwnaang Environment” Facebook Page reveals these pictures: ([Aamjiwnaang Environment, 2021](#)) ([Aamjiwnaang Environment, 2021](#)) ([Aamjiwnaang Environment, 2021](#))



SARNIA AREA ENVIRONMENTAL  
HEALTH PROJECT

# PLANT STUDY

The study aims to help address concerns from the community regarding the use of local medicinal plants.

Working with Aamjiwnaang First Nation, scientists have developed a study which will test 4 of the 11 potential plant species listed here for air pollutants.

Chemical levels in plants from Aamjiwnaang will be compared to those growing in other First Nations.

## HAVE YOUR SAY!

Please e-mail Dr. Liberda which 4 plants from the list you consider most important/relevant to be included in the study.

FOR FEEDBACK OR QUESTIONS,  
PLEASE CONTACT ERIC LIBERDA:

**ERIC.LIBERDA@RYERSON.CA**





# ENVIRONMENTAL STRESSORS COMMUNITY SURVEY

Here at the Aamjiwnaang Health Department and Environment Department, we are working to collect and document the community's experience with disturbances associated with industrial activities (noise/vibration, odour, night-time light).

NOISE/VIBRATION

ODOUR

NIGHT-TIME LIGHT

We have developed an anonymous online survey to capture your lived experiences, and are looking for more participants.

The survey results may also be shared with with Ontario Ministry of the Environment, Conservation and Parks to inform the Sarnia Area Environmental Health Project.

## To Access the Survey:



Click [here](#) for the link attachment.



Visit:  
[facebook.com/Aamjiwnaang  
Environment](https://facebook.com/AamjiwnaangEnvironment)



A hardcopy will also be made available once COVID restrictions are lowered.

For more information, please contact [sjohnston@aamjiwnaang.ca](mailto:sjohnston@aamjiwnaang.ca)

Do You Fish the  
St. Clair River?

Take our survey at  
[friendsofstclair.ca/fishsurvey](http://friendsofstclair.ca/fishsurvey)





I share these to make a point. If we are researchers who carry the tools of the knowledge/power making trade, this is where we could be of use to them. This does not mean to turn this space of disaster to a “write-your-term-paper-quick” scheme. If the recent discovery of another mass grave under a Catholic Residential School in British Columbia has revealed anything ([BBC, 2021](#)) it is that the indigenous people are (and have every right to be) tired of explaining the history of their necropolitics to us. By “being of use” I literally mean being of use to their projects as people of privilege who hold the tools to produce “scientific” knowledge. They have already developed / are developing tools to do it themselves (see this app developed to gather data: <https://www.landandrefinery.org/pollutionreporter>, listen to this lecture given by Vanesa Gray; an Aamjiwnaang activist: [https://www.youtube.com/watch?v=Z31rd5cr-Fg&ab\\_channel=TheIEJProject](https://www.youtube.com/watch?v=Z31rd5cr-Fg&ab_channel=TheIEJProject)); “we” should present ourselves as willing to help if and when requested.

As for what the people who suffer from environmental racism in the disaster site of Sarnia and similar sites have been pursuing, we can start with Bill C-230 (which will be mentioned again in the next chapter as it is also extra-local); National Strategy to Redress Environmental Racism Act which is in its report stage at the House of Commons as of today ([OpenParliament, 2021](#)) According to the parliamentary site:

*“This enactment requires the Minister of the Environment, in consultation or cooperation with any persons, bodies, organizations or communities who are interested, to develop a national strategy to promote efforts across Canada to address the harm caused by environmental racism. It also provides for reporting requirements in relation to the strategy.”* ([OpenParliament, 2021](#))

The hope for the supporters of the bill is that it would further efforts to identify, document and monitor cases of environmental racism (generating knowledge/power) through inclusive projects (generating access to knowledge/power) on environmental policy making (authority on knowledge/power to enact actual change). Conservative members fear that this would be an admittance of Canadians as racist ([Albas, 2021](#)) (which is unimportant, what is important is the racial injustices that shape Canada) and would compromise the sovereignty of local and federal governments ([Pauze, 2021](#)) (which I hope it would; disturbing colonial sovereignty is a decolonial act). One thing to keep in mind should be however, whether this would end up being a spectacular solution that promises a lot, but delivers nothing.

- An incomplete list of what the Idle No More movement, which also has some of its roots and branches stretched over Sarnia, has been doing this year in relation to environmental injustice and racism:
- They organised a protest during Canada Day which called attention to history of colonialism, and the recent discovery of “1300+ unmarked graves of Indigenous children at residential “schools”” <https://idlenomore.ca/cancelcanadaday/>
- They challenge Bill C-15 which binds the power of international law under national ones; not recognising their primary sovereignty over their own land <https://idlenomore.ca/indigenous-networks-and-land-defenders-call-to-reject-bill-c-15/>
- They organised a week of action in support of Mik’maq fishermen against the violence of racial harrasment by commercial fishermen <https://idlenomore.ca/support-mikmaq-treaty-rights-and-livelihood/>
- They organised a sit in for a bill that would legislate a strategy on suicide prevention in Saskatchewan <https://idlenomore.ca/idle-no-more-stands-in-solidarity-with-wwoa/>

# 8. RECOMMENDED EXTRA-LOCAL ACTIONS

## Site-independent improvement measures

### *Franziska Prantner*

This part focuses on recommended actions for an improvement of the situation in the chemical valley, that would have positive impacts at the community level but are realized on a state, federal or even international level.

One recommended action that would lead to better living conditions in areas like the Chemical Valley, is the renewal of standards for pollutants in the air. According to [Ecojustice \(2019\)](#), improved standards would include stricter emission limits, but also a reassessment of all hazardous substances that may be present in the air. The introduction of limits is especially relevant for pollutants that currently have no standards, like particulate matter (PM).

In places where the density of the chemical industry is as high as in Sarnia, there is another pervasive problem: the cumulative effects of air pollution. One could assume that the whole extent of pollution coming from innumerable sources and merging into one big cumulative pollution is not yet known. A recommended extra-local action to that problem would be recognizing the urgency to gather information about cumulative effects and their impact on the environment. This information could be collected through long-term

medical studies or similar, on the basis of which solutions against cumulative effects could be designed.

To sum this up, a general recommended action on an international level would be the establishment of all-encompassing and strict environmental laws, which do not only please the industry and its pollution, but put the health of nature and people as the highest and most important priority. For a higher incentive that these laws are then also complied with at all times, the government should adjust the penalties for companies that exceed the set pollution limits.

The Canadian Government today is likely to develop a national strategy to deal with environmental racism ([Coza et al, 2021](#)), soon because of a private bill that is known as [Bill C-230](#). This bill is already discussed by the environmental committee of the parliament and could be approved by the House of Commons. It includes not only the monitoring and documentation of environmental racism but also the creation of processes that enable affected people to participate ([Lee, 2021](#)). It would be the “first legislation in Canada to require the federal government to collect statistical information on the location of environmental hazards across Canada, as well as the links between race, socioeconomic status and health outcomes” ([Reid & Hopton, 2021](#)). That would make Canada one of the first Countries to take such steps and that could become a huge step in the right direction. Talking about the future, [The Unwritten Constitutional Principles and Environmental Justice: A New Way Forward?](#) (Galloway, 2021) provides an interesting exploration on environmental inequality in Canada and gives insights into how environmental injustices faced by Indigenous people could be reduced.

# 9. RECOMMENDATIONS FOR FUTURE RESEARCH

## Considering the Unconsidered

### *Efe Cengiz*

If we accept that knowledge is also accompanied by and within power relations, the task of deciding which knowledge to produce and how becomes an important one. As Liboiron argues, knowledge produced with access to indigenous land without permission remains colonial, be it seeking justice or not. (Liboiron, 2021) Any proposals for a future research, in the sense connected with indigenous lives, land and knowledge must be collaborative, and reflexive.

As a junior researcher and as an STS student, what I have found most interesting about the case was the epistemic injustice that led to/ stabilised / obscured environmental racism, and how it kept reappearing in the history of the site. Considering also the fact that much of the local activism relies on knowledge making to produce evidence as tools to force bureaucracies to make change, I find it easy and important to recommend future research on the epistemic injustice in such sites of disaster.

In the historiographies of similar sites section I have already attempted to show similarities of such injustices, and I do believe a collection of case studies or a study that

employs the already mapped out pollution and its proximities to indigenous lands could be viable to explore epistemic injustice not as a “mistake” or “oversight” but as part of a neoliberal, colonial strategy.

I must admit however, as this argument has been the bias I carried through the paper, a lot on the site of the chemical valley disaster is left unsaid. Interested researchers may be happy to learn for example of a recent study that investigates the connections between theatre, pedagogy and environmentalism in such a site through the employment of an anthropological lens: <https://utpjournals.press/doi/pdf/10.3138/tric.42.1.a02> As I read how Balt investigates the performance of *The Chemical Valley Project* as “doing ecology” and through the “aesthetics of care”, I am confronted by the apparent fact that there are other (and perhaps better) ways of producing knowledge on the Chemical Valley as a site of disaster and its spread in time/space without cynical lenses such as Jackson and I bring.

Amidst toxic fumes, a discussion of “theatre ecology” could be found. Which leads me to wonder, what sorts of research could be imagined if the anthropocentric lens that was used through this paper was also left behind? In his theory-fiction book *CYCLONOPEDIA: Complicity with Anonymous Materials*, Reza Negarestani approaches oil as a living demonic entity. (Negarestani, 2008) Without needing to be boxed into the confines of academic writing, Negarestani ponders the question of how our lives are tangled with oil through post-anthropocentric and post secular lenses. What would a similar approach look like in the case of Sarnia I wonder?

Currently, there is a debate on whether to use insecticides to combat a gypsy moth infestation of woodlands in Sarnia and Aamjiwnaang. ([Aamjiwnaang Environment, 2021](#)) If more than human anthropocenes are everywhere as Tsing says, and if understanding them is as vital in surviving in “blasted landscapes” (Tsing, 2015) as she argues, I imagine what would an investigation of the site through a more-than-human lens would bring? Is it at least not interesting to consider the relation of gypsy moths and humans in the toxic site

of the chemical valley?

One could imagine several studies: To start with, where do these gypsy moths come from, why are they coming here now and how would an investigation on the relations their invasion build between pesticides and people, differentiate between Sarnians and the Aamjiwnaang community? What would such a difference tell us with regards to understanding pollution, nature, etc.

We could trace the fish populations of St. Clair River, where do they go, with which other species do they interact, to question how does the pollution in Sarnia affect communities upriver/downriver through fish? What do the Americans living right across the other side of the river make of the Chemical Valley? We know sometimes a metal fence can be imagined as providing protection from radioactive waste ([West, 2015](#)) Perhaps a river is acting in a similar manner here?

Lake St. Clair serves as a spot for the sport of fishing, [it is advertised as such at least](#). How are the images of clean waters and healthy fish being constructed, especially considering the proximity to Sarnia? What could an analysis on the lake's advertised use tell us about colonial histories, considering how the colonial histories have affected indigenous fishing?

Such questions, such research would hopefully break off from the construction of the indigenous victim or resistor as a data supply. Instead of asking them to speak to us of their oppression or of their glorious resistance, we could focus on fishing data, we could take a walk in the Detroit riverside and observe people interacting with the river, we could drown ourselves with fishing ads and videos, we could attempt to convince a marine biologist or a freshwater scientist to interact with us; we could allow the people of Aamjiwnaang a moment to breathe, even if it is to breathe the toxic air of Sarnia.

# 10. INJUSTICE ANALYSIS

## Cumulative pollution, cumulative injustices

### *Carly & Efe*

In a 2013 documentary created by the magazine VICE on Chemical Valley, Robert Plain, an Aamjiwnaang activist explains the challenge of multiple pollution emissions through the analogy of releasing “bags of pollution.” If you release one, you might be able to monitor to see where it goes, but if you have a bunch of bags, and really big ones, it's hard to decipher the impact of a single bag release as well as understand the cumulative impact of all the bags. While originally intended to illustrate the challenge of cumulative emissions, I think Plain's analogy works for cumulative injustices as well. Exposed individuals and communities, especially the Aamjiwnaang, experience so many intersecting injustices that it's hard to parse them out individually and overwhelming to imagine the cumulative impact of them all. Below is our humble attempt to start to untangle and make visible some of these injustices that were surfaced in our research ([Vice, 2013](#)).

#### **Data Injustice**

Ecojustice's Exposing Canada's Chemical Valley 2007 report cited issues with accessing data, data that was just not collected, as well as limitations to data (like NPRI data) that was available ([MacDonald & Rang, 2007](#)). Action has been taken to start to bridge the data gap such as the installation of more air monitoring stations as well as making the data from these stations publicly available through the CASA website. The recently launched



pollution reporter app allows individuals to create data regarding pollution events as well as connect data regarding chemicals, polluters, and health impacts- starting to build connectivity between data sources. However a comprehensive study of the cumulative effects of the many multiple pollutants that are released in Chemical Valley and the environmental and health risks they pose has not been conducted, although was recommended by multiple advocacy and governmental agencies. Without this comprehensive study and understanding of cumulative impact, the true risk and impact of Chemical Valley pollution cannot be understood, advocated, or acted upon.

### **Epistemic Injustice**

The institutions that create knowledge on the pollution in Sarnia are funded and have their positions occupied by the very people who run the companies that profit from pollution. This has been so since the 60s when the pollution was first officially problematised. Scientific data is never objective; who produces it, where, why and how matters. As city-corporation partnerships use their knowledge/power to stabilise pollution in similar sites of disaster, resistance often means attempting to produce knowledge/power that could compel higher institutions or general public to act. Proving pollution, proving the effects of pollution, proving the relations between the bodies affected and the effects of pollution, proving the factories as cause of the pollution, are all daily practices that happen within institutions with their bureaus, bureaucrats and bureaucracies. The construction of said institutions and how they are presented to public matters in the very knowledge that is produced to power any action.

### **Health Injustice**

Pollution is never a material issue alone. It affects the workers by asbestos poisoning and leukemia, it affects locals by asthma, it affects indigenous fishermen by making the river unfishable and so on. However, we must also see the effects of health injustice in the pandemic: communities who are already subjected to respiratory diseases are more at risk. We must also see the effects of such a disaster in suicide rates.

Just looking at one of the most impacted communities, the Aamjiwnaang, the health discrepancies and injustices are clear and well documented. A report from Ecojustice, from 2007 identified the following over-representation of health issues in a group of Aamjiwnaang individuals studied:

- “High rates of respiratory problems: 17% of adults and 22% of children have asthma. For comparison, Lambton County childhood asthma rate is just 8.2%
- Hospital admission rates are significantly higher in Sarnia than in the cities of Windsor and London, Ontario
- 39 % of Aamjiwnaang women surveyed have experienced a miscarriage or stillbirth
- The Ontario Medical Association (OMA) estimated that as a result of air pollution, Sarnia-Lambton incurred 100 deaths per year, 270 hospital admissions, 920 emergency visits and 471,700 minor illness days at a cost of over \$14 million dollars”

(Source: [MacDonald & Rang, 2007](#))

When considering the other most-exposed groups, workers of Chemical Valley, the health injustices are also clear. Workers of chemical valley experience high rates of mesothelioma, an asbestos-related disease, that while considered an “exceedingly rare cancer” it also happens to be “exceedingly common around Sarnia” ([Mittelstaedt, 2004](#)).

### **Racial Injustice**

In Sarnia the factories pile around indigenous lands of Aamjiwnaang, we have also attempted to show in this study that this is not unique to this site. Land-race relations are as social as they are material in countries such as Canada that have “Indian Act” in its very law. Racial injustice in such cases are never social ones but are embedded in the very lands that make said sociality possible. To begin to understand environmental racism is to accept this first and foremost; Pollution is Colonialism. (Liboiron, 2021)

The racial injustice and violence perpetrated by Chemical Valley industries against the Aamjiwnaang community is unfortunately one of a long line of injustices and violence that

marks this indigounous community's history since the start of British colonialism. This trend of violence was publicly recognized by Gord Miller, Ontario's Environment Commissioner, in his statement: "the Aamjiwnaang First Nation suffers a daily assault on their ancestral land as a result of this disturbing historical legacy, coupled with contemporary indifference." ([Craig et al. 2017](#)). Even more directly, the former executive director of the Sarnia Occupational Health Clinic, Jim Brophy, condemns the racial injustice of Chemical Valley, stating: "This is a classic example of environmental racism. There's no question, this would never be tolerated in a white community" ([Craig et al. 2017](#)).

### **Reproductive Injustice**

The injustices experienced by exposed individuals extends into the reproductive space. A 2005 study on birth rates in the Aamjiwnaang community "found that the Chemical Valley's [birth rate] ratio had reached nearly 2:1" female to male, "a statistical anomaly that had never been recorded in any human population, though it has been documented in animal populations that live in extremely polluted areas" ([The Chemical Valley, 2013](#)). In addition, a study from Ecojustice from 2004-2005 found that 39 percent of the women in Aamjiwnaang had suffered through at least one stillbirth or miscarriage" ([The Chemical Valley, 2013](#)).

# CONCLUSION

## What's Left for Canada's Chemical Valley?

*Carly Rospert*

Named “the most polluted air in Canada” in 2011 by the World Health Organization ([The Chemical Valley, 2013](#)) and then ten years (and a significant amount of media attention and advocacy efforts) later identified as an example of a “Sacrifice Zone” by UN Special Rapporteur on Human Rights and the Environment in 2021 ([Boyd, 2021](#)), begs the question: what's left for Canada's Chemical Valley? Ecojustice's most recent report in 2019 showed some improvements in air quality around Chemical Valley, yet also highlighted the numerous times emissions limits were exceeded, standards that were inadequate or worked around, and the lack of action to update emissions standards to reflect human/environmental safety rather than corporate ‘ability’ ([MacDonald, 2019](#)). More pollution data is being collected and made publicly available through efforts of advocates, impacted communities, and environmental justice organizations, but the communities around Chemical Valley still lack a comprehensive study to understand the cumulative impact of the many, multiple pollutants being emitted by Chemical Valley industries and the combined impact this has on environmental and human health.

The overwhelming nature of this site reminds me of Julia Watts Belser's article: *Disability, Climate Change, and Environmental Violence: The Politics of Invisibility and the Horizon of Hope*, where she re-examines hope, specifically beyond ideas of "restoration and cure," noting

that "disability experience offers critical insights for navigating these questions, for affirming the possibilities that lie beyond conventional notions of "hope" that rest on a brighter future or a return to a beloved past" ([Belser, 2020](#)). The author challenges readers to see our reluctance to accept that some change is irreversible or incurable as rooted in the "fantasy of human control over nature," and that we "can always fix what has been broken" ([Belser, 2020](#)). If we accept that we can't return Sarnia back to a 'clean' state before it was Chemical Valley (and I do not think we can), what does a future for Sarnia, the Aamjiwnaang, and Chemical Valley look like? When we strip away the fantasy of a completely restored future, what vision for Chemical Valley arises? These are not questions the authors of this report can or should answer, rather it is an opening to reconsider what hope for Chemical Valley can look like and how this hope might translate into a more just future, whatever that may be.

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Even over almost seventy pages, we have failed to capture all of the important details of Chemical Valley and even the ones included are heavily colored by our own bias of what we found interesting and significant. We want to encourage readers to explore and dig deeper into the issues that we have only started to surface. To facilitate this further exploration, we have organized our sources by section as they first appear in the text, as well as often linked directly to the source in the in-text citation.

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# FIGURES

COVER IMAGE:

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FIGURE 1: <https://native-land.ca>

FIGURE 2: Archiving the Athropocene course

FIGURE3: Google Maps

FIGURE 4: <https://www.scrca.on.ca/portfolio/wawanosh-wetland-conservation-area/>

FIGURE 5: <https://www.vice.com/en/article/4w7gwn/the-chemical-valley-part-1>

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FIGURE 7: <https://en.wikipedia.org/wiki/Sarnia%E2%80%94Lambton#2016fed>

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FIGURE 13: <https://pubmed.ncbi.nlm.nih.gov/33947701/>



FIGURE 14:

[https://www.tandfonline.com/doi/abs/10.1080/09603123.2020.1827226?casa\\_token=OrWi69B\\_PhUAAAAA%3A4wLTo5pg3hg5ooOi8q7MD0m-uJ0HRDmrpiZIVKj2blzLnZfJ85MoP1MXPH4xMCIt0UlpOyB-CbxU0Q&journalCode=cije20](https://www.tandfonline.com/doi/abs/10.1080/09603123.2020.1827226?casa_token=OrWi69B_PhUAAAAA%3A4wLTo5pg3hg5ooOi8q7MD0m-uJ0HRDmrpiZIVKj2blzLnZfJ85MoP1MXPH4xMCIt0UlpOyB-CbxU0Q&journalCode=cije20)

FIGURE 15: <https://www.enrichproject.org/map/>

FIGURE 16:

<https://assets.tvos.org/prod/s3fs-public/media-library/Current%20Affairs/On%20The%20Road/Sarnia/Photo%20essay/Picture%204.jpg>