



Uncovering the Social and Ecological Impacts of Data Centres:
Promoting Indigenous Perspectives Amidst Canada’s “Data Centre Boom”

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Introduction

Growing up beside the Alderville First Nation, in Southern Ontario, I have been a mere observer of the destructive legacies of Canada's colonial past. Having an Indigenous background myself, but having never experienced the injustices these communities face first hand, a disconnect has formed between myself and my relatives on Indigenous reserves. My personal experience, living with privilege that so many of my relatives do not have, has influenced my perception of social justice through an Indigenous lens.

At present, Indigenous communities are one of many marginalized communities around the globe where existing environmental and social inequalities are being exacerbated by data centres. My research will explore an aspect of data centre impact on which scarce literature exists to date: the environmental and social impacts of data centres on Indigenous communities in Canada.

This project will demonstrate how the development of data centres disproportionately affects Indigenous peoples, due to the resource demand such centres place on their communities. To explore these developments, I will examine the impact of extreme water consumption on the Cree and Anishinabek Nations. This research will engage with two affected Indigenous communities, Sturgeon Lake Cree Nation and Wiikwemkoong Unceded Territory, to better understand the full social and environmental consequences of data centres.

The International Energy Agency predicts a doubling of global data centre electricity demand from 2022 to 2026.¹ Such demand for new data centres has led to what is widely referred to as the “Data Centre Boom”². Today, the average data centre (8,650 m²) emits approximately 677,724 tons of carbon dioxide per year and shows an insatiable demand for energy, land, and water.³ However, the Wonder Valley project, led by notorious Shark Tank investor Kevin O’Leary, is set to far exceed this. It is planned to be 32 times larger than the world's biggest data centre and built on the traditional territory of the Sturgeon Lake Cree Nation, adjacent to their reserve in rural Alberta.⁴ As data centres like Wonder Valley consume billions of litres of freshwater per year for cooling purposes,⁵ the Sturgeon Lake Cree Nation has

¹ IEA. (2025, April 10). *AI is set to drive surging electricity demand from data centres while offering the potential to transform how the energy sector works* - News - IEA. International Energy Agency. <https://www.iea.org/news/ai-is-set-to-drive-surging-electricity-demand-from-data-centres-while-offering-the-potential-to-transform-how-the-energy-sector-works>

² Edwards, D., Cooper, Z. G. T., & Hogan, M. (2024). The making of critical data center studies. *Convergence the International Journal of Research Into New Media Technologies*, 31(2), 429–446. <https://doi.org/10.1177/13548565231224157>

³ Bux, C., Rana, R. L., Lombardi, M., Giungato, P., & Tricase, C. (2025). A critical analysis of global warming potential of data centers in the digital era. *The International Journal of Life Cycle Assessment*, 30(11), 2390–2402. <https://doi.org/10.1007/s11367-024-02419-2>

⁴ Ridley, S. (2025, November 13). What will the AI data centre boom mean for Canada? | The Narwhal. *The Narwhal*. <https://thenarwhal.ca/ai-data-centres-canada/>

⁵ Li, P., Yang, J., Islam, M. A., & Ren, S. (2025). Making AI Less “Thirsty.” *Communications of the ACM*, 68(7), 54–61. <https://doi.org/10.1145/3724499>

simultaneously been struggling with recurring droughts since 2022.⁶ This reflects the impact data centres have and will continue to have on Indigenous peoples in Canada and marginalized communities globally.

If left unaddressed, the extractionist behaviors of data centre development will continue. Defining the social and ecological impacts of data centres on Indigenous communities can create pathways to protect and mitigate their effects on the most vulnerable. I hope my research in the Laidlaw Scholars Programme will help take a step towards ensuring that marginalized communities do not have to continue “shouldering the burdens of extraction and pollution”⁷ from infrastructural developments such as data centres.

Research Objectives and Questions

I. Primary Objectives

- Outline the social and ecological impacts of data centres, with a focus on the impact centres have on Indigenous communities in Canada

II. Secondary Objectives

- Promote Indigenous-Canadian perspectives in a field of study that has excluded them
- Determine the social and ecological impacts of data centres on Indigenous communities across Canada
- Position my research within a broader pattern of data centres exploiting marginalized communities worldwide

III. Research Questions

- In what ways do data centres disproportionately affect Indigenous peoples in Canada?
- How do data centres impact the social dynamics of a community?
- How does the impact of data centres on Indigenous communities in Canada situate within a global trend of such centres disproportionately impacting marginalized communities?

Methodology

Research Period: *June 15th - July 24th*

Week 1

Geographical Analysis

⁶ Ridley, S. (2025, November 13). What will the AI data centre boom mean for Canada? | The Narwhal. *The Narwhal*. <https://thenarwhal.ca/ai-data-centres-canada/>

⁷ Edwards, D., Cooper, Z. G. T., & Hogan, M. (2024). The making of critical data center studies. *Convergence the International Journal of Research Into New Media Technologies*, 31(2), 429–446. <https://doi.org/10.1177/13548565231224157>

- Map which data centres out of the approximately 330 in Canada are built on or near Indigenous reserves

Week 2-3

Literature Review

- Conduct a case comparison between the ecological impacts of data centres on Indigenous lands and non-Indigenous lands, utilizing a combination of primary and secondary sources, such as:
 - Daily potable water usage from Statistics Canada,⁸
 - Darin Barney's research, examining infrastructure's relationship to settler colonialism and extractive capitalism in the Canadian context⁹
 - Yanchapaxi & Murphy's work conceptualizing Indigenous Environmental Data Justice.¹⁰

Week 4-5

Interviews

- Analyze the social impacts of data centres on Indigenous communities through interviews and qualitative analysis, including but not limited to the following individuals who confirmed interest after preliminary conversations:
 - Councillor Tracey Mclean, Sturgeon Lake Cree Nation
 - Councillor Marilyn Jacko, Wiikwemkoong Unceded Territory
 - Janelle LaPointe, Dakelh Indigenous Activist
 - Jeff Ward, CEO, Animikii Indigenous Technology
 - Craig McLellan, CEO, ThinkOn Data Centre

Week 6

Final Literature Review

- To position this issue globally, reference research within critical data centre studies¹¹, such as Diaz & Valdivia's on the environmental impacts of data centres in Latin America¹² and Johnson's regarding colonial rule and Iceland's data centre industry¹³

Ethics Review

⁸ Government of Canada, Statistics Canada. (2023, November 14). *Potable water use by sector and average daily use*. <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3810027101>

⁹ Barney, D. (2021). Infrastructure and the form of politics. *Canadian Journal of Communication*, 46(2), 225–246. <https://doi.org/10.22230/cjc.2021v46n2a3833>

¹⁰ Yanchapaxi, M. F., & Murphy, M. (2025). Indigenous Environmental Data Justice: Confronting colonial data and activating indigenous sovereignty. *Science Technology & Human Values*. <https://doi.org/10.1177/01622439251343837>

¹¹ Edwards, D., Cooper, Z. G. T., & Hogan, M. (2024). The making of critical data center studies. *Convergence the International Journal of Research Into New Media Technologies*, 31(2), 429–446. <https://doi.org/10.1177/13548565231224157>

¹² Bejarano, N. D., & Valdivia, A. (2025). Thirsty Forests and Expansive Droughts : The environmental impacts of data centers in Latin America. *Environment and Planning E Nature and Space*. <https://doi.org/10.1177/25148486251409055>

¹³ *Emplacing data within imperial Histories: Imagining Iceland as data centers' 'Natural' home – Alix Johnson*. (2024, September 1). Culture Machine. <https://culturemachine.net/vol-18-the-nature-of-data-centers/emplacing-data/>

Human research ethics are needed to conduct this research. The REB application process and access to the MRHP portal have been confirmed with my research supervisor. If I am unsuccessful in the REB application, my research will be conducted through a three-step literature review and visual content/discourse analysis of Indigenous data centre perspectives through social media (given the available research period).

Interdisciplinary/international focus of your research

This research is interdisciplinary and international, as I will be engaging in research on a trend of data centres disproportionately impacting marginalized communities worldwide, utilizing methods and scholarship from environmental ethics, Indigenous studies, geography, public policy, and sociology.

Outcomes

- Outline the broader implications of the social and ecological impacts that data centres have on marginalized communities, utilizing my research on their effects on Indigenous Canadian communities as a case study
- Supplement the gaps regarding the effects data centres have on Indigenous communities in Canada to the emerging critical data centre studies field

Research Supervisor

As my research supervisor, Professor Imre Szeman will support my project with regular meetings and communications. His extensive expertise, network, and interest in my research topic will provide me with valuable guidance and support in the development of the project over the summer and the potential to continue to develop it in the future.

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