

Building Climate Resilience in First Nation Communities

PREPARING OUR HOME
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Building Climate Resilience in First Nation Communities:

Lessons from the Confederacy of Mainland Mi'kmaq, Siksika Nation, and Mattagami First Nation

INTRODUCTION

Non-climatic factors including social, economic, cultural, political, and institutional inequities produced because of uneven development, create social and climate vulnerabilities that result in the marginalization of specific populations (IPCC, 2014). Climate change impacts affect Indigenous peoples in Canada differentially, depending on geographic contexts of exposure and sensitivity to risk of climate impacts (IPCC, 2019; IPCC, 2007; Salick & Byg, 2007). Structural inequalities and inequitable social vulnerabilities impact Indigenous peoples' capacities to adapt (ICE, 2018; Ford et al., 2016). In this report, we critically examine the climatic and non-climatic factors that contribute to climate risk creation processes within Indigenous communities, to contribute to better understanding the significance of Indigenous capacity building efforts to address both climate adaptation gaps and location vulnerabilities.

BACKGROUND

Across Turtle Island, since time immemorial, Indigenous peoples have had Traditional Knowledge to adapt to changing environmental conditions on the land. There are 1.7 million Indigenous people in Canada accounting for 4.9% of the total population, speaking more than 70 Indigenous languages (Statistics Canada, 2017 & 2018). Rich in distinct and diverse cultures, histories, and traditions, Indigenous communities in Canada are growing at a population growth rate four times faster than the national average (Statistics Canada, 2016a).

Currently, Indigenous peoples are among the most vulnerable population groups in Canada to the risks of climate change impacts (Desmarais, 2018). Indigenous communities in Canada are particularly vulnerable to the impacts of climate change due to their peoples' intrinsic connection and socio-cultural reliance on their traditional territories, remoteness relative to accessing essential services, as well as infrastructure gaps and deficits that compound exposure and sensitivity to climate risks (CIER, 2009).

The disproportionate exposure and sensitivity to climate risks facing Indigenous people are the result of layered, historical inequities rooted in colonialism and institutional racism such as the Indian Act, unhonoured or contested treaty rights, resource exploitation, and residential school systems. Historically, colonial, racist policies forced the internal displacement of Indigenous peoples. These policies were enacted by the state through land dispossession, cultural assimilation, and reserve systems that assured continued Indigenous oppression and social marginalization, often denying Indige-

nous peoples their livelihoods and rights to traditional adaptive strategies like seasonal migration to procure food resources and avoid hazards (Dicken, 2017; Yumagulova, 2020; Yellow-Old Woman Munro et al., 2021; Lewis et al., 2021). These historical, socio-political, and targeted risk creation processes place Indigenous communities in Canada at a disproportionately higher disaster risk to climate impacts, despite their small proportion of the overall Canadian population. Thus, non-climatic social inequities, combined with climatic factors such as disproportionate vulnerability to environmental risks, create unparalleled structural inequality and a higher sensitivity to climate impacts and disasters such as flooding and fire (Yellow Old Woman-Munro et al., 2021; Karetak et al., 2017; Adger et al., 2009; Smit et al., 2000).

In Canada, First Nation communities are 18 times more likely to be evacuated due to disasters than people living off-reserve, while fire-related fatalities are more than 10 times higher (GoC, 2019). Indigenous reserves are disproportionately exposed to flooding, with more than a fifth of residential properties exposed to risks of 1 in 100-year flooding (Thistlethwaite et al., 2020), and the impacts of disaster displacement are further compounded by gaps in Indigenous communities' emergency management practices and lack of emergency hazard evacuation preparedness (Asfaw et al., 2020). Externally imposed emergency management practices can further deepen marginalization, trauma, and conflict within communities, exacerbating disaster impacts and pre-existing vulnerabilities while reinforcing the inequitable status quo of power relations that remove Indigenous participation and self-determina-


tion in disaster response (Yumagulova et al., 2019a).

Community infrastructure insecurities – inadequate, crowded housing; lack of reliable, safe and clean water; remote geography; transportation challenges; access to affordable and sustainable food, basic supplies, and sustainable energy – further compound social vulnerabilities (Baird and Podlasly, 2020). In 2011, 292 off-grid remote communities including 170 First Nations, Innu, Inuit or Métis communities were reliant on diesel fuel for heat and power (Royer, 2011). Inadequate, crowded housing is a major contributor to social vulnerability. In 2016, the proportion of First Nations people with registered or treaty Indian status who lived in a dwelling that needed major repairs was more than three times higher on reserve (44.2%) than off reserve (14.2%) (Statistics Canada, 2016b). The combined impacts of these insecurities results in a 3.8 times higher prevalence of poverty among status First Nations children than non-racialized, non-Indigenous children (Beedie et al., 2019).

The non-climatic factors described above can undermine capacities to adapt in Indigenous communities. A failure to consider how diverse social factors are experienced across a range of intersectionalities (e.g., historical and political contexts, diverse cultural identities, economic capacities, skills and knowledge, gender, and age) results in critical gaps in governmental and researcher efforts to support Indigenous adaptation policy and practice, while running the risk of reinforcing existing social inequalities and the status quo of systemic racism (Walker et al., 2021). Adaptation to climate

impacts (e.g., loss of winter roads, increasing wildfire, inland flooding, and coastal erosion) requires addressing the social, political, economic, and legal contexts constraining Indigenous adaptive capacities. It also requires intentional efforts to reclaim Indigenous community resilience by recovering cultural identities, ancestral knowledge, skills, spaces, and languages (Yumagulova et al., 2020; Gabriel et al., 2019).

Building resilience in Indigenous communities in the face of climate change is fundamentally about creating opportunities for self-determination and self-sufficiency. Bottom-up approaches for building Indigenous resilience offers co-benefits and collaborative opportunities for reconciliation, by enshrining social justice and equity in areas of nutrition, food security and Indigenous foodways; and resilient, sustainable livelihoods possibilities for resource diversification and adaptive co-management on Indigenous lands (Galappaththi et al., 2021; Richmond et al., 2021). Government institutions and research policy can support Indigenous-led adaptation. Integrated approaches to policy and governance to support much needed basic infrastructure in Indigenous communities, can help to systematically reconcile the challenges and harness the opportunities associated with building adaptive capacities in Indigenous communities (CIER, 2009). Interdisciplinary approaches that provide research support for Indigenous collaborations through co-designed, decision-oriented research can help to promote knowledge mobilization and Indigenous capacity building opportunities for resilience and adaptation by communities and Indigenous-led organizations (Vogel and Bullock, 2020; Ford et al., 2017).




Frameworks, programs, and tools supporting Indigenous community resilience

The adoption of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) as a national policy framework for reconciliation may be an influence on existing policies and processes. UNDRIP recognizes that governments and corporations are required to obtain the free, prior, and informed consent of Indigenous people in any decision-making processes that impact Indigenous land, livelihoods, traditional food security, and natural resource-based economic activities. In December 2020, the Canadian government introduced legislation to implement UNDRIP as a roadmap and building block for working together with Indigenous peoples to fully recognize, respect, protect, and fulfill the rights of Indigenous peoples, including promoting economic participation through the creation of opportunities for social and economic equality (Government of Canada, 2020).

Calls for action on climate adaptation and resilience can be achieved through the protection of Indigenous governance, laws, values, cultures, and languages and addressing Truth and Reconciliation Commission recommendations, including the federal ratification of UNDRIP (Government of Canada, 2020; Townsend et al., 2020; TRC, 2015). Recognition of the importance of Traditional Knowledge for understanding climate impacts and adaptation measures is also identified in the Pan Canadian Framework on Climate Change (PCF, 2016). The PCF calls for recognizing and translating information and knowledge into action by integrating Indigenous community-level climate change data collection, risk assessment planning, and flood plain mapping with traditional Indigenous practices.

A recent Indigenous Climate Action (ICA) report, [Decolonizing Climate Policy in Canada](#) (2021), suggests that Indigenous Peoples have been structurally excluded from the process of developing the PCF and other federal policy frameworks such as [‘A Healthy Environment, A Healthy Economy’](#) (2020). The ICA report notes that some of the proposed climate solutions ignore the realities faced by Indigenous Peoples and overlook embedded, structural inequalities, while some of the proposed climate actions “may lead to disproportionate negative impacts on Indigenous Peoples and violations of Indigenous rights” (ICA, 2021: p. 51).




Indigenous-led adaptation through nature-based solutions

Indigenous communities have been at the forefront of incorporating nature-based solutions in adapting to environmental change since time immemorial. A tenth of the Canadian land area is currently protected, with a conservation aim to preserve an additional 7% in the next 9 years to support global climate resiliency through GHG sequestration and biodiversity protection using nature-based solutions (Townsend et al., 2020; ICE, 2018). Indigenous organizations have been leading initiatives that connect climate action, land-based adaptations, and land back action, including the [Indigenous Circle of Experts](#), the [Indigenous Leadership Initiative](#) and [Indigenous Climate Action](#).

Some of the key barriers to enacting nature-based solutions include climate-change politics, inter-governmental policy gaps, and lack of legal recognitions in Canada that limit Indigenous sovereignty and autonomy over traditional lands (Scott and Cutfeet, 2020). The [Centre for Indigenous Environmental Resources](#) offers a suite of capacity-building resources and tools to support Indigenous adaptation and resiliency through culturally appropriate planning, mapping, and management approaches (See also: Tobias et al., 2009). At the community level, some examples of Indigenous-led nature-based solutions include land management for carbon offsetting and nature-based conservation (Great Bear Rainforest, BC), ecosystem service accounting in land use decisions (Poplar River, Manitoba), and an emerging climate-action strategy for Indigenous sustainable forestry management planning (Wahkohtowin, Ontario) (Townsend-Moola-Craig, 2020).

In the next section we discuss examples from First Nation communities that participated in the [Preparing Our Home program](#) that empowers the next generation of Indigenous community resilience leaders.



Federal funding programs for supporting Indigenous community resilience:

[Emergency Management Assistance Program](#)

[First Nations Adapt](#)

[Climate Change and Health Adaptation Program](#)



Community-led risk assessment with the Confederacy of Mainland Mi'kmaq (NS)

The Confederacy of Mainland Mi'kmaq, Nova Scotia, is a Tribal Council incorporated in 1986 as a not-for-profit organization that serves eight member communities: Annapolis Valley, Bear River, Glooscap, Millbrook, Paqtnkek, Pictou Landing, Sipeknekatik, and Acadia First Nation. The organization's mission is "to proactively promote and assist Mi'kmaw communities' initiatives toward self-determination and enhancement of community." In 2014, the Confederacy of Mainland Mi'kmaq's Mi'kmaw Conservation Group started an adaptation and resiliency project through the Climate Change Adaptation Program at Aboriginal Affairs and Northern Development Canada. Recognizing the importance of climate action across multiple areas supported the development of the Mi'kmaw Climate Action Program. In 2017, the program evolved to include a project through the Climate Change and Health Adaptation Program for First Nations South of 60N° at Indigenous Services Canada First Nation and Inuit Health Branch with the objective of understanding and navigating the relationship between climate change, emergency management, and health within Mi'kmaw communities, by determining community strengths, weaknesses, and gaps.

Through community-led research, needs assessments, and workshops, the project has examined physical, mental, emotional, and spiritual impacts of climate change, emergencies, and emergency management on the health of community members. This intergenerational planning project included youth and combining Indigenous and Western worldviews was achieved by using a combination



Photos supplied by Amber MacLean-Hawes

of the "Medicine Wheel" (mind, spirit, body, and emotion metaphors for holistic teaching) with the "Emergency Management Cycle" (prevention, mitigation, preparedness, response, and recovery). A community-led climate risk assessment was conducted across seven communities with over 200 participants. Key findings included more than 80% of community members having a health concern (with top concerns being diabetes, allergies, mental illness, respiratory issues, and addictions) and over 60% of participants thinking that climate change will impact health outcomes. Additionally,

- 40% of participants experienced a health concern as a result of an emergency.
- 25% said an emergency event has increased the severity of a pre-existing condition.
- 50% noted their medical issues could pose a challenge during an emergency.
- 45% of the participants thought that their community has already experienced some health impacts as a result of climate change.

A project advisory committee comprised of emergency preparedness members from each member community (e.g., councillors, band staff, community members, etc.) provides project oversight and structure. This community-led approach ensures long-term ownership of data and solutions that are developed for and by the communities.

For more information, watch this video to learn directly from [Amber MacLean-Hawes, Emergency Management Program Manager, The Confederacy of Mainland Mi'kmaq](#)

Planning for Seven Generations in Mattagami First Nation (ON)



Photos supplied by Bizhiw nindizhinikaaz Devin Naveau, Mattagami First Nation

Mattagami First Nation is situated on ancient Native land that has long been home to the Ojibway and OjiCree people that lived a nomadic life on the land from the Mattagami River and Mattagami Lake areas, and as far as the Moose River headwaters on the James Bay coast. On July 7th, 1906, Treaty #9 was signed, reducing the traditional lands of the First Nation people living in the Mattagami Lake area to an official land base. In 1921, a power company built a holding dam on the Mattagami River, flooding parts of the original community's land base. In 1952, as a compensation for the flooding, an additional 200 acres was given back to Mattagami for the purpose of constructing a new community site that is now home to roughly 600 members. The community is faced with fluctuating water levels, land erosion, and is nearing maximum population capacity. The Nation recognizes the widespread impacts of climate change on its ways of life, culture, self-determination, and economy.

The Mattagami First Nation Harmony Movement led by Executive Director Juanita Luke is a strategic planning process that prioritizes seven areas including tradition and culture, economic development, capacity development, land and infrastructure, inclusivity and advisory services, financial excellence, and policies and codes to ensure that the Nation can continuously adapt in the face of change. By focusing on these seven aspects, Mattagami First Nation aims to build a fair, healthy, competent, and prosperous community for today and future generations through a collaborative community effort.



Figure 1. Harmony movement

In addition to long-term planning, Mattagami has implemented a community Master Emergency Response Plan, led by Health Director/Emergency Management Systems Coordinator, Eileen Boissoneau. This plan builds and expands on the disaster management cycle model involving hazard identification and risk assessments, training and education, response, recovery, and re-entry. This comprehensive emergency planning and preparedness process ensures that Mattagami plans for and develops emergency procedures for pandemics, environmental contamination, forest fires, rainfall/flooding, major highway road incidents, major windstorms, major blizzards/ice storms, dangerous gases, and requests for assistance. The Plan has proven its effectiveness over the years, and the Nation has become a known leader in emergency response planning within the Tribal Council.

For more information, watch this video to learn more directly from [Bizhiw nindizhinikaaz Devin Naveau, Elected Councillor, Mattagami First Nation](#)



Siksika Nation (AB)

Dancing Deer Disaster Recovery Centre (DDDRC)



Photos supplied by Darlene Yellow Old Woman-Munro

The Siksika Nation is a part of the Blackfoot Confederacy and is the second-largest First Nation reserve in Canada, located 87 kilometres southeast of Calgary with a total population of over 7500 members. The Siksika way of life for families, friends, and neighbours can be summarized in a Blackfoot word 'ispommitaa' (help out, assist). 'Ispommitaa' connects members of the community with each other, revitalizing co-operative cultural traditions and creating a sense of belonging through participation in shared events, including through culturally appropriate responses to environmental crises (Yumagulova et al, 2019a).

In June 2013, eight Siksika communities along the Bow River were devastated by a flooding disaster that destroyed two main bridges and affected 171 homes, displacing over 1,000 people (Yumagulova et al., 2019b). The evacuees have been moved up to five times: from teepees, tents, and trailers to hotels and motels; then to a first round of temporary relief shelters (ATCO trailers); then onto new temporary neighbourhoods; and finally to permanent new neighbourhoods (Yellow Old Woman-Munro et al., 2021; Patrick, 2017). Six and a half years later, some community members *still* had not returned to their homes (Yumagulova, et al., 2019b).

In the chaos, loss, and trauma arising from long-term displacement caused by this disaster, a unique community organization, Dancing Deer Disaster Recovery Centre, was created to support self-determination in disaster recovery by rebuild-

ing families through “hope and healing.” The Centre consisted of a multi-disciplinary group of Siksika professionals, youth, and a Siksika traditional Elder. The team was guided by the Medicine Wheel in providing culturally safe supports for spiritual, emotional, physical, and mental needs of evacuees. These services were provided through one centralized centre, instead of making evacuees visit multiple departments and services were delivered directly in the temporary housing of the evacuees, thus serving as a critical link for cultural continuity across phases of displacement. An Indigenous service provider stressed the importance of this ability to meet people where they were at in a culturally safe way: “Meeting the people in their temporary situations, temporary housing, hotel, or trailers...it allowed for a lot more trust building that people would be willing to open their doors to you, to be able to be seen in that situation; rather than them seeing you as a psychologist coming to do counselling, they saw me [Indigenous service provider] more as somebody coming in to visit and checking in on them in a much safer, non-intrusive way...” (Yumagulova et al., 2019b). This ability to deliver culturally safe services in Blackfoot languages in temporary ‘homes’ was particularly important for the most vulnerable members of community such as the elderly, chronically ill, and single parents with special needs children.

Watch this video to learn more directly from by [Darlene Yellow Old Woman-Munro, Former Director, Dancing Deer Disaster Recovery Centre and Elder, Siksika Nation](#)

CONCLUSIONS

Indigenous communities in Canada are faced with diverse social contexts and non-climatic factors that influence collective abilities to adapt to climate impacts. Our synthesis reveals that Indigenous communities in Canada are at the forefront of climate change adaptation in Canada. The evidence presented suggests the following:

- Examples of self-determination for building climate resilience in First Nations communities include: community led risk assessments, intergenerational planning, and community-led organizations providing cultural appropriate services to disaster response & recovery.
- Combining western and Indigenous ways of knowing (such as the Medicine Wheel and the emergency management cycle) provides innovation in techniques for holistic knowledge translation in support of adaptive capacity building in communities.
- Indigenous Knowledge, intergenerational learning, land-based learning, participatory methodologies and the role of traditional language for community resilience are important social factors that support adaptation at the community scale (Yumagulova et al., 2020).
- Differences in adaptive capacities affect Indigenous communities' ways and means of organizing to plan and assess current climate impacts and future hazards, with community health overlaps.

- Building Indigenous community resilience requires addressing the impacts of colonial land dispossession, disaster and climate displacements, and the gaps in social service support for providing for the mental, cultural, spiritual health needs of displaced Indigenous peoples.
- Indigenous communities and organizations are leading the way in nature-based solutions, with long-range implications for the global climate, as well as opportunities for reconciliation, across Turtle Island.
- A path forward on meeting Indigenous socio-economic, cultural, and basic needs recognizes Indigenous rights for the co-management of environmental resources, achieved through reconciliation of the governance and territorial management of Indigenously-held land. This path also presents pivotal opportunities for global biodiversity protection, carbon sequestration, and Indigenous conservation collaborations in Canada (Whitney et al., 2020; ICE, 2018; Hawken, 2017).

We summarize that transforming top-down governance to advance climate resilience across scales requires leadership and support for Indigenous-led environmental co-management and conservation efforts. There is a need for opportunities to promote effective knowledge sharing through equitable, collaborative platforms that centre on Indigenous-led, place- and culturally-based adaptation and resilience planning strategies and services supported by intergovernmental public policy, research partnerships, and collaborative funding opportunities.

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