

CLIMATE CARE PROJECT

FINAL REPORT

PREPARED FOR

THE B.C MINISTRY OF HEALTH

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25



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**SCHOOL OF PUBLIC ADMINISTRATION
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Notably, this research seeks to understand what barriers affect community-members and leaders who are trying to access public infrastructure (i.e. cooling, warming, clean air shelters) when experiencing extreme weather events. Participant experiences were and continue to be shared with researchers, service providers, and policy-makers in British Columbia to plan equitable emergency response and recovery plans. We wish to express our gratitude to all participants who so generously shared their lived-experiences and knowledges with us. Moreover, we express special thanks to Kavita Nahal, a Co-op student from the MPA program in the School of Public Administration who provided excellent support as a research assistant. We are grateful to our Advisory Circle mentioned above for their review of all instruments, materials, methodologies and knowledge mobilization plans. The First Nations Health Authority was a key partner in this research in partnership with MITACS, who also financially supported this research. Sincere appreciation to Kerri Klein from the SHIFT Collaborative for the facilitation design leadership and support before, during and after the May 16th Climate CARE Assembly held at the Esquimalt Gorge Pavillion. It is an honour to be in conversation together with everyone involved in this research and we look forward to continuing to address these vital concerns together.

BACKGROUND

Events ranging from heat domes to storms to flooding signal the pressing nature of the climate emergency. From an intersectional planetary health lens, our research begins from the starting point that the climate crisis is also a public health emergency.[1] Extreme weather events attributable to climate change are becoming commonplace.[2] These events often leave people scrambling to respond and public officials in a reactive management mode. Prevention, planning and preparedness all too often become afterthoughts. This unsettling scenario is increasingly true with the intensity and unpredictability of environmental hazards. A prime example was the June 2021 extreme heat event, dubbed the “Heat Dome,” that impacted British Columbia (BC). In one week, there were 619 deaths from heat stroke and other heat-related illnesses caused by sustained high temperatures.[3]

Most who died were elderly or had other determinants of health that made them vulnerable to heat. This event occurred within the polycrisis of the COVID-19 global pandemic. There was tremendous pressure on health and emergency response structures during this time. There have been meaningful and important changes in the public health and emergency response sectors throughout British Columbia since the Heat Dome event. This pilot study sought to illuminate stories of experiences from those leading their communities through varied extreme weather events, such as flood, fire, smoke, and extreme cold. With the direct ecosystem impacts of these extreme weather events and the increasingly documented human toll of community health and wellbeing, this is an urgent matter of human and more-than-human concern. In addition to the direct ecosystems impacts of extreme heat events, heat-related crises, such as drought, wildfire smoke and food systems die-off also have an increasingly significant impact on community health and wellbeing. This is an urgent matter of human and more-than-human concern.

During the 2021 Heat Dome event, many cities saw a marked increase in emergency room visits, communications between individuals and emergency services, the dispatching of emergency resources, and sudden deaths reported for investigation by coroner services.[4] While these infrastructures are considered during emergency event planning, it is difficult to accurately determine the potential impact on these socio-physical infrastructures during an acute or polycrisis event during the planning phase.

BACKGROUND

Often information about the impacts is not clearly understood until some time has passed (if at all) in the post-disaster accounting. In many instances, communities may not even have the resources to adequately account for the overall and multi-sector impacts of a disaster event and, in some cases, a new crisis is already arising that takes the focus from the post-disaster assessment that could properly inform future planning

These are often under-acknowledged infrastructures that are impacted during an extreme event. The physical infrastructure of medical systems can be disrupted because of the climate event (i.e. flooding, fluctuating power, overtaxed HVAC systems, etc.).[5] Social infrastructures are also disrupted by the realities of staff shortages, supply limitations, and overburdening the typical operating procedure as a result of the higher volumes of patients.[6] This context informs our interpretation of avenues to cultivate more caring, democratic, and deliberative policy engagement on this topic, as we seek to improve community and public health outcomes alongside enriched policy and governance processes.

An equity-informed, intersectional planetary health lens is critical to better understanding this issue so that policy makers can improve public health and emergency management recovery, response, and planning. An intersectional approach informs this research project to offer guidance on how to better prepare for these events and plan for protecting those most vulnerable to negative health impacts.[7] The approach intentionally engages the perspectives of community leaders, such as emergency coordinators, from across the Province of British Columbia that represent directly affected communities.

Policymakers are brought to the table to serve as listeners in an effort to emphasize on-the-ground perspectives. The primary goal of this approach is to increase policymakers' abilities to listen and learn from the lived experiences of community leaders while collaboratively working toward a greater potential to improve health equity outcomes for those most vulnerable to extreme weather events. The findings are relevant for local, provincial and Indigenous governments and across jurisdictions in British Columbia specifically, with application across Canada and around the world.

RESEARCH QUESTION AND OBJECTIVES

Provided by the Ministry of Health, the guiding research question that informed this initial research is: **What factors prevent or enable equitable access to community-based resources (e.g. cooling centres, clean air spaces) to protect public health during extreme weather events (e.g. extreme heat/cold, wildfires)?** Our research team interpreted this research question in a number of ways to arrive at the study objectives and methodology.

Seeking to understand broadly the potential impacts on government and the well-being of humans residing within British Columbia during an extreme weather event, we approached the concept of public space from a multi-type perspective. We broadly define these public spaces as any space that someone requires or could benefit from access to during an extreme weather event. We've chosen the term "shelter" to explore these public spaces, which could range from open access to public buildings, public parks and recreation areas, emergency shelters managed for the purpose of an acute extreme weather event, and/or homes to provide an opportunity to shelter-in-place when ordered by the government. This question also gave rise to many important questions about "vulnerable communities" which we've chosen to interpret as any kind of vulnerability that might occur during an extreme weather event. This supported our work by affording us the ability to discern beyond a binary of resilient vs. vulnerable when it came to community members. Thus, during certain types of extreme weather events some individuals are more vulnerable depending on the precarity of their living situation, their cultural needs (language, foods, etc.), the season of their life (pregnancy, childhood, postpartum and/or lactating, senior, etc.), access to transportation, access to community care, physical or mental ill-health, disabilities, etc. We sought to understand these needs from a bottom-up perspective, prioritizing local and municipal-level community workers, whether volunteer or paid, who respond during extreme weather events.

Concerned with how extreme weather-related crises in the past have caught many communities and governments off-guard, this investigation aims to allow government bodies, health authorities and service providers to better understand the experiences of extreme weather events and design better policies and programs to help vulnerable residents prepare for, respond to and recover from these events. We acknowledge for the purpose of this work that these extreme weather crises result in significant, direct and indirect, negative health outcomes. We believe strongly that these local community leaders are the best suited to detail the impacts of extreme weather events and related barriers to well-being and health because they are also directly impacted by the policies that govern extreme weather events. The ultimate aim of this research is to continue to better equip governing bodies to be prepared for the climate crisis and associated health impacts from an intersectional lens.

METHODOLOGY

Specific objectives include:

1. Enriched understanding of the public health impacts of vulnerable populations when seeking access to public shelter during extreme weather events; 2. Informed policy-makers about the lived-experiences, perspectives and voices of those often marginalized from decision-making processes during extreme weather responses; 3. Provision of guidance and recommendations about strategies for improving access and governance of extreme weather response for those most vulnerable.

Guided by community-engaged research methodologies and a participatory action, design justice lens, this study applied a mixed methods research approach. Our team initiated a survey to reach emergency coordinators and community leaders during extreme weather events across the province of B.C. (See Appendix A). Our team distributed surveys based on a database we generated of publicly available information, through networks affiliated with members of our Advisory Circle, along with emergency management and public health networks. Recruitment followed ethical approval from the University of Victoria and RISE harmonized application processes in partnership with regional health authorities across the province.[8] The survey was open from March 15th-August 1st 2025. Our participant list held 415 individual email addresses for persons or positions across B.C. Recruitment emails for the survey were sent out once in late March 2025 and again in July 2025. Our survey response rate was N=99 at a response rate of roughly 24% of the targeted participation number ($99/415 = .239$).[9] The eligibility requirements included being a resident of B.C., over the age of 19, and a local emergency management leadership role (See Appendix A).

KEY METHOD	QUANTITATIVE/ SURVEY	DATA / OUTCOME
<ul style="list-style-type: none">Province-wide survey distributed to 415 emergency coordinators	<ul style="list-style-type: none">See Appendix A	<ul style="list-style-type: none">N= 99

KEY METHOD	QUALITATIVE/ CONVERSATIONAL	DATA / OUTCOME
<ul style="list-style-type: none">Key informant interviewsClimate CARE CirclesCARE Assembly	<ul style="list-style-type: none">See Appendices B-D	<ul style="list-style-type: none">3 regional experts5 in-person (1) and online (4)Day-long facilitated gathering

METHODOLOGY

The survey held four (4) sections, categorized as: (1) Background and Demographics; (2) Experience with Extreme Weather Events; (3) Communication; (4) Strategies for Change. There was also an invitation to receive a follow up email for further discussion, upload archival materials (i.e. image, audio recording, short video, journal reflection or artworks related to your experience of extreme weather events in British Columbia), and an opportunity to enter a draw for a small gift certificate. The survey primarily used multiple choice response entries with 'other' additional comment options for most questions and open-ended dialogue boxes to expand on section topics within each category. Survey respondents self-identified as local emergency management leaders in the face of extreme weather events, which spanned positions from municipal, provincial, regional, and indigenous government, non-profit, corporate, and multijurisdictional emergency management organizations.[10]

Simultaneously to the open survey, our team also conducted three key informant interviews with public health and emergency management experts, representing diverse urban, rural and Indigenous communities. We also convened in-person and virtual Climate CARE (Community Actions and Responses to Extreme weather events) community conversation circles, which took place in Kelowna (Interior Health/Okanagan) and several virtual gatherings focused on Island Health and Northern Health. A facilitated conversational approach guided the conversations (See Appendix B). Through this combination of quantitative (survey) and qualitative (conversational) research and data collection, we sought to listen to the voices and perspectives of those with frontline, first-hand experiences of responding to extreme weather events across the province, as a way of sharing stories, learning from one another and improving policy for more equitable and socially just outcomes.

METHODOLOGY

To further address this global issue in a localized manner, researchers and community leaders came together with policymakers at a Climate CARE Assembly in May 2025. This gathering complemented the on-going mixed-methods study. As an exercise in deliberative policy making,[11] the CARE Assembly utilized a facilitated approach with support from the SHIFT Collaborative (See Appendix C)[2] and brought together participants from diverse health authorities (including FNHA and regional authorities in the province such as Northern Interior and Island Health), policymakers across levels of government (municipal, regional, provincial, federal, and Indigenous) along with invited community leaders to co-create policy-oriented recommendations for decision-making based on the research results (See Appendix D).

Data sources reviewed for this research include the quantitative and qualitative (i.e. comments) from our survey, transcripts from conversation circles, interview transcripts, and notes from the Climate CARE assembly. We used NVIVO to organize and review the data, organized along five overarching themes:

- 1. Shelter-related Public Health Concerns;**
- 2. Socio-Spatial Planning and Infrastructure;**
- 3. Human Resources, Staffing, and Workforce Capacity;**
- 4. Communications; and**
- 5. Governance.**

Each are examined from an intersectional, planetary health lens, with attention to: equity, vulnerability, access, diversity, collaboration, and engagement in public health and policy outcomes. The next section explains our results with evidence from the transcripts in quotation form along with survey results (See Appendix E).



**Image of CARE Assembly gathering,
Esquimalt Gorge Pavillion, May 16th 2025**

RESULTS & DISCUSSION

In the past five years, survey participants noted experiences with extreme heat (92.9%), wildfire exposure (85.7%), extreme cold (63.1%), wildfire (63.1%), drought (56%); flooding (47.6%). Less than 15% experienced earthquakes or 'other' described as high winds, extended power outages, housing crisis that strains existing shelter space, landslides, severe storms, flash flooding, road closures due to wildfire, and bomb cyclone (Figure 1, See also Appendix E).[13]



01 — Shelter-related Public Health Concerns

Our research illuminated three areas of distinct public health concern related to shelter: i) supporting the situated vulnerabilities of community members in shelter settings or when seeking shelter; ii) short-term shelter needs related to overall well-being; and iii) long-term displacement.



02 — Socio-spatial Planning and Infrastructure

This theme illuminates issues related to accommodation and accessibility, with a particular emphasis on cooling/warming centres, mobility, safety, hours of operation, how to create welcoming environments, physical design, social trust, and service integration.



03 — Human Resources, Staffing and Workforce Capacity

This theme reflects data related to administration and human resources, such as training, staffing, burnout, inter-agency collaboration, and volunteer networks, all of which affect workforce and capacity considerations.



04 — Communications

The topic of communication and public engagement included a discussion of how trusted messages are conveyed, who are trusted messengers, information access, outreach methods, and timing.



05 — Governance

This research further unpacked the complexities of roles, responsibilities, coordination across levels, avenues for accountability, emergency plans, risk assessments, early warning systems and community readiness. We suggest that collaborative governance and collaborative emergency management is needed, but not necessarily working in practice. This is in part due to role confusion.

RESULTS & DISCUSSION



01 — Shelter-related Public Health Concerns

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Climate change causes increased extreme weather events such as flooding, storms, drought, and wildfire. These events are increasing in their frequency, duration, and severity. Moreover, the ecological impacts of climate change are increasingly being felt and documented.[14] There are four notably identified categories of public health risks associated with extreme weather:

- (1) physical hazard during the event;
- (2) exposure duration to hazard;
- (3) vulnerability of the individual and community;
- (4) preparedness, management, and recovery capacity from the event.[15]

We acknowledge that vulnerability is nuanced and goes beyond a binary of vulnerable/resilient. As elaborated during our in-person climate CARE circle in Kelowna on April 11th, vulnerabilities are multilayered: “in this world, recognizing like each individual sensitivity is really important to maximizing the services to those individuals.”

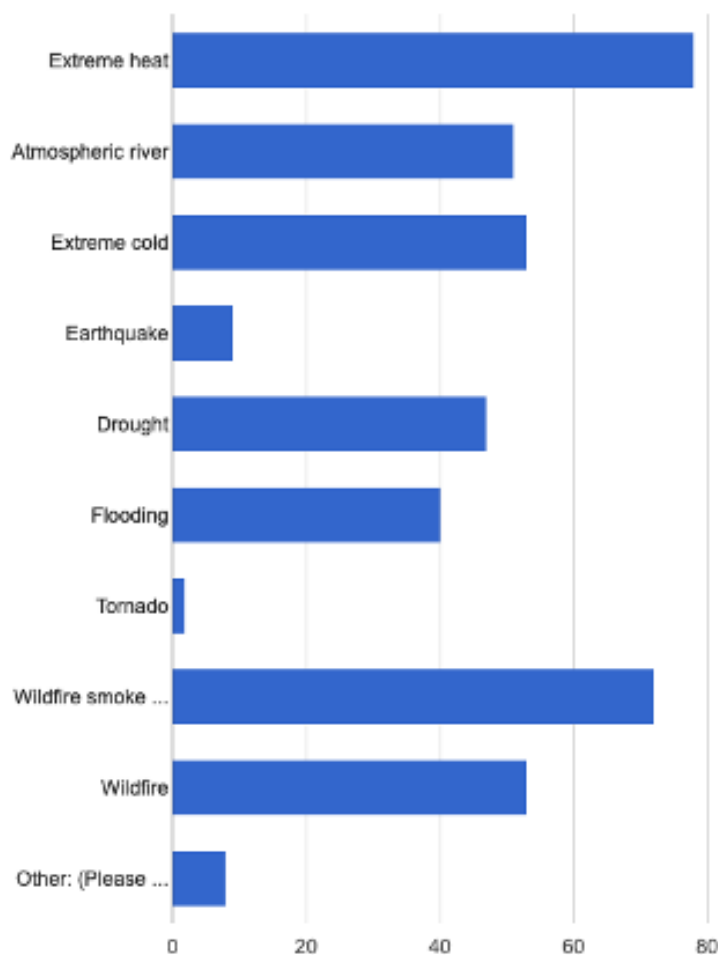
In particular, our research illuminated three areas of distinct public health concern related to shelter:

- i) supporting the situated vulnerabilities of community members in shelter settings or when seeking shelter;
- ii) short-term shelter needs related to overall well-being; and
- iii) long-term displacement.

Responses from this early question (Figure 1) provides a glimpse into an overarching theme that came up repeatedly in the varied datasets: the climate emergency is a public health emergency and a polycrisis. As Research Scientist Maggie Leon-Corwin stated at the 2025 Natural Hazards Conference: “Disaster is a stress test for our social systems.” The question is, how are we doing?

FIGURE 1

Bar chart depicting the extreme weather events survey participants experienced in the past five (5) years. (Survey conducted spring/summer 2025).



We emphasize in this report and across the central themes identified, a strong call for more collaboration, decreased siloing, and improved social and physical infrastructure to support the ongoing and increasing need for emergency planning, acute response, and long-term recovery.

RESULTS & DISCUSSION



01 — Shelter-related Public Health Concerns

Our research illuminated three areas of distinct public health concern related to shelter: i) supporting the situated vulnerabilities of community members in shelter settings or when seeking shelter; ii) short-term shelter needs related to overall well-being; and, iii) long-term displacement.

Acknowledging these nuances is vital to an intersectional planetary health lens.

i) Vulnerable populations and shelter access during extreme weather emergency events

As a key informant from Interior Health noted in their interview (March 24th, 2025) a useful definition of vulnerability during an emergency event is “dimensions of exposure, sensitivity, and adaptive capacity.” They go on to describe:

...who is most exposed, who is most sensitive...psychological sensitivity, but also geographic sensitivity or socioeconomic sensitivity to the hazards...and then the adaptive piece...what is in place – what resources, what services, what infrastructure – exists to help people respond and adapt...it varies from hazard [to hazard].

Guided by our intersectional lens, we noted that many populations with particular, situated needs (i.e., unhoused, culturally specific needs, mental health, disabilities, etc.) require additional support and care. In particular, cultural safety is a theme that rose up many times. Again, those with special needs during an emergency event(s) must be considered as more vulnerable from an infrastructure perspective as well. The literature demonstrates that those with existing mental health concerns are acutely vulnerable during a disaster event, because it can be dysregulating.[16] Infrastructure related findings demonstrated compassionate care opportunities for those with specific cultural foodways or needs for culturally-specific care and community during an event. In both cases, pre-organized social infrastructure could be arranged, allowing communities and individuals to plan for where is best for them to go during an emergency event.

RESULTS & DISCUSSION



01 — Shelter-related Public Health Concerns

Our research illuminated three areas of distinct public health concern related to shelter: i) supporting the situated vulnerabilities of community members in shelter settings or when seeking shelter; ii) short-term shelter needs related to overall well-being; and iii) long-term displacement.

From a cultural perspective one community leader from the Interior Region (April 11th, 2025) described that the messenger really matters, especially when working with First Nations communities. For example they shared that during a particular evacuation many residents “refused to leave because the people that were designated [to] tell them to leave” were the RCMP. The trauma of having this group who had been a part of taking children from these communities, some of whom were the same people now being asked to evacuate, did not result in the evacuations happening.

Another participant from the Interior Region (April 11th, 2025) detailed the complications arising with supporting unhoused persons in their community stating: “We have resources, but it’s whether or not politically, publicly, they’re going to be supported as places for people to go.” As such their community is focusing on creating places of shade and setting up spray fans. They’ve also been working on getting air conditioning into existing and new shelters.

i) Short-term shelter access and well-being

Our research noted issues arising related to short-term shelter needs and availability. Survey respondents reported having to evacuate during an extreme weather event: 38.6% stated the communities they serve, with an additional 4.8% saying they alone (not their community) or 3.6% stating they and their community had to evacuate (See Appendix E). A sizable number also stated that they (3.8%) or their communities (23.8%) or both (8.8%) have had to shelter in place during an extreme weather event. A participant from the Interior Region shared from their many years of experience (April 11th, 2025) that “communities being evacuated...that sense of calmness with the community, know that somebody in the community that understands them has had a huge positive effect on their level of preparedness, their mental health.”

RESULTS & DISCUSSION



01 — Shelter-related Public Health Concerns

Our research illuminated three areas of distinct public health concern related to shelter: i) supporting the situated vulnerabilities of community members in shelter settings or when seeking shelter; ii) short-term shelter needs related to overall well-being; and iii) long-term displacement.

This informant described the way their community accessed resources through preparedness techniques stating:

We did lots of prep, preparation and preparedness planning with the communities prior. So many of them were actually fine during the evacuations. They took what they thought they needed with them. They had games and food and traditional food. I went to the point where I did workshops on preparedness kits and how to make them more traditional by adding our food to it.

i) Long-term displacement and shelter post-disaster

Issues arose related to long-term post-disaster housing and stabilization. Attention to Mental health must be core to this work and research moving ahead. In the words of one community leader from the Island Health region, this means connecting lived-experiences to policy and practice (May 8th, 2025): “by engaging with that information and those people with lived experience. We're able to kind of get a better idea of what that looks like, what that feels like.” And further, as one Northern Health leader explained (April 30th 2025):

I have seen the large kind of like chaos, and affects the mental health on the community themselves, and it kind of seems that people are more interested in learning more about fire smart program in particular, when there's wildfires and things nearby, and it seems like very chaotic and last minute, and I'm trying to encourage more preparation and advanced learning about things like that where it seems like people are just kind of panicking, and then kind of not focusing on the things that we're trying to educate them on. So it's a really interesting balance of preparation, and then supporting people with their mental health and things during extreme weather.

RESULTS & DISCUSSION



01 — Shelter-related Public Health Concerns

Our research illuminated three areas of distinct public health concern related to shelter: i) supporting the situated vulnerabilities of community members in shelter settings or when seeking shelter; ii) short-term shelter needs related to overall well-being; and iii) long-term displacement.

These issues are further iterated by another community leader in the Northern Health region (April 24th, 2025) who described the experiences of some members in their community:

She was stuck up there for probably a month, and it was really tough, because financially like, no, there was no help, and I guess eventually they were able to apply for the Red Cross...It was really tough...and we were able to gather up some funding for her so she can make her way back into [location] from the beginning...and then I had another [family member] who was caught between [location] and [location]...he got shipped to [location]. Everybody got totally separated and then with him he was lucky he had a credit card, so the family he was with didn't have any funds, so they had to rely on him for his credit card. So he maxed that right out during those times and then soon as the roads were open, everybody just came home...they couldn't wait to come home.

This example demonstrates the reliance on private financial means and relationships during long-term, post-evacuation displacement. Public health concerns related to shifting into precarious or unhoused status should be considered in these cases because of the financial obligations needed to support long-term displacement, even if eventual funding is provided by reimbursement by an NGO or other social safety net. In addition, the availability of shelters of all types is an ongoing concern for many of the participants interviewed for this study.

RESULTS & DISCUSSION



02 — Socio-spatial Planning and Infrastructure

This theme illuminates issues related to accommodation and accessibility, with a particular emphasis on cooling/warming centres, mobility, safety, hours of operation, how to create welcoming environments, physical design, social trust, and service integration.

As one public health key informant from Northern Health explained, shelters should aim to be: “places for people to feel safe, to feel that warm embrace, to feel that there's a place that they can thrive in” (July 29th, 2025).

Creating this kind of warmth requires careful policy, design and planning. In their words, this means: “creating these pockets, or even like a beauty within those sites. So it's not just like neon lights, and like, overly sanitized. And you know it, that it actually has a bit of a sense of a temporary home, during a really really hard event” (ibid.). This presents an opportunity to collectively visualize what trauma-informed design looks like when considering public shelter during extreme weather events. It invites questions such as: “what does it look like to create a sense of ‘home’ in these public shelters?” Such sensory attention is vital to creating safe and welcoming spaces during potentially traumatizing events.

Moving forward, it is critical to learn from past events, which may have had traumatic impacts. As one Indigenous leader from the Interior region noted, this requires asking vital questions, and planning for the future, such as: “How do we take people in and not re traumatize them from that?” And moreover: “how can we do better in the future?” (April 11th, 2025).

RESULTS & DISCUSSION



02 — Socio-spatial Planning and Infrastructure

This theme illuminates issues related to accommodation and accessibility, with a particular emphasis on cooling/warming centres, mobility, safety, hours of operation, how to create welcoming environments, physical design, social trust, and service integration.

In addition, a quote from an emergency coordinator in the Interior region details well a larger question of structural support and much-needed flexibility, especially for smaller communities. When a community is in the midst of a crisis event, the protocols for care should already be in place so that the leaders can focus their energy and resources on supporting the community. However, because many communities don't have the resources and the expertise to prepare beforehand for an event, they often do not have the staff trained and equipped to serve complex community needs, and their infrastructure is not ready for use during an event:

**...our smaller communities they don't have the budget to do prep work like it's not in their budget to like preset up a cooling space, a clean air shelter, whatever warming shelter. So they have to rely on EMCR for funding, and that funding is not released until the event is upon us, so they can do their best to utilize existing infrastructure and programs like I spoke about like extending hours of a pool, or like opening the skating rink during the summer. But the problem often is..like there isn't staff available to keep those open for extended hours, or a lot of the infrastructure is also aging. And so there they might not have, like the proper HVAC, that even for it even to be like a cool or clean air space or there's just like, isn't that much public infrastructure like some of our communities like maybe have like one community center that's like an old building in a field, you know, like there's not like this plentiful, plentiful public infrastructure.
(Emergency Coordinator, Interior Region, April 29th 2025)**

RESULTS & DISCUSSION



02 — Socio-spatial Planning and Infrastructure

This theme illuminates issues related to accommodation and accessibility, with a particular emphasis on cooling/warming centres, mobility, safety, and social trust and service integration. Participants in the May 16th 2025 CARE Assembly described numerous issues related to infrastructure including but not limited to questions of ownership, investment, funding for and inclusion of organizations supporting populations with specific needs (physical disability, mental health, neurodivergence, cultural, drug addiction, etc.) and a lack of data transparency that can impact the creation of best evidence and support resources for communities. All of these infrastructure issues limit the capacity of emergency response leaders and researchers to plan, prepare communities, and support during and after an emergency event.

Furthermore, during the CARE Assembly, participants expressed a sentiment that the meaningful investment in nature-based solutions was not typically envisioned as a priority. Participants noted that it is often overlooked in favour of “grey, hardscape” traditional and settler style infrastructure investments. Participants also articulated a great need to consider investment and creative solutions for retrofitting or as one person described “[communities are] often working with existing spaces built for a different purpose - so [they] need money but also scalable “retrofit” options that can be quickly deployed.”

RESULTS & DISCUSSION



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This theme illuminates issues related to accommodation and accessibility, with a particular emphasis on cooling/warming centres, mobility, safety, hours of operation, how to create welcoming environments, physical design, social trust, and service integration.

Cultivating avenues for care is vital for creating safe, inclusive and welcoming shelter. As one Indigenous key informant from the Interior region noted (July 17th 2025):

We often get so focused on responding to the immediate crisis that we forget something essential: people need connection. Connection is what allows people to not just survive, but to thrive. When individuals feel supported, seen, and loved, they are better able to contribute in meaningful ways. That was one of the most powerful impacts of our resource—our cooling center—it wasn't just about safety in the moment, it was about creating a space where people could feel cared for.

This kind of care creates a ripple effect. When people feel valued and connected, they are more likely to extend that same care to themselves and to others. Healing and resilience spread outward, touching more and more people in positive ways. That's the deeper impact of doing this work with compassion and intention.

Moreover, creating inclusive infrastructure also requires adaptive and mobile technologies and practices. During the Interior region Climate CARE conversation, one leader noted the need for adaptive shelter and infrastructure such as portable air conditioning and filters in order to be more accessible for those with mobility barriers (April 11th, 2025): “providing the portable air cleaners was specifically for those individuals who couldn't access community cleaner air spaces. So, you know, people are a little bit less ambulatory, or, you know, have disabilities.” This requires thinking creatively about how to shelter-in-place in peoples' homes when they can't easily relocate to public shelter. This topic was also raised during a Northern Health region key informant interview (July 29th 2025) and is evident in the BREATHE project.[17]

RESULTS & DISCUSSION



03 — Human Resources, Staffing and Workforce Capacity

This theme reflects data related to administration and human resources, such as training, staffing, burnout, inter-agency collaboration, and volunteer networks, all of which affect workforce and capacity considerations.

Participants from both the survey and CARE circles drew attention to the need for a trauma-informed approach. As one Indigenous emergency coordinator and community leader explained (July 17th, 2025):

Whether it's extreme heat, cold, or smoke, these events deeply affect our elders and our children. In every situation, there is not only concern for physical safety, but also for the emotional and mental wellness of our community as we move through these challenges. We already know that our world is in crisis—our climate is shifting, and Mother Earth is showing us her response. She is calling our attention, reminding us that we cannot continue in a way that prioritizes consumption and instant gratification over the people that are impacted.

So many in our communities are already struggling with daily crises: the inability to afford food, housing, or power. People are navigating ongoing stress and crisis every day. When an extreme weather event or wildfire is added on top of that, it compounds the burden—layering trauma upon trauma, crisis upon crisis. This reality is heavy and worrisome, and it reminds us why a trauma-informed, compassionate approach to community care and preparedness is so critical.

RESULTS & DISCUSSION



03 — Human Resources, Staffing and Workforce Capacity

This theme reflects data related to administration and human resources, such as training, staffing, burnout, inter-agency collaboration, and volunteer networks, all of which affect workforce and capacity considerations.

The theme of burnout appeared in the survey and multiple times during the CARE circles and Assembly. As one key informant emphasized: “everyone is stretched. Then everyone’s dealing with concurrent emergencies.” Those surveyed stated that their health had been increasingly impacted in the past five years because of extreme weather (Figure 2). This data is triangulated with information from a key informant from Interior Health (March 24th, 2025) who states:

We hear a lot about the burnout that is happening among those who are directly responding...clinical operation directors, who [have] to make very complex decisions – resourcing or evacuations, whatever – during those events...We also heard about burnout ... at a community member level...personal burnout over decision making like...to go outside for a hike when the air quality might be poor, but knowing that it will be better for my mental health if I’m able to get outside...eco-anxiety or eco-grief.

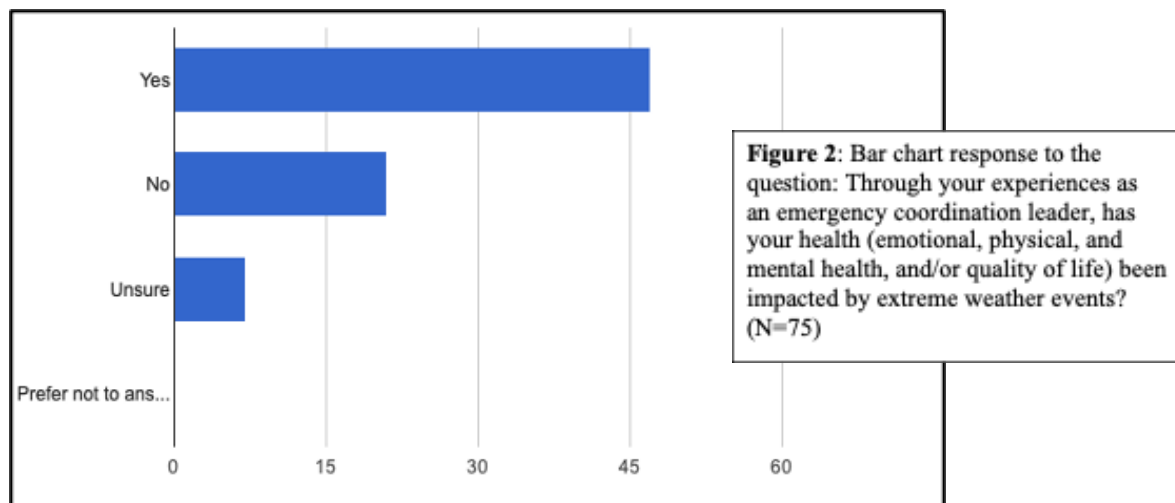


Figure 2: Bar chart response to the question: Through your experiences as an emergency coordination leader, has your health (emotional, physical, and mental health, and/or quality of life) been impacted by extreme weather events? (N=75)

RESULTS & DISCUSSION



03 — Human Resources, Staffing and Workforce Capacity

This theme reflects data related to administration and human resources, such as training, staffing, burnout, inter-agency collaboration, and volunteer networks, all of which affect workforce and capacity considerations.

There is a great need to think strategically about co-benefits in multiple policy domains, including health, emergency, housing and transportation. A community leader from the Interior Region (April 11th, 2025) described one way in which they deal with this issue and that is creating redundancy in their operations. "I don't know if I'm going to be here forever, so I've already taken a couple of people under my wing and [am] bringing them up to speed...essentially succession planning... because when somebody, even if I'm just on vacation... it just ensures that even while I'm here, somebody is in community, able to do the work, start up the plan, and do what's necessary to protect the community."

Cultivating community is vital to addressing capacity during emergency events. As one survey respondent noted regarding the importance of building social connections: "it's not what is in your emergency kit, it is WHO is in your emergency kit." In addition, funding must support human resources capacity beyond piecemeal approaches, and community supports or grants. At the CARE Assembly (May 16th, 2025) one participant shared that what is desperately needed "is financial support to NGO's [Non-governmental organizations] and CBOs [Community-based Organizations] is to be able to do this work in a sustained fashion [which] requires moving beyond project funding models." Another shared that there is "budget cycle misalignment because municipality vs. funding agency - winter is more ideal."

Furthermore, support from the non-profit sector requires further acknowledgement and support. Notably, there is great reliance on the non-profit sector to fill gaps for care, especially specialized care for certain vulnerabilities during a disaster event. While this type of specialized support is meaningful, important, and even necessary – there are disconnections in the structure by which these critical personnel are incorporated into the overall pre-event planning and implementation of support during an event.

RESULTS & DISCUSSION



03 — Human Resources, Staffing and Workforce Capacity

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As noted by one participant:

...a lot of the support that people receive at a local level is going to be from community social services. Which deliver most of the services that that people receive for a variety of intersectional issues that overlap with the effects of climate disasters. (Emergency Coordinator, Island Health region, May 8th, 2025).

Many community leaders, especially from smaller communities, described even further that these non-profit organizations not only provide support for specialized community needs, but they often provide the staffing, care-giving, and material resource during and after a disaster event. Without this sector, many smaller communities would not be able to provide any of the necessary care during and after a disaster event. This sector has extreme limitations in their budgets and access to funding. All too often, emergency coordinators feel as though they are taking on multiple jobs at once.

Finally, this theme draws attention to additional need for further training of emergency coordinators and community leaders. As one Indigenous leader from the Interior Health region noted related to a recurring problem, they observed a: “lack of cultural sensitivity or awareness of many people in emergency management roles and a bit of a organizational cultural disconnect, maybe, and that lack of sensitivity awareness to be aware of” (April 11th, 2025).

Some participants expressed how passivity and complacency became apparent when certifications and training were not up-to-date with new research and best practices in emergency management, which often resulted from a lack of integrated and innovative approaches based on emerging research.

RESULTS & DISCUSSION



04 — Communications

The topic of communication and public engagement included a discussion of how trusted messages are conveyed, who are trusted messengers, information access, outreach methods, and timing.

We heard that care and consideration for who provides the message and the manner in which it is delivered vary widely from community to community. Information intake before, during and after extreme weather events can be overwhelming. In the words of one key informant (July 29th, 2025):

There's so much information out there that I think not one human can take it all in. And so policymakers are like kind of like acting as a bit of a filter, and they're filtering in what information they can glean, and like. What are the like seminal resources that are like coming like slapping them in the face to consider. And it's kind of overwhelming.

Moreover, a barrier that we heard, especially from remote communities included the lack of telecommunications/internet, and barriers for reaching elders and seniors. Many rural community leaders detailed the limitations to access, in particular internet. During an emergency event, the issues associated with these limitations intensify, leaving many community members stranded from important and factual information for their safety:

**...we just recently started...we never really all had access to Internet....You know, we all lived off of the landlines and they just recently took that out. So not too many people have any landlines left...communication wise, it's really difficult unless you have access to the internet...you really need wheels out here to just communicate with our elderly out here.
(Emergency Coordinator, Northern Region, April 24th, 2025)**

RESULTS & DISCUSSION



04 — Communications

The topic of communication and public engagement included a discussion of how trusted messages are conveyed, who are trusted messengers, information access, outreach methods, and timing.

Furthermore, we note that public engagement is needed well before an emergency occurs. Persisting questions arise when considering effective communication strategies for the public during a crisis event. Those that arose in small group sessions included considerations of audience, location of information, format of information, and isolation, stigma, and specialized care considerations, such as: critical medication access, care for those with substance abuse disorders, mental health considerations, and those who are unhoused.

In addition, the need for multimodal communication is apparent. Some of the community leaders described skepticism from their neighbours about the information provided. Government websites were sometimes described as not user-friendly or accessible or clear in their language. At times, folks found social media platforms more accessible and their neighbours more trustworthy. This can lead to discrepancies in the necessary information to support community members during an extreme weather event.

In sum, person-to-person support structures are still one of the most meaningful ways in which gather and trust information. Though telecommunications are more efficient, it will be worthwhile to consider ways in which training and support structures can include community leaders of all types in an effort to ensure more people have correct and helpful information and can serve as a trustworthy point of contact during an extreme weather event.

RESULTS & DISCUSSION



05 — Governance

This research further unpacked the complexities of roles, responsibilities, coordination across levels, avenues for accountability, emergency plans, risk assessments, early warning systems and community readiness. We suggest that collaborative governance and collaborative emergency management is needed, but not necessarily working in practice. This is in part due to role confusion.

As one key informant noted, much more care and attention it needed in the recovery aftermath of extreme weather emergencies: “there's a real gap in like long term supports to truly recover. And I think that needs a lot of more care and intention and attention. To that domain when thinking of the Sendai framework of, you know, for emergency management” (July 29th, 2025).

Furthermore, governance is relational work. It requires patience and taking time to build relationships between diverse parties and governing bodies. As one Indigenous community leader remarked (Kelowna Public Library, April 11th 2025):

Building relationships is slow, patient work: “takes a lot of work. It takes time, because there are some really fractured, broken relationships with the city. So it's not a city relationship, it's a personal relationship. So yeah, it comes down to building authentic relationships and taking care of the people that need it the most.

Some of the major barriers identified during these events by participants are: the lack of clear roles and responsibilities within the government; the lack of time for meaningful work to better prepare for emergency events; siloing of different departments with different workloads, responsibilities, and agendas; colonial systems, context and world views; limited to no understanding of or training in intersectional approaches to governance; a lack of diversity within emergency management and historic ties of emergency management approaches to military; and further, limited to no information sharing between different agencies.

RESULTS & DISCUSSION



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This complex policy governance challenge is highlighted well by one community leader from the Interior Health region:

**It's very difficult, like even to get an [EMCR task] number. This is something I ran into this year for the extreme cold...there's a lot of bureaucracy that's within it, and you got to do this and check this box and check that box and, well, even if you do that, you might not actually get covered...I've heard similar to that... both federal for First Nations and provincial, is that it's very much left up to the community to figure out and kind of guess, a lot of guesswork on those bureaucratic pieces of paper...
(Emergency Coordinator, Interior Region, April 11th, 2025)**

Moving forward, we are committed to the continual movement towards supporting collaborative avenues for government and management. This requires not simply defining the problem as a governance gap but rather finding avenues to enable pathways towards “collaborative care”.^[18]

On collaborative care, there is much to learn from Hawai'i, as an international example, which offers a community mapping of networks to build capacity, especially important during emergency and in the aftermath of extreme weather events. Finally, this also requires collaboration and working together across silos, including at the community, regional, Indigenous, provincial and federal levels of government and governance.

RESULTS & DISCUSSION



05 — Governance

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A transformative governance approach is needed. As elaborated at the May 16th Climate CARE Assembly:

One of the things around the policy levers that was kind of central to our conversation was around really utilizing that after action review process to inform what future policy and supports for staff look like, so figuring out what kind of like centralized body can become accountable for the collection of those type of after action reviews and debriefs from different types of incidents to make sure that they're identifying what commonalities look like between them and how those can be redistributed back out to local governments that operate EOCs or other provincial response teams to make sure that they're actually learning those lessons and embedding them in terms of policy levers as well, we talked about very clear job descriptions.

As a result of these conversations and deliberations, we discussed the need for more centralized coordination, and spaces for policy listening. This can translate into formalized debrief sessions where policy learning takes place, and informs future anticipatory planning for extreme weather events. The Climate CARE Assembly (May 16th, 2025) convened a mini-public deliberative forum to discuss these issues, and participants expressed a desire for ongoing, continuous discussion through cultivating a community of practice, with policy, research and community perspectives coming together.

DISCUSSION

CLIMATE CARE VISUALIZATION



Image created by Lakshyata Kumari for the
CARE Assembly, May 2025

DISCUSSION

Moving forward for collaborative emergency management, governance and policy co-design:

This project sought to enhance an understanding of how residents encounter extreme weather events in order to ultimately co-create policy recommendations for implementation in the Province of B.C. An intersectional, planetary health community development approach that grows from the bottom-up is core to the success of this collaborative planning moving forward. As one key informant explained at the May 16th Climate CARE Assembly, this means asking about the meaning of:

ABC: asset based community development. So who are we going to involve from the community in the conversation, everyone sitting at the table has a gift. What is that gift? How can we understand that gift? And how can those gifts contribute to a collective effort, looking at social capital, looking at infrastructure, looking at how we can be really thoughtful about understanding what unique gifts and assets exist in community and how we can collectively pull those together for a stronger and more profound impact that will have benefits when emergencies come, will have benefits to reduce burnout and just engage more people in the work.

DISCUSSION

Through deliberative policy analysis and community-engaged research, this project makes informed, evidence-based policy recommendations based upon learning from research participants about what worked and didn't work in previous crisis events.[19] We do so by connecting stories to policy, amplifying participant voices, and elevating the importance of statistical and storied findings for improved policy outcomes. We sought to do so by working directly with health system representatives, impacted community members, and researchers who understand the governance ecosystem for extreme weather response in British Columbia. It is our intent that this will ultimately lead to the creation of dynamic strategies for action and improve community health outcomes.

Of note, participants suggested focusing attention on the processes by which governance occurs, rather than strictly policies. They encouraged collaborative learning and training sessions to support practitioners in emergency management. To create climate positive change, as one Indigenous key informant noted: "It's about continuing to show up in these spaces and keeping the conversation alive." (July 17th 2025). Thus, this critical work requires continuous care, connection and conversation. Moreover, it bears repeating: these conversations require connecting lived-experiences – stories – to larger studies and statistics to inform policy. This also arose in conversation with key informants and during the Climate CARE assembly.[20] As one key informant from Northern Health remarked: "the stories are very compelling to not only provide the rationale and reasoning for policymakers to integrate into a better policy and more grounded policy" (July 29th 2025). As they explained further:

You snowball decision makers with a bunch of data, and I think they'll pick up on a few juicy stats and then lose the rest. But you tell them an inspiring story or a profound story of ways that we need to correct and modify our response mechanisms. I think that it holds so much more weight.

CONCLUSION AND CONTRIBUTIONS

Care for communities during emergencies related to extreme weather events spans across institutional barriers and requires systems level policy analysis from an intersectional planetary health lens. This multifaceted policy field is being addressed by a range of actors, such as large and small non-profits, nongovernmental organizations, government departments, and person-to-person support. Affected regions at times find more support during the acute stage with little meaningful and impactful funding/staff support for long-term planning or rebuilding efforts.

Many participants described emergency prevention as an afterthought. These intra- and inter-institutional complications stretch into every aspect of care, provision, and planning with their fragmented jurisdictional “ownership” models and transference of responsibilities. Even during an event, the blurred lines of responsibility muddy the ability of some jurisdictions to discern if they are “technically” in a disaster event. The alert messaging is at times experienced as inconsistent, for example with differing temperature thresholds that trigger a community to action and allow them to receive their “task number” – thus allowing access to funding mechanisms to support the community to care-give and respond to an acute event.

Different types of extreme weather, seasonality, and inter-personal conditions are also mean that definitions and experiences of vulnerability are in constant flux. The result of which is that those who may be vulnerable during a specific extreme weather event may not be defined as such or perceive themselves vulnerable, thus creating a barrier to necessary care during an event. These shifting definitions make the creation of coherent and responsive policies very difficult. Non-governmental agencies and organizations are perhaps best suited to fill in this gap of vulnerability.

CONCLUSION AND CONTRIBUTIONS

Many participants shared that there is a great reliance on non-profits during all phases of disaster management. These organizations often step in during events in an ad hoc manner. The nature of their work brings them into closer and regular contact with the public, especially those with situated needs or vulnerabilities. There is a great need to include these organizations more considerately during the pre-event planning in order to provide them with government-issued resources at the time of an event. This would allow for policies to look beyond the vulnerable/resilient binary and support a more holistic approach to creating policies for the disaster management cycle.

In terms of methodological practice and innovation, the Climate CARE Assembly engaged in a practice of policy listening, as our team shared preliminary results from the research. Together, in a deliberative format, we brought together experts and coordinators from across the province to discuss multifaceted issues related to access to public space and safe shelter during extreme weather events. We convened community leaders, policymakers and regional public health representatives, and co-developed policy-oriented guidance for decision-making that target multi-jurisdictional actors, as elaborated further in this report. The methodology that guided this assembly stems from a design justice approach that emphasizes intersectionality and participatory action research.^[21] We aim to contribute to this scholarship by also grounding our research practices in an ethic of care. Some key contributions of this intersectional, multifaceted planetary health-informed research are elaborated further below.

CONCLUSION AND CONTRIBUTIONS

CARE, DELIBERATION AND LISTENING AS ESSENTIAL INGREDIENTS OF RADICAL HEALTH POLICY-MAKING IN PRACTICE:

Creating accessible and inclusive spaces for listening across different perspectives, i.e. community leader, policy-maker and researcher, can be understood as a radical political and democratic act oriented to “fierce listening”, with care at the centre which is core to this intersectional and equity-informed approach, to be advanced through this project and assembly.[22] Thus, the Climate CARE Assembly sought to include some presentations by members of the research team as well as community leaders, include an opportunity for large and small-group discussion and guidance for the co-creation of a CARE implementation plan.

COMMUNICATION AND KNOWLEDGE MOBILIZATION FOR DIVERSE AUDIENCES IS VITAL:

By bridging communication, policy and planning gaps for equity-informed extreme weather response and planning, this project further aims to mobilize knowledge. Ultimately, we seek to contribute to the restructuring of governance and policy approaches that allow for the collective envisioning of collaborative futures that are more adaptable for the ever-changing needs of communities during a climate emergency when faced with extreme weather events. In order to appropriately and meaningfully mobilize the knowledge of those most directly affected by extreme weather events one must critically examine the core relationships between the relevant environment, health and emergency response institutions in British Columbia and the people they serve. The audiences vary, so deliverables beyond the academic publication of findings will be tailored for different uses. These audiences will include environmental, health and emergency response government departments, health authorities and academic researchers across British Columbia.

CONCLUSION AND CONTRIBUTIONS

LESSONS LEARNED

Those interviewed for this study have participated in emergency response and public health for many years. Many held senior leadership roles in their respective fields. Statements during the CARE circles and interviews with key informants demonstrate an embodied reality of complex institutional relationships, which become emphasized even more during a time of crisis. There are an abundance of actors and policies working amid an extreme weather event. The personnel and applicable policies shift repeatedly depending on the phase of the disaster a community is in— pre-event planning, acute event, short-term post-event, and long-term rebuilding/preparing for a future event. This can include, but is not limited to, departments of health, environment, emergency services, housing, transportation, energy, business, food services, and the list continues. While this seems to be widely known within the field of emergency management and public health disaster, there are many opportunities to utilise improved, horizontal leadership structures to improve care during extreme weather events.

CONCLUDING REFLECTIONS ON AN EMERGENT POLICY ARENA

Whether discussing a heat dome or atmospheric river, policymakers are compelled to perform a balancing act to determine how best to democratically and meaningfully engage affected publics during urgent, time-sensitive emergency events. With health, environment, and emergency management policy audiences in mind, this research aims to speak truth to power by creating space for multiple sources of evidence in response to the guiding question about what barriers persist for vulnerable groups when accessing public space during extreme weather events. This requires hearing from and listening to those most directly affected. Convening the deliberative CARE Assembly connected the emotional aspects of those with lived experiences to policymaking and governance processes.

CONCLUSION AND CONTRIBUTIONS

CONCLUDING REFLECTIONS ON AN EMERGENT POLICY ARENA

This assembly can be understood as a “mini-public” space whose diverse participants actively engaged in enacting and co-creating avenues for more caring democracies.[23] Implementing a participatory, community-engaged planetary health approach into public health and emergency management policy and practice broadened the focus from an acute and reactive event approach toward a co-designed, more environmentally sustainable health system.[24] In so doing, the Assembly demonstrated a manner of navigating that inclusion can be centered in the development of government systems and across governing bodies, which often operate in silos.

In addition to calling attention to the need for better health data for those most vulnerable to extreme weather events, we centre the voices of those at the frontlines of this contested policy field by learning from emergency coordinators, community leaders, service providers, health authority representatives and policymakers through deliberative practices. This research thus mobilised knowledge concerning extreme weather events and the impacts they have on communities who are most vulnerable. The results emphasize avenues for improved preparedness and management and connected policymakers with community leaders who have direct lived experience of the barriers to accessing to public infrastructure during these events.

As an exercise in “deliberative policy analysis,” our research creates space for the articulation of avenues for agreement and disagreement with respect to the policy field of collaborative emergency management.[25] In addition to circulating a province-wide survey, convening intimate climate CARE conversation circles and a culminating Climate CARE Assembly, an iterative approach to policy deliberation wove its way into the fabric of this research project. Building upon existing studies (see: Works Cited) we continue to urge policymakers, public officials and decision-makers to recognize and incorporate a multiplicity of data sets, including quantitative and qualitative aspects into policy design pertaining to health equity and emergency management moving forward.

PRIORITY RECOMMENDATIONS

Through this research, we noted an arena of significant fragmentation in the operation of governance which requires immediate attention and clarity. The top-down, hierarchical modes of governance are unsatisfactory and insufficient at supporting the needs of those most vulnerable to extreme weather events. This is in alignment with similar reports and opportunities for action detailed, such as From Risk to Resilience: Climate Change and Health in British Columbia (2024) especially Chapter 10. To meaningfully address the persistent barriers in place, we seek to advance several similar recommendations co-designed with participants of the Climate CARE Assembly that follow from the identification of the central themes elaborated in this research. Each of these recommendations is also a call for further research moving forward.



01 — Cultivate avenues for collaborative governance and emergency management.

We call for a critical investigation of the colonial context that shapes this field and the creation of collective, imaginative visioning of alternative possible models of collaborative governance. Diverse contributions can be made by folks who have differing lived experiences and ways of knowing (See: *From Risk to Resilience* 2024, p. 24, 205).



02 — Enrich communication through anticipatory planning and public engagement.

Regarding communication and public engagement, we note the need for more resources allocated for emergency preparation in local communities, not simply in the aftermath of an event. This could be in the form of cohesive standards for indicators and measures of climate health impacts across sectors and throughout the province, in order to continue to improve cohesion in communication strategies and provide opportunities for data-sharing across sectors (See: *From Risk to Resilience* 2024, Chapter 10, p. 205). Improving understanding for community members about population-specific climate risks can enhance the abilities of communities to prepare for climate emergencies when they arise.

PRIORITY RECOMMENDATIONS



03 — Cultural safety is essential for creating healthy, inclusive spaces during extreme weather events.

We encourage policymakers to take into consideration cultural safety to create safe spaces that offer a warm embrace; at present, there are uneven public spaces made available to the general public during such extreme weather events. Volunteers and professionals working in public spaces become a part of the fabric of someone's experience when impacted by a climate emergency. These care providers need specific and meaningful training to provide culturally-safe spaces (See: From Risk to Resilience 2024, Chapter 10, p. 205, pp. 228-229).



04 — Community-centred collaborative care requires administrative support and sustained resources.

These spaces require consistent administrative, human, and financial resources to improve their operations. Those faced with climate emergencies require specialized skills based on 'best practice' training. These trainings can support specialized care for specific vulnerabilities in an emergency event (See: From Risk to Resilience 2024, Chapter 10, p. 205). Many small communities do not have the resources to provide specialized support and will require regular and ongoing resources to gain access to conferences, modules, and workshops to deepen their awareness.

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APPENDICES

APPENDIX A

SURVEY - QUANTITATIVE INSTRUMENT

APPENDIX B

CONVERSATION GUIDE - QUALITATIVE INSTRUMENT

APPENDIX C

CLIMATE CARE ASSEMBLY FACILITATION GUIDE

APPENDIX D

CLIMATE CARE ASSEMBLY AGENDA

APPENDIX E

SAMPLE SURVEY RESULTS