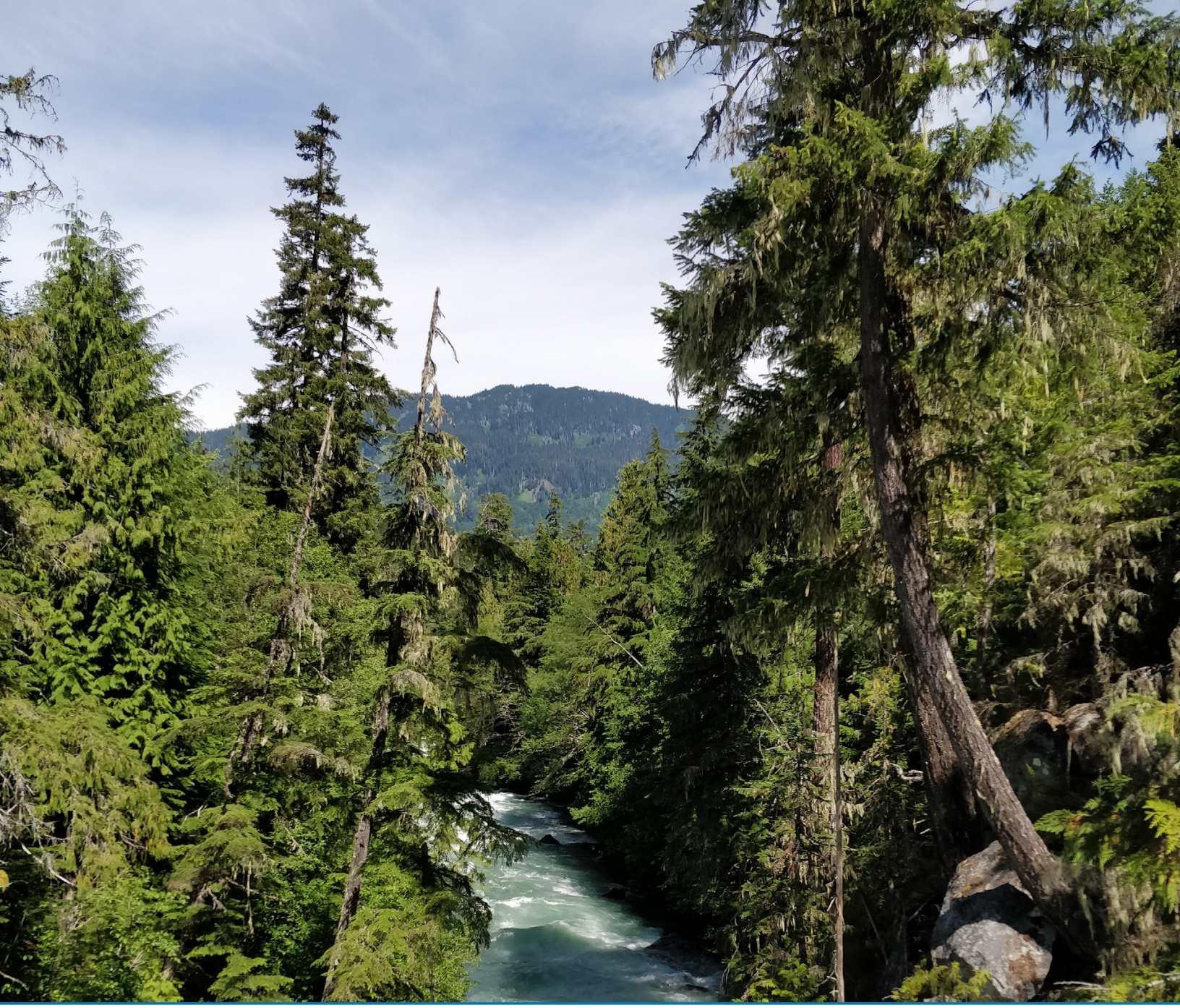

CLIMATE CHANGE AND HEALTH ADAPTATION FRAMEWORK

APRIL 2022

VANCOUVER COASTAL HEALTH AND FRASER HEALTH

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ACKNOWLEDGEMENTS

This framework was created by Craig Brown, Project Lead for the BC Lower Mainland Health Authorities HealthADAPT project, with support from Emily Peterson, Dr. Michael Schwandt and Randy Ash from Vancouver Coastal Health, Dr. Emily Newhouse, Amy Lubik, and Oona Kerwin from Fraser Health, Scott Blessin from Health Emergency Management BC, and Craig Dedels and Robert Bradley from VCH/FH Facilities Management.

The offices where this work was carried out are located on the unceded territories of the Musqueam, Squamish, and Tsleil-Waututh Nations and the work of our organizations takes place in numerous territories and Métis chartered communities in the regions. We approach our work with First Nations and Indigenous leaders and knowledge keepers with a commitment to respect and reconciliation, and acknowledge the leadership role that all of the First Nations within the Vancouver Coastal Health and Fraser Health regions play in creating healthy, equitable, resilient communities.

The development of this framework was made possible by conversations, interviews, written correspondence, review, and engagement with staff from within the four partner organizations, as well as leaders and allies outside of our organizations. We are grateful for this participation.

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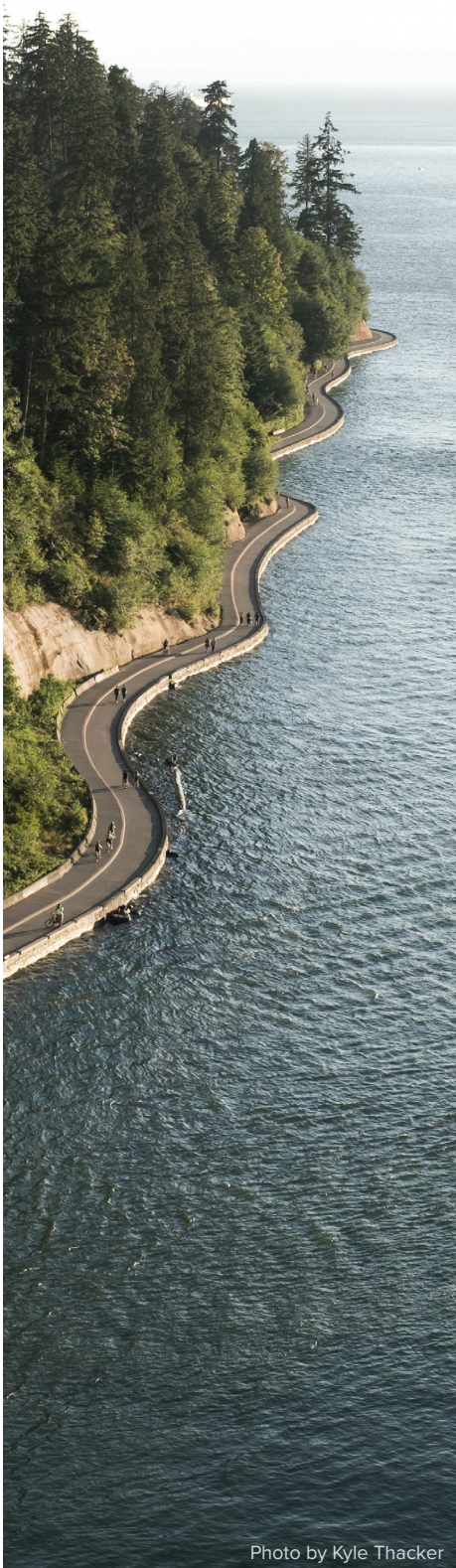

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CONTENTS

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EXECUTIVE SUMMARY

To advance health-focused climate change adaptation in the region, Vancouver Coastal Health, Fraser Health, Health Emergency Management BC, and VCH/FH Facilities Management partnered on a three-year Health Canada-funded project (HealthADAPT). This project included a climate change and health vulnerability and capacity assessment, as well as the creation of a climate change and health adaptation framework.

The framework outlines the project partners' roles in climate change and health adaptation and presents recommendations that correspond to the risks identified in the vulnerability and capacity assessment as well as during engagement with our many collaborators and advisors. This framework is meant to communicate health authority priorities to internal and external audiences, and to enable action planning at the program level within and between each of the four partner organizations.

Recommendations are organized across six pillars:

1. Emergency preparedness and response
2. Risk assessment, epidemiology, and research
3. Communications
4. Leadership and advocacy
5. Health equity
6. Facilities

The framework is focused on the 2022-2026 period in order to align with adaptation planning cycles at the provincial level.

CONTEXT

British Columbia is already experiencing the effects of global climate change: average temperatures are increasing, variable and extreme weather is becoming more frequent, and sea levels are rising. Extreme weather events in 2021 showed how climate-influenced hazards like extreme heat and flooding can impact population health and the health system in BC. Following the June 2021 heat event, both the Minister of Health and the Provincial Medical Health Officer stated that a stronger public health response was required to manage events of this magnitude.

For many years, discourse around climate change focused on the need to aggressively reduce greenhouse gas emissions. While this remains a priority for all sectors in BC, the need to better prepare for and respond to extreme events, and to embark on longer term adaptation to address chronic and slower onset climate risks are now more urgent than ever. The connection between climate change and health is well established and climate adaptation efforts are underway by all levels of government in Canada. Successful adaptation to a changing climate will not only protect public health, but also has the likely co-benefits of reducing health system demand, maintaining and improving the quality of natural environments, and improving material and social conditions for those who experience the greatest risk.

To advance health-focused climate change adaptation in the region, Vancouver Coastal Health (VCH), Fraser Health (FH), VCH/FH Facilities Management (FM) , and Health Emergency Management BC (HEMBC) partnered on a three-year Health Canada-funded project (HealthADAPT). This project included a climate change and health vulnerability and capacity assessment, as well as the framework presented below that outlines the project partners' roles in climate change and health adaptation. The framework presents priorities and recommendations corresponding to the risks and gaps identified in the vulnerability and capacity assessment, and based on engagement with our many collaborators and advisors.

Vulnerability and capacity assessment

The HealthADAPT project began in September 2019 with an assessment of the degree to which communities, populations, facilities, and some health services are susceptible to, and prepared for, the effects of climate change. The assessment describes current and future climate conditions for the VCH and FH health regions as well as the health-related impacts and risks to which these conditions may contribute.

The findings indicate significant impacts to population health, facilities, and services from a variety of climate-influenced hazards. Though impacts relating to heat and poor air quality are often the most immediately evident, the vulnerability and capacity assessment points to a need to adapt to catastrophic events like flooding, landslides, and wildfire damage, as well as those that arise from slower onset events like rising ocean levels.

Understanding vulnerability to climate change involves assessing existing capacities that increase preparedness and resilience across our communities, facilities, and health services. The vulnerability and capacity assessment contains an inventory of internal and external initiatives that directly or indirectly increase the ability to respond to climate impacts (i.e. adaptive capacity). Although not exhaustive, the inventory indicates moderate levels of capacity and programming relating to most of the climate hazards and impacts. It suggests a need for more consistency across the health regions,


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deeper collaborations and public health leadership, and stronger advocacy for climate resilience. The assessment also highlights the need to work in partnership with Indigenous communities and organizations to support and centre solutions that are identified and driven by the community.

Seasonal readiness planning

The heat dome event in June 2021 and the atmospheric river events in November 2021 created an unprecedented opportunity to understand our readiness to respond to extreme weather events. These events highlighted gaps in preparedness for large-scale community impacts within the VCH and FH health regions. They also provided an opportunity to accelerate planning and action focused on ensuring that we can continue to deliver health services and protect the health of our communities during extreme weather events.

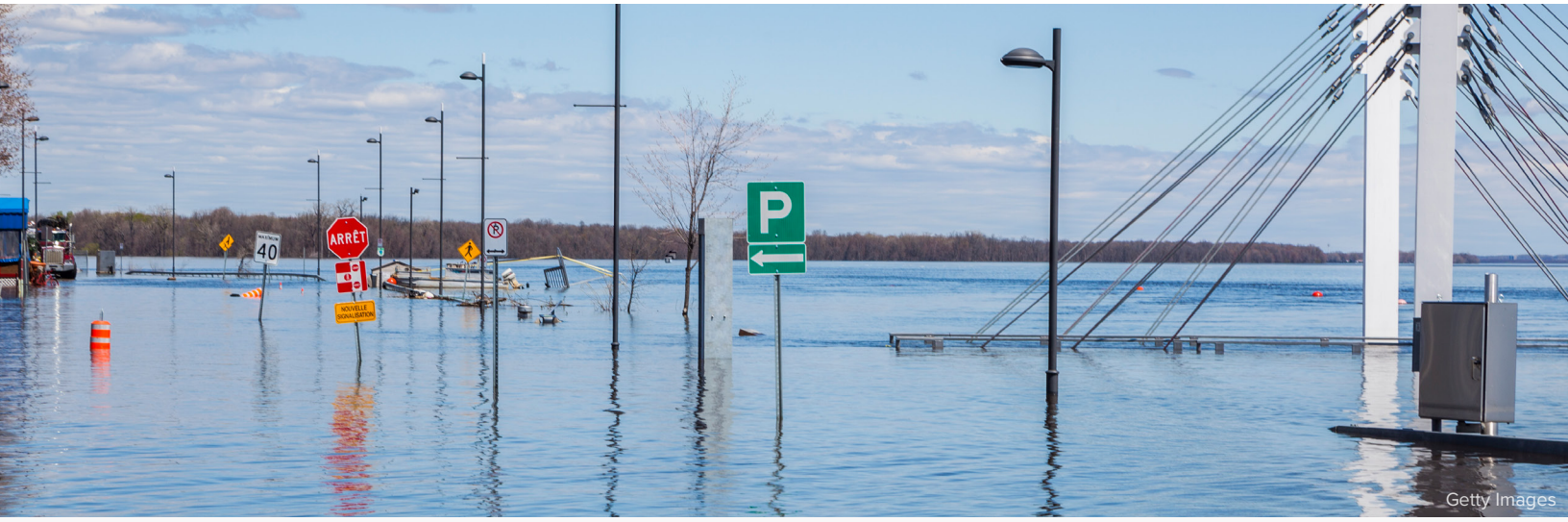
With the help of HEMBC, both VCH and FH have convened seasonal readiness planning committees across most of their service areas to ensure that plans and processes are in place to respond to future events. These processes include producing after-action reports that outline impacts to services and communities as well as the effectiveness of measures taken to improve business continuity and health protection. The framework below is largely focused on population and public health, but the seasonal readiness processes represent important activity in all of the other areas of the health authorities, including the services delivered in hospitals and clinics, in people's homes, and in the community. This work is complemented by ongoing work by BC's Ministry of Health to assess and improve the resilience of BC's health system.

Environmental sustainability and planetary health

Decision-makers and service providers across the province now face two challenges: reducing greenhouse gas emissions and actively managing known and unknown risks that a changing climate will inevitably bring. VCH and FH's response to the climate emergency continues to evolve alongside their adaptation efforts. For example, for years, FM's Energy and Environmental Sustainability (EES) team has partnered with VCH and FH to provide expertise and resources, and facilitate programs that increase environmental sustainability. In 2020 alone, the EES team was responsible for the implementation of infrastructure projects that are expected to reduce carbon emissions by more than 1,650 tonnes of carbon dioxide equivalent per year across the four Lower Mainland health organizations.

In 2019, VCH's executive leadership (Senior Executive Team) and Board committed to expanding and accelerating VCH's efforts in sustainability and resilience by naming planetary health as a strategic priority. This work advanced significantly in 2021 and 2022 with the establishment of a planetary health portfolio that aims to significantly reduce harmful environmental impacts of the health system and adapt our system to be resilient to climate shocks and stressors. Staff from VCH's Office of the Chief Medical Health Officer (OCMHO) support this work, especially with efforts relating to adaptation and resilience, health co-benefits of mitigation actions such as air quality improvements, food and water quality, and engagement with Indigenous communities.

In Fraser Health, the Population and Public Health (PPH) team are engaging in similar support work related to adaptation and resilience, with some exploratory work in supporting mitigation efforts in the rest of the health system. There is a high degree of organizational interest in how sustainability and planetary health work may be expanded and prioritized outside of PPH as well.



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CLIMATE CHANGE AND HEALTH ADAPTATION FRAMEWORK

This framework is motivated by the following vision:
Collaboratively ensuring healthy communities and a resilient health system as the climate changes.

The framework supports collaboration within and between the four project partners, and with the many allied organizations with whom we share a vision for healthy, resilient communities. Many of the recommendations and actions will be implemented by staff working in public health in FH's Population and Public Health area, and in the Office of the Chief Medical Health Officer at VCH. This reflects the fact that the HealthADAPT was largely comprised and overseen by public health staff. Actions relating to facilities management and operations appear in a discrete section, and actions for HEMBC appear throughout the framework. Engagement is currently underway to determine how VCH can best support climate resilience efforts in the Central Coast. Results from this process are expected in Spring 2022.

The framework is focused on the 2022-2026 period in order to align with adaptation planning cycles at the provincial level.

Methods

The recommendations and actions presented below are a result of the following process:

- A long list of potential actions was developed using input from internal and external engagement during the vulnerability and capacity assessment process, as well as from desktop research that included scholarly and grey literature and findings from other internal and external planning processes.
- This list was then evaluated by an expert committee to prepare a shorter list that could be used during subsequent engagement. This exercise used impact and feasibility as the two primary criteria, with additional criteria (e.g. cost) considered as needed.
- The list of recommendations and actions was further refined through internal external engagement.

Guiding principles

- **Engagement**: Engagement with communities and allied organizations ensures a stronger understanding of vulnerability, builds capacity and relationships, and facilities implementation
- **Equity**: A commitment to understanding the disproportionate and intersectional nature of climate impacts, ensuring that actions for adaptation options account for and reduce existing inequities. We are also committed to cultural safety when building new relationships and taking action.
- **Collaboration**: Collaborative action involving multiple sectors enables objectives and actions that reflect the unique needs of a community, and leverage their skills and resources.
- **Impact**: A commitment to meaningful, deliberate, and demonstrable change, and a focus on implementation and impact.
- **Transparency**: A commitment to sharing our activities and to reporting publicly on the impact of our work.
- **Low carbon resilience**: Ensuring that greenhouse gas reduction co-benefits of actions are considered and maximized, and that climate change adaptation and mitigation are considered in concert when appropriate.

Recommendations are organized across six pillars:

1. Emergency preparedness and response
2. Risk assessment, epidemiology, and research
3. Communications
4. Leadership and advocacy
5. Health equity
6. Facilities

EMERGENCY PREPAREDNESS AND RESPONSE

A strong public health response to extreme weather events is essential for resilient communities. By developing and refining their roles in emergency planning and response, regional health authorities and HEMBC can strengthen plans and processes that protect individuals and communities at highest risk.

The following emergency management initiatives are already underway:

1. Contribute to seasonal readiness across the health system through the development of seasonal hazard plans, preparedness, and mitigation initiatives and a scheduled process to inform leaders of seasonal risk forecasts, review and test response plans, and communicate key messages in advance of each season.
2. Contribute to partner emergency management processes, including off-season planning.
3. Use existing relationships to deliver emergency response information internally (e.g. throughout health authority services) and externally (e.g. to community partners such as licensed residential and child care facilities).
4. Monitor the impacts of extreme weather on staff and operations.
5. Develop business continuity and patient safety plans for public health services and support similar work in other service areas.
6. Advocate on the behalf of local governments to the province for increased resources to respond to extreme events.

New actions that the health authorities can take include:

1. Work with partners to better clarify health authority and partner roles and responsibilities during extreme weather events.
2. Contribute information, communications and/or human resources to wellness checks led by governments and community-based organizations.
3. Participate in or convene scenario-based planning exercises internally and with community partners.
4. Exchange information with partners on lessons observed from events to better understand realized and potential health system impacts
5. Conduct a review of recommendations and best practices for emergency management by health authorities and explore possible collaborations that would support implementation.
6. Work in partnership with VCH programs (including *Mental Health and Substance Use* and *Substance Use and Priority Populations*), and HEMBC's Disaster Psychosocial Program to better understand and reduce psychosocial effects of extreme weather events.
7. Advocate for greater understanding and communication regarding supply chains for health authorities, especially those that focus on rural and remote regions.
8. Support the development of a database of vulnerable individuals in BC that can be used during climate emergency events.

RISK ASSESSMENT, EPIDEMIOLOGY, AND RESEARCH

Strong surveillance systems allow us to rapidly report on risk factors and impacts before, during, and after extreme weather events and to track health impacts over time. Producing and sharing knowledge internally and with our community partners supports climate resilience efforts in our health regions.

Actions that the health authorities are already undertaking include:

1. Collect and analyze data for a selection of climate-influenced physical and mental health issues (e.g. heat-related illness) and exposure data (e.g. community-based air quality monitoring).
2. Provide data, tools and technical expertise to support action in communities (e.g. climate vulnerability maps).
3. Respond to local partner requests for evidence-based recommendations for community planning and emergency response (e.g. heat emergency response, air quality impacts).
4. Work with researchers to address priority knowledge gaps including participating in grant-funded work as a co-applicant, knowledge user and collaborator (e.g. daycare air quality study).

New actions that the health authorities can take include:

1. Strengthen our measurement of climate-related illnesses and mortalities associated with various climate-influenced hazards such as heat, wildfire smoke, and flooding.
2. Widely share data and results from internal assessment of the health impacts of climate change, as well as similar studies by other health organizations, university researchers and other sources.
3. Share health impact data and results that are disaggregated spatially and also for specific communities and populations (e.g. people living with disabilities, those experiencing addiction, social isolation).
4. Support efforts to evaluate the effectiveness of adaptation initiatives led by governments and other organizations.

COMMUNICATIONS

Community knowledge about climate, health, and equity underpins climate change strategies that address community needs and build on community strengths. Health authorities can provide climate change and health information that empowers communities and supports decision-making.

Actions that the health authorities are already undertaking include:

1. Deliver consistent and inclusive health risk messaging on topics including personal and community preparedness, emergency response, and social connectedness.
2. Leverage opportunities to work with community leaders to amplify coordinated messaging about climate change and health.
3. Share information internally and with regulated and licensed facilities in response to extreme weather events.
4. Deliver invited presentations to municipal partners, community-based organizations and other audiences.

New actions that the health authorities can take include:

1. Increase awareness of the significant health risks associated with a changing climate and the need for collaborative action with regional and municipal partners.
2. Identify innovative knowledge translation approaches, including collaboration with media, while ensuring that we are reaching at risk groups that may not use typical media communication channels.
3. Create internal and external communications plans to strengthen information-sharing on climate change and health within population and public health, and across the regional health authority.
4. Support engagement with Community Health Centres and Primary Care Centres, and other primary care partners to deepen their awareness of climate change impacts and capacity for adaptation.

LEADERSHIP AND ADVOCACY

Health authorities are one of many institutions being asked to contribute to creating healthy, climate resilient communities. We need to leverage our moral authority, subject matter expertise, and impartiality to accelerate and support collective efforts and improve accountability.

Actions that the health authorities are already undertaking include:

1. Strengthen cross-sectoral relationships with governments and community-based organizations and collaborate on projects with shared goals and outcomes.
2. Maintain awareness of community-led climate change and health-related initiatives.
3. Inform and support local governments and community organizations on the inclusion of health and equity in climate mitigation and adaptation plans, including direct funding.
4. Collaborate with other regional health authorities and provincial health partners on addressing climate-influenced health impacts.
5. Contribute to regional, provincial, and national communities of practice for climate change and health adaptation.
6. Advocate for the provision of cooling and air filtration in indoor public and residential settings, and support efforts to prioritize sites and communities focusing on populations most at risk.
7. Integrate climate resilience topics into BC GreenCare's Green+Leaders programming for health system leaders in sustainability.
8. Support the creation of internal guidance materials for health service delivery programs to increase their climate resilience (e.g. long term care, home health).

New actions that the health authorities can take include:

1. Identify and share funding sources for local and regional climate and health projects.
2. Advocate for and inform the development of regulations, guidelines and policies to protect disproportionally impacted populations.
3. Provide education to public health staff on health impacts of climate change, climate-related emergency preparedness and leading adaptation measures.
4. Use public health tools (e.g. the Public Health Act and associated regulations) for action in support of climate change adaptation.
5. Build leaders of the future in climate change and health by providing opportunities for practicum and co-op students while also influencing curriculum development.
6. Develop an evaluation plan for this framework and for health authority-led climate actions that is flexible and uses lessons from complexity science and implementation science.
7. Strengthen governance structures within health authorities related to climate action and establish clear roles and accountabilities for leadership to support this work.
8. Develop approaches to better understand climate risks to drinking water systems, in terms of both quality and security, across the health authority.
9. Continue to enhance engagement with municipal and regional partners on their sea level rise planning and response.
10. Elevate governmental and public understanding of climate change as a public health emergency, and advocate for commensurate funding.
11. Assess and share evidence informed health-related adaptation practices with our community partners.

HEALTH EQUITY

Climate change disproportionately affects certain communities and individuals, many of who are already placed at risk for negative health outcomes due to social inequities. Health authorities must reduce disproportionate and intersectional health impacts while ensuring meaningful opportunities to participate in processes relating to climate change and health adaptation.

Actions that the health authorities are already undertaking include:

1. Identify communities and populations that experience heightened risk.
2. Enhance community resilience by reducing health disparities exacerbated by climate change and by contributing positively to the social determinants of health.
3. Strengthen understanding of Indigenous health adaptation, and how best to contribute to the adaptation landscape.
4. Strengthen the connection between climate change and food security in our work.

New actions that the health authorities can take include:

1. Better identify and support populations that experience higher risk during climate-related events.
2. Amplify, advocate for and implement best practices to equitably mitigate the effects of extreme heat and poor air quality.
3. Support advocates and representatives who work with populations that experience disproportionate risk from climate change (e.g. those experiencing homelessness, people with disabilities) to support efforts to increase climate resilience.
4. Contribute to efforts to identify and support individuals who are socially isolated and programs that increase social connectedness.
5. Support partner organizations as they include a health equity lens in their own project planning and implementation.

FACILITIES

The impacts of climate change are more disruptive for individuals and communities when they affect health care facilities. Health authorities operate and oversee hospitals, primary care clinics, community health centres, long term care facilities, hospices, and other facilities, all of which will be impacted as the climate changes. VCH/FH Facilities Management teams have been working to improve resilience in health care facilities—and to reduce carbon emissions—for a number of years. The actions below have been identified as priorities by Facilites Management staff.

Actions that Facilities Management teams are already undertaking include:

1. Report on actions to reduce climate risks via the VCH Climate Change Accountability Report and Environmental Performance Accountability Report.
2. Assess risks at the site level for owned and contracted facilities across the health region.
3. Support planning and project teams to incorporate climate mitigation and resilience strategies into capital project design and construction.
4. Align with the Clean BC Roadmap and the BC Climate Preparedness and Adaptation Strategy.
5. Work with utility partners in relation to integrated planning for existing and new facilities.
6. Contribution to policy advances in relation to climate change (e.g. Ministry of Health's Capital Policy 12- Carbon Neutral and Climate Resilient Health Facilities).

New actions that Facilities Management teams can take include:

1. Refine the Climate Resilience Guidelines for BC Health Facility Planning and Design, maximizing low carbon resilience opportunities and identifying applications beyond hospitals (e.g. long term care, hospice).
2. Operationalize policy requirements (e.g. risk assessments) arising from mandatory climate risk capital planning, including via engagement with the capital project teams.
3. Work with external infrastructure operators and organizations to understand and manage interdependent risks for existing facilities.
4. Work with public health staff to explore the benefits of green infrastructure on health authority sites and campuses, considering living lab and community hub approaches.