

New Brunswick HealthADAPT Project

Pilot Community Selection Process

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1.0. INTRODUCTION

Climate change, as an environmental factor, is an ecological determinant of health. All Canadians are at risk of the health impacts of climate change; however, some populations are at higher risk. There is a growing body of evidence that climate change affects public health, often by exacerbating pre-existing conditions. While our knowledge of the health impacts of climate change is limited, we do know change is happening at a rapid pace and that New Brunswickers need to prioritize preparedness.

Climate change effects in New Brunswick include increased average annual temperatures, increases in extreme weather events, changes in precipitation leading to more droughts, more heat waves, sea-level rise, and an increase in vector-borne diseases carried by pests (such as ticks and mosquitoes). Populations become vulnerable to these effects by the frequency and duration of exposure to the risks, their sensitivity to the situation, and how well they are able to adapt to the impacts.

Emergency preparedness is one way that communities can be ready to adapt to extreme events. In addition, the World Health Organization and Health Canada recommend undertaking climate change and health vulnerability and adaptation assessments (CCHVAAs) to support public health preparedness under a changing climate. Completing CCHVAAs can directly optimize health agencies and their allies' efforts to respond to the health imperatives associated with climate change, while fuelling options that yield co-benefits across a variety of sectors.

1.1. The NB HealthADAPT Project

The New Brunswick project is one of the ten proposals Health Canada has sponsored across Canada under its HealthADAPT program. The goal of the HealthADAPT program is to help the health sector prepare for and respond to the impacts of climate change. The goal of New Brunswick's project is to enable capacity building at all levels (local, regional and provincial) to help communities in New Brunswick (NB) identify, adapt, and respond to the impacts of climate change on human health through the development and refinement of an NB-specific Climate Change and Health Vulnerability Assessment and Adaptation (CCHVA&A) approach.

There are many approaches to CCHVAAs that have been used around the world. In 2019, Health Canada developed a guidebook to help local and regional health agencies undertake CCHVAAs across Canada. Under the current project, the Province of New Brunswick will be using this model as well as others that have been developed and adapting their tools to the New Brunswick context.

1.2. Purpose of this Report

To ensure that the tools and approach can be applied in different contexts of New Brunswick, two pilot projects will be undertaken. The pilot projects will be testing the tools and overall approach in two different settings and will provide evidence based on the usefulness and applicability of the tools in a variety of New Brunswick contexts. This report deals specifically with the process for selecting representative New Brunswick pilot communities.

2.0. VULNERABILITY CRITERIA FOR PILOT COMMUNITY SELECTION

The process of identifying and selecting pilot communities is a crucial step in the testing process as each of the pilot projects needs to display characteristics that are "typical" of New Brunswick communities, but also meet some fundamental criteria as highlighted in the literature on

vulnerability. As such, a broad range of factors that speak to the three determinants of vulnerability – exposure, sensitivity and adaptive capacity - were identified by the study team. Generally, selection criteria included data regarding the New Brunswick Health Regions, population demographics, geographic characteristics, indigenous territory identification, social determinants of health indicators, and climate adaptation readiness.

2.1. Basic Selection Criteria

Three basic selection criteria were identified for pilot communities at the outset – urban and rural; language; and location. As noted in Report #1, New Brunswick has a unique population with around 50% living in rural areas, and 50% living in urban areas. Developing tools for New Brunswick communities must thus take the urban/rural differences into account. New Brunswick is also the only official bilingual province, which makes it imperative that all tools and communications are available in both languages. Therefore, it was decided that one pilot community should be mostly French-speaking and the other mainly English. Thirdly, it was determined that at least one pilot community be in the north region and the other pilot community in another region of New Brunswick. Aside from these three predetermined criteria other criteria were used to select the pilots as described in the following paragraphs.

The geographic extent of the subject areas was determined based on descriptions in the New Brunswick Health Council's "My Community at a Glance" profile. This determination was critical, as it set the standard for what information was further collected based on the municipal and/or regional geographic limits.

2.2. Exposure Criteria

Exposure is contact between a person and one or more biological, psychosocial chemical or physical stressors, including stressors affected by climate change.¹ Climate-related exposures include temperature, precipitation and sea-level rise.

Geographic Characteristics: In this section, the project team reviewed various possible pilot communities to differentiate between them based on:

- i. Which communities met the definition of urban and rural;²
- ii. The predominant land use (residential, industrial, agricultural) of the region; and
- iii. Location characteristics (coastal, inland, agricultural, forested, etc.)

Climate Related-Exposures

- i. Increased heat waves
- ii. Increased annual precipitation (extreme rain events)
- iii. Sea-level rise (increase storm surges, coastal erosion)
- iv. Increased vector-borne disease (Lyme disease)

¹ Enright, P., Berry, P., Paterson, J., Hayes, K., Schnitter, R., and Verret, M. *Climate change and health vulnerability and adaptation assessment: Workbook for the Canadian health sector*. (2019) Prepared by Health Canada's HealthADAPT Program.

² Statistics Canada defines urban areas as "those continuously built-up areas having a population concentration of 1,000 or more and a population density of 400 or more per square kilometre based on the previous census; rural areas have concentrations or densities below these thresholds." <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710011801&pickMembers%5B0%5D=1.5>

- v. Other (blue-green algae)

2.3. Sensitivity Criteria

Sensitivity is the degree to which people or communities are affected, either adversely or beneficially, by climate variability or change.³ Sensitivity includes both individual susceptibility (intrinsic biological factors that can increase health risks) as well as socio-environmental factors such as living conditions, poverty, and location.

Population Demographics were identified for potential pilot communities and compared against provincial averages where appropriate. The goal was to select communities that reflected average New Brunswick communities as much as possible. These data points, derived from 2016 Census information, included:

- i. Subject area population;
- ii. Population density of the subject community;
- iii. Average age of the population;
- iv. Population statistics by age groupings (0-14 years; 15-64 years; 65+ years; and 85+ years)
- v. Number of private dwellings;
- vi. Average household size; and
- vii. Mother tongue of the population (English, French, or other languages)

Indigenous Territory: The traditional territory of New Brunswick is shared between the Wolastoqiyik (Maliseet) in the Saint John River Valley, the Passamaquoddy in the Passamaquoddy Bay area, and the Mi'kmaq in the eastern half of the province. It is important to both recognize and involve appropriate indigenous nations in the development and implementation of any responses to climate change impacts as their people are unequally affected due to unique socioeconomic, cultural and historic realities, all of which affect community health. As such, another criterion for the pilot communities was to identify the closest First Nation reserve to a potential pilot community.

Social Determinants of Health have the potential to highly affect the impacts related to climate change events. There are vulnerable populations within all New Brunswick communities, so it is imperative to include the following indicators in the decision matrix:

- i. Median income per household (2016 Census);
- ii. Percentage of low-income population (2016 Census);
- iii. Immigration – specifically the percentage of immigrants as a proportion of the total population (2016 Census);
- iv. One's sense of belonging (NBHC My Community at a Glance);
- v. And the percentage of seniors living alone, differentiated between male and females (NBHC My Community at a Glance).

2.4. Adaptive Capacity Criteria

³ Enright, et al (2019)

Adaptive capacity is the ability of communities, institutions or people to adjust to potential hazards, to take advantage of opportunities or to respond to consequences.⁴ Populations, subgroups and systems that cannot or will not adapt are more vulnerable. Thus, understanding a population's capacity to adapt to new climate conditions is crucial to realistically assess the potential health and other effects of climate change.

To include a wide range of characteristics representative of the overall province we looked closely at the following regional information:

New Brunswick Health Region information:

- i. The Public Health Region of possible pilot communities was identified, as the goal was to select pilot communities representing two of the four different Regional Health Protection Branch offices in the province (see Figure 1)

Figure 1 Office of the Chief Medical Officer of Health



- ii. The Regional Health Authority was identified, as the goal was to select pilot communities from each of the two health authorities in the province.

⁴ Enright, et al.

- iii. Whether a Community Health Needs Assessment had been completed for the subject area was also identified, as this provides a sound basis for a CCHVAA process. Without a Community Health Needs Assessment for the pilot communities, there would be significant additional work required to establish baseline data.
- iv. The existence of a hospital or medical clinic within the pilot community was also considered a key criterion, in terms of possible adaptation responses.

Climate Adaptation Readiness: is another key element to the CCHVAA process that helped the project team narrow down possible communities as it was felt the pilots needed to have a certain level of understanding and willingness among local partners and stakeholders to, not just completing the CCHVAA, but implementing its findings. As such, the following indicators were established:

- i. Has the community completed an infrastructure-based Climate Change Vulnerability Assessment (CCVA)?
- ii. Does the community have a completed Climate Change Adaptation Plan, or is it completing one presently?
- iii. What are the anticipated major climate change impacts for the location (have they been identified)?
- iv. Have climate hazard maps (e.g., flood risk, urban heat islands) been developed and are they available to use?
- v. Is there local academic or professional capacity to help guide the project team through the technical aspects of climate projections?

3.0. PILOT SELECTION PROCESS

3.1. Communities Considered

Based on the vulnerability criteria outlined in Section 2, the criteria were then prioritized based on project objectives. Several “urban” communities/regions were identified for consideration: City of Fredericton, City of Saint John, the City of Moncton, and the tri-community area of Moncton-Dieppe-Riverview. Four rural regions were then identified: Acadian Peninsula (including Caraquet, Bertrand, Paquetville, Shippagan, Lameque, and Inkerman as well as unincorporated areas in between); Campbellton region (including Campbellton, Atholville and Tide Head); Sussex region (including Sussex, Norton and Sussex Corner and rural areas in between); and Bathurst region (including Bathurst, Beresford and Petit-Rocher areas). These possible pilot communities are identified in Figure 2 below.

Figure 2 Map of New Brunswick illustrating possible pilot communities. Blue circles represent “rural” pilot communities and orange circles denote “urban” pilot communities. The blue star indicates location of selected “rural” pilot (Villages of Beresford and Petit-Rocher near Bathurst) and the orange star indicates the “urban” pilot (City of Moncton).



A spreadsheet with all the above information was compiled and proved to be a useful starting point; however, it did not result in obvious choices for pilot community selections. As such, the indicators were narrowed based on specific project priorities.

3.2. Final Pilot Community Selection

Once the breadth of community information was compiled, a meeting was held with the project lead and project consultant the deputy chief medical officer of health, and a specialist from the Climate Change Secretariat involved in the project to determine which communities would serve as pilots. The choices were then validated with Regional Medical Officers of Health of the province. It was determined that including multiple (3 or more) municipal units in a single pilot project would not be feasible because there would be multiple sets of decision makers involved which could create delays in the project process. The first choice for pilot communities were: the Village of Petit Rocher and Beresford for the northern, rural francophone community and the City of Moncton for the urban, mostly anglophone community, outside north region.

3.3. Prioritization Criteria for Pilot Community Selection

Table 1 identifies how the preferred pilot communities to meet the prioritization criteria.

Table 1 Prioritization Criteria for Identifying Pilot Communities

Vulnerability	Prioritized Criteria	Moncton	Chaleur Region
BASIC CRITERIA	i. Urban – Rural character	Urban	Rural
	ii. Language mix (EN-FR-Other) with one municipality mainly French-speaking and other English	60-30-10	30-70-0
	iii. One northern community, one other community	Southeast	North
EXPOSURE	i. Complementary range of geographic characteristics – representing New Brunswick (coastal, forested, inland river area, etc.)	Inland community Near Bay of Fundy Densely populated, Urban centre	Coastal Forested inland
	ii. Complementary range of climate risks being faced – goal is to cover as many possible climate risks as possible between the two pilots	Heat Inland flooding Water quality (blue-green algae) Air quality (Legionnaires) Extreme weather (rainfall, snow, ice) Vector borne disease (Ticks)	Sea-level rise • Flooding • Coastal erosion Extreme weather Wildfires
SENSITIVITY	i. Population density (number of people per square kilometre)	506.5	25.9
	ii. Indigenous traditional territory	Mi'kmaq	Mi'kmaq (Pabineau First Nation is within 10 km of City)
	iii. Social determinants – focus on seniors living alone. (male vs female)	16% : 34%	16% : 29%
ADAPTIVE CAPACITY	i. Involvement of 2 different Health Protection Service Regions	East	North
	ii. Involvement of the 2 Regional Health Authorities	Horizon and Vitalité	Vitalité
	iii. Hospital facility within or near the pilot municipality	yes	yes
	iv. Climate readiness – is there a climate change adaptation plan in place, or underway?	Yes	Yes

4.0. PILOT COMMUNITY READINESS

The pilot communities' readiness to participate was a key factor to consider since without the support and participation from a range of stakeholders within the communities the project has little chance of success.

The project team worked with key contacts from the City of Moncton as well as the Chaleur Regional Service Commission to formalize pilot community agreement to participate in the NB HealthADAPT project. It is anticipated that data for the City of Moncton will be readily available as a Census Metropolitan area. For the rural pilot area, the project team will attempt to identify location-specific data for the two rural villages, as a test to determine how useful the tools can be for smaller centres. The Village Councils and the Chaleur Regional Service Commission will participate throughout the process.

Obtaining the agreement of the community to participate in the NB HealthAdapt included the following activities:

1. Identifying the key contact in each community
2. Meeting with people above and explain the project
3. Key contacts presented the project to the council with documents prepared by the research team:
 - a) The briefing document (Appendix 1)
 - b) The letter of understanding (Appendix 2)
4. Seek approval through resolution of Council and signed Letter of Understanding (LOU)

Other steps took place once the letter of understanding was signed by both parties (community representative and research team).

1. Reach out to significant communities within or near the pilot community to participate in the project (e.g., neighbouring First Nation community)
2. Establish a working group in each pilot community (see Appendix 3 for Community Working Group Terms of Reference)
3. Establish one technical advisory committee to oversee approach and project implementation (see Appendix 4 for Advisory Committee Terms of Reference)

Table 2 below outlines the various project groups or committees involved in the NB HealthADAPT, as well as the roles of each group and the expertise that will be covered throughout the project.

Table 2 Proposed Roles of Stakeholders and Committees

Group/Committee	Roles	Expertise
Project Leads	<ul style="list-style-type: none"> • Manage the project and ensure the project budget are met • Oversee pilot community progress • Co-chair committee meetings • Ensure that the project objectives are met as per the proposed timeframe • Maintain a work plan for the overall project as well as pilot projects • Prepare regular updates on the project progression 	<ul style="list-style-type: none"> • Public Health • Research • Project Management • Climate Change Adaptation • Community Engagement • Adaptation Planning
Project Team	Members of the Project Team will provide leadership in the project by:	<ul style="list-style-type: none"> • NB Public Health (DH) • Environmental Health (ELG)

Group/Committee	Roles	Expertise
	<ul style="list-style-type: none"> • Participating in project-related workshops and presentations (e.g., Orientation Workshop) • Making presentations within their area of expertise to support the project • Share progress and information with provincial colleagues on the Project where appropriate <p>The Project Team will review project documentation, templates, tools and reports in a timely manner and provide recommendations to Project Leads on next steps, processes or approaches.</p>	<ul style="list-style-type: none"> • Climate Change Adaptation (ELG – CCS)
Community Working Groups	<p>Participate in monthly meetings and project workshops. Represent perspectives related to their affiliation (environment, health, climate change, vulnerable communities)</p> <p>Provide expert advice in relation to their area of expertise with gathering data, approaching various sectors of the community, and analyzing information gathered.</p> <p>Share data and review project deliverables (reports)</p> <p>Provide guidance and recommendations</p>	<ul style="list-style-type: none"> • Municipality – administration, planning, engineering • First Nation rights holders • Emergency Measures and/or local Red Cross • Health Services Delivery – public health, hospital or nursing home admin, extramural • Health Workforce – emergency responders, doctors, nurses, pharmacists • Health Authority – policy analysts, emergency measures • Students • Seniors – seniors’ groups, service to seniors • Inclusion Network – focusing on vulnerable populations • Environmental organization with a specialty in climate change • University researchers (climate science and/or health specialty) • Community champion

5.0. SUMMARY

The pilot selection process aimed to identify two pilot communities which exemplified New Brunswick’s diversity geographically and culturally. The urban (City of Moncton) and rural (Chaleur region) pilots also encompass a range of possible climate change impacts on health and are home to diverging vulnerable populations. While both pilots will follow a similar approach and set of tools, the community working groups will ensure that local priorities and data collection methodologies fit the local context.