

Rural Climate Change Adaptation Part I

KNOWLEDGE BRIEF



Eric Gonzalez and Rosland Tourism photo

INTRODUCTION

Across the world communities are thinking about how climate change and extreme weather events will affect them and are taking steps to prepare and adapt. Within the Columbia Basin-Boundary region, the impacts of climate change are already being felt and in response there is growing recognition of the importance of proactive approaches to prepare for a future with a less predictable climate.

Communities within the Basin-Boundary are projected to experience higher average temperatures along with more very hot days and longer warm spells. Summer precipitation is forecasted to decrease while winter precipitation increases and is more likely to fall as rain at lower elevations. Regional glaciers are expected to retreat and snowpack will be reduced at lower elevations affecting seasonal stream flows. Rainfalls will become more intense, flood events will become more frequent and droughts will be longer and hotter while wildfires increase in frequency.¹ These projected climate changes will affect the environment, economy, and quality of life across the region, albeit to varying degrees.

WHAT IS ADAPTATION?

Climate change adaptation serves to proactively position communities to build their capacity to adapt to forecasted climate changes and extreme weather events. While increasingly adaptation planning has been undertaken in rural municipalities, including within the Basin through the Communities Adapting to Climate Change Initiative (CACCI),² rural adaptation planning is still in its early days. A 2010 survey of BC planners found that differentiating the concepts of adaptation versus mitigation was not well understood among respondents.^{3,4} Undoubtedly, the level of understanding of many planners has since increased, however, it remains important to **distinguish between the concepts:**

- **Mitigation** consists of actions aimed to reduce greenhouse gas emissions that cause anthropogenic climate change.⁵ Mitigation is necessary, at a global scale, to reduce the rate and magnitude of climate change.
- **Adaptation** can include any activity that reduces negative impacts of climate change or takes advantage of new opportunities that may be presented.⁶ This includes activities taken before impacts are observed and after impacts have been felt.⁷ Adaptation is essential to reduce the damages from climate

change that cannot be avoided. It involves making adjustments in our decisions, activities and thinking because of observed or expected changes in climate.⁸

It is important to note that adaptation and mitigation actions have the same ultimate goal: to reduce negative consequences of climate change. Mitigation without adaptation will not prepare communities for inevitable changes, and adaptation without mitigation will eventually lead to conditions where adaptation is inconvenient, expensive, or impossible.⁹

Mitigation Can Combine Adaptation

"The simple act of planting or protecting trees helps communities with mitigation by sequestering carbon from the atmosphere while providing adaptation benefits by helping communities cope with heatwaves, or increased storm water run-off with the additional benefits of increasing aesthetics."

The City of Kelowna's 2010-2016 "*Neighbourwoods*" program, a residential planting initiative to encourage citizens to plant more trees on private land by offering a purchase discount led to the planting of over 2,500 trees within the community.¹⁰

For more information on the climate adaptation benefits of urban forests see the resource: [Urban Forests: A Climate Adaptation Guide](#)¹¹

While mitigation is a global challenge, adaptation is a more local issue as impacts of climate change will be different for every community. The BC provincial government has a climate change adaptation strategy that recognizes local governments as important decision-makers with respect to climate adaptation.¹²

As most rural Canadian communities are economically dependent on their surrounding environments the impacts from climate change will create substantial challenges for the well-being of rural residents and communities.¹³ Further, rural communities tend to be more vulnerable to climate change because they typically have fewer resources and fewer alternatives than urban areas.¹⁴ Therefore, it is important that rural communities take the necessary steps towards climate change adaptation.

THE PROCESS OF ADAPTATION

The ultimate goal of adaptation is to reduce risk associated with a changing climate. While this goal is shared among communities, the process of adaptation

will be different, reflecting each community's unique experiences. Experiences from within the Basin, other regions of Canada and other countries show no single formula for climate change adaptation will work in all places.^{15,16} Adaptation is place-based and the needs of the community, local priorities identified through community engagement, and best available science, should be brought together to inform a community's approach.¹⁷

There are several noteworthy processes of adaptation planning that are recommended for, or can be utilized by rural communities.^{18,19,20} The Basin CACCI initiative building off of its early experiences using a six-step approach within communities found that a more streamlined process undertaken over a shorter period of time can be implemented to the satisfaction of the community.²¹ A four-step streamlined approach for rural communities has since been utilized and recommended by other regions within Canada and is outlined below:



1. GET STARTED

The first step involves building public, political and staff awareness and support of climate change adaptation and establishes the local context for the process. It involves:

- Establishing adaptation champions and identifying community stakeholders to engage in and support the process;
- Determining the geographic boundaries and timeframes to be considered in the process;
- Gathering local community and scientific knowledge to understand the impact of previous weather events and future climate projections for the area; and

- Establishing an approach on how to assess climate-related risks and opportunities to inform priority establishment.

2. ASSESS RISKS & OPPORTUNITIES

The second step brings stakeholders together to identify, analyze, and prioritize the range of potential risks and opportunities. It involves:

- Identification of potential climate-related impacts on community impact areas (e.g., wildfire, flooding, water availability, agriculture, tourism);
- Assessing community exposure within impact areas through the use of stakeholder perceptions, vulnerability, and risk assessments; and
- Creation of a list of prioritized risks and opportunities that denote currently acceptable risks and opportunities and those that require immediate action.

3. FORMULATE ACTIONS

The third step involves identification and selection of actions to manage priority risks and opportunities to inform climate adaptation planning. It includes:

- Compiling an inventory of actions needed to manage priority risks and opportunities;
- Evaluating the actions based on their anticipated effectiveness, feasibility, acceptability, equitability, and flexibility; and
- Assembling information (costs, timelines, responsible department(s) or organization(s)) on the most promising actions to support decision-making for implementation.

4. PLAN, IMPLEMENT & REVIEW

The next step for a community is to draft its plan and develop a blueprint for integrating adaptation into existing and future municipal plans, strategies, policies, programs, practices, and budgets. A major component of this step is:

- Establishing a process to monitor, evaluate progress, and periodically update the plan to account for new information and developments.

Successful adaptation does not mean that the impacts of climate change will not be felt within a community, only that the impacts will be less severe than what would be experienced had no adaptation occurred.²³ Adaptation

planning is an iterative process and a community will learn by doing.²⁴ Priorities may change over time, key people may leave, and other challenges will impede the process. Communities need to approach adaptation planning in their own way, and in some instances municipalities may choose to incorporate climate change adaptation policies or infrastructure upgrades without engaging a public planning process.²⁵

RURAL CHALLENGES TO ADAPTATION

The process of adaptation is not without challenges. While many challenges are shared by communities of all sizes, rural communities face unique challenges. The following are common challenges identified from rural experiences in climate change adaptation:

- Climate change is a complex and controversial subject matter around which to build awareness and support.^{26,27} Some residents may not acknowledge climate change is a serious problem and not perceive it as a threat to their communities.^{28,29}
- Specialized climate science resources and expertise are required to complete research and can be difficult to obtain.³⁰ Climate data, particularly projections, can be confusing and difficult to communicate simply and effectively.^{31,32,33}
- Political knowledge of climate change adaptation planning can be limited.³⁴ Local government's often prioritize their focus on immediate and short-term issues over planning strategically for the long term.³⁵⁻⁴¹
- The necessity to engage the community and collaborate with a wide range of actors can slow down the process of planning and implementation.^{42,43}
- Rural communities often face a shortage of human capacity and staff often have little time to devote to new initiatives.^{44,45,46}
- Communities face budget constraints for a number of pressing issues and a lack of provincial and federal funding allocated to responding to risks arising from climate change adds to their inability to act.⁴⁷⁻⁵⁰

Overcoming these barriers is possible and the **Climate Change Adaptation Part II: Challenges of Climate Change Adaptation in Rural Communities Knowledge Brief** addresses these challenges and provides examples of how to overcome some of these challenges.

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The Columbia Basin Rural Development Institute, at Selkirk College, is a regional research centre with a mandate to support informed decision-making by Columbia Basin-Boundary communities through the provision of information, applied research, and related outreach and extension support. Visit www.cbrdi.ca for more information.