

Climate Adaptation Planning for Manitoba Communities

From impacts to actions



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Climate Adaptation Planning for Manitoba Communities: From impacts to actions

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Abbreviations and Acronyms

CCME	Canadian Council of Ministers of the Environment
CVRA	Climate vulnerability and risk assessment
IPCC	Intergovernmental Panel on Climate Change
MEL	Monitoring, evaluation and learning

Glossary

Adaptation	Any effort or action to respond to actual or anticipated impacts of climate change that minimizes the effects and reduces the risk of climate change on infrastructure, natural ecosystems and social systems (Canadian Council of Ministers of the Environment [CCME], 2021).
Adaptation planning	“The process and mechanism of incorporating climate risks and anticipated outcomes in the development of planning documents so as to make communities more resilient to the potential impacts of climate change” (Manitoba Climate Resilience Training, 2021, p. 1).
Adaptive capacity	The ability of infrastructure, natural ecosystems and social systems to adjust to changing environmental conditions (like climate variability or extreme weather events), minimize possible damage, take advantage of opportunities, or cope with, adapt to, or recover from the consequences (CCME, 2021).
Climate change	A change in long-term weather patterns due to natural phenomena and human activities (e.g., use of fossil fuels and release of carbon dioxide) that affect the chemical composition of the atmosphere through the accumulation of greenhouse gases. Climate change is contributing to a rising global temperature, changing rain and snowfall patterns, warming oceans and many other impacts (CCME, 2021).
Climate hazard	A climate-related event that can put infrastructure, natural ecosystems and social systems at risk and produce negative consequences. Climate hazards can be rapid-onset events, like overland floods from a rainstorm, or slow-onset events, like rising temperatures. Other examples of climate hazards include droughts, high temperatures, rain, high winds, tornadoes, wildfires, landslides, sea-level rise and hail (CCME, 2021).

Climate impact	The effects of a climate hazard (either currently or anticipated in the future) on infrastructure, natural ecosystems and social systems. The impacts may be negative or positive. For example, a drought will have negative impacts, such as reduced crop yields, insufficient drinking water and a higher chance of wildfire. Warmer winters may have some positive impacts, such as fewer cold-related deaths and reduced heating costs. However, even if some of the anticipated positive impacts occur, the impacts of climate change on Manitoba’s communities will be overwhelmingly negative (Coffman & Ness, 2021).
Climate risk	The potential for negative or positive consequences for infrastructure, natural ecosystems and social systems due to a climate hazard. Climate risk results from the vulnerability of the affected system to the climate-related hazard and the likelihood that it will occur (CCME, 2021).
Climate vulnerability and risk assessment	A process to understand how climate change will impact important aspects of a community and help prioritize which climate risks to prepare for (CCME, 2021).
Consequence	Something that occurs in response to a particular climate impact (CCME, 2021). For example, a drought (the hazard) causes reduced crop production (the impact), which can lead to an increase in insurance claims (the consequence). Consequences can range in severity.
Monitoring, evaluation and learning (MEL)	Helps to clarify, inform and enhance climate change adaptation efforts by gathering data to track progress, evaluate the results and learn from the experience.
Qualitative data	Non-numerical, descriptive information gathered through processes that aim to learn about the experiences or perspectives of community members (International Institute for Sustainable Development, 2023). Questions might include, “How have the weather and seasons changed since you were a child?” and “If you are a farmer, how will your crop production or livestock be impacted by more frequent droughts?”
Quantitative data	Numerical information gathered through research and analysis (International Institute for Sustainable Development, 2023). Quantitative data includes historical climate and weather information, modelled climate projections and numerical scoring systems for vulnerability and risk.

Resilience

The ability of infrastructure, natural ecosystems and social systems to maintain their function and cope when exposed to hazards (CCME, 2021). Resilience can increase by making changes to prepare for a hazard, such as relocating a house that was built in a floodplain in preparation for the increased frequency and severity of floods.

Vulnerability

The degree to which infrastructure, natural ecosystems and social systems are susceptible to harm or damage from climate change impacts (CCME, 2021). Vulnerability is based on the community's sensitivity to climate change and its capacity to adapt to the impacts.

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About the *From Impacts to Actions Guidebook*

The *From Impacts to Actions Guidebook* uses three supporting guides to help local government representatives from Manitoba communities complete the adaptation planning process:

- *Climate Vulnerability and Risk Assessment for Manitoba Communities: From Impacts to Actions* (the CVRA guide) helps identify a community's climate risks and actions that will reduce the risk and severity of these risks.
- *Adaptation Planning Guidebook for Manitoba Communities: From Impacts to Actions* (the adaptation planning guide) helps identify actions that will reduce the anticipated impacts of climate change on communities and their residents.
- *How to Use the Climate Atlas of Canada: From Impacts to Actions* (the Atlas guide) provides step-by-step instructions to gather climate projections that can be used in the CVRA process.

These guides are supported by the *Climate Adaptation Workbook for Manitoba Communities: From Impacts to Actions* (the workbook), which has 19 worksheets to guide communities through the adaptation planning process.

This process has been designed to be used by small population centres of between 1,000 and 29,999 residents (Statistics Canada, 2017) and rural areas in Manitoba to complete an adaptation plan to suit their specific needs. As such, the approach is flexible—it can include a review of climate risks and adaptation actions for municipal infrastructure and services, private homes and buildings, natural ecosystems and the well-being of residents. Municipalities will require resources and capacity to successfully complete the adaptation plan, including financial resources, time allocation and trained staff. To leverage resources, smaller communities may consider partnering with others within a larger area.

The guides are intended for use by any municipal employee seeking to lead or participate in the climate adaptation planning process in their community. No previous experience in adaptation planning is required because the guide provides background information about

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climate change and adaptation and provides step-by-step guidance for navigating the planning process.

As you read this adaptation planning guide, you will see these icons to help you navigate:

 The open book icon shows where actions are linked to specific worksheets in the workbook to help complete this step. Some steps do not have worksheets.

 The light bulb icon shows a helpful resource (also included in the Resource Library at the end of this adaptation planning guide).

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Overview of the Process

This guide follows the five stages of the adaptation planning process shown in Figure 1. Specifically, it covers Stages 3, 4 and 5 of the process. The CRVA guide covers Stages 1 and 2 of the adaptation planning process.

Stage 1: Starting the process: Considerations for adaptation planning describes how to prepare for an adaptation planning process. You will need to take steps like raising awareness of climate change, explaining the need for an adaptation plan and confirming the plan's scope and objectives. Then, you will work on building a team; identifying knowledge keepers, funding agencies and peers; finalizing a work plan; and creating a community profile.

Stage 2: The climate vulnerability and risk assessment (CVRA) guides you to think about how climate change will impact your community. You will think about how to identify, evaluate and prioritize climate change risks. This stage will help you decide how to manage those risks and which risks to focus on first.

Stage 3: Adaptation planning helps you create a plan to address your climate risks in order of priority. You will think about the timeline, costs, resources, team and more.

Stage 4: Implementation describes how to put your plan into action. You will think about getting approval from decision-makers, finding funds to pay for the work and adding your plan to municipal budgets and policies. This stage is iterative to include improved climate change knowledge and reflect changes in your community.

Stage 5: Monitoring, evaluation and learning (MEL) helps you evaluate your plan's progress and effectiveness. You will use the tools in this stage and new information about climate risk to update your adaptation plan on a regular basis. Information gathered through MEL activities produces important insights that help with the ongoing learning of what works (or does not work) and how to regularly revisit and improve the implementation of the adaptation plan.

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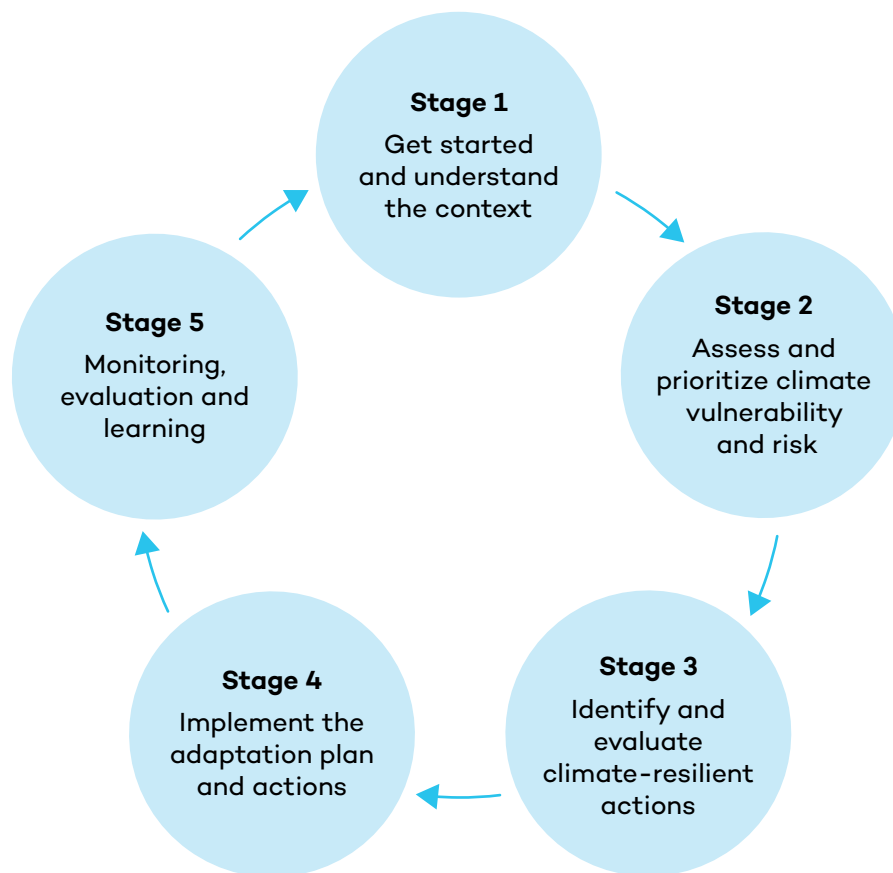
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Figure 1. The adaptation planning process



Source: Intergovernmental Panel on Climate Change (IPCC), 2014.

The most successful adaptation plans all follow a similar set of principles. Communities are encouraged to follow them during the adaptation planning process and across other efforts to prepare for climate change.

- **Transparent:** The process should be accessible and well documented. Its process and outcomes should be shared with the community.
- **Inclusive:** Climate change will affect community members differently depending on their personal circumstances (e.g., people experiencing homelessness, newcomers to the community without established local family networks, etc.). To capture these differences, a diverse group of community members and relevant actors should be included in the adaptation planning process to share their perspectives and experiences. Inclusivity also helps to ensure broader community

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support for the plan and increases the likelihood of successfully implementing its actions. This principle also prioritizes the need to embrace meaningful engagement with Indigenous Peoples, working together on a shared path to climate resilience.

- **Equitable:** The process should seek to address the climate risks facing all community members, ensuring that the most vulnerable people are not left behind. It should also ensure that prioritized risks and potential adaptation actions do not result in unintended negative consequences or increase inequality between people, groups, or other communities.
- **Iterative:** The adaptation planning process should be regularly updated and revised to incorporate new knowledge, lessons learned and changes within communities.
- **Well informed:** The adaptation planning process should draw on the best available sources of information, including scientific information on climate change, as well as local knowledge and Indigenous Knowledge systems.
- **Integrated:** The adaptation planning process should seek to align with existing plans and decision-making processes. Integrating adaptation into existing municipal processes can help to maximize the benefits to the community (e.g., effective asset management, applying natural infrastructure approaches, reducing carbon emissions and supporting energy efficiency). It can also help reduce the chance of duplicating work at the municipal level.

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Stage 3. Adaptation planning

Purpose: Create a list of adaptation actions that will help reduce your community's vulnerability to climate risks and increase your resilience to the impacts of climate change.

Refer to the workbook worksheets 16 to 18 for the steps in Stage 3 of the adaptation planning process. Use the workbook to follow this step-by-step process.

Within the adaptation planning stage, your team will

- **identify potential adaptation actions** for each of the prioritized consequences identified during the CVRA. These actions may seek to prevent or reduce the anticipated harm associated with the consequences. They might also aim to take advantage of benefits resulting from climate change, if possible.
- **evaluate these potential actions** to assess which ones can most realistically be undertaken. You will consider specific criteria (e.g., financial resources, organizational capacity, impacts on other stakeholders and community support). Then, you will prioritize the adaptation actions you plan to pursue.
- **prepare an adaptation plan** that identifies the actions you will pursue, sets out a timeline for key steps and includes information about the team and anticipated costs.

As with the previous stages, adaptation planning is best completed as a participatory process that brings together team members and, potentially, other relevant actors and community members with expertise.

Identify Potential Adaptation Actions

Start by thinking about potential adaptation actions for each of your prioritized consequences. Brainstorm as many possible adaptation actions as you can without considering any barriers or constraints, such as time, money, or expertise. You will consider those factors later, during the evaluation step. For now, try to think of as many ideas as possible.

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For example, potential adaptation actions to reduce the risk of flooding may include

- moving development out of the floodplain,
- raising existing buildings within the floodplain,
- upgrading stormwater systems,
- conserving or restoring wetlands,
- making flood risk maps more easily accessible and
- conducting outreach to homeowners about actions they can take to reduce risk to their properties.

To identify potential adaptation actions, you could hold a workshop session with the assessment team or external relevant actors. You could also involve specific groups responsible for managing different parts of an organization (e.g., different municipal departments) or with connections to different members of your community (e.g., social service providers).

Adaptation actions can take multiple forms and do not always require a physical change or upgrade. Consider potential adaptation actions in community policy, human resources, operation and maintenance, nature-based solutions, information or awareness-raising projects and research. Some types of adaptation actions include

- **physical interventions**, such as strengthening flood protection structures;
- **policy interventions**, such as changes to land-use bylaws;
- **human resources-focused interventions**, such as training that increases staff capacity to undertake adaptation measures;
- **operation and maintenance-focused interventions**, such as increasing inspections of critical infrastructure or investing more in proactive maintenance to maintain drainage capacities;
- **nature-based solutions**, such as restoring or expanding wetlands and forested areas;
- **information-related interventions**, such as increasing a community's awareness of actions that individuals can take to reduce a current or projected risk;
- **social interventions** that address the specific vulnerabilities of groups that have been identified as being particularly at risk; and
- **research-related interventions** to better understand the potential changes in a climate hazard or its consequences.

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When identifying potential adaptation actions, keep in mind the concepts of

- **incremental adaptation**, which involves taking steps that build on or improve actions that have been undertaken in the past. For example, a municipality might expand drainage capacities by installing larger culverts to better cope with an increase in the intensity of rainstorms. As another example, the Red River Floodway's capacity was expanded after the flood of 1997 to protect against a once-in-700-year flood.
- **transformational adaptation**, which involves profound, systematic, structural changes compared to actions undertaken in the past. For example, a business that has relied on winter tourism may need to redefine itself to become more focused on summer tourism opportunities as winters become warmer and shorter.

Most actions identified in adaptation plans are incremental. But if you anticipate significant impacts due to climate change in your area, it is a good idea to also consider transformational actions—even if you likely will not implement them in the immediate future.

WORKSHEET

Use *Worksheet 16. Potential adaptation actions for each climate hazard* (pages 50–53).

Evaluate the Potential Adaptation Actions

The goal of this step is to assess which adaptation actions can most realistically be implemented in your community. Your evaluation will consider factors such as existing financing resources, staff capacity, timelines and support from key actors.

When evaluating adaptation actions, consider questions like:

- What barriers might restrict the community, service area, or sector's ability to accommodate changes in climate? Are they related to institutional resources, expertise, technology, leadership, or other factors?
- What, if any, programs and policies already help the community manage impacts and consequences?

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Your team can create your own criteria and definitions for scores. Alternatively, you can use the evaluation criteria in Table 10 in the Workbook, which shows how the City of Selkirk assessed its proposed actions. They used a four-point scale (where 1 is “very low” and 4 is “very high”) for six criteria:

- effectiveness
- affordability
- feasibility
- acceptability
- equity
- flexibility

Using a worksheet, you can score each of the potential actions based on how they perform for all the criteria. Adding up the scores for each action gives you a total score. You can then compare these total scores to create a short list of adaptation actions to include in your plan: those with higher scores should have higher priority than those with lower scores.

WORKSHEET

Use *Worksheet 17. Evaluation of potential adaptation actions* (pages 56–57) to evaluate your options and develop a final list of planned adaptation options.

Prepare an Adaptation Plan

Once you have created a list of prioritized adaptation actions, you can prepare a formal plan to implement them: an adaptation plan. It should include

- all of the adaptation actions to be completed,
- who will lead the implementation of each action and who will provide support,
- the timeline to implement each action and
- the anticipated cost and the expected source of (internal or external) funds to cover this cost.

For example, to address the potential for an increase in the number of heat waves, you might prioritize increasing access and operating hours of cooling spaces (e.g., existing facilities with air conditioning

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and water stations) or cooling stations (e.g., areas with shade, water stations, water misters, fans, etc.) in your community. Your adaptation plan should identify

- where and when these cooling spaces and stations will be established;
- who will be responsible for installing, maintaining and promoting them;
- whether the cost will be incorporated into a department's existing budget or whether you will need a grant from another level of government; and
- what alternatives exist for community members who are not able to access cooling spaces and stations.

WORKSHEET

Use *Worksheet 18. Information about each adaptation action* (pages 60–61) to document details of the adaptation actions.

RESOURCE

Examples of Adaptation Plans: The [City of Selkirk](#) and the [Town of Churchill](#) have prepared adaptation plans that you can review to inform your process.

The adaptation plan should also describe the steps your team has taken to identify climate hazards, assess and prioritize climate impacts and consequences and evaluate adaptation actions. This document provides a valuable record of your process, which can then inform future adaptation planning efforts. This information can also be useful when your team does outreach and engages with people within and outside of your organization. Your adaptation plan should include the following:

- acknowledgements of your team, relevant actors, workshop participants and community members;
- a statement of commitment from elected officials or city council expressing their commitment to aligning and integrating the adaptation plan with other relevant policies and plans;
- an executive summary;
- a glossary that explains key terms;
- an introduction;
- background information that describes climate change and why adaptation planning is important for your community;

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- a community profile that documents the important characteristics of your community, such as its historical people, economy, assets, natural environment and critical services;
- a description of climate impacts that describes climate change projections for your community and the steps your team has taken to understand climate hazards, impacts and consequences;
- the vision, goals and objectives of your community’s adaptation plan;
- prioritized adaptation actions, along with explanations of considerations for implementing them;
- an implementation schedule that provides a timeline for implementing each action, including dates and the departments or relevant actors responsible; and
- additional information, such as a description of the monitoring, evaluation and learning (MEL) system you will use to understand the effectiveness of your adaptation actions.

Remember that adaptation planning is an iterative process. You should periodically revisit your plan, assess your progress and reprioritize your climate hazards and adaptation actions. Not all adaptation actions will be doable this time around. You may choose to prioritize early, easy-win adaptation actions to gain momentum. You may also need to

conduct further research to scope out more expensive or time-consuming adaptation actions, such as planning new or retrofitting existing infrastructure. Determine what actions are doable for your community at this time. You may also take smaller steps toward longer-term, larger-scale actions—for example, you might conduct a screening-level engineering assessment of at-risk infrastructure to scope more detailed work that will be completed in the future.

Once you have completed your adaptation plan, it may need to be approved by the city council, band council, or board of directors.



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Stage 4. Implementation

Purpose: Put into place adaptation actions that will help reduce your community's vulnerability to climate risks and increase your resilience to the impacts of climate change.

Opportunities for integrating adaptation actions into your community's routine processes include

- annual budget planning cycles;
- revisions to regulations and policies, strategies, plans and processes, such as land-use planning and environmental impact assessments;
- asset management planning;
- updates to operation and maintenance schedules;
- procurement processes, such as for new or refurbished infrastructure; and
- community monitoring processes, such as citizen science programs, to involve residents and monitor things that are influenced by climate (e.g., length of allergy season or the arrival of migrating birds).

Implementation also includes securing the financial resources required to implement your adaptation actions. These funds can be allocated from internal budgets or secured through external grants and funding opportunities.

No worksheets are provided for Stage 4, as each community is unique with its own approach to management, budgeting, project approvals and more.

RESOURCE

The NAP Global Network developed an [Inventory of Innovative Financial Instruments](#), which may be helpful for understanding the kind of funding available and how different lending schemes work. It could also inspire your team to think creatively about how your community can fund climate adaptation.

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Stage 5. Monitoring, Evaluation and Learning (MEL)

Purpose: MEL helps you understand, inform and enhance your climate change adaptation efforts. It involves gathering data to track your progress, evaluating the results and learning from experience. Continuously challenging your assumptions by assessing the evidence helps you improve your adaptation actions.

This stage helps you understand what works or does not work to build resilience to climate change. You will ask why it works or does not work and how the context and people involved affect the outcomes. These answers will help you adjust your actions and communicate the results to relevant actors who are affected by them.

WORKSHEET

Use Worksheet 19. *Outline of your monitoring, evaluation, and learning (MEL) system* (page 65) to describe the elements of your MEL system.

Outline Your Monitoring, Evaluation and Learning (MEL) System

Use a MEL system to report on your adaptation plan's progress, assess which actions have been successful and which have not and update decision-makers on a regular basis. The information gathered through this process can also support your future efforts to update the CVRA and the adaptation plan.

MEL involves asking questions, including:

- **Monitoring:** Are we implementing the plan as we expected to? Are we achieving the plan's goals and objectives?
- **Evaluation:** Is the plan leading to a lower climate risk? Would implementing other actions lead to better outcomes?
- **Learning:** What has worked well? Why, or why not? What contributed to our successes or challenges? Where can we improve? Have our adaptation actions caused any unintended consequences to other relevant actors in the region?

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It is also important to remember that MEL is a dynamic and evolving process. It is good practice to start simple, based on what already exists and improve it over time.

 WORKSHEET

Use *Worksheet 19: Outline your MEL system* (page 65) to define the key elements of your MEL system.

Data Collection, Management and Analysis

Data is essential for monitoring and evaluating adaptation interventions. It can help you track changes in your community's vulnerability, risk, resilience, adaptive capacity and overall well-being. While quantitative data is important, it also has some limitations. MEL should not rely solely on quantitative information, but should also incorporate qualitative, narrative information from relevant actors and people affected by adaptation actions.

Before determining the information your community will need to collect, look back at the information you collected in Stage 1. Consider any existing MEL systems, data sources and climate change adaptation indicators that your community can already access. Table 1 shows some examples of common data sources used for MEL systems for climate change adaptation.

Table 1. Different strategies used to collect information about monitoring, evaluation and learning (MEL) systems for climate change adaptation

Data sources	Description	Examples of sources
Interviews	One-on-one conversations to gather qualitative data	Interviews with key actors and experts
Surveys and questionnaires	Structured sets of questions to gather quantitative or qualitative data	Online surveys, paper surveys
Focus groups	Small group discussions to gather qualitative insights	Community focus groups, expert panels
Scorecards	A systematic criteria-based tool for evaluating the effectiveness of activities, projects, or entities	Evaluation scorecards, performance metrics, qualitative and quantitative comparisons

Data sources	Description	Examples of sources
Stories of change	Narrative accounts that describe transformations or impacts due to interventions	Interviews, video testimonials, written stories, blog posts, qualitative content analysis, storytelling
Case studies	In-depth examination of a specific intervention	Interviews, observational data, archival records, surveys, qualitative or quantitative analyses, content analyses
Workshops	Structured, interactive sessions for discussion, brainstorming, or problem-solving	Facilitator-led discussions, participant presentations, group work activities, real-time polling, thematic analysis
Satellite and remote sensing	Technologies that provide geographic and atmospheric data about land use, temperature and erosion	Geospatial data, NASA, National Oceanic and Atmospheric Administration satellite data, Google Earth, remote sensing, drones, geographical information systems analysis
Weather stations	Localized data on weather patterns	Local meteorological stations
Environmental sensors	Instruments deployed to measure specific environmental variables, such as air and water quality	Air quality sensors, water quality sensors, data logging
Climate models	Mathematical representations of the climate system used for projections and simulations	IPCC models, national climate models, simulations

Source: Authors.

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Consider how you will collect, manage and analyze data related to the adaptation plan. Consider the following:

- **Storage:** Where and how will the data be stored?
- **Organization:** How will the data be categorized and accessed?
- **Security:** What data protection measures will you take?
- **FAIR:** What steps will you take to ensure that the data is findable, accessible, interoperable and reusable?¹

You will use this data to track your progress toward the ultimate goal of your adaptation plan.

 **RESOURCE**

[Introducing Indicators: A First Look at Using Indicators to Measure Adaptation Progress](#) from ICLEI Canada.

Reviewing and Updating Your Adaptation Plan

As noted in Step 3.3 (Prepare an adaptation plan), adaptation planning is an iterative process. You should review your adaptation plan on a regular basis, such as every 5 years or in line with other relevant local, provincial, or national policy cycles, to ensure that it remains up to date. This iterative process is similar to Hazard Risk and Vulnerability Assessments and other provincially regulated documents that require regular reviews.

When reviewing your adaptation plan, consider the following:

- Is there new research about climate hazards, such as improved climate models or enhanced climate data sets, that could change the assessment of climate impacts, consequences and opportunities? This research could include improved or updated climate models, enhanced climate data sets, or newly available public climate portals.
- Has there been a change in the socio-economic or broader environmental context that could affect potential climate hazards, impacts, or consequences? Examples may include a recent local or regional extreme weather event, new decision-

¹ For a description of the FAIR concept, see: <https://www.statcan.gc.ca/en/wtc/data-literacy/catalogue/892000062022002>

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makers with different viewpoints on climate adaptation, or shifts in public perceptions of risk (e.g., the COVID-19 pandemic).

- Are the adaptation actions already implemented effective in reducing a specific climate impact or consequence? Are other actions needed? Are the actions yielding equitable outcomes for particularly vulnerable groups?
- What challenges have been encountered in the implementation of planned adaptation actions? How can these be overcome in the next iteration?
- Could any federal or provincial programs help increase resilience in your region?

Your MEL system should play a big role in this review. Based on the results, you may decide to slightly adjust the adaptation plan to include new approaches, tools, or actions. If major changes are necessary, you may need to repeat Stage 2 of the adaptation planning process.

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Conclusion

With the completion of this adaptation planning guide, your community now has a plan to build its resilience to the impacts of a changing climate. We hope these guidebooks and accompanying workbook have helped you prepare for the impacts of climate change by reducing the climate risks to your residents' health and well-being, as well as your infrastructure, services and local ecosystems.

Remember that while adaptation planning may seem intimidating, people who know their community intimately—like you and your team—are in the best place to lead this effort. When you need help, guidance, or just to talk, lean on the existing resources and local experts highlighted throughout this guidebook. Extreme and unpredictable weather is only likely to increase and taking steps to safeguard your community is urgent and crucial. Your adaptation plan will evolve and change as your community does and as scientists learn more about climate change and how it is likely to affect different regions.

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Resource Library

These resources can provide additional information to support you as you take the steps described in this adaptation planning guide.

Adaptation Actions

- The Centre for Indigenous Environmental Resources has developed a [Climate Change Adaptation Planning \(ICCAP\) Toolkit](#); *Guidebook 4: Identifying Solutions* works with community members to list and prioritize adaptation actions.
- *Community-Based Adaptation to a Changing Climate* shares adaptation actions specific to municipal services, such as waste management, transportation and emergency response.
- Part 3 of the Federation of Canadian Municipalities' [A Plan for Action](#), video 3 in its [Climate in Focus – Jump Start Your Municipality's Climate Action Journey](#) series, describes how municipalities can partner with relevant actors to develop an adaptation plan.
- The [Adaptation Library](#) is a publicly accessible and searchable collection of adaptation resources.
- *Getting Started: Exploring Entry Points Into Adaptation* helps integrate climate change adaptation into municipal decision-making and entry points (e.g., land-use planning, emergency planning).
- *Introducing Indicators* is a helpful guide from ICLEI about understanding how to develop indicators as a key step in your MEL process.
- The [City of Selkirk](#) and the [Town of Churchill](#) have prepared adaptation plans that provide useful examples of adaptation actions.
- The NAP Global Network developed an *Inventory of Innovative Financial Instruments*, which may be helpful for understanding the kind of funding available and how different lending schemes work.

Monitoring, Evaluation and Learning (MEL)

- *Introducing Indicators: A First Look At Using Indicators To Measure Adaptation Progress* from ICLEI Canada.

Other Guidebooks

- All One Sky Foundation's *Climate Resilience Express* provides an overview of the necessary steps to take to develop a locally driven climate adaptation plan. This guide supports their workshop-based process for adaptation planning.

- [*Climate Change Adaptation Planning and Creation of a Local Early Action Plan: A Guide for Facilitating a Co-Created Adaptation Planning Process in Indigenous Communities*](#) by the Resilience Institute and All One Sky Foundation describes how Western science and Indigenous Knowledge can be woven together to co-create local early action plans and climate adaptation plans in Indigenous communities.
- Developed by Natural Resources Canada and the Canadian Institute of Planners, [*Climate Change Adaptation Planning: A Handbook for Small Canadian Communities*](#) details a six-step process to help small communities in Canada with the adaptation planning process.
- The [*California Adaptation Planning Guide: Planning for Adaptive Communities*](#) explains the importance of climate adaptation and details a nine-step process for adaptation planning. Although the guidebook focuses on California, the document clearly explains necessary considerations for the adaptation planning process and supplements the material with a number of examples.
- Natural Resources Canada's [*Land Use Planning for Local Adaptation to Climate Change*](#) explores how municipalities can incorporate climate change adaptation into land-use planning tools such as zoning, official plans and design guidelines.
- The [*Climate SMART Community Action Guide to Climate Change and Emergency Preparedness*](#) by the Halifax Regional Municipality provides a number of tips and actions that people can take to mitigate greenhouse gas emissions and adapt to the impacts of climate change. It also outlines the adaptation planning process with a focus on emergency preparedness.
- ICLEI Canada's [*Changing Climate, Changing Communities: Guide and Workbook for Municipal Climate Adaptation*](#) uses a milestone approach to help municipalities develop climate adaptation plans. The guide is accompanied by 17 worksheets that can be used during the adaptation planning process.
- The [*U.S. Climate Resilience Toolkit*](#) is an online platform that hosts videos, case studies, maps, training courses and guides on climate resilience and adaptation planning.
- [*Preparing for Climate Change: An Implementation Guide for Local Governments in British Columbia*](#) by West Coast Environmental Law provides an overview of the adaptation planning process and identifies a number of tools that can be used by local governments to implement climate change adaptation strategies, such as zoning bylaws and watershed management plans.

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If you have questions throughout the process, please contact:

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