



# Pathways to climate resilience: A

*Most residents of rural, forest-based communities in Canada have experienced slow and steady climate and ecosystem changes as well as extreme weather events such as wildfires, floods, or high winds that have threatened or damaged property and, in some cases, taken lives.*

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A guidebook that helps communities think about climate change and its local impacts in a structured way is being developed as a joint effort of Natural Resources Canada (NRCAN), the Canadian Model Forest Network, and FORREX. Partially funded by the Forest Investment Account–Forest Science Program, the guidebook’s purpose is to assist rural, forest-based communities in Canada become more climate resilient. Especially created for smaller communities (less than 15,000 population), the guidebook acknowledges that while small communities are especially exposed to the impacts of climate and climate change, there are also opportunities for them to benefit from climate change.

Most residents of rural, forest-based communities in Canada have experienced slow and steady climate and ecosystem changes as well as extreme weather events such as wildfires, floods, or high winds that have threatened or damaged property and, in some cases, taken lives. While not all rural residents accept the scientific identification of greenhouse gas emissions as the source of climate change, most can identify changes that have affected their lives.

Responding to climate change involves both mitigation—reducing greenhouse gas (GHG) emissions to deter future climate changes—and adaptation—responding now to current and future climate changes. Initially, efforts to integrate climate change information in community decisions focused on mitigation and GHG reduction. Attention to adaptation has gained momentum very recently, particularly as extreme weather events have tested community emergency services.

The guidebook integrates research findings from NRCAN research projects<sup>1</sup> and other studies of rural climate change adaptation as well as lessons from climate change adaptation projects in rural communities and other guidebook initiatives. The 2007

NRCAN publication *From Impacts to Adaptation: Canada in a Changing Climate*<sup>2</sup> provides a nationwide information source for implementing this guidebook’s approach.

Four principles underscore the guidebook:

- **Climate resilient, not climate proof:** The exact nature of long-term climate and environmental changes are not possible to define with complete certainty because of incomplete knowledge about climate change. In fact, it is likely that we will be surprised by some of the changes, either because we had not expected or planned for them, or because they will occur earlier than expected. Therefore, it is not possible to “climate proof” any community. However, it is possible to become more “climate resilient,” which is the emphasis of this guidebook.
- **Mainstreaming climate change information:** Climate change is likely to touch the lives of every resident in forest-based communities in more than one way. For example, flooding may damage property and roads and block travel and supply routes; hot summer days may tax older residents without air cooling; and workers in forestry, tourism, agriculture, and mining may experience work disruptions from wildfire risks, droughts, or unstable snow conditions. Over time, most residents, businesses, and governments will need to change some of their actions to adjust to climate changes, making it important that information about climate change be as mainstream as possible. Every person should be given the opportunity to share their views and learn about both past and possible future local climate changes and potential adaptation actions. Community-wide approaches for information exchange are encouraged in the guidebook.
- **Challenges and opportunities:** Rural Canadian communities have always contended with weather-related challenges, with forest-based communities coping through additional disruptions because of their often isolated locations. Much has been written about the “challenges” of climate change for rural communities—pest outbreaks, flooding, wildfires, and economic disruptions. Unlike most global areas, in Canada,

- 1 Williamson, T. B., et al. 2007. A framework for assessing vulnerability of forest-based communities to climate change. Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre. Information Report NOR-X-414 [http://nrc.cfs.nrcan.gc.ca/bookstore\\_pdfs/27507.pdf](http://nrc.cfs.nrcan.gc.ca/bookstore_pdfs/27507.pdf)
  - 2 Williamson, T. B., et al. 2008. Assessing potential biophysical and socioeconomic impacts of climate change on forest-based communities: A methodological case study. Natural Resources Canada, Canadian Forest Service, Northern Forestry Centre. Information Report NOR-X-415E [http://nrc.cfs.nrcan.gc.ca/bookstore\\_pdfs/29156.pdf](http://nrc.cfs.nrcan.gc.ca/bookstore_pdfs/29156.pdf)
- 2 Lemmen, D.S., F.J. Warren, and E. Bush (editors). 2008. From impacts to adaptation: Canada in a changing climate 2007. Government of Canada, Ottawa, ON. [http://adaptation.nrcan.gc.ca/assess/2007/index\\_e.php](http://adaptation.nrcan.gc.ca/assess/2007/index_e.php)



# guidebook for forest-based communities

the warming that is forecast, especially at northern latitudes, may create opportunities such as increased wood supply or expanded diversity of timber species, which will benefit the timber sector, enhance recreation and cultural activities for residents, or expand agriculture and tourism potential. The guidebook encourages communities to contemplate both challenges and opportunities.

- **Focused on action:** Many rural residents and senior governments are turning to municipal and other forms of local government to take leadership in responding to climate change. While it is essential that local governments are involved in strengthening local climate resilience, it isn't essential that they lead the process. This guidebook could be used by any community organization or individual who seeks to better understand local climate change and wants to strengthen their resilience or the resilience of their family, their workplace, the community organizations they are involved with, or their community as a whole.

The guidebook maps out a “trail to climate resilience” with the following steps along the trail:


- **Getting prepared:** Decide who to involve, whether to enrich an existing community process or start a new process, and what information is needed.
- **Local climate futures:** Document local observations of climate change and environmental changes, and those historical climate trends that may help to highlight changes and forecast future climate.
- **Mapping impacts and opportunities:** Document and forecast environmental changes, potential community impacts, and global climate induced factors.
- **Exploring resilience:** Assess existing climate risk and community ability to address these risks, as well as future climate risks and potential actions to increase resilience.
- **Taking action:** Prioritize potential actions, identify lead organizations, and funding, and define communication and review tasks.

As all communities are different, with differing levels of readiness, interest, and capacity to evaluate climate change adaptation actions, the

guidebook provides a variety of “pathways” for each destination along the trail. For example, historical climate information and future forecasts of climate conditions can be very complex and difficult to understand. The guidebook provides several different ways to access this information and alternative ways to present the information from text to charts and maps. Each user is encouraged to select the “pathways” that work best for them, or to invent new pathways that meet their needs.

Each chapter contains:

- alternative approaches to inform and involve community members, technical specialists, managers, and community sectors (e.g., forest industry, emergency services, and municipal governments, etc.);
- tools and techniques for accessing and presenting information;
- advice from communities that have created climate change adaptation plans;
- definitions of important terms; and
- case studies from forest-based communities that have experienced each step in this guidebook.

Rural Canadians know how to pull together to support one another through difficulties. The climate change we are now experiencing, and will experience in the future, will test our ability to adapt and calls for new and different ways of coping with new conditions. This guidebook helps communities identify wise actions to improve climate resilience. 

*The guidebook is expected to be available by the end of 2009. For further information about the guidebook, contact Michael Slivitzky ([MSlivitz@NRCan.gc.ca](mailto:MSlivitz@NRCan.gc.ca)), Tim Williamson ([TWilliam@NRCan.gc.ca](mailto:TWilliam@NRCan.gc.ca)), or Ajit Krishnaswamy ([ajit.krishnaswamy@forrex.org](mailto:ajit.krishnaswamy@forrex.org)).*