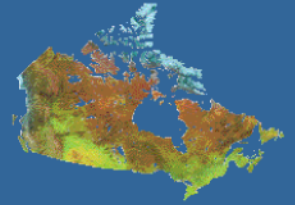


CIP Conference: Climate Change + Communities  
October 2-5, 2010



# Lessons learned from Canadian municipal climate change adaptation initiatives

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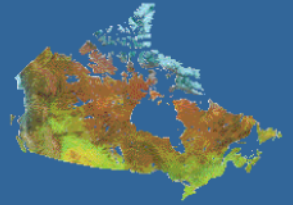


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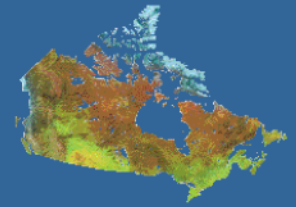
# Outline



- CCIAD
- Context
- Case studies
- Lessons learned
- Conclusion



# The Climate Change Impacts & Adaptation Division (CCIAD)



## CCIAD:

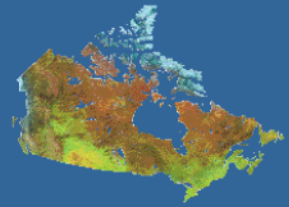
- generates and shares knowledge, tools and mechanisms to integrate adaptation into policy, plans and projects.
- works in collaboration with stakeholders across all levels of government and industry.

## Two major programs:

1. Regional Adaptation Collaboratives
2. Tools for Adaptation

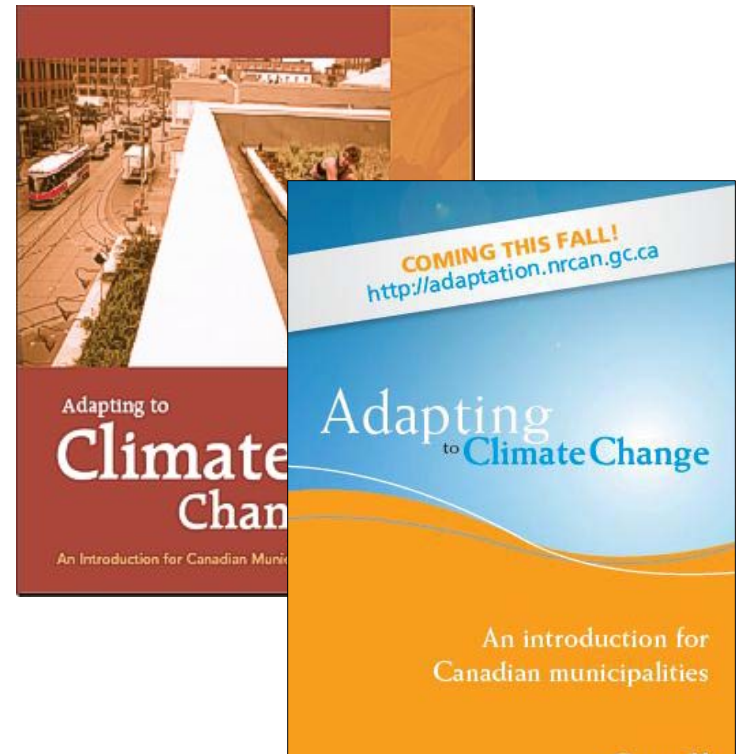


# Context

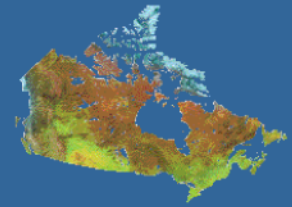


## Adapting to Climate Change: An Introduction for Canadian Municipalities

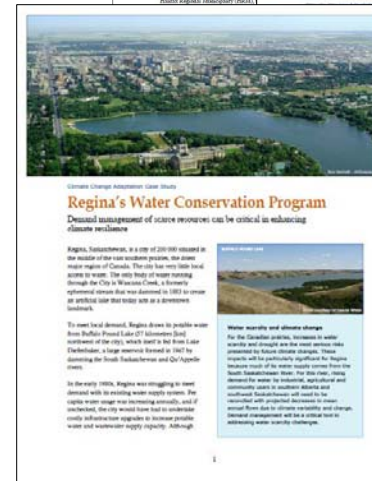
The booklet provides municipal decision-makers and staff with information to help them understand the need for climate change adaptation and how to put adaptation measures in place.



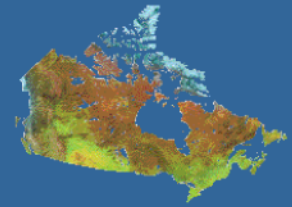
# Case Studies



The case studies illustrate a range of climate change impacts and possible adaptation policies and measures, using municipalities of varying sizes from across Canada.



# Case Studies



1. Clyde River, NU
2. Kamloops, BC
3. Metro Vancouver, BC
4. Edmonton, AB
5. Regina , SK
6. London, ON
7. Toronto, ON
8. Quebec City, QC
9. Le Goulet, NB
10. Halifax, NS
11. Annapolis Royal, NS



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Climate Change Adaptation  
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cover. The impact of these ch  
spurred intergovernmental c  
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undertake climate change ad  
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In 2006, a three-day worksh  
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agency climate change adapt  
for Nunavut. One key recent  
workshop was to pilot small-  
adaptation planning process  
communities. Representative  
Clyde River and Hall Beach  
project. These pilot projects  
iterative, collaborative proc  
members (including school a  
-makers), scientists and pro  
and traditional knowledge ar  
recognized to be of paramou

Climate Change Adaptation Case Study

**Regina's Water Conservation Program**

Demand management of scarce resources can be critical in enhancing climate resilience



Regina, Saskatchewan, is a city of 200 000 situated in the middle of the vast southern prairies, the driest major region of Canada. The city has very little local access to water. The only body of water running through the City is Wascana Creek, a formerly ephemeral stream that was dammed in 1883 to create an artificial lake that today acts as a downtown landmark.

To meet local demand, Regina draws its potable water from Buffalo Pound Lake (57 kilometres [km] northwest of the city), which itself is fed from Lake Dielschbaker, a large reservoir formed in 1967 by damming the South Saskatchewan and Qu'Appelle rivers.

In the early 1980s, Regina was struggling to meet demand with its existing water supply system. Per capita water usage was increasing annually, and if unchecked, the city would have had to undertake costly infrastructure upgrades to increase potable water and wastewater supply capacity. Although

**Water scarcity and climate change**

For the Canadian prairies, increases in water scarcity and drought are the most serious risks presented by future climate changes. These impacts will be particularly significant for Regina because much of its water supply comes from the South Saskatchewan River. For this river, rising demand for water by industrial, agricultural and community users in southern Alberta and southwest Saskatchewan will need to be reconciled with projected decreases in mean annual flows due to climate variability and change. Demand management will be a critical tool in addressing water scarcity challenges.



Each case study outlines the impact of changing climate on the community, the catalyst for developing a plan, the plan-making process, measures adopted, next steps and lessons learned.



Photo courtesy of Jennie Delley-O'Call

Climate Change Adaptation Case Study

## Edmonton's Urban Forest Management Plan

This example illustrates how climate change can effectively be incorporated into a municipal plan for managing urban forests

Edmonton, Alberta has 299,000 landscape trees on City property, including boulevards and parks. These trees provide a plethora of valuable ecological services to the City. They keep neighbourhoods cool, improve air quality, provide wildlife habitat, remove carbon dioxide from the atmosphere, retain storm water runoff and prevent erosion. In addition, trees add substantial aesthetic, recreational and economic value to communities. However, this valuable asset is at risk as recent drought, insect infestations, disease and storms are taking a heavy toll on Edmonton's extensive urban tree canopy.

In the last decade, more than 30,000 trees (an average of 4,300 annually) have died due to drought conditions and secondary pests, compared to a previously more typical number of losses in the range

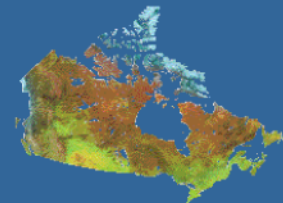
Tree losses in Edmonton

| Year | Losses |
|------|--------|
| 2002 | 4,300  |
| 2003 | 5,200  |
| 2004 | 6,200  |
| 2005 | 4,300  |
| 2006 | 3,000  |
| 2007 | 3,400  |
| 2008 | 4,100  |

of 600 to 900 annually (see inset box). The scale and intensity of the drought-related tree deaths are a major challenge for the City. Even with a capital infusion of \$2.75 million to augment replanting efforts in 2003/4 and the City's determination to replace every felled

# **Overview of Canadian municipal adaptation actions**

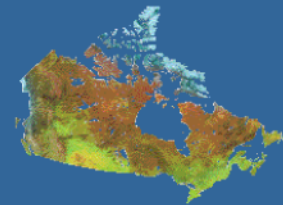
# Drivers for action



- Responding to climate events
- Learning from experiences of other cities
- Addressing other priorities (i.e. where adaptation is a co-benefit of other municipal actions)



# No single approach is appropriate for all communities



Each community contends with:

- Unique geography and climate impacts
- Regional differences in legal systems, laws, institutions and cultural traditions
- Available resources to dedicate to adaptation planning and action



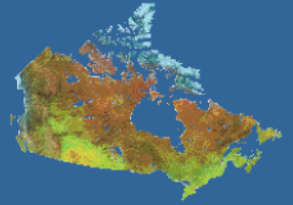
Photo courtesy of David Mate



Photo courtesy of Redroom Studios



# A diverse range of adaptation actions are being undertaken

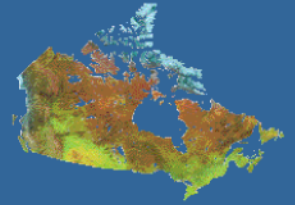


- Frequently, adaptation actions are embedded or integrated in a municipality's existing plans and strategies
- Other communities have developed adaptation-specific plans, policies, regulations or programs that may target
  - One adaptation issue/measure (i.e. extreme heat)
  - Or address multiple climate-related impacts that cross-cut various departments



# **Key elements for successful municipal adaptation action**

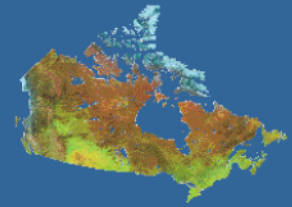
# Local champion(s)



- In many cases it takes one or more champions (inside or outside of government) to keep adaptation initiatives alive in the face of the many competing municipal priorities



# Vulnerability Assessment



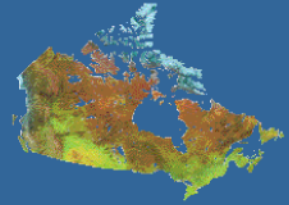
- Assessing the vulnerability of a community – its assets, operations, policies and programs – to climate change is a common first step for many municipalities



Photo courtesy of the University of Moncton

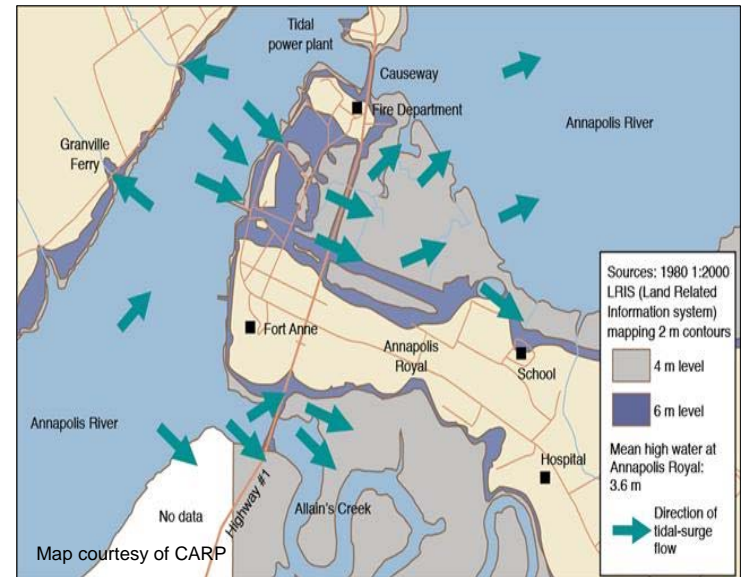


# Vulnerability Assessment

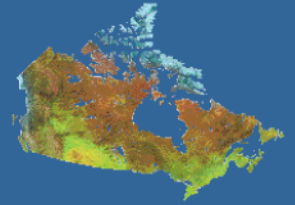


Most often climate change does not present new risks, but rather it serves as a multiplier of current risks

- Assessment may be conducted internally by staff or by outside specialists.



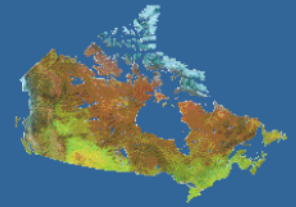
# Public engagement



- Dialogue, discussion and public consultations are important means to arrive at community consensus
- Municipalities engage residents through various means: public consultations, workshops, focus groups and surveys



# Collaboration between communities & technical/scientific experts



- Interdisciplinary collaboration is particularly useful when addressing complex challenges that cut across many sectors, such as climate change.
- Planners often draw upon expertise of outside technical and scientific experts throughout the adaptation process.

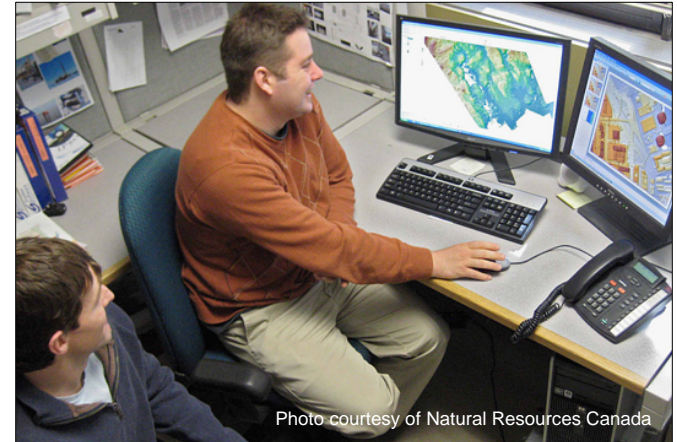
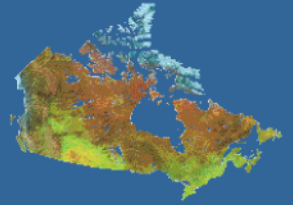


Photo courtesy of Natural Resources Canada



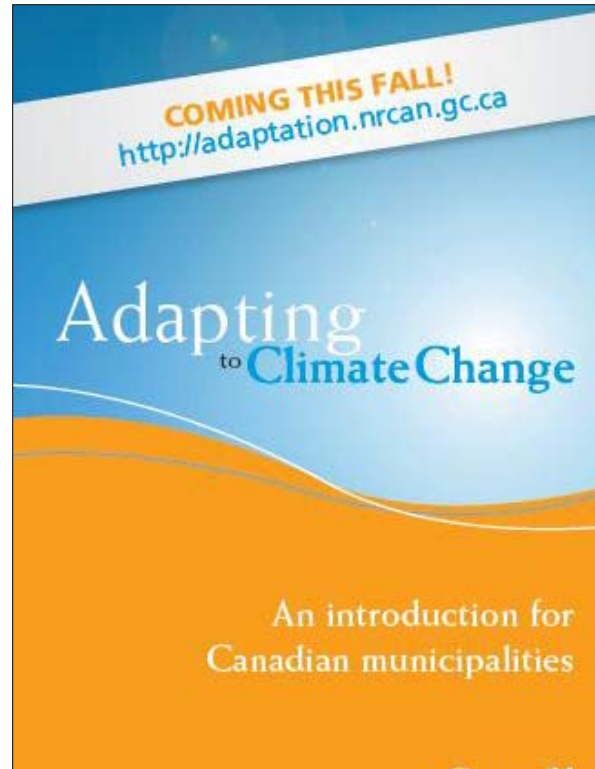
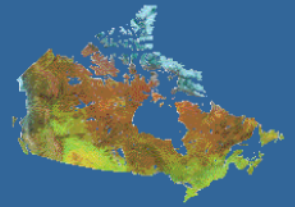
# Conclusion



- The foundation of adaptation experience is growing rapidly
- However, it's still early days and learning from each other is a very important part of the process
- It may be hard to discuss failures & disappointments, but it's necessary
- Information resources are available to help municipalities:
  - new risk assessment methods, planning guidebooks and decision-support tools



# Thank you!



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