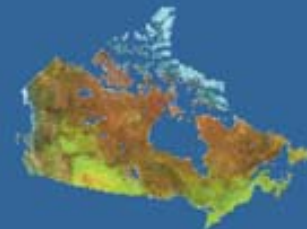


Mississippi Valley Conservation
Wednesday June 13, 2012



Lessons learned from Canadian municipal climate change adaptation initiatives

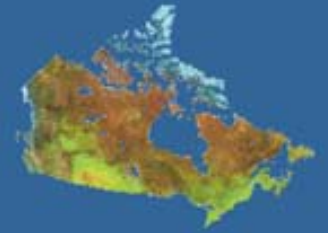
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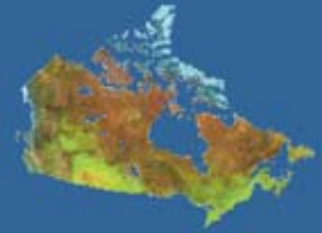
Outline



- CCIAD
- Case studies
- Lessons learned
- Conclusion



The Climate Change Impacts & Adaptation Division (CCIAD)



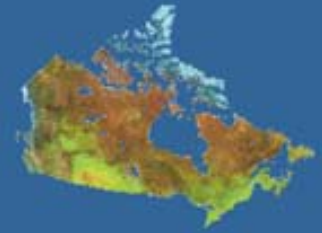
CCIAD works in practical ways to advance the leading edge of adaptation.

Approaches:

- Capacity building
- Science assessment
- Science – policy integration



Planning for climate change



- Project led by the Canadian Institute of Planners
- To increase the capacity of the Canadian planning community to address adaptation in their work.

Activities included:

- Climate Change Policy for Canadian Planners
- Training for planners - university & in-service
- Adaptation guidebook for rural communities
- Model Standard of Practice, Planning Report Card
- International Conference - Montreal Oct 2-5, 2010

www.planningforclimatechange.ca

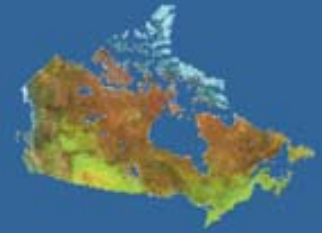


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Adapting infrastructure to a changing climate



- Led by Engineers Canada
- To build capacity of Canada's engineers to address adaptation in their practice
- Established the Public Infrastructure Engineering Vulnerability Committee (PIEVC)
- Created an Engineering Protocol to assess infrastructure vulnerability
- Applied the protocol in 23 case studies
- Trained engineers in its use

pievc.ca

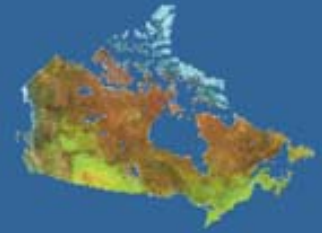


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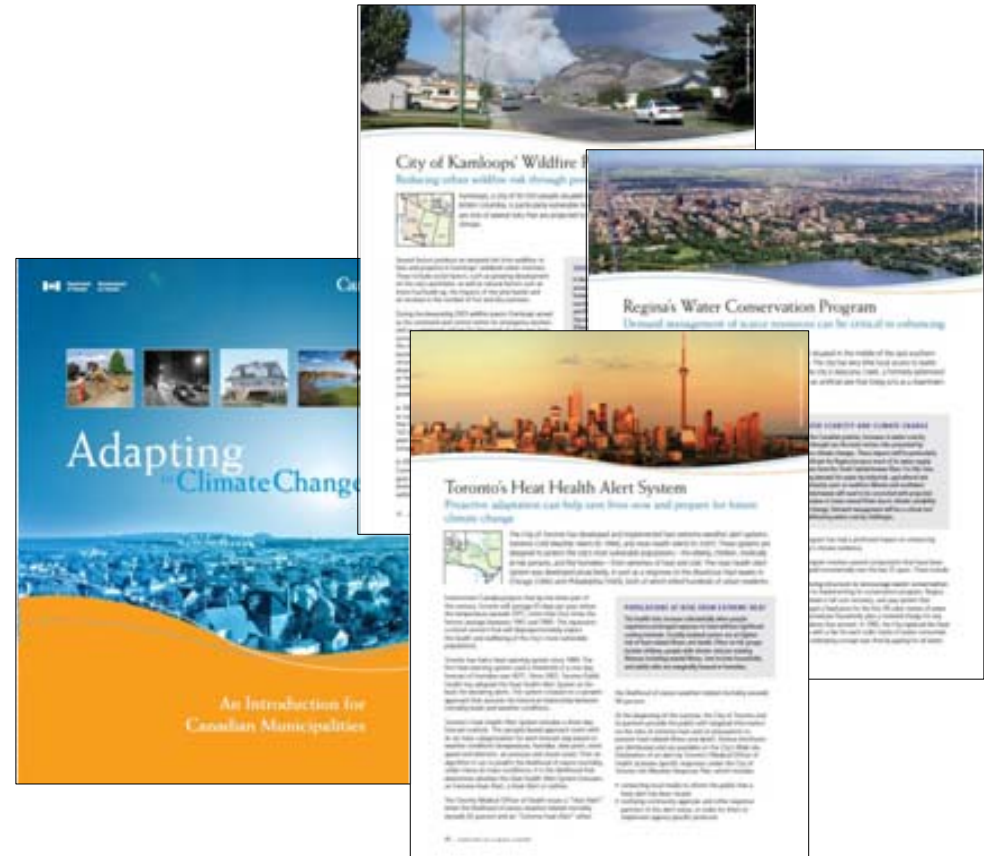
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Case Studies



- 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. Dawson, YK
2. Clyde River, NU
3. Elkford, BC
4. Kamloops, BC
5. Metro Vancouver, BC
6. Edmonton, AB
7. Regina , SK

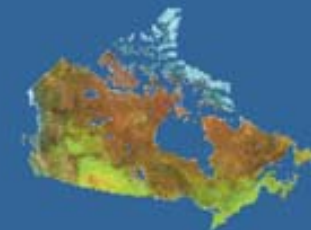
8. London, ON
9. Toronto, ON
10. Quebec City, QC
11. Le Goulet, NB
12. Halifax, NS
13. Annapolis Royal, NS



- 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.



Case Studies



1. Dawson's Climate Change Adaptation Plan



2. Risk-based adaptation and community planning in Elkford



Dawson, Yukon



Dawson's Climate Change Adaptation Plan



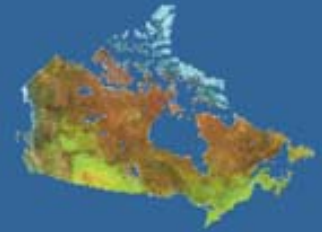
- Dawson, Yukon, (population 1,900) is built on a narrow floodplain near the confluence of the Klondike and Yukon rivers.
- Dawson residents are becoming increasingly concerned about the impacts of a rapidly warming northern climate on their community and livelihoods.
- In 2007, the Northern Climate ExChange, a Yukon-based non-profit organization, began working with Dawson to develop an adaptation plan.

The adaptation planning process proceeded in four steps:

1. Climate change projections
2. Identification of sensitivities and opportunities
3. Risk evaluation
4. Final recommendations



Dawson's Climate Change Adaptation Plan



Risk Evaluation Framework:

For each of the 78 community consequences identified, risk evaluation tables were completed jointly by the project team and Local Advisory Committee, and then vetted by the Technical Advisory Committee

COMMUNITY CONSEQUENCE		Permafrost decline forces re-engineering of the town site.
RISK EVALUATION CRITERIA	1. LEVEL OF IMPACT	High
	2. LIKELIHOOD	Unknown (i.e. the knowledge needs to be gathered)
	3. ADAPTIVE CAPACITY	Low
OVERALL PRIORITY LEVEL		High
SUGGESTED ADAPTATION ACTION		Detailed permafrost assessment
LEAD PARTNER(S)		Yukon Government, Government of Canada, Tr'ondëk Hwëch'in, City of Dawson

Elkford, British Columbia



Risk-based adaptation and community planning in Elkford, BC



- The District of Elkford is a small community (population 2,500) in the Rocky Mountains of south-eastern British Columbia.
- Historically, Elkford has dealt with several climate-related hazards, including flooding, drought and wildfires.
- A changing climate serves as a magnifier of all of these risks.
- In 2008, Elkford developed a local Adaptation Strategy that assesses the risks posed by climate change and identifies corresponding adaptation actions.

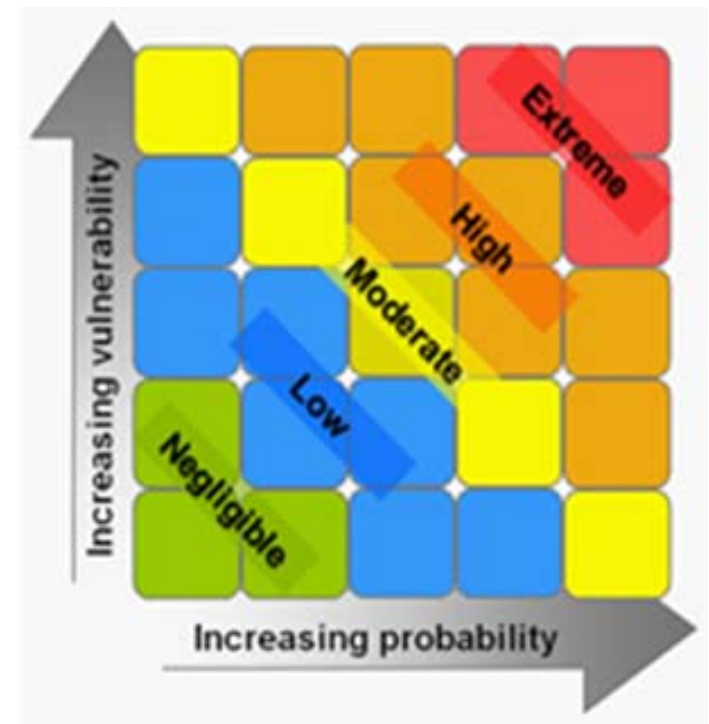
Risk-based adaptation and community planning in Elkford, BC



RISK EVALUATION FRAMEWORK

The project team filled in the following tables for each climate-related issue of concern to the community, based on the findings of their literature review and stakeholder workshop discussions.

SENSITIVITY & EXPOSURE	Current and expected risk
	Expected climate and non-climatic changes
ADAPTIVE CAPACITY	Potential adaptation actions
	Barriers
RISK EVALUATION CRITERIA	1. Degree of sensitivity (low, medium, high)
	2. Adaptive capacity (low, medium, high)
	3. Probability of occurrence in a 20-year planning period (unlikely to occurs frequently)
Overall risk (negligible to extreme)	



Overview of Canadian municipal adaptation actions

Drivers for action

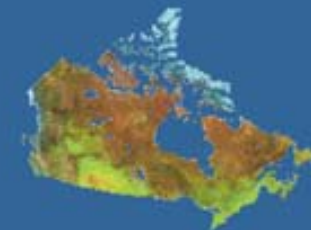


- Responding to climate events
- Learning from experiences of other cities
- Addressing other priorities (i.e. where adaptation is a co-benefit of other municipal actions)



Photo courtesy of the Corporation of Delta

No single approach is appropriate for all communities

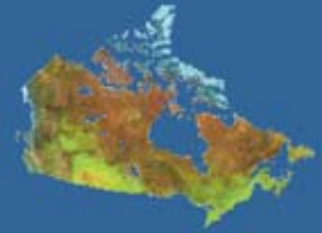


Each community contends with:

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



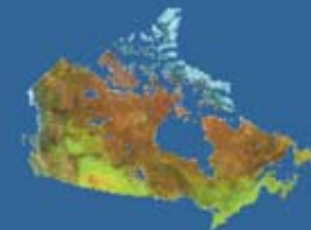
A diverse range of adaptation actions are being undertaken



- 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) and public participation



- In many cases it takes one or more champions to keep adaptation initiatives alive in the face of the many competing municipal priorities
- Dialogue, discussion and public consultations are important means to arriving at a desirable adaptation action
- Municipalities engage residents through various means: public consultations, workshops, focus groups and surveys



Vulnerability Assessment



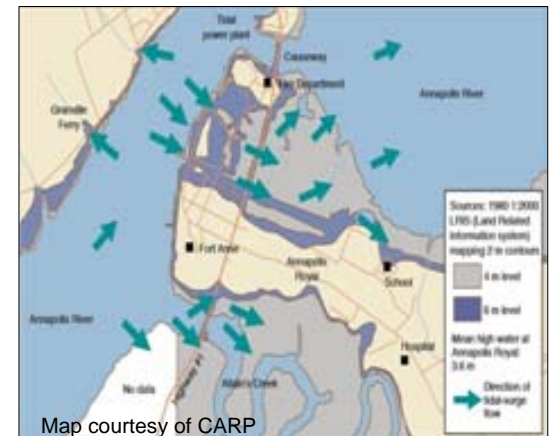
- Assessing the vulnerability of a community – its assets, operations, policies and programs – to climate change is a common first step for many municipalities



Photo courtesy of the University of Moncton

- Climate change generally exasperates existing risks

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



Map courtesy of CARP

Collaboration between communities & technical/scientific experts



- Interdisciplinary collaboration is particularly useful when addressing complex challenges that cut across many sectors, such as climate change.
- Peer to peer networks are important means of advancing information exchange
- Planners often draw upon expertise of outside technical and scientific experts throughout the adaptation process.



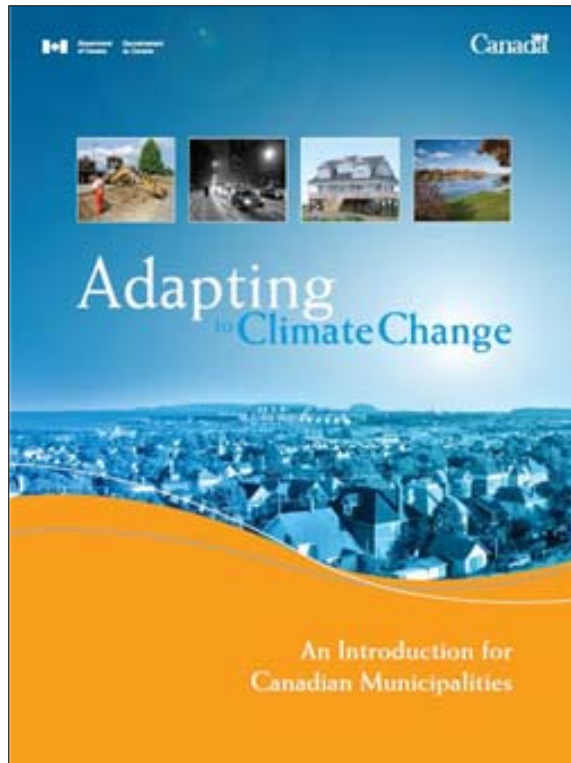
Conclusion



- The foundation of adaptation experience is growing rapidly
- 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!



**Final version
available Fall 2012**

Land use
planning tools for
local adaptation
to climate
change

**Authors: Gregory R.A.
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