



REPORT

# Canada in a Changing Climate

## National Issues



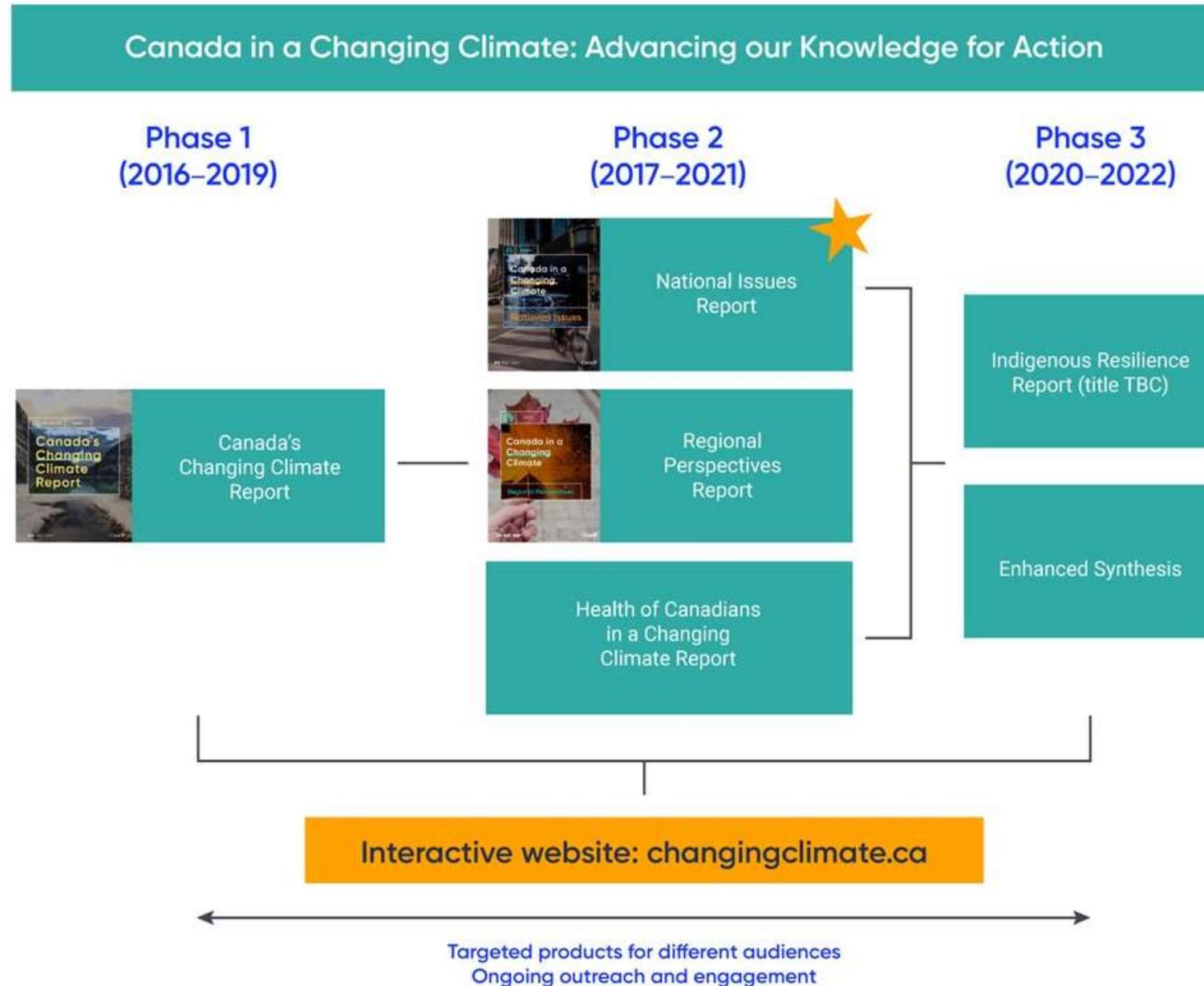
Government  
of Canada

Gouvernement  
du Canada

Canada

1. The assessment process
2. Key findings of the *National Issues Report*
3. Our website: [changingclimate.ca](http://changingclimate.ca)
4. Conclusion and next steps
5. Panel discussion with the lead authors

# New report released under “Canada in a Changing Climate”



# Over 200 experts contributed to the *National Issues Report*



# What is the *National Issues Report*?

- Addresses climate change impacts and adaptation issues of **national importance** or that are **best understood through an integrated, pan-Canadian perspective**.
- Answers the questions:
  - **What do changes in climate mean** for those living in Canada?
  - **How can we adapt** to reduce risks and costs and take advantage of potential opportunities?
  - **Where have we made progress** on addressing climate change impacts and adaptation?
  - **Where do gaps in knowledge and action remain?**
  - **What are the key emerging issues?**



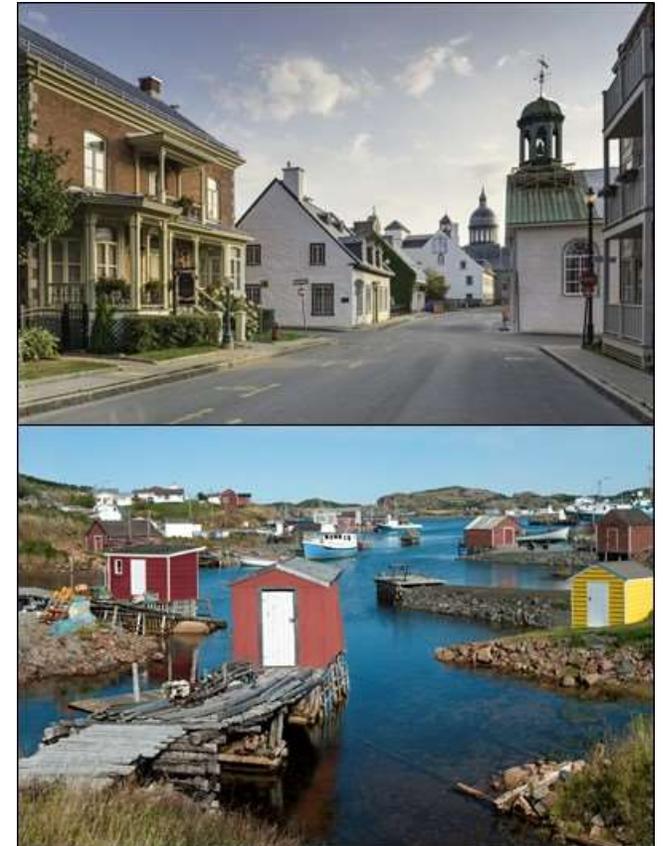
# Chapters on social, environmental and economic themes

1. **Introduction** (NRCan)
2. **Cities and Towns** (Vancouver Coastal Health)
3. **Rural and Remote Communities** (Memorial University)
4. **Water Resources** (Global Institute for Water Security, Universities of Saskatchewan & Calgary)
5. **Ecosystem Services** (David Suzuki Foundation)
6. **Costs and Benefits of Climate Change Impacts and Adaptation** (All One Sky Foundation & Basque Centre for Climate Change)
7. **Sector Impacts and Adaptation** (Natural Resources Canada)
8. **Climate Disclosure, Litigation and Finance** (Institute for Catastrophic Loss Reduction)
9. **International Dimensions** (ESSA Technologies Ltd.)

# Key finding 1/6

**Communities of all sizes across the country are experiencing the impacts of climate change on their infrastructure, health and wellbeing, cultures and economies.**

- Impacts on **infrastructure and service delivery** (especially from extreme events) are key risks.
- Losses are both **measurable** (e.g., economic) and **intangible** (e.g., loss of identity and sense of place).
- Impacts are **felt unequally** across society.



# Key finding 2/6

**Changes in climate are threatening the vital services that Canada's ecosystems provide and are negatively impacting our water resources.**

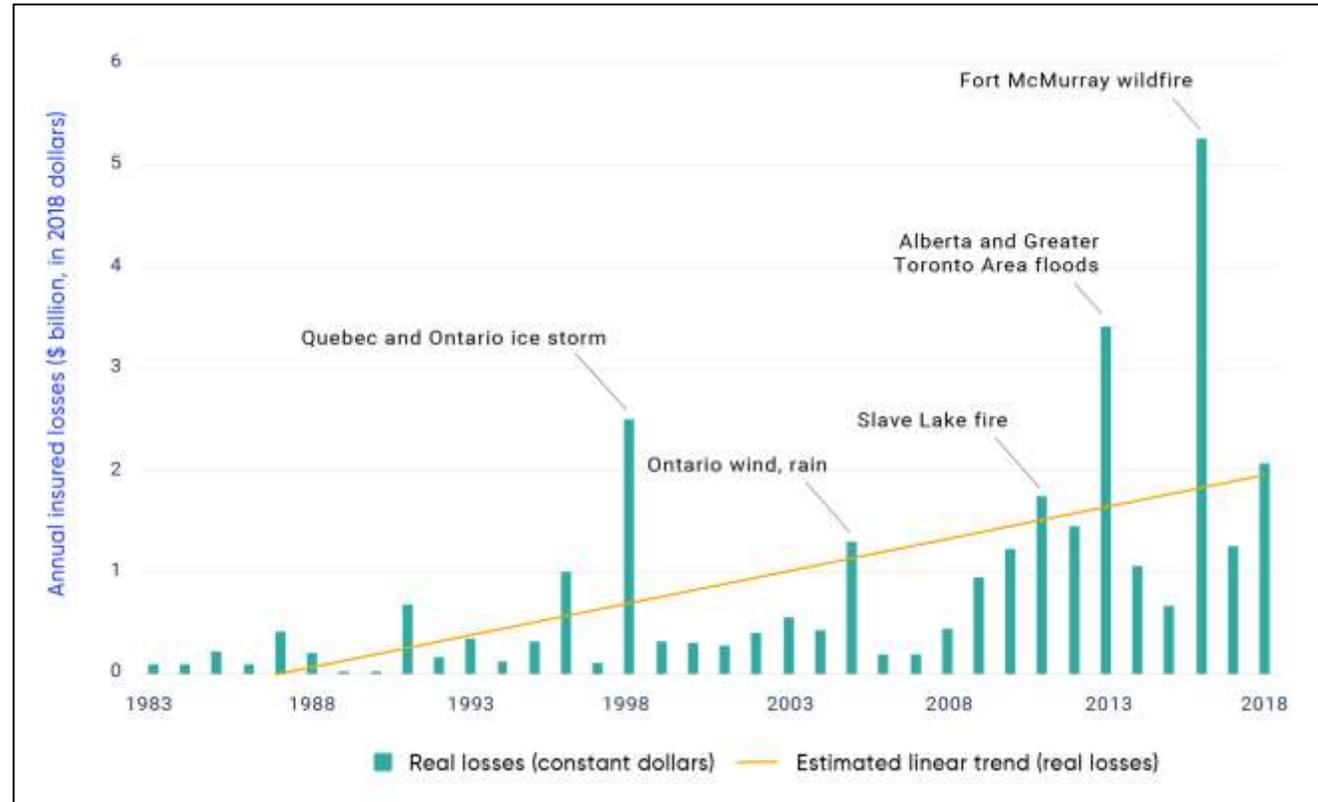
- **Ecosystem services** (e.g., food provision, clean air and water, climate regulation, etc.) are being threatened by extreme events and shifts in seasonal patterns.
- Climate change is **exacerbating water availability and quality issues**, as well as changing the nature and timing of floods and droughts.
- Ecosystems are part of the solution—**nature-based approaches** to adaptation maximize benefits.



# Key finding 3/6

**While climate change will bring some potential benefits, overall it will impose increasing economic costs on Canada.**

- **Losses from severe weather** events in Canada are significant and rising.
- Impacts will differ between **regions, sectors and cities** (from positive to highly negative).
- Impacts are evident along **production and supply chains.**
- Each dollar invested in adaptation generates, on average, **\$5-6 in benefits.**

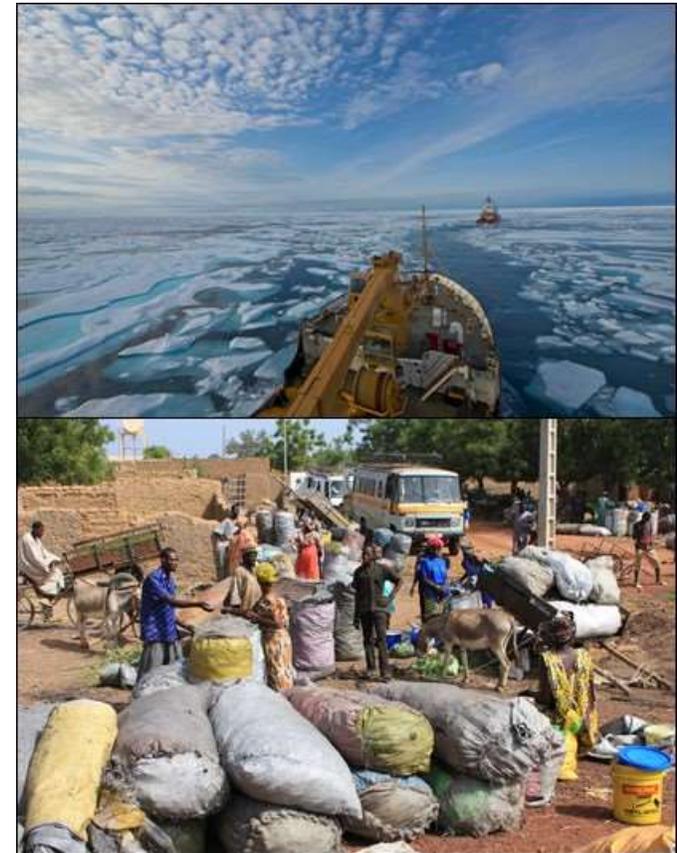


Annual insured losses from extreme weather events in Canada over the period 1983–2018. Data source: Insurance Bureau of Canada.  
(Costs and Benefits of Climate Change Impacts and Adaptation chapter)

# Key finding 4/6

## We must look beyond our borders when assessing the impacts of a changing climate for Canada.

- **Globally**, climate stressors will interact with non-climate factors to impact:
  - International trade;
  - Stability and conflict; and
  - Transboundary resources.
- **Indirect impacts to Canada** include:
  - Affordability of traded goods;
  - Supply losses and business interruptions;
  - Demands for international assistance; and
  - Sovereignty challenges related to Arctic shipping, including the Northwest Passage.



# Key finding 5/6

**Large gaps remain in our preparedness for climate change, as demonstrated by recent impacts of extreme weather events, such as floods and wildfires.**

- Clear evidence of a climate change **adaptation deficit** in Canada:
  - Implementation of adaptation is **not keeping pace with risks** of current weather extremes and future climate changes.
  - Nearly **every economic sector** in Canada is impacted.
  - No widespread evidence of **corporate adaptation** in Canada, and slow progress on implementation at the community level.
- Accelerating progress on adaptation through **rapid and deliberate plans and actions** is vital for Canada's economic and social well-being.



# Key finding 6/6

## Lessons on good practices are continuing to emerge to help guide successful adaptation.

- Factoring **social equity** in adaptation decisions reduces vulnerability and ensures that benefits are distributed fairly.
- **Indigenous Knowledge** is critical to understanding climate change impacts and informing adaptation planning.
- **Disclosure of climate-related risks** is emerging as a key driver of adaptation in the private sector.
- **Widespread collaboration** across sectors, levels of government, and organizations is needed to accelerate adaptation in Canada.
- Flexible approaches such as **adaptive management** are increasingly used to address climate change impacts.



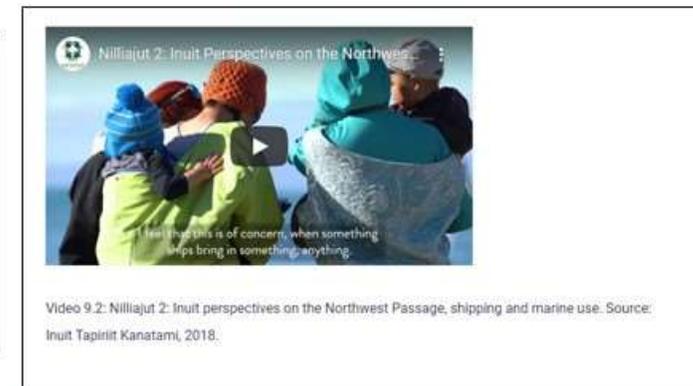
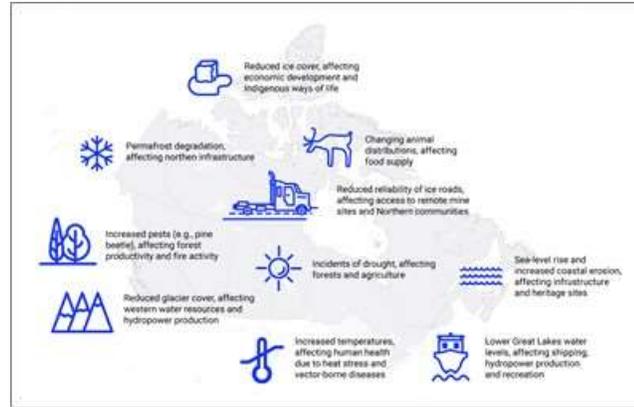
Clothing and tools made by artisans from a Tłıchǫ community in the Northwest Territories from tanned Barren-ground Caribou, a culturally-important species that is in decline, partly due to climate change. Photo courtesy of Pat Kane. (Ecosystem Services chapter).

# All reports are being delivered digitally

## Key features include:

- Embedded video;
- Illustrative photos;
- Shareable content;
- Downloadable figures (some interactive);
- Hyperlinks between sections and reports;
- Frequently asked questions; and
- Case Story map.

Interactive website: [www.changingclimate.ca](http://www.changingclimate.ca)



Chapters also available as accessible PDFs on the NRCan website and on [changingclimate.ca](http://changingclimate.ca)

# Map of Adaptation Actions provides examples of adaptation in practice

An interactive, searchable map with examples of adaptation in practice from a range of sources in Canada, including the National Knowledge Assessment:

- Targeted to decision-makers and adaptation practitioners
- Available at [changingclimate.ca](http://changingclimate.ca)



# Conclusion and next steps

The report **clearly demonstrates** that:

- Climate change affects nearly all sectors of Canada's economy, our communities and our environment;
- Increased efforts on adaptation are urgently needed; and
- Adaptation is critical to reducing risks and negative impacts on Canadians.

Stay tuned for release of:

- 5 regional chapters (fall/early winter);
- Health of Canadians in a Changing Climate Report (fall 2021); and
- Indigenous Resilience Report (*title TBD*)(spring 2022).

*All reports will be available at [changingclimate.ca](https://changingclimate.ca)*

# Today's Panelists

## Cities and Towns



Craig Brown

## Rural and Remote Communities



Kelly Vodden



Ashlee  
Cunsulo

## Water Resources



Al Pietroniro



Hayley Carlson

## Ecosystem Services



Michelle  
Molnar

## Sector Impacts and Adaptation



Catherine  
Lafleur

## Costs and Benefits of Climate Change Impacts and Adaptation



Richard Boyd

## Climate Disclosure, Litigation and Finance



Paul Kovacs

## International Dimensions

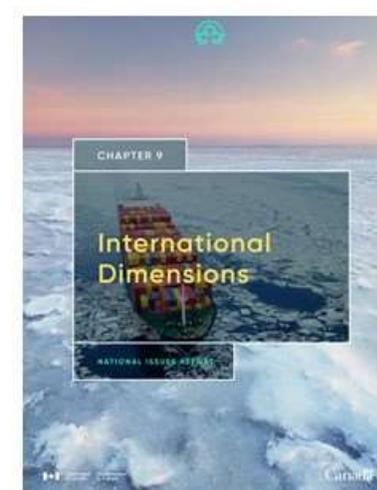
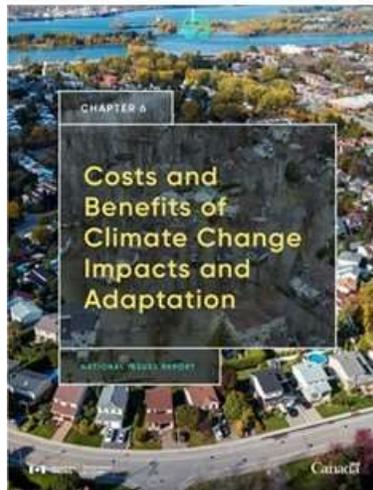
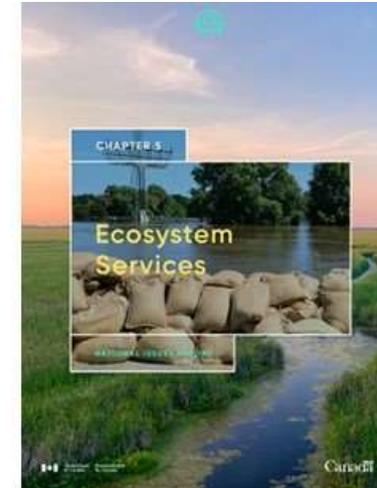
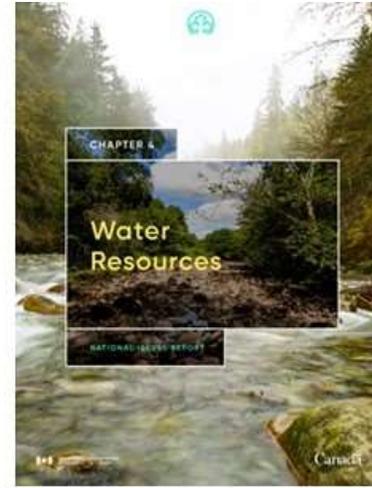
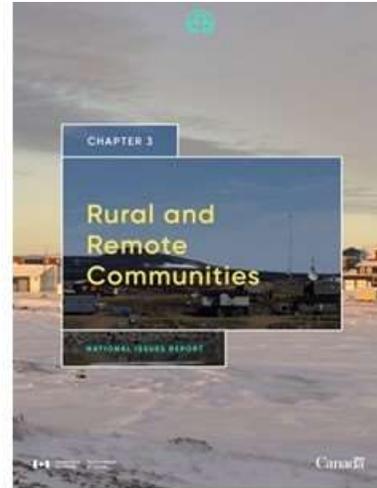
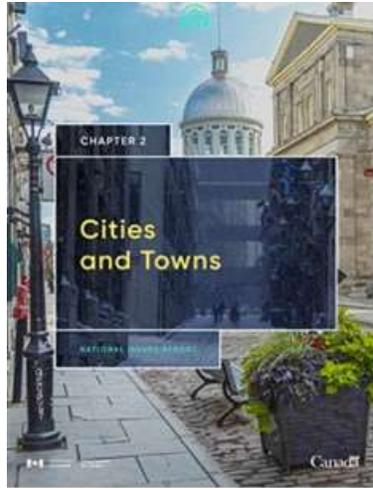


Jimena  
Eyzaguirre



Robert  
McLeman

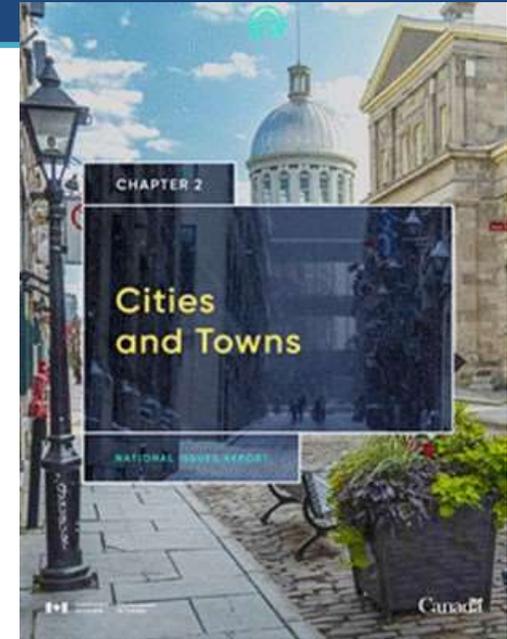
# Questions?



# Chapter Key Messages

## Key message takeaways

- Climate change is threatening Canada's ageing infrastructure
- Enhancing green spaces helps cities and towns adapt to climate change
- Climate change will hit those already struggling in cities and towns the hardest
- Working together yields the most successful outcomes
- Indigenous peoples in cities and towns are often affected in unique ways by climate change
- Cities and towns are moving from adaptation planning to implementation
- Monitoring and evaluation of adaptation is an important and often overlooked step

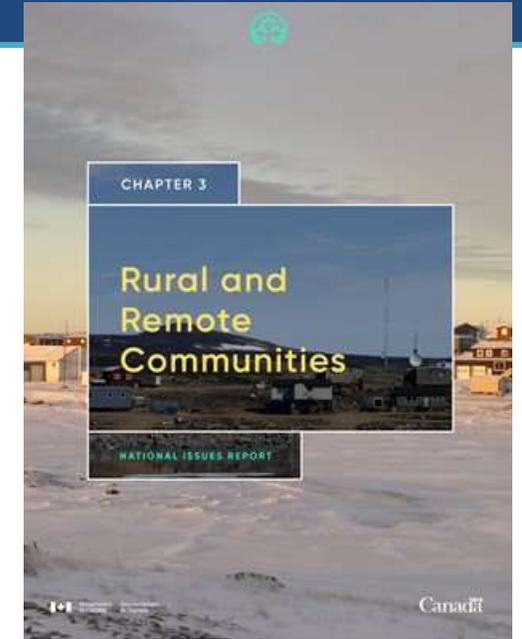


**CLA: Craig Brown**



## Key message takeaways

- Climate change is affecting rural and remote communities
- Local and Indigenous Knowledge are key to adaptation and understanding climate impacts
- Climate change is challenging livelihoods and economies
- Critical infrastructure and services are at risk
- Individual and community health and well-being are being negatively affected
- Climate change is resulting in intangible losses and damages
- Local participation in adaptation decision-making improves outcomes

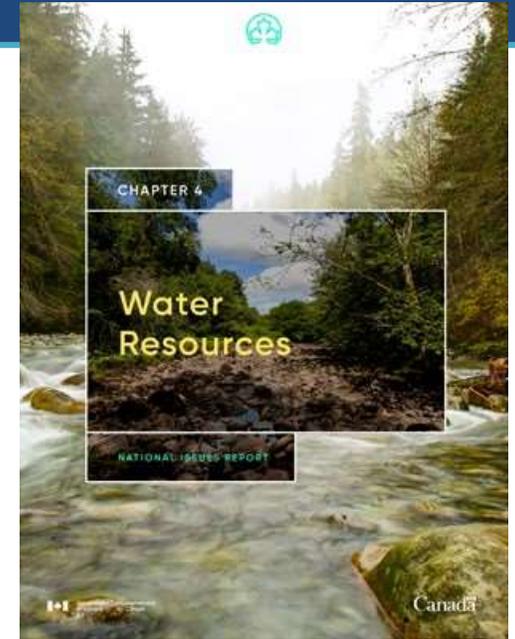


**CLA's: Kelly Vodden and Ashlee Cunsulo**



## Key message takeaways

- Climate change creates risks for water resources
- Effective coordination across complex water systems enhances adaptation
- Adaptation is advancing through innovation and adaptive management
- It is vital to engage the public and build awareness about adaptation opportunities
- Water system vulnerability can be reduced through quality data and resilient design

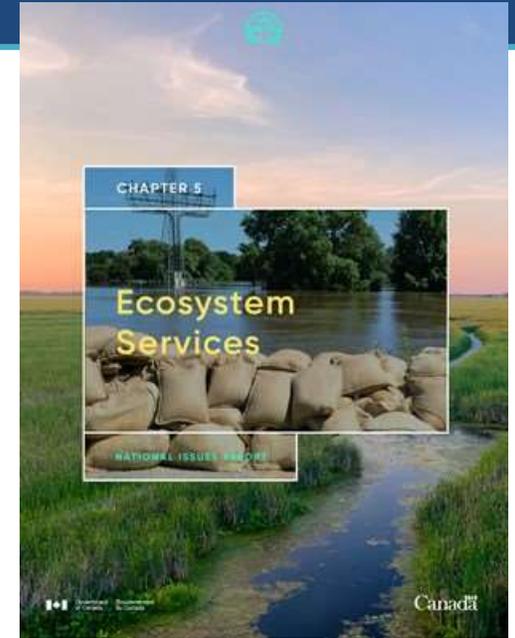


**CLA's: Al Pietroniro  
and Hayley Carlson**



## Key message takeaways

- Climate change is threatening Canada's ecosystems and the services they provide
- Impacts will vary across Canada's ecosystems and regions
- Indigenous Knowledge is vital to maintaining ecosystems
- Nature-based approaches to adaptation maximize benefits



CLA: Michelle Molnar

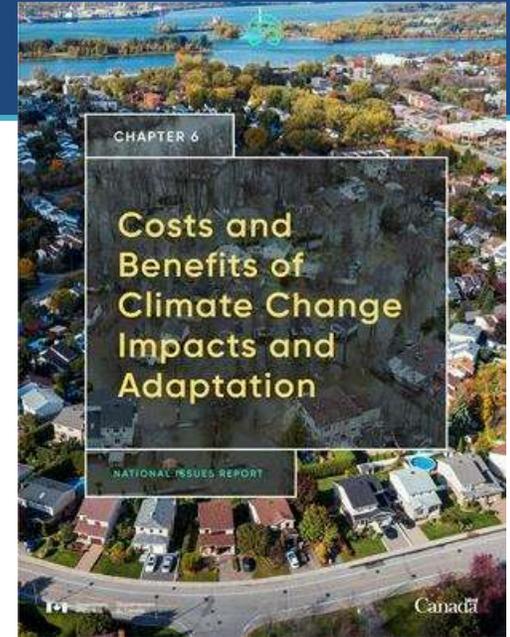


# Costs and Benefits of Climate Change Impacts and Adaptation

Chapter 6

## Key message takeaways

- Economic analysis helps to inform adaptation planning
- Climate change leads to a wide range of economic and social costs
- Costs related to extreme weather events are increasing
- Future climate change costs for Canada will be high
- Economic decision support tools help with assessing adaptation options
- The benefits of adaptation actions in Canada outweigh the costs
- There are economic barriers and limits to adaptation



**CLA: Richard Boyd**



## Key message takeaways

- Sustainable forest management is challenged by wildfires and pest outbreaks
- Changes to ocean health are affecting fisheries and associated livelihoods
- Climate change brings benefits and threats to the agriculture sector
- Climate change brings new environmental challenges for mining
- Each link of the energy value chain can be vulnerable to climate change
- Extreme weather events impact transportation, disrupting supply chains
- Climate change is leading to transformational changes in tourism



**CLA's: Don Lemmen  
and Catherine Lafleur**



## Key message takeaways

- Climate change risks and opportunities are business issues
- Climate-related disclosure drives climate action
- Transitioning to a climate-resilient low-carbon economy requires significant investments
- Investments in climate risk reduction build resilience
- Climate litigation is increasing against governments in Canada
- Climate litigation against the private sector is a potential risk

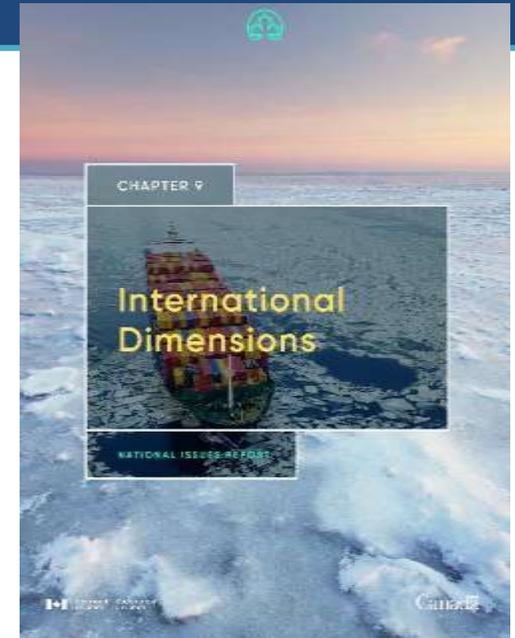


CLA: Paul Kovacs



## Key message takeaways

- Climate change affects Arctic shipping and threatens sovereignty
- Transboundary marine and freshwater agreements generally do not consider climate change
- Climate change presents risks and opportunities for international trade
- Climate-related human migration and displacement will increase demands for immigration to Canada
- Increased demand for international assistance is expected



**CLA: Jimena Eyzaguirre**

