



REPORT

Canada in a Changing Climate

National Issues



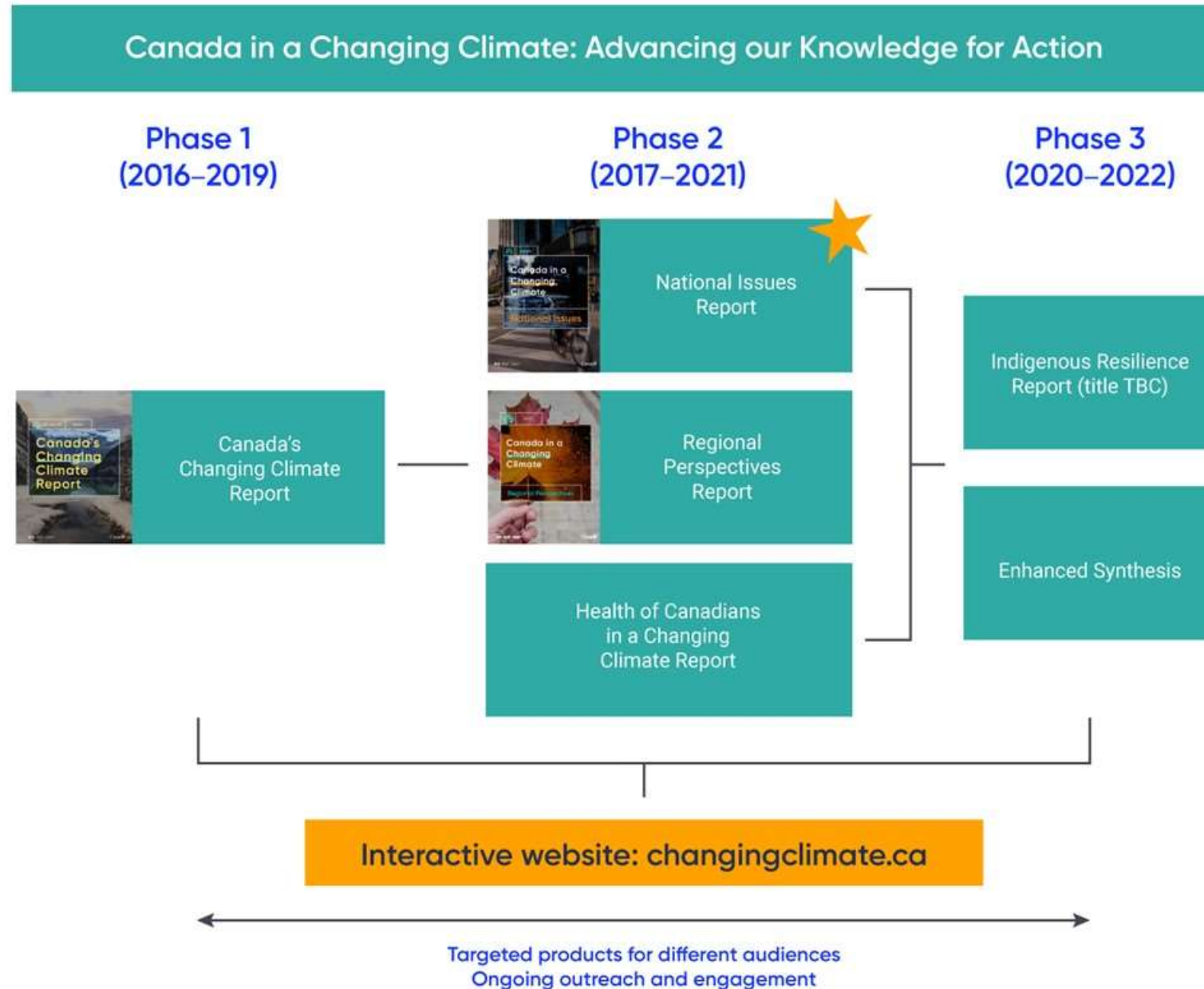
Government
of Canada

Gouvernement
du Canada

Canada

1. The assessment process
2. Key findings of the *National Issues Report*
3. Our website: changingclimate.ca
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?**



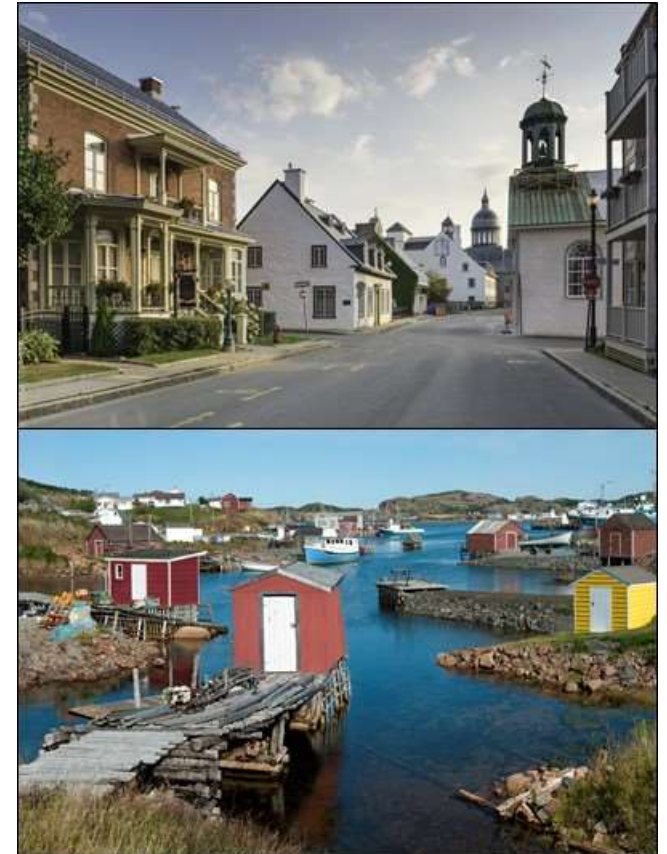
Chapters on social, environmental and economic themes

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.

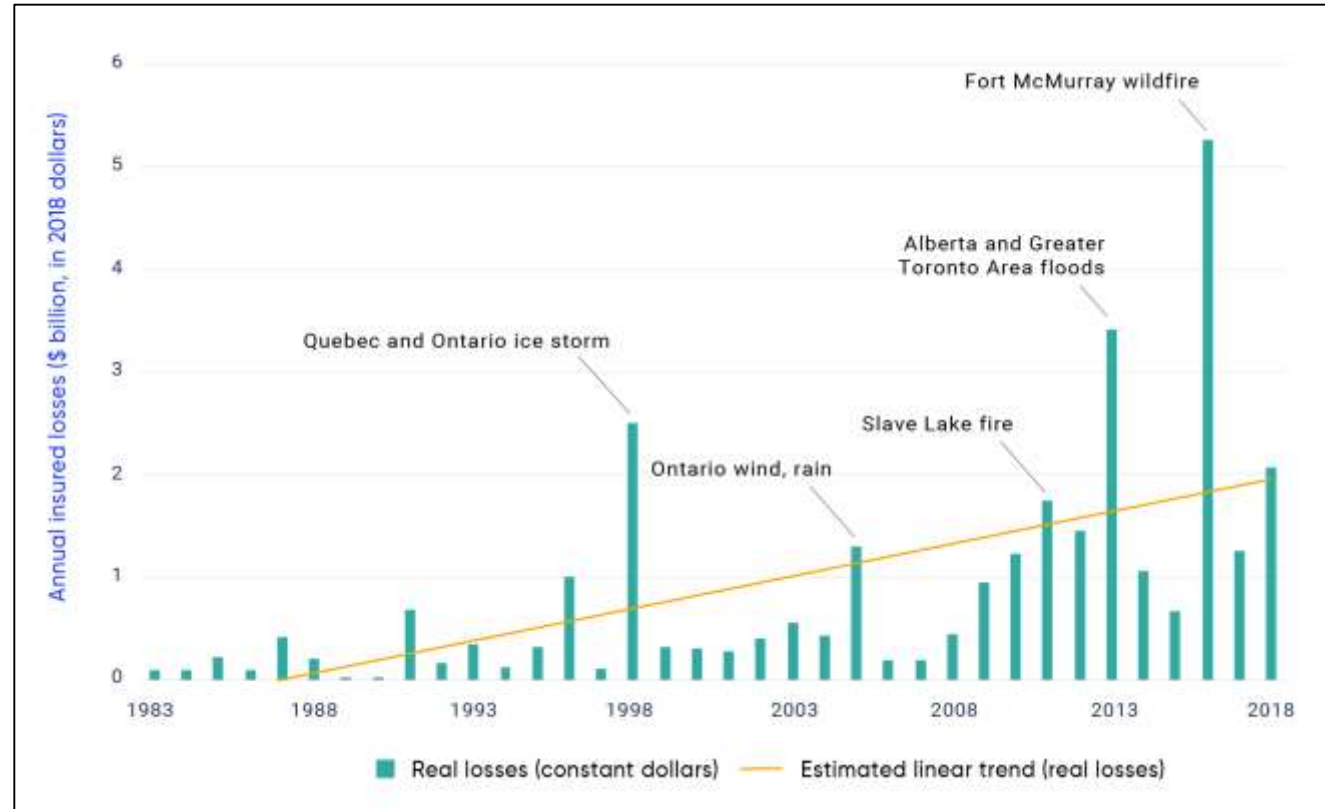
- **Ecosystem services** (e.g., food provision, clean air and water, climate regulation, etc.) are being threatened by extreme events and shifts in seasonal patterns.
- Climate change is **exacerbating water availability and quality issues**, as well as changing the nature and timing of floods and droughts.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



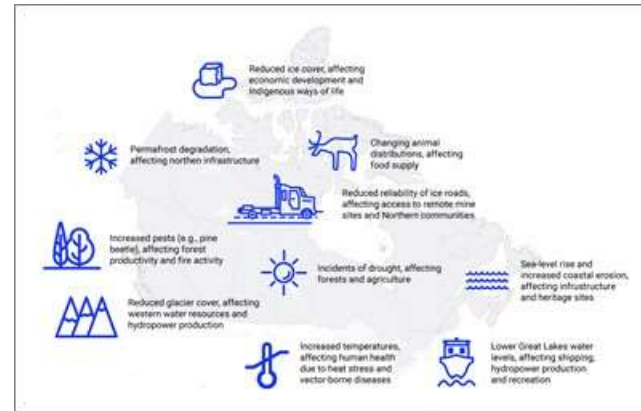
Clothing and tools made by artisans from a Tłıchǫ community in the Northwest Territories from tanned Barren-ground Caribou, a culturally-important species that is in decline, partly due to climate change. Photo courtesy of Pat Kane. (Ecosystem Services chapter).

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



Chapters also available as accessible PDFs on the NRCan website and on 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



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

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

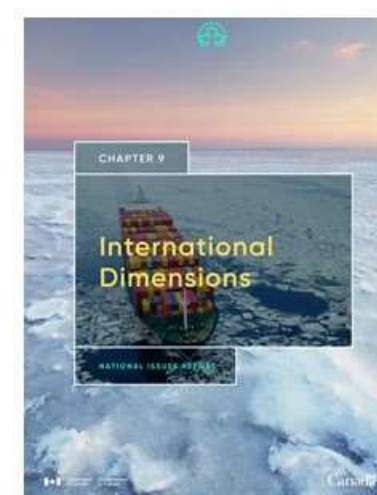
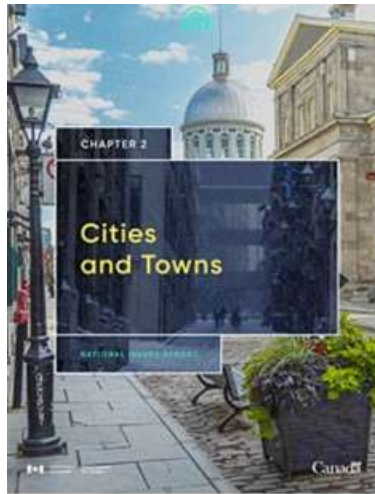


Jimena
Eyzaguirre



Robert
McLeman

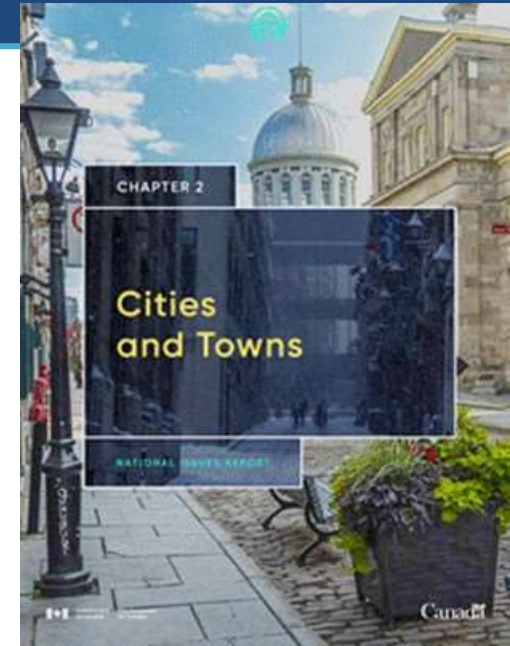
Questions?



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

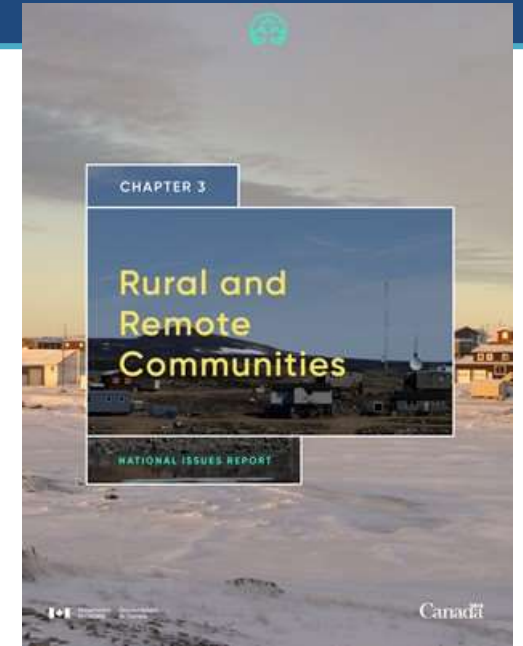


CLA: Craig Brown



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

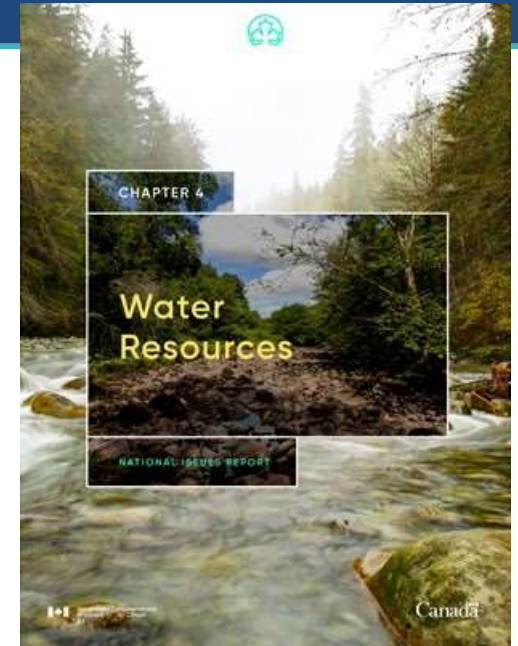


CLA's: Kelly Vodden and Ashlee Cunsulo



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

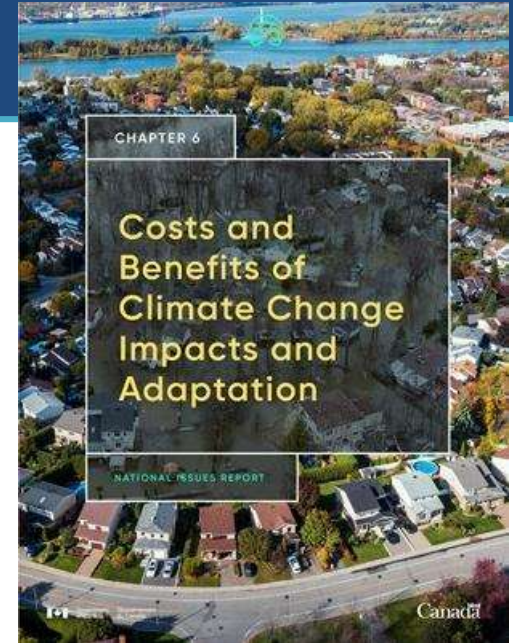


Costs and Benefits of Climate Change Impacts and Adaptation

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

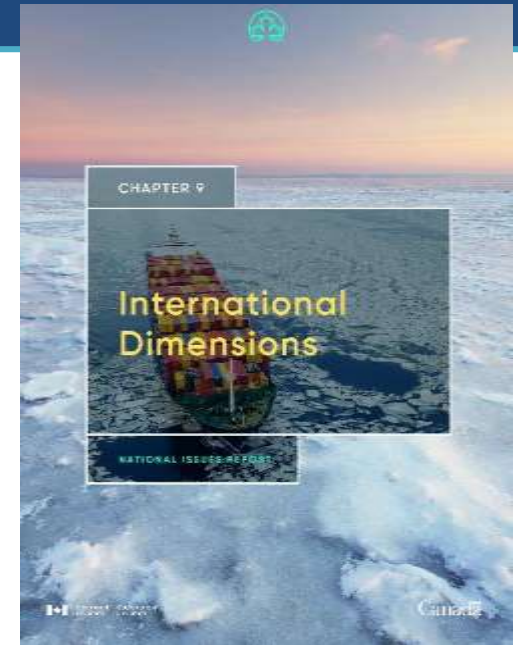


CLA: Paul Kovacs



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

