



Adapting to the Impacts of Climate Change in Canada: an update on the National Adaptation Strategy



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1. Overview – An urgent need for adaptation action

Canadians are already witnessing and experiencing the devastating impacts of climate change. Canada's climate is warming two times faster than the global average, and three times faster in the North.¹ Across the country, the impacts of climate change are affecting our communities, economy and environment and pose serious risks to our health and well-being.² This document describes the purpose and approach for Canada's National Adaptation Strategy, building on key findings heard to date from initial consultations and discussions with partners and stakeholders. It also outlines next steps in the strategy's development.

The extreme heatwave and wildfires in Western Canada this summer underscore the urgency of a National Adaptation Strategy in Canada and clearly demonstrate our vulnerability to climate change. The extreme heatwaves and wildfires are also examples of the types of events that will occur more frequently in the years to come. On June 29, 2021, Lytton, British Columbia set a new national temperature record of 49.6°C as part of a heatwave experienced in large parts of Western Canada. Early analysis shows that a heatwave of this magnitude would have been virtually impossible without human-induced climate change. However, as planetary warming continues, they will occur much more often.³ As extreme heatwaves become more severe, risks of drought and forest fire will also rise.⁴ Shortly after setting the temperature record, Lytton was destroyed by wildfire under hot weather and low precipitation conditions that have contributed to one of British Columbia's earliest wildfire seasons.⁵

Lytton is just one of many examples of how climate change is increasingly affecting ecosystems, economic sectors, regions, and communities across Canada. Some

¹ Bush, E. and Lemmen, D.S., editors (2019): [Canada's Changing Climate Report](#); Government of Canada, Ottawa, ON.

² Warren, F. and Lulham, N., editors (2021). Canada in a Changing Climate: **National Issues Report**; Government of Canada, Ottawa, ON.

³ <https://www.worldweatherattribution.org/western-north-american-extreme-heat-virtually-impossible-without-human-caused-climate-change/>

⁴ Bush, E. and Lemmen, D.S., editors (2019): [Canada's Changing Climate Report](#); Government of Canada, Ottawa, ON.

⁵ <https://bc.ctvnews.ca/little-to-no-relief-heat-accelerated-b-c-wildfire-season-straining-resources-1.5511095>

regions and populations are experiencing disproportionate risks. For example, in the North, where average temperature increases of over 2 degrees Celsius are already being experienced, climate change is a daily reality causing significant impacts to infrastructure, landscapes, ecosystems, water and ice systems, and traditional ways of life⁶. Many coastal communities and industries are facing risks of flooding and coastal erosion due to sea-level rise and storm surges.⁷

Across Canada, the frequency, intensity, and duration of extreme events like heatwaves, wildfires, and floods are projected to increase over the coming decades. Slower but pervasive impacts like rising sea levels, thawing permafrost, or shortening cold periods are gradually altering ecosystems, communities and livelihoods. Cascading impacts such as increased demand for emergency and economic assistance or reduced food security are triggering secondary effects throughout social and economic systems.

Global efforts to reduce greenhouse gas emissions are critical to limiting ongoing climate warming and resulting severe weather extremes. However, the science shows that regardless of mitigation efforts; changes to Canada's climate will persist and Canada will continue to warm at more than double the global rate, leading to deep, lasting, and intensifying climate change impacts in the years to come.⁸

In December 2020, as part of its strengthened climate plan, [A Healthy Environment and a Healthy Economy](#), the Government of Canada committed to develop Canada's first National Adaptation Strategy with provincial, territorial and municipal governments, Indigenous Peoples, and other key partners. The strategy will establish a shared vision for climate resilience in Canada, identify key priorities for increased collaboration and establish a framework for measuring progress at the national level. A National Adaptation Strategy offers the opportunity to unite actors across Canada through shared priorities, cohesive action, and a whole-of-Canada approach to reducing climate change risks.

2. Context – Climate change adaptation action to date

Adaptation and resilience efforts focus on reducing the vulnerability and exposure of human and natural systems to climate change impacts. In Canada, significant efforts to

⁶ Our Clean Future: A Yukon strategy for climate change, energy, and a green economy. (2020). Government of Yukon.

⁷ Council of Canadian Academies, 2019. [Canada's Top Climate Change Risks](#), Ottawa (ON): The Expert Panel on Climate Change Risks and Adaptation Potential, Council of Canadian Academies.

⁸ Bush, E. and Lemmen, D.S., editors (2019): [Canada's Changing Climate Report](#); Government of Canada, Ottawa, ON.

advance adaptation have been undertaken by all orders of government, Indigenous Peoples, the private sector, youth, and individuals.

The Government of Canada has taken significant action on climate adaptation to date. In 2021, it announced \$3.79 billion in new investments related to climate change adaptation and resilience. This includes \$1.9 billion in Budget 2021 to support provincial and territorial disaster response and recovery efforts as well as investments in wildfire resilience, flood maps, health adaptation, and standards to support infrastructure resilience. Budget 2021 also committed an additional \$1.4 billion for the Disaster Mitigation and Adaptation Fund (DMAF), to support projects such as wildfire mitigation activities, rehabilitation of storm water systems, and restoration of wetlands and shorelines. This Fund includes dedicated funding for Indigenous recipients.

The DMAF was launched in 2018 as a \$2 billion, 10-year program to help communities build the infrastructure they need to better withstand natural hazards such as floods, wildfires, earthquakes and droughts. To date, over \$1.9 billion has been announced through the DMAF for 69 large-scale infrastructure projects, such as a natural infrastructure project that will protect Montréal against floods while helping to create the largest urban park in Canada, and a tree canopy and shoreline project which will protect Toronto's waterfront against future flooding. Most recently, \$168.5 million was announced for the Springbank off-stream reservoir project near Calgary, which will help protect thousands of Albertans, as well as their homes, schools and local businesses, from floods on the Elbow River. The Federal Government has also created an interdisciplinary Task Force on Flood Insurance and Relocation, as a first step in creating a National High Risk Residential Flood Insurance Program.

These initiatives build on investments made in 2016 and 2017 in support of the Adaptation and Climate Resilience pillar of the Pan-Canadian Framework on Clean Growth and Climate Change. The federal government supports programming in key areas to enhance resilience to climate impacts, including:

- Foundational Science, Knowledge, Capacity and Governance
- Human Health and Wellbeing
- Indigenous Climate Leadership
- Climate-related Disaster Risk Reduction and Response
- Physical and Natural Infrastructure

Organizations, governments, Indigenous Peoples, and citizens across Canada are also taking action to adapt to the impacts of climate change. Collectively, these actions provide a rich foundation of adaptation knowledge, expertise, and resources.

However, recent research shows that the costs of climate change and its negative cultural, ecosystem⁹ and health impacts¹⁰, are increasing and will outpace current adaptation efforts. The *National Issues Report*, released in June 2021, outlines the gaps that remain in Canada's preparedness for climate change. For example, the average insurance payouts related to extreme weather are estimated to have more than quadrupled (to \$1.9 billion per year) over the past decade; uninsured losses are estimated to be double that amount.¹¹

On the other hand, there are economic benefits to be realized from building resilience to climate change. The World Resources Institute and the Global Centre on Adaptation highlight that the rate of return on investments in improved resilience is very high, with benefit-cost ratios ranging from 2:1 to 10:1, and in some cases even higher. Investments in climate change adaptation often create other benefits such as economic growth, health resilience, social equity, increased biodiversity and climate change mitigation.

It is clear that alongside efforts to reduce emissions and limit the effects of climate change, Canada must advance efforts to adapt to current and future impacts. Timely and cohesive action across Canada will be critical for addressing the scale and complexity of this new climate reality and ensuring that Canadians are able to survive and thrive into the future. Coordinating efforts and investments across the many actors that are advancing adaptation in Canada offers an opportunity for cooperation, to use resources more efficiently, and achieve better adaptation outcomes.

3. Developing a National Adaptation Strategy for Canada

Purpose of a National Adaptation Strategy

A National Adaptation Strategy will help Canada respond to the shared reality of climate change impacts by uniting all orders of government, Indigenous Peoples, private companies, academia, civil society, youth, and all Canadians in a whole-of-society approach to climate change adaptation. The Strategy will build upon the Pan-Canadian Framework and encourage action that is cross-cutting and complementary to adaptation strategies led by provinces, territories, local governments, Indigenous Peoples and others.

⁹ Sawyer, D., R. Ness, D. Clark, and D. Beugin. 2020. [Tip of the Iceberg: Navigating the Known and Unknown Costs of Climate Change for Canada](#). Canadian Institute for Climate Choices.

¹⁰ Clark, D. G., R. Ness, D. Coffman, D. Beugin. 2021. [The Health Costs of Climate Change: How Canada Can Adapt, Prepare, and Save Lives](#). Canadian Institute for Climate Choices.

¹¹ Warren, F. and Lulham, N., editors (2021). [Canada in a Changing Climate: National Issues Report](#); Government of Canada, Ottawa, ON.

The National Adaptation Strategy will be collaborative and action-oriented. It will outline a shared vision for a resilient Canada, establish priorities for collaboration, and align collective and individual actions for faster, coordinated, and systemic adaptation to the impacts of climate change. The strategy will aim to reduce climate change risks, increase adaptive capacity, deliver multiple co-benefits, and ultimately accelerate the pace and scope of adaptation action required to meet the urgency of the challenge.

By providing a national framework for action, the National Adaptation Strategy will help ensure that all parties have clarity on roles and responsibilities (including for governance and accountability mechanisms, outcomes and goals, metrics and benchmarks, and financing and funding), and support adaptation actions that are cohesive, targeted, and strategic.

Guiding Principles for the Development of the National Adaptation Strategy

Guiding principles inform the development of goals to help ensure that actions taken to implement the National Adaptation Strategy are holistic and link to other social, economic, and environmental priorities in Canada. Some guiding principles for developing the Strategy include:

- Building on plans, strategies, and action being advanced by all orders of government and by Indigenous Peoples;
- Contributing to advancing reconciliation, and uphold nation to nation engagement with Indigenous Peoples;
- Contributing to advancing social equity and Just Resilience, and use inclusive processes that empower and enable all Canadians to participate, including youth and those disproportionately affected by climate change; and
- Seeking opportunities to generate jobs and support economic recovery from the COVID-19 pandemic, as well as future emergencies and climate disasters.

4. Envisioning the Strategy – What we’ve heard

The Government of Canada has undertaken preliminary engagement and information-gathering sessions with partners and stakeholders through a variety of bilateral meetings, international information-gathering workshops, and organization of a virtual visioning forum. *(A full description of engagement to date is included in Annex 1.)*

The feedback from this early engagement and lessons-learned on best practices will inform how the National Adaptation Strategy is developed, and include important insights on what outcomes the Strategy could advance.

Key Messages

The main key messages and best practices heard to date include:

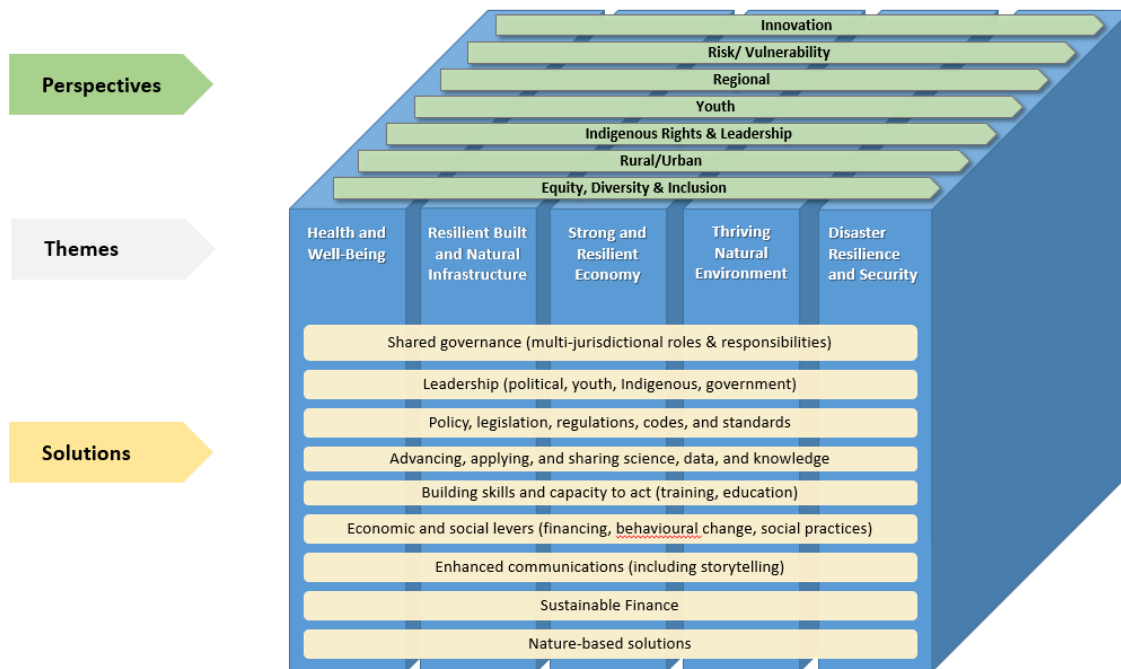
1. **A National Adaptation Strategy for Canada should drive real and effective action by prioritizing and advancing comprehensive, inclusive, and systematic approaches to adaptation.** This should include establishing clear national priorities that help governments, organizations and partners maintain focus, transparency in action, and accountability for climate change. National priorities should be used in the development of policy, regulations, and governance systems in order to increase alignment across regions and jurisdictions. Systematic approaches are necessary to ensure that adaptation efforts encompass the spectrum of socio-economic, political, historical and other factors that contribute to individual resilience, as well as the broad scope of impacts that climate change is having on social, environmental, and economic systems.
2. **The framing of a National Adaptation Strategy should centre on advancing community well-being and capacity, including through holistic and equitable approaches that integrate different themes, perspectives and solutions.** The Strategy should build resilience and deploy capacity at the community level, particularly for Indigenous Peoples (First Nations, Métis and Inuit), northern communities, and populations of youth, women, elderly, homeless people, climate migrants, and biodiversity.
3. **The National Adaptation Strategy should include Indigenous knowledge systems and advance decolonization efforts, Indigenous priorities, and Indigenous rights-based approaches to adaptation action.** Key elements of this approach will include physical and mental health impacts, and as well as justice, inclusion, diversity and equality considerations for adaptation action.
4. **A National Adaptation Strategy should establish clear and evidence-informed objectives, targets, and indicators that can measure progress and help strengthen the business case for adaptation.**
5. **A National Adaptation Strategy should be iterative so that it supports effective adaptation outcomes.** It should be reviewed at regular intervals,

informed by new climate data, regular risk and impact assessments, and effective monitoring and evaluation.

- Adaptation action in Canada is urgently needed and should continue even while the Strategy is developed.**

National Adaptation Strategy Development Matrix

A matrix for development of the National Adaptation Strategy is proposed that considers key thematic areas (blue columns), along with solutions to adaptation challenges that cut across all areas (yellow rows) and the perspectives that are needed to inform and shape adaptation challenges and solutions (green rows).



This matrix will serve as the basis for developing the framework of the National Adaptation Strategy including the creation of the National Adaptation Strategy Advisory Tables and continued engagement efforts that are further elaborated in the section below.

Knowledge and Evidence-Base

The Government of Canada has established a series of national knowledge assessment reports on how and why Canada's climate is changing; the impacts of these changes on our communities, environment, and economy; and, how we are adapting to these impacts. Several reports in the recent series *Canada in a Changing Climate: Advancing our Knowledge for Action* will support discussions on relevant National Adaptation Strategy themes.

The *National Issues Report*, was released in June 2021 and provides a national perspective on how climate change is impacting our communities, environment and economy, and how we are adapting.¹ The key findings of the Report include:

1. Communities of all sizes across the country are experiencing the impacts of climate change on their infrastructure, health and well-being, cultures and economies.
2. Changes in climate are threatening the vital services that Canada's ecosystems provide and are negatively impacting our water resources.
3. While climate change will bring some potential benefits, overall it will impose increasing economic costs on Canada.
4. We must look beyond our borders when assessing the impacts of a changing climate for Canada.
5. Large gaps remain in our preparedness for climate change, as demonstrated by recent impacts of extreme weather events, such as floods and wildfires.
6. Lessons on good practices are continuing to emerge and are helping to guide successful adaptation.

The findings of this report will be supported and further elaborated by the Regional Perspectives Report, which assesses climate change impacts and adaptation in Canada's six regions: Northern Canada, British Columbia, Prairie Provinces, Ontario, Quebec, Atlantic Provinces. Chapters from the Regional Perspectives Report will be released regularly through 2021, starting with the [Prairie Provinces Chapter](#) which was released in December 2020.

As part of this report, the Government of Canada also launched the [Map of Adaptation Action](#), an interactive collection of climate change adaptation case studies that may be useful to decision-makers and those taking action on climate change adaptation.

Further details on the national knowledge assessment reports are included in Annex 1.

5. Immediate Next Steps

National Adaptation Strategy Advisory Tables

To inform the development of Canada's National Adaptation Strategy, the Government of Canada is launching five (5) National Adaptation Strategy Advisory Tables ("Advisory Tables"):

1. Health and Well-being;
2. Resilient Natural and Built Infrastructure;
3. Thriving Natural Environment;
4. Strong and Resilient Economy; and,
5. Disaster Resilience and Security.

Each Advisory Table will be co-chaired by a federal department along with an external partner or stakeholder. Considerations for membership will reflect Canada's important relationship with Indigenous Peoples and the diversity of Canadian society. This will include ensuring Indigenous representation throughout the tables and by taking into account considerations such as age and gender, regional and national representation, diversity and inclusion of distinct populations, and expertise.

Early emphasis of the Advisory Tables will be on galvanizing partners and stakeholders to identify national aspirational goals and objectives for each thematic area to inform the framework for the National Adaptation Strategy, and to advise on who should be involved in broader engagement for subsequent stages.

A second phase of work in winter 2022 would focus on providing advice on the refinement of goals and objectives, identifying milestones for achievement and making recommendations for overcoming barriers to adaptation action.

Ongoing Engagement

Targeted Engagement

Further to the work of the Advisory Tables, Environment and Climate Change Canada, along with other government departments and agencies, will continue to target bilateral and multilateral engagement opportunities, leveraging existing mechanisms where possible. This includes engagement through existing Federal, Provincial and Territorial tables (such as, for example, the Canadian Council of Ministers of the Environment and

the Senior Officials Responsible for Emergency Management), and the Indigenous distinctions-based bilateral tables on clean growth and climate change.

Indigenous Engagement

Indigenous Peoples are rights-holders, knowledge-holders and leaders in climate adaptation. They also face disproportionate costs and risks from climate change, including significant risks to Indigenous ways of life.¹² Engaging with First Nations, Inuit, and Métis throughout the development and implementation of the National Adaptation Strategy will be essential to ensure that the Strategy meets its objectives of advancing reconciliation, supporting Indigenous leadership on climate action, and increasing collaboration with Indigenous Peoples on adaptation to climate change. Meaningful engagement will also help ensure that the National Adaptation Strategy is inclusive of Indigenous knowledge, perspectives, and worldviews, and that the Strategy respects Indigenous rights and advances priorities and leadership, including through self-determined and community-driven action in-line with the United Nations Declaration on the Rights of Indigenous Peoples.

Youth Engagement

Young Canadians will feel the effects of climate change for decades to come. Youth also bring innovation, ambition, and leadership to climate action and youth participation in the National Adaptation Strategy will be crucial to its continued success and Canada's future well-being. Indigenous youth, who are Canada's fastest growing demographic, are particularly important actors. The Global Centre on Adaptation highlights that youth have significant potential to contribute to climate change adaptation when they are empowered to become agents of change by gaining skills, knowledge, and experience. This is true, even while many youth populations, including children, are already and will continue to experience a lifetime of worsening impacts of climate change. This is why specific consideration will be given to the inclusion of youth organizations and the youth perspective in the development of the National Adaptation Strategy. This will include participation in the Advisory Tables, engaging with the newly launched Environment and Climate Change Youth Council, and a specific stream of engagement opportunities.

Building synergies with other initiatives

Many national strategies and initiatives are advancing actions that contribute to building resilience and reducing greenhouse gas emissions in Canada. Exploring the linkages

¹² Council of Canadian Academies, 2019. [Canada's Top Climate Change Risks](#), Ottawa (ON): The Expert Panel on Climate Change Risks and Adaptation Potential, Council of Canadian Academies.

between these initiatives and the National Adaptation Strategy may offer opportunities to jointly mainstream adaptation and reduce the impacts of climate change through targeted actions, investments, and resources that can be mutually beneficial, cohesive, and cost-effective.

For example, The [Emergency Management Strategy for Canada](#) (EMS) (2019) is Canada's official emergency management and disaster risk reduction strategy until 2030. The EMS establishes federal-provincial-territorial (FPT) priorities aimed at strengthening the resilience of Canadian society, and provides guidance and support for Federal, Provincial, and Territorial governments in assessing risks and to prevent, prepare for, respond to, and recover from disasters. Work under the EMS includes the National Risk Profile, which is developing an all-hazards risk assessment of climate and non-climate hazards in Canada. There are many links between emergency management, disaster risk reduction, and climate change adaptation, in particular related to climate-influenced natural hazards, including floods, wildland fires, and extreme storms and weather events.

Other relevant initiatives that exist or are in development could include:

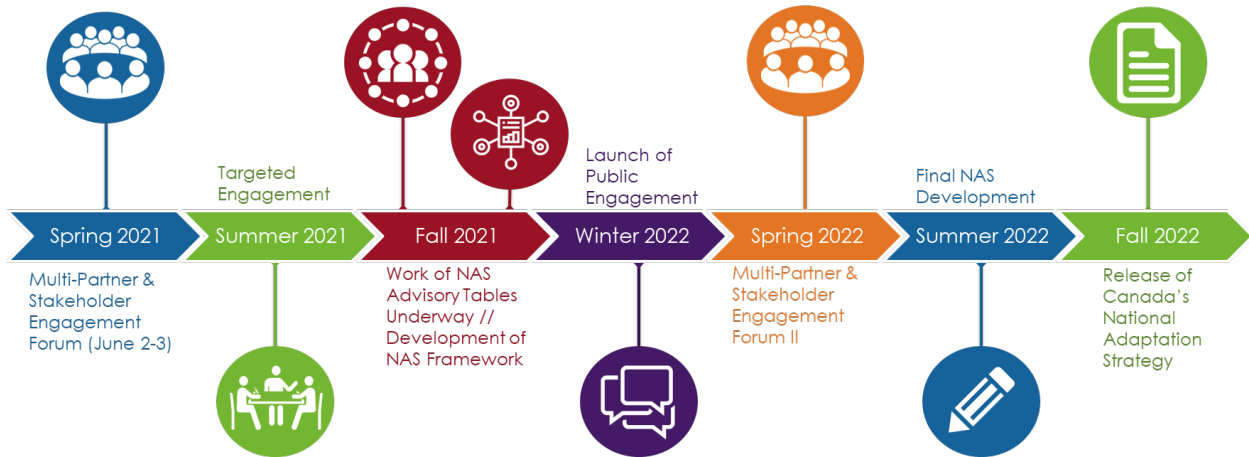
- [Arctic and Northern Policy Framework](#)
- [Blue Economy Strategy](#)
- [Canada Water Agency](#)
- [Canada's 2030 Agenda National Strategy: Moving Forward Together](#)
- [Canada's First National Housing Strategy](#)
- [Canada's First Poverty Reduction Strategy](#)
- [Canada's Youth Policy](#)
- [Canadian Agricultural Partnership](#) and the [Next Agricultural Policy Framework](#)
- [The Canadian Wildland Fire Strategy](#)
- [Food Policy for Canada](#)
- [The National Infrastructure Assessment](#)

6. Development of the National Adaptation Strategy

The full process for developing Canada's National Adaptation Strategy is expected to occur over two phases of work:

- Phase I (2021) will focus on developing the broad parameters of a National Adaptation Strategy, including aspirational goals and concrete objectives.

- Phase II (2022) will focus on broader public engagement and elaboration of actions, with the goal to finalize the National Adaptation Strategy by the end of 2022.



Annex 1

1. Recent Engagement

Environment and Climate Change Canada started engagement in early 2021 through bilateral discussions with the provinces and territories, the Assembly of First Nations, the Métis National Council, and Inuit Tapiriit Kanatami, and key partners on the intent and design of the National Adaptation Strategy development process.

The Government of Canada also hosted an international session this past May as part of an event with the *Knowledge Exchange between Climate Adaptation Platforms*. The session focused on international best practices and lessons learned in the development of National Adaptation Strategies, drawing on expertise from the Organization for Economic Co-operation and Development (OECD), Japan, Germany, and the United States among others.

These early domestic and international discussions culminated in a multi-partner and stakeholder virtual visioning forum held June 2-3, 2021 and included over 60 participants with expertise and interest in the development of Canada's National Adaptation Strategy.¹³ The Forum had three primary objectives. First, to bring together key partners for early discussions on collaborative development of a National Adaptation Strategy for Canada. Second, to provide an opportunity for partners to outline their expectations for a National Adaptation Strategy. Third, to collectively identify components for the Strategy including areas for near-term work.

The outcomes of the visioning Forum were positive. Participants were engaged and active in discussions throughout the Forum and contributions were constructive and demonstrated goodwill, enthusiasm, and momentum among partners and stakeholders.

The full report from the Forum can be found at:

<https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/national-adaptation-strategy.html>.

2. Recent Publications

The Government of Canada's national knowledge assessment reports serve as a resource for Canadians, raising awareness of the climate change issues facing the country and providing information to support sound decisions and actions that address

¹³ Participants included representatives from the provinces and territories, the Assembly of First Nations, the Métis National Council, professional and industry associations, youth organizations, climate service providers and research institutes, and municipal and local communities networks and other NGOs

climate change and adapt to its impacts. These reports will inform the development of the National Adaptation Strategy.

- [Canada's Changing Climate Report](#) (2019) is about how and why Canada's climate has changed and what changes are projected for the future. It documents changes across Canada in temperature, precipitation, snow, ice, permafrost and freshwater availability as well as in Canada's three oceans. This report provides the climate-science foundation for the *Canada in a Changing Climate* report series.
- [Canada in a Changing Climate: National Issues Report](#) (June 2021) focuses on climate change impacts and adaptation issues that are of national importance and that benefit from an integrated, pan-Canadian perspective. It describes Canada's key vulnerabilities regarding climate change, the specific risks and challenges we face, Indigenous knowledge and perspectives, and new and innovative approaches to adaptation. The report also clarifies knowledge gaps and summarizes information on emerging issues.

In recent months, several other timely publications have been released that will inform the development of the National Adaptation Strategy.

- [Towards a National Adaptation Strategy for Canada: Insights from global peers](#) (June 2021) by the International Institute for Sustainable Development (IISD) and the Insurance Bureau of Canada (IBC), which assesses international best practices as well as Canada's domestic capacities to provide insights on how Canada's first National Adaptation Strategy may be developed and what it may focus on.
- [The Health Costs of Climate Change, How Canada can adapt, prepare and save lives](#) (June 2021) published by the Canadian Institute for Climate Choices identifies climate change as a public health threat and provides an economic analysis of climate impacts linked to healthcare, productivity, premature death and quality of life. This report follows the Institute's [Tip of the Iceberg – Navigating the Known and Unknown Costs of Climate Change for Canada](#) (December 2020) report which provides an overview of climate-related costs and offers recommendations to reduce the risks associated with them.
- [Advancing the Climate Resilience of Canadian Infrastructure](#), (July 2021) published by the International Institute for Sustainable Development, which provides an overview of the impacts and risks of climate change to Canada's

infrastructure and outlines range of action taking place to increase climate resilience.