Government of Canada | Gouvernement du Canada

Canada's National Adaptation Strategy

Building Resilient Communities and a Strong Economy

For comments

Canada

EC22044

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Executive summary

Final version for comment
The Government of Canada has released Canada's first National Adaptation Strategy for final comment, with the aim of ensuring that provincial, territorial and Indigenous perspectives are well captured.

The urgency

Climate change is affecting Canada in ways that are as diverse as Canada itself. Across the country, warming temperatures and changing precipitation are contributing to more frequent and devastating events like heatwaves, floods, droughts and wildfires. Canada's coastal areas are experiencing sea-level rise, coastal erosion and changes to aquatic ecosystems. In the North, permafrost is thawing and ice and snow are changing and disappearing. These changes affect the very foundations of our lives – our homes and communities, our health and well-being, our livelihoods, and the natural environment upon which we depend. Many more lives will be threatened by the impacts of a warming and more volatile climate in Canada that will continue to intensify for decades to come – unless we create a more climate-resilient society.

By taking action to adapt to the changing climate, we can build communities and economies that are able to thrive for generations to come. The scope of the climate change challenge is vast and growing. Adaptation is finding new ways of making decisions, building communities and businesses, and protecting each other and the places we value in anticipation of climate change. It means ensuring that we are all better able to prevent, prepare, respond, and recover from climate impacts today and in years to come. Taking ambitious and collective action to adapt in ways that are equitable and inclusive will help us ensure that everyone's lives and welfare are protected from the impacts of a changing climate.

The opportunity

There is a strong foundation of adaptation actions in Canada. Governments, Indigenous Peoples, the private sector, academia, non-governmental organizations, youth, citizens and residents are leading innovative and impactful solutions for their communities and regions. More effort, more investment, and more coordination are now required to dramatically scale up these adaptation solutions.

Canada's National Adaptation Strategy calls on all segments of society to raise our game and to work better together to match the magnitude of the climate threat. By having common goals and coordinated action, we can ensure that we are addressing urgent challenges and sharing solutions.

Climate change adaptation means planning for and acting on the anticipated impacts of climate change. It involves making changes to how we live and what we do before climate change impacts happen (anticipatory) as well as being ready to respond to increasingly likely and frequent extreme events (reactive).

The Strategy will guide us as we work together to make the transformations that climate change demands so that we can see real and meaningful results in all our communities.

The approach

The National Adaptation Strategy outlines a shared path to a more climate-resilient Canada. It establishes a shared **vision** of what we want our future to look like. It sets out a common direction for preparing for climate change events across five key systems that are at the heart of our lives and communities:

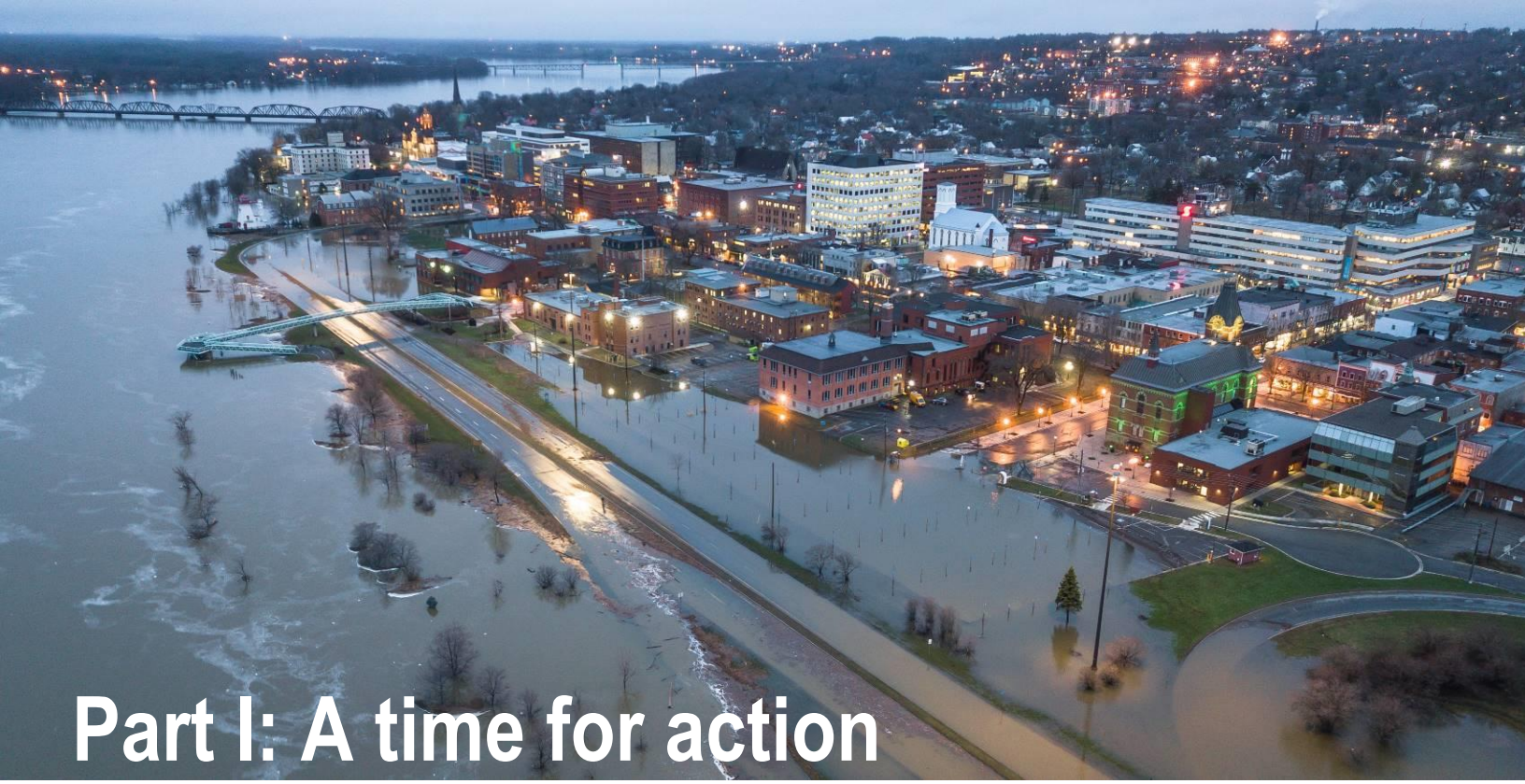
- Disaster Resilience
- Health and Wellbeing
- Nature and Biodiversity
- Infrastructure
- Economy and Workers

The Strategy is underpinned by a set of **guiding principles** acknowledging that how we reach our goals and objectives is just as important. These guiding principles will direct our decisions and investments, to help ensure we are creating solutions that are fair, inclusive, and equitable, so that everyone can share in the benefits.

For each system, the Strategy sets **long-term transformational goals** as well as **medium-term objectives** to ensure that we have direction for climate change resilience in the country. In order to achieve the longer-term goals and objectives, urgent and additional actions are needed now. A series of short-term **adaptation action plans** will accompany this Strategy, outlining priority actions for the next five years.

Building resilience to the impacts of climate change is a collective effort. Everyone in Canada is part of the solution, with different roles to play. As the climate continues to change, our collective actions need to take into account and prepare for these realities. The Strategy's **monitoring and evaluation framework** will begin measuring our collective progress and help adjust for future scenarios. In addition, regular progress reports will communicate the state of climate change preparedness in the country.

The National Adaptation Strategy and accompanying action plans will be updated every five years to take account of our achievements and to articulate a renewed direction for climate change adaptation in Canada – informed by up-to-date information on climate risks and impacts and solutions from across the country.



Part I: A time for action

Climate change impacts are disrupting life in Canada

Our Canadian climate is irreversibly changing and we are already witnessing and experiencing significant climate change impacts. Canada's climate is and will continue to warm rapidly - at a rate that is two times faster than the global average, and three times faster in the North. We must reduce emissions to limit the extent of climate change, understanding that climate change impacts will continue even after global net-zero emissions are achieved.

Climate change is already increasing the number of acute, high-impact weather- and climate-related events affecting Canada:

- Extreme heat events are the most deadly weather-related events occurring in Canada.
- Floods are one of the most costly and widespread hazards.
- Wildfires increasingly threaten communities, infrastructure, and industry and wildfire smoke can disperse over large areas affecting human health near and far.
- The increasing rate, severity and unpredictability of climate-related natural disasters are straining our supply chains and emergency response systems and making them more difficult to manage.

Pervasive and slow-onset climate change impacts such as permafrost thaw and sea-level rise are changing landscapes, redrawing coastlines and impacting livelihoods.

In the coming decades, climate change will bring more frequent, intense and diverse extremes than the heatwaves, floods, and fires we experience today. All the while, slow-onset impacts will continue to accumulate. Acting now to adapt to climate change can ensure the wellbeing of all people in Canada.

Climate change is harming our health and well-being.

Climate change is increasing the frequency and severity of existing health risks related to extreme heat, wildfires, floods, air pollution, declining water quality and availability, Lyme disease, and chronic diseases. It is driving the emergence of new infectious diseases and food safety risks. It is also creating additional stress and increasing costs for the people, facilities, and programs that work together to protect our health, including healthcare infrastructure like hospitals and medical clinics.

Mental health impacts from climate change are growing. Climate-related disasters can lead to anxiety and depression. Disruptions to wellbeing can put people at higher risk of other negative psychological outcomes, including post-traumatic stress disorder and substance use disorders. Young people in particular are feeling a sense of loss as they see a future that is potentially less prosperous, less peaceful, and less healthy. Climate change is also profoundly affecting cultural identities through loss of treasured places, practices, and traditional foods.

Our natural environment is affected by climate change in both dramatic and subtle ways.

A thriving natural environment is foundational to our society and the health and well-being of people in Canada. Rising temperatures mean more devastating wildfires, new rainfall patterns, more frequent drought conditions, faster snow, ice, and permafrost thaw, and changes to the range, diversity, health and abundance of species. These have lasting impacts on our natural environment, and add to the existing effects of pollution and habitat loss, putting natural ecosystems at even greater risk.

Figure 1. A wildfire frontline with emergency services nearby, Okanagan Valley, British Columbia

As humans, we exist as part of the natural environment, not in separation from it. The degradation and loss of ecosystems are threatening nature's ability to provide us with our basic needs, like food, clean water, productive soil, natural pest control, pollination, flood and erosion control, and carbon sequestration. Ecosystems provide recreational, health, and spiritual benefits and many of our cultural identities are closely tied to our connection to our natural environment. Replacing the services that ecosystems provide will be extremely challenging and costly and in many cases impossible; the intrinsic value of ecosystems is immeasurable.

Climate change impacts are damaging our homes and affecting the infrastructure we rely on for essential services in our communities.

Climate change damages and destroys infrastructure through events like floods or wildfires or through gradual weakening from impacts like thawing permafrost, extreme heat, or rising sea levels.

Lost and damaged infrastructure endangers people's health and safety. It disrupts businesses, access to markets and food, supply chains, and services. Climate change creates major repair costs and affects the vitality of our communities. At a minimum, the impacts of climate change on infrastructure are making it harder for us to get around, work, or access food and water. At worst, we are losing our homes or entire communities.

Across Canada, climate change is affecting our livelihoods – our ability to secure the necessities of life.

Livelihoods include the work we do to earn an income as well as carrying out activities that are essential to everyday life, like growing, hunting, or gathering traditional foods. Disruptions to livelihoods affect our ability to provide for ourselves and our families, and our quality of life.

Climate change is impacting our resources, our ability to harvest, produce and transport goods and services, and our financial systems. Forestry, fisheries, agriculture, mining, energy, transportation, and tourism are some of the sectors facing greater climate change risks. Our supply chains are vulnerable to climate-related impacts, especially when close trading partners are affected. The costs of repairing climate-induced damage and recovering from climate-related disasters reduce the ability of households, businesses, and governments to make new investments that drive productivity, dragging down the economy.

In the agriculture and agri-food sector, farmers are already experiencing the devastation of increased drought, floods and wildfires. This affects the long-term economic viability of the sector, farmers and rural communities, with cross-cutting impacts on our health and food security.

Figure 2. Agricultural worker in the fields near Harrow, Ontario

Climate change disruptions have both direct and indirect impacts on people in Canada, including inequitable recovery from disasters, the loss of jobs or profitability, inflation, decreased value of our homes and savings, increased danger or difficulty at work, on the land, or in accessing basic needs. Loss of livelihoods can also have direct connections to our wellbeing, culture, and sense of self. Impacts to economic and financial systems affect investments, insurance costs, incomes, and job security.

Climate change affects some people and communities more than others.

A specific climate change event can affect some groups differently depending on their identity, circumstance, and the community and region they live in. Climate change amplifies existing vulnerabilities and inequalities, which results in some populations experiencing climate change impacts more severely. This includes people with health conditions and disabilities, the very young or older adults, or people who experience structural inequity, poverty, isolation, or discrimination.

Intersecting vulnerabilities: Of the 619 people who died in the June 2021 heat dome in British Columbia, 67% were over 70 years old, 56% lived alone, and 61% were located in low-income neighbourhoods.

Marginalized populations, including low-income, underserved, racialized, or immigrant communities are also more likely to live in places that experience higher exposure to climate impacts like flood risk zones, as well as the neighbourhoods and buildings that are the hottest during heat waves.

Indigenous Peoples experience climate impacts in unique and serious ways.

First Nations, the Métis Nation and Inuit peoples each have unique and deep relationships and cultural connections with the land, waters, animals and plants. They also have long histories of living on, adapting to, and stewarding their environments. Indigenous Knowledge, which includes intergenerational knowledge, values, worldviews, and relations are a source of strength and resilience for Indigenous Peoples, and position them as leaders in adapting to climate change.

First Nations, the Métis Nation, and Inuit peoples each experience disproportionate impacts from climate change caused in part by historic and ongoing government practices and policies. This can include cultural suppression, disruption of families, forced displacement from traditional territories, lack of clean drinking water, infrastructure gaps, health inequities, lower socio-economic status, and degradation of their lands and territories. Their close relationships to the natural environment mean that climate change impacts can have deep and serious impacts on their well-being, including through pressing concerns about food security.

Where we live can affect our experience with climate change impacts. Over 80% of people in Canada live in urban areas, including more than half of First Nations, Métis Nation, and Inuit peoples. The services, critical infrastructure, and abundant employment opportunities in cities and towns can make it easier to adapt to climate change. However, concentrated populations, aging infrastructure, degraded ecosystems and social inequality are sources of vulnerability for urban areas. Highly paved landscapes can exacerbate climate change events such as extreme heat and floods, increasing their impact on vulnerable and marginalized populations.

People living in rural areas often rely on the natural environment for livelihoods, influencing the social determinants of health and wellbeing. While rural communities usually have fewer financial and institutional resources available to adapt to climate change than urban areas, they often have strong informal economies, social networks and connections to place, community and culture that are essential for resilience.

Coastal communities are also particularly vulnerable to the impacts of climate change.

Canada is home to the longest coastline in the world, covering about 243,000 kilometers, spanning across three oceans and interior lakes. Over seven million people live in coastal communities in Canada, and more than $400 billion in goods are shipped annually through Canadian ports. Sea-level rise and storm surges are already exposing coastal infrastructure, properties and people to flooding, saltwater intrusion, and coastal erosion. Likewise, species on which coastal communities' livelihoods and ways of life rely, including fish and shellfish, are shifting in abundance and migratory patterns due to changing ocean conditions. These compounding impacts reduce the viability of coastal communities and reliable access to coastal infrastructure.

Climate change is a daily, lived reality in the North, where it is happening faster than anywhere else in the country.

This rapid change is causing far-reaching impacts to infrastructure, landscapes, ecosystems, water and ice systems, and traditional ways of life. Permafrost thaw, ice melt, and accelerated coastal erosion are causing widespread damage to buildings, homes, and roads. Northern residents describe the landscape and weather patterns as "unrecognizable" and "chaos". Changes to snow and ice are making travel more restricted and dangerous, causing isolation between communities and making hunting and gathering food more difficult. Traditional and country foods are harder to access as species find new migration routes. Lakes are disappearing, and water sources are threatened by contamination or low supply. Food security is a serious and complex concern that is influenced by many of the climate change impacts occurring in the North, and connects directly to Northerners' social, economic, and cultural well-being.

Figure 3. City of Iqaluit, Nunavut

Unique circumstances in the North pose unique challenges.

In addition to the rapid pace and the breadth of climate change impacts in the North, other unique Northern circumstances present additional and compounding challenges. Costs for materials and services are much higher in the North, and Northern communities are relatively small with limited financial and human resources capacity. Extreme seasons limit activities to specific times of the year. Significant existing deficits in infrastructure, housing and healthcare present greater threats to the wellbeing of people and communities. Climate change impacts on key transportation infrastructure are affecting the availability of imported food, worsening effects on food security, and making delivery of essential goods more difficult. Climate change impacts are also affecting the emotional, physical, mental and spiritual health of people living there, many of whom are members of Inuit, Métis Nation, and First Nations communities.

We can adapt to be better prepared

Adaptation means planning for and acting on the anticipated impacts of climate change. It involves making changes to how we live and what we do before climate change impacts happen to reduce their impact (anticipatory) as well as being more ready to respond to increasingly likely and frequent extreme events (reactive). It includes adjusting our decisions to account for the changes to the climate that we know are still to come. Adaptation actions will help us build our *resilience*, in other words, our capacity to prepare for, respond to, and recover from impacts and disruptions. With the right actions, and our commitment to reach net-zero emissions, we can continue to thrive in a changing climate.

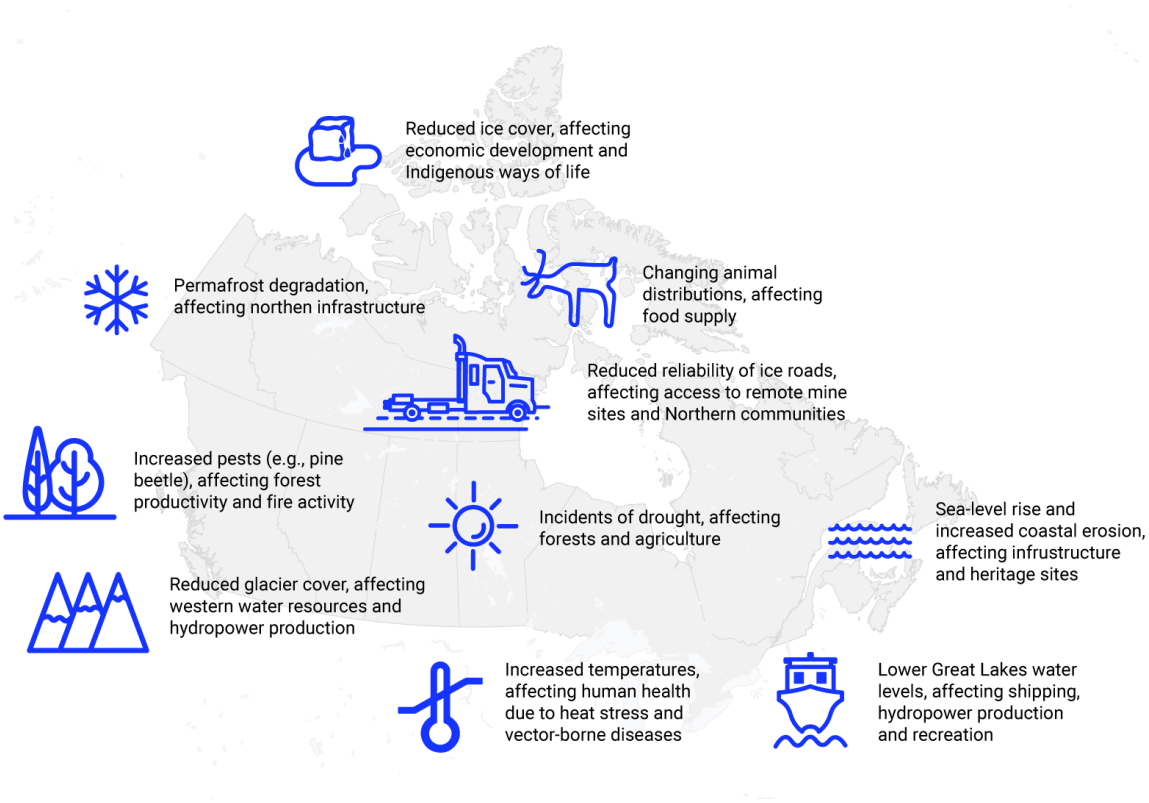


Figure 4. Climate change impacts and challenges in different regions across Canada.

Adaptation is a complex and on-going process. Generally, adaptation requires a cycle of activities: understanding climate change impacts, identifying options for action and developing plans, implementing adaptation actions, monitoring progress, evaluating the effectiveness of actions, and using lessons learned to improve through the next cycle. Each step generally builds on the findings of the one before; monitoring throughout the cycle is the way to check results along the way.

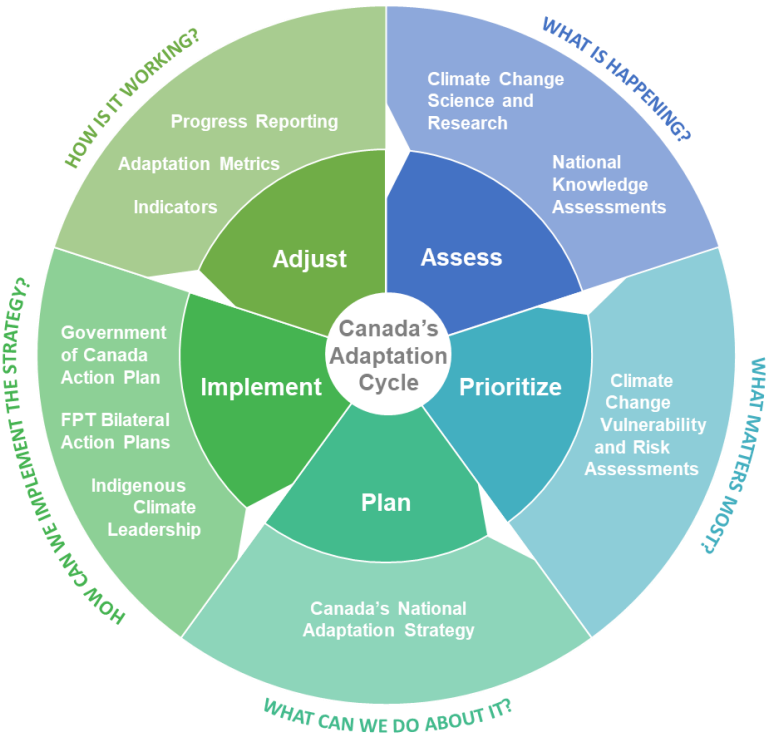


Figure 5. Canada's adaptation cycle

There are many ways we can adapt and build resilience to climate change. Adaptation involves addressing the urgent impacts we are already facing in a targeted way. For example, protecting shorelines and wetlands can help protect coastal communities from the threats of sea-level rise, flooding, and storms. Changing building codes to account for more extreme conditions can prevent future damage to property.

Adaptation also involves transformational changes to how we make decisions, work together, build communities, interact with nature, and look out for one another. Our society was built on the assumption that our future climate would look much like the climate of the past and our ecosystems were familiar and enduring. As Canada's climate changes, we can no longer make decisions based on those assumptions. It is important to start making decisions differently so that together we become more resilient and able to manage uncertainty, change, and surprise.

Adaptation measures are cost-effective and positive investments in our present and future. The benefits of adaptation are significant. They include saving lives, avoiding damages to communities, reducing economic shocks to supply chains, spurring innovative technologies and jobs, and taking advantage of new opportunities. The social and environmental benefits of adaptation, while harder to quantify, are equally important.

Adaptation saves money. The Canadian Climate Institute estimates that every $1 spent on adaptation measures can result in $13-$15 in total benefits. For example, urban forests in the City of Toronto can generate $3.20 for $1 invested by lowering cooling costs, improving air quality, and reducing strains on storm water infrastructure. In some cases, the economic benefits

can be significant. It is estimated that implementing climate-resilient building codes in Canada has a benefit-cost ratio of 12:1 – equivalent to a 1,100% return on investment.

A national strategy can help us work together.

There is a strong foundation of actions in Canada to address and plan for the impacts of climate change. Across Canada, governments, Indigenous Peoples, civil society and the private sector are taking action to understand climate change impacts and vulnerabilities and to prepare for our new reality. Annex A provides an overview and examples of existing action.

Despite the leadership of and innovation by different actors, to date our collective actions have often been insufficient or disjointed, and have not resulted in the swiftness and scale of adaptation that communities in Canada require. Everyone in Canada needs to consider climate change impacts in everyday decisions. For governments and businesses, this is called *mainstreaming*. As climate impacts become more severe and frequent, and the costs mount, mainstreaming of climate change adaptation is critical to ensure that our collective efforts keep pace.

We can work together through increased collaboration, coordination and ambition to address the magnitude of the challenges ahead. Our adaptation solutions need to be as great in scale, scope, and reach as the climate change challenges they are addressing. This strategy sets out a common purpose and shared goals to help people in Canada begin moving together in the same direction. It helps us work together more effectively by building on existing efforts and outlining clear roles and responsibilities. It sets collective priorities for urgent action on the threats we are already facing and also focuses on the structural changes we need to make over the long term.

This Strategy can help ensure that our collective actions do not leave anyone behind. By holding equity and inclusion at the centre of our shared goals, the Strategy promotes environmental justice and begins to address the factors that make people more vulnerable to climate change.

Figure 6. Inuit children playing ice hockey on frozen streets, Gjoa Haven, Nunavut

Part II: The path to a climate-resilient Canada

As a whole-of-society blueprint, the National Adaptation Strategy is intended to guide action in Canada to better adapt to and prepare for the impacts of climate change.

The Strategy has been prepared by the Government of Canada, reflecting two years of engagement with provincial, territorial and municipal governments; First Nations, Inuit, and Métis Nation representatives; key experts and stakeholders; and people from across Canada.

Annex B provides an overview of the engagement that has taken place.

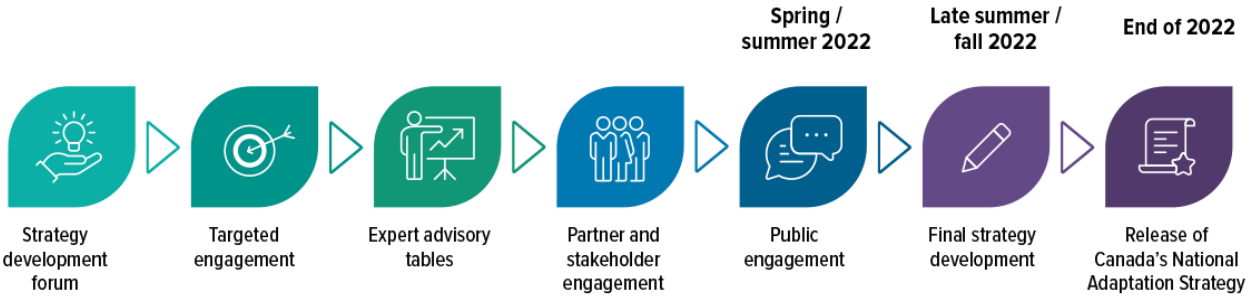


Figure 7. Development of the National Adaptation Strategy

Overarching direction for climate resilience in Canada

A Vision for Climate Resilience in Canada

All of us living in Canada, our communities, and the natural environment are resilient in the face of a changing climate. Our collective adaptation actions enhance our well-being and safety, promote justice, equity, and reconciliation with Indigenous Peoples, and secure a thriving natural environment and economy for future generations.

The National Adaptation Strategy includes the following components:

1. **Overarching direction** for all our work to increase resilience to the impacts of climate change.
   - A shared vision sets long-term, overall direction for climate change resilience in Canada.
   - Guiding principles ensure we achieve that vision in a just and equitable way.

2. **Direction in five interconnected systems of disaster resilience, health and wellbeing, nature and biodiversity, infrastructure, and the economy and workers**.
   - Long-term goals to set specific transformational direction in each system.
   - Foundational objectives guide progress on work that underpins action in all systems to increase climate change resilience.
   - Medium-term objectives that outline key milestones needed to make progress toward the goals. These objectives are designed to capture the breadth of action needed in each system and can ensure we are all making progress in the right direction.

3. An introduction to **implementation plans**.
   - The National Adaptation Strategy will be implemented through a series of action plans that outline immediate priorities, enable accountability, and focus investments for the next five years.
   - Existing plans and measures can also contribute to the shared goals and objectives in the Strategy.

Guiding principles

The guiding principles will help direct and inform decisions on how we design and advance adaptation actions. Our adaptation efforts should respect and strive for these principles:

- **Respect jurisdictions and uphold Indigenous rights**
- **Advance equity and environmental justice**
- **Take proactive, risk-based measures to reduce climate impacts before they occur**
- **Maximize benefits and avoid maladaptation**

1. Respect jurisdictions and uphold Indigenous rights

Adaptation efforts must respect the jurisdictions of local, provincial, territorial, national, and First Nations, Métis Nation, and Inuit governments, and act to accelerate and build upon their existing efforts. Adaptation efforts can only be effective when they include local leadership and reflect unique regional and local climate change conditions and circumstances, including values and cultures. This is particularly true in the North, where unique challenges will require unique northern solutions. Action should focus on opportunities for collaboration and aligning efforts, in order to advance more efficient and shared outcomes.

Adaptation efforts must uphold the rights of First Nations, Métis Nation, and Inuit peoples, including constitutional, treaty, and inherent rights to own, use, develop, control, conserve and protect the environment of their lands, territories and resources, in accordance with the standards set out in the United Nations Declaration on the Rights of Indigenous Peoples.

2. Advance equity and environmental justice

Adaptation efforts must act to advance environmental justice. This includes addressing and minimizing social, gender, racial and intergenerational inequities and prioritizing those populations and communities at greater risk of climate change impacts, including due to historical and ongoing practices and policies that shape lived experiences, capacity, and access to resources. As we build systems and solutions that are more climate resilient, we have the opportunity to address systemic inequities that make people vulnerable.

Efforts to implement action and evaluate success should be transparent and inclusive. Adaptation actions should close existing equity gaps and ensure that vulnerable and marginalized populations have their basic needs met in order to build resilience to climate change.

3. Take proactive, risk-based measures to reduce climate impacts before they occur

Decision-making should be informed by an understanding of climate risks and vulnerabilities to minimize impacts and costs before they occur and support emergency preparedness. Action to protect the most vulnerable communities and ecosystems should be prioritized. Adaptation and disaster risk reduction efforts should be mutually supportive, taking an integrated risk-based approach across all hazards.

4. Maximize benefits and avoid maladaptation

All adaptation efforts should consider and maximize benefits towards people's health and well-being, and provide as many co-benefits as possible for the economy and the natural environment. Adaptation efforts should also avoid maladaptation, or unintended negative effects, such as increased greenhouse gas emissions, nature loss, additional harm to equity-seeking groups, or the reduction of climate resilience in other parts of society.

Climate change resilience in key systems

This section sets direction for climate change resilience in five interconnected systems of society in Canada: disaster resilience, health and wellbeing, nature and biodiversity, infrastructure, and the economy and workers. The system approach goes beyond individual hazards, risks, and assets to implement solutions that are most effective and efficient. The Strategy recognizes that there are important connections among these systems, and adaptation actions in one area can also support outcomes in another.

Figure 8. National Adaptation Strategy systems

Disaster Resilience

As the frequency and severity of climate-related disasters increase, the economic and human cost to respond to and recover from those disasters is increasing. Reducing disaster risks, particularly through proactive adaptation, has proven to be more economical than the cost of response and rebuilding. Building disaster resilience is multi-faceted and requires effective governance, whole-of-society collaboration and expertise, strong communication on disaster risk and tools to help address climate change.

Improved emergency preparedness, data generation and communication, as well as capabilities that are meant to support climate resilience and adaptation in the long term are more important than ever. Climate-informed emergency management mechanisms are essential for building climate resilience. Recent flooding and wildfire events have demonstrated the gaps in Canada's emergency management system and the need for an all-hazards approach to successfully navigate a climate-impacted future. This approach establishes both long and short term goals to build resilience to current and emerging climate risks (e.g., wildfires, floods, and extreme heat), among others.

The Emergency Management Strategy for Canada, Canada's official disaster risk reduction strategy, helps to guide federal and provincial governments to take action to improve emergency management capacity and reduce disaster risk. Robust preparedness, response and recovery systems are essential to reduce the number of affected people, the mortality, the economic loss, and the critical infrastructure damage resulting from climate-related disasters.

Goal

Communities and all people living in Canada are better enabled to prepare for, mitigate, respond to, and recover from the hazards, risks and consequences of disasters linked to the changing climate; the well-being and livelihoods of people living in Canada are better protected; and overall disaster risks have been reduced, particularly for vulnerable sectors, regions, and populations at greater risk.

Objectives

With climate change bringing more frequent and intense extreme events, the objectives in this system reflect the need to both reduce the number of people impacted by these events, and to be better prepared to respond and recover for those who are affected.

1	There is a measurable reduction of people in Canada impacted by climate-related hazards (e.g. eliminate fatalities and reduce displacement and damage from wildfires; eliminate mortality and reduce hospitalization from extreme heat; households in high-risk flood zones and those subject to flooding from extreme precipitation are protected).
2	Effective, efficient, and accountable governance mechanisms are established for stronger disaster risk reduction coordination through a whole of society approach.
3	All communities are able to implement timely and successful emergency response plans that are readily accessible to everyone in the event of a disaster.
4	National and regional readiness, mitigation, and recovery plans and policies integrate the latest evidence and are inclusive of all populations/communities.
5	People affected by disasters face minimal disruptions to lives and livelihoods, and can return to their homes within a reasonable period of time (e.g. establish clear timelines with milestones for displaced Canadians to return home after a disaster).

Health and Wellbeing

Many factors influence our physical, mental, and social wellbeing – including social determinants of health such as access to health services, physical environments, housing, food security, social supports, culture, and income. People of varying cultures, genders, and identities may have different views and important considerations for health. Climate change is already impacting these health factors to varying degrees.

We can empower individuals to protect themselves and their loved ones. We can seek to understand all the factors that determine how climate impacts will be experienced and we can prioritize those who are most affected.

We can ensure our health facilities and systems are resilient to climate change. Being aware of climate-related health risks, having strong social networks, having access to mental health services, being able to enact our culture, and having access to green space are just some of the ways we can support our health and well-being as the climate changes.

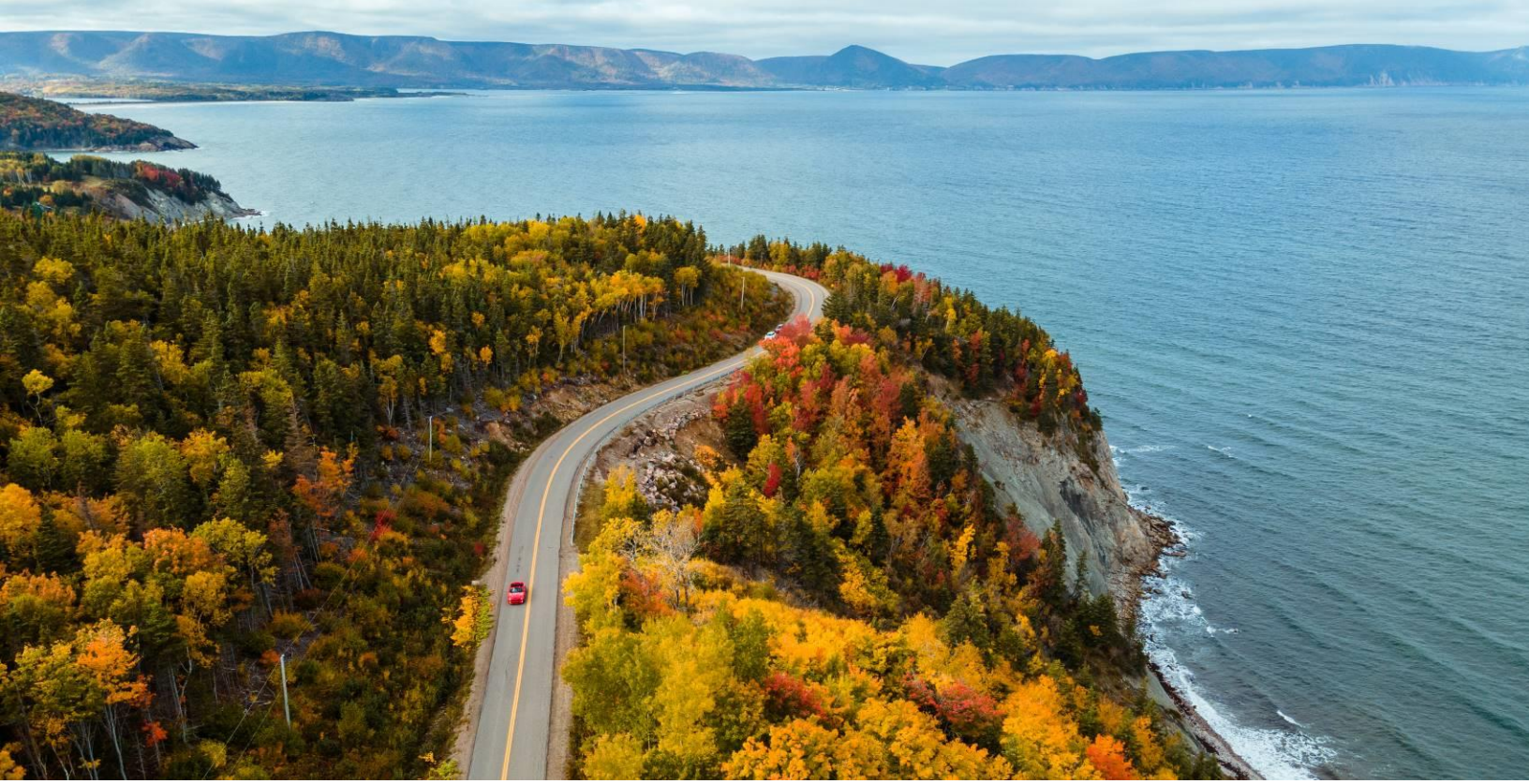
Goal

The health of all people in Canada is safeguarded and supported by a climate-resilient and adaptive health sector that has robust and agile systems and services that account for and support the diverse components of well-being.

Objectives

Objectives in this system aim to reflect the breadth of action to protect health and wellbeing in the face of climate change impacts. This includes both minimizing climate change risks to health, and better preparing the health system to manage the increased demand for health services and the added burden of new climate risks.

1	Health systems have the expertise, knowledge, and resources needed to identify climate change-related risks and take equitable, evidence-based action to protect health.
2	Health authorities have identified the extent to which climate change is impacting health and have established methods for tracking future health impacts and evaluating progress towards protecting health and reducing risks.
3	People are protected from urgent climate-related health risks such as extreme heat, infectious diseases, foodborne hazards and impacts to traditional foods, poor mental health outcomes, and others.
4	Climate action across all sectors promotes good health and prioritizes measures that have multiple benefits (e.g., protecting health and improving environmental sustainability).



Nature and Biodiversity

Canada's natural environment includes land-based ecosystems such as grasslands and forests, freshwater ecosystems such as rivers, lakes and wetlands, as well as coastal and marine ecosystems. Some of these ecosystems are part of highly managed landscapes, such as farms or urban areas, while others experience less human activity. Biodiversity is an essential part of each of these ecosystems, and support how it functions.

In addition to having intrinsic value, the natural environment also provides critical ecosystem services and solutions to address the hazards of a changing climate. For example, if selected for their resilience to climatic extremes and protected, shade trees can provide relief during heatwaves and wetlands can absorb water and reduce flooding.

In order for the natural environment – including people – to thrive in the face of climate change, we need to shift our perspective to see people as part of and active participants in nature, and embrace stewardship approaches. Our efforts to halt and reverse nature loss should prioritize solutions that help the natural environment to respond to and recover from current and future climate events.

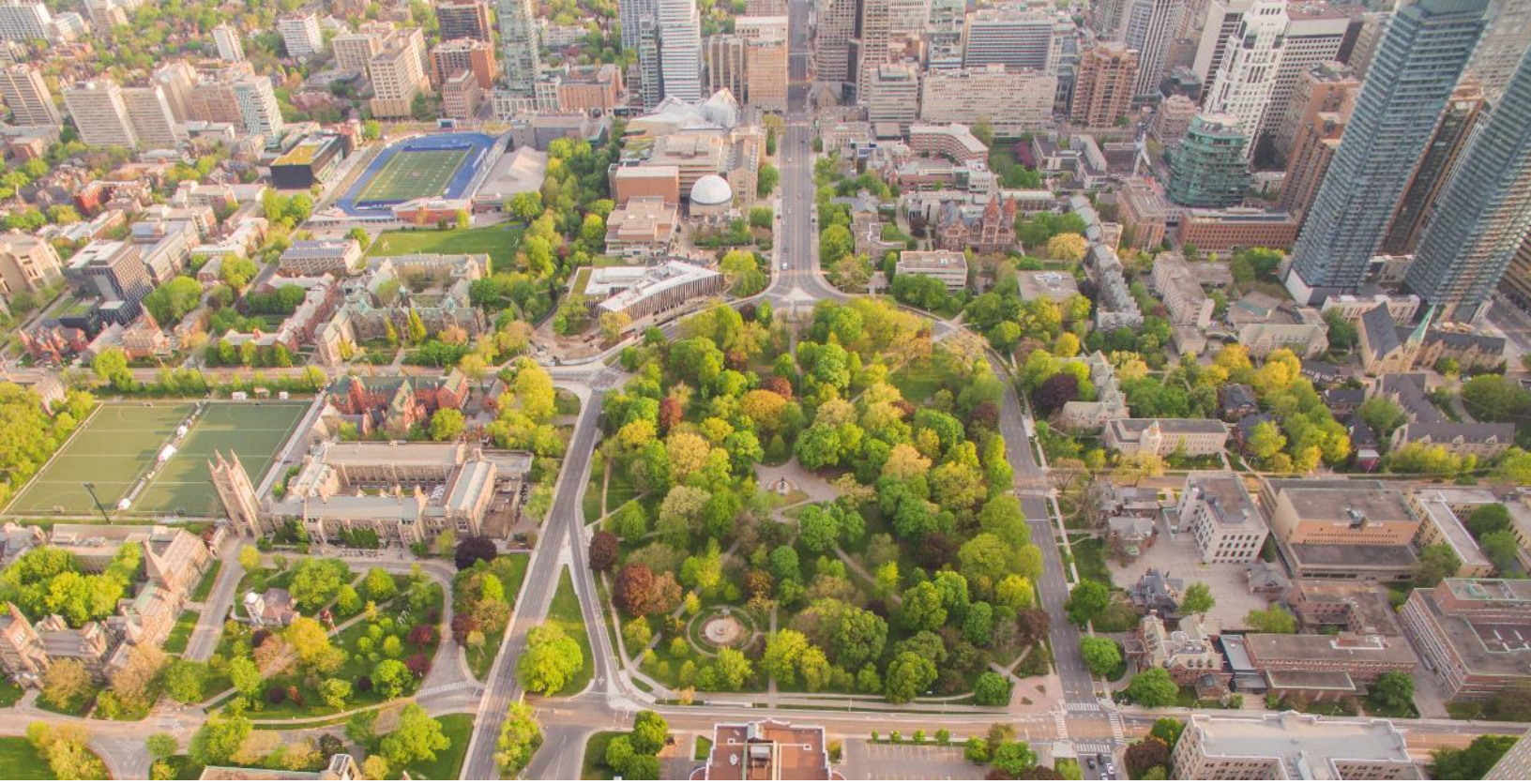
Goal

Biodiversity loss has been halted and reversed and nature has fully recovered allowing for natural and human adaptation, where ecosystems and communities are thriving together in a changing climate, with human systems existing in close connection with natural systems.

Objectives

The objectives in this system aim to reflect both the need to support the resilience of ecosystems with a focus on those most affected by climate change, and the power of nature to provide adaptation solutions.

1	Human activities are transformed to halt and reverse biodiversity loss, and enhance ecosystem connectivity and resilience.
2	First Nations, Métis Nation, and Inuit governments, organizations, and communities have the opportunities and means to pursue self-determined priorities for ecosystem stewardship initiatives to adapt to climate change.
3	The use of nature-based solutions is accelerated to increase resilience and maximize co-benefits such as reducing stress on grey infrastructure and increasing social benefits of nature.
4	The ecosystems most affected by climate change are monitored, restored and managed to ensure their continued viability and adaptive capacity.



Infrastructure

Different types of infrastructure deliver critical services to our communities for day-to-day life, including transportation, health care, utilities, communications, and trade. Infrastructure – including built and natural elements – keeps us connected, moves people and goods, provides safe drinking water and places for recreation, sport and culture.

Despite facing significant climate risks, infrastructure has been identified as one of the top sectors for climate change resilience potential. This requires locating, planning, designing, managing, adapting, operating and maintaining infrastructure with climate change impacts in mind. Predictable, reliable, and secure infrastructure services should meet the needs of all communities fairly and equitably – including those with existing gaps and those with infrastructure at highest risk of climate impacts. Climate-resilient infrastructure policies and programs can result in significant avoided damages and provide a number of co-benefits, such as enhanced livability of communities and protection of Canada's biodiversity. Additionally, natural infrastructure solutions are increasingly seen as win-win investments that support traditional infrastructure outcomes, such as stormwater management, and deliver valuable co-benefits to communities, such as climate change resilience, reduced pollution, and carbon sequestration.

In building and maintaining climate-resilient infrastructure systems, decision-makers and professionals across the country need tools and support based on accurate climate data to make the best long-term decisions, manage the lifecycle of assets, and allocate limited resources. For example, floodplain maps updated to reflect changes caused by climate change could affect where a wastewater facility is built, while accurate information on future extreme heat could affect how a playground is designed. There is a need to significantly scale up

investment to support Canadian communities in making their infrastructure more resilient to a changing climate, in ways that match the magnitude and time horizon of the risks being faced, and considers the interdependencies across infrastructure systems.

Property owners, communities, the private sector, professionals, civil society and all orders of government need to work together to accelerate progress towards climate-resilient infrastructure. As provincial, territorial, Indigenous, and local governments own and operate around 97% of publicly owned infrastructure in Canada, accelerating progress towards climate-resilient infrastructure and safe and livable communities requires cooperation and alignment between different orders of government.

Goal

All infrastructure systems in Canada are climate-resilient and undergo continuous adaptation to adjust for future impacts to deliver reliable, equitable, and sustainable services to all of society.

Objectives

The objectives in this system reflect the breadth of levers that can support adaptation action throughout the lifecycle of infrastructure in Canada and prioritize infrastructure in communities at highest risk of climate change impacts.

1	Technical standards have been updated or developed to embed climate change in all decisions to locate, plan, design, manage, adapt, operate, and maintain infrastructure systems across their lifecycle.
2	Public and private infrastructure decision-making is informed by system-wide assessments of, and planning for, climate change risks.
3	Infrastructure decisions prioritize benefits for marginalized populations and communities at highest risk of climate change impacts.
4	All new investments in infrastructure apply resilience criteria and adopt climate change guidance, standards, and future design data to maximize the long-term benefits of infrastructure outcomes.

Economy and Workers

Climate change has direct and indirect impacts on the economy, including on employment, savings and investment, and trade. Climate change risks to individual sectors and reliant communities are often crosscutting in nature – for example, disruptions in the agriculture sector can have major impacts for food production (manufacturing, imports, services) and food security. Climate change can have serious impacts on important cultural livelihoods for First Nations, Métis Nation, and Inuit peoples, including the ability to harvest and share country foods.

Economic sectors need to assess their unique risks in order to increase their resilience to climate change. Businesses and communities need workers with the skills and knowledge to adapt. Supply chains need to account for more frequent disruptions, and financial incentives for climate-exposed industries need to account for the changing climate. The economic valuation of climate risks should be incorporated in economic decisions. The approach to economic sectors, including insurance underwriting, will need to adapt to support behaviours and products that enhance resilience. Climate change may also present opportunities for Canadian businesses, if they routinely assess changes in their operating environment to stay competitive and identify emerging economic opportunities that may come with a changing climate.

Collaboration will be required to address both individual and shared climate change challenges. Economic impacts cross jurisdictional lines and can often be influenced by climate change impacts beyond Canada’s borders. Decisions, behaviours, and products that reduce climate disruptions on individual and community livelihoods and on economic sectors need to be promoted, and smart investments should be aligned with climate change resilience. Shared challenges can be addressed by building sector-specific adaptation knowledge and skills, and in areas such as labour, trade and supply chains, finance, investment, and insurance underwriting. Actions must be proactive, uphold Indigenous rights, land-based and blue economies, and provide equitable access to opportunities.

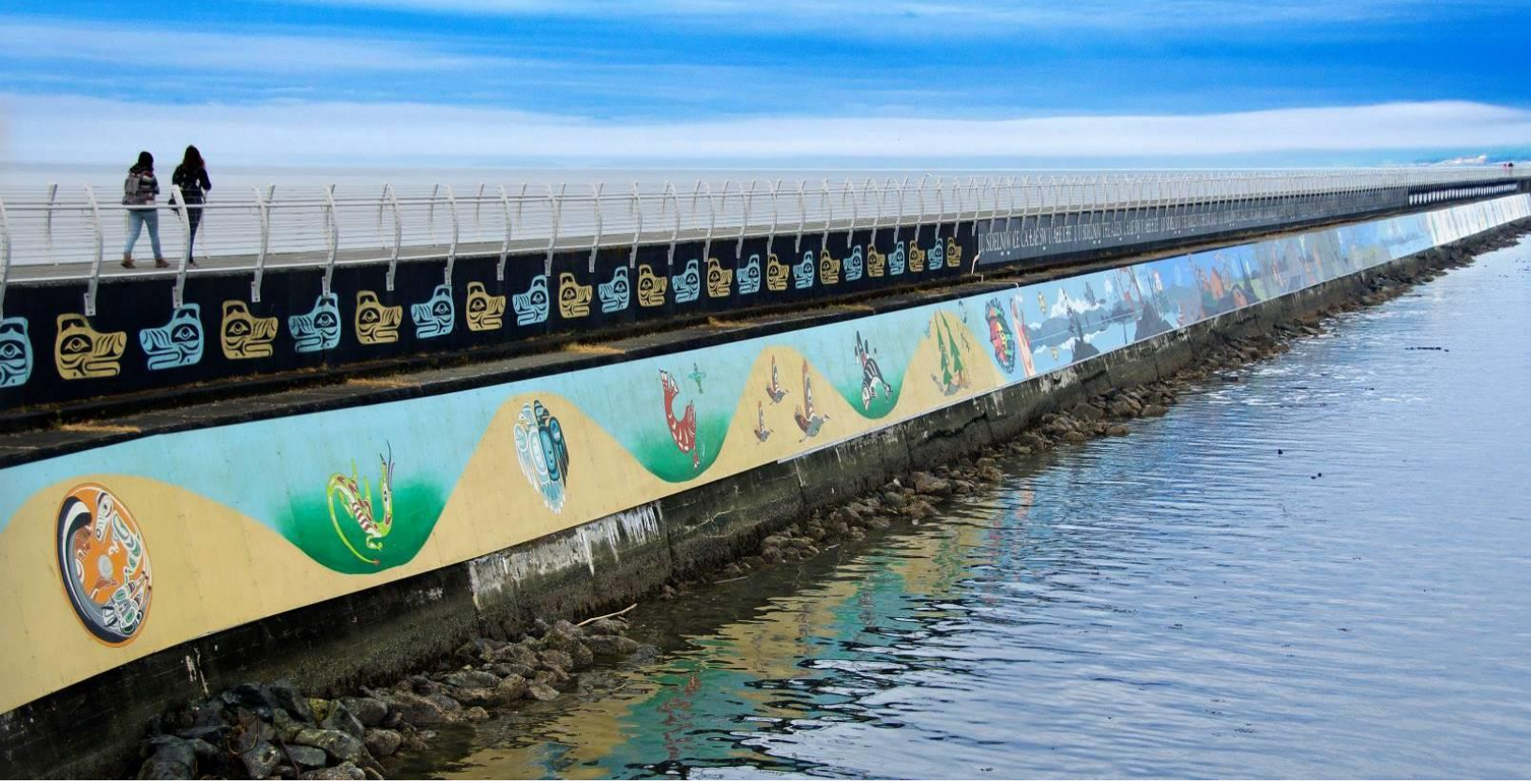
Goal

Canada's economy is structured to anticipate, manage, adapt, and respond to climate change impacts; and to actively advance new and inclusive opportunities within a changing climate, particularly for communities at greater risk, Indigenous Peoples, and vulnerable economic sectors.

Objectives

The objectives in this system aim to capture the breadth of levers to incorporate climate change considerations into economic decisions, from building the business case for adaptation, incentives for adaptation, and developing a skilled and resilient workforce. The objectives also aim to focus on economic sectors most at risk from climate change.

1	The business case for adaptation is advanced through research and the knowledge is accessible, tailored, and useful.
2	Policy and financial instruments provide the right incentives and remove disincentives for proactive adaptation.
3	Canada has a skilled, diverse, and adaptable workforce that is supported by education, training, knowledge and skills development to respond to future impacts of climate change.
4	Economic sectors most vulnerable to the impacts of climate change routinely assess climate change impacts on the operating environment and incorporate adaptation considerations into business decisions.



Foundational objectives

This section outlines the foundational elements that are necessary to underpin effective adaptation. These cross-cutting objectives support resilience across all five National Adaptation Strategy systems of disaster resilience, health and wellbeing, nature and biodiversity, infrastructure, as well as economy and workers.

Knowledge and understanding

It is important that adaptation is informed by evidence of how the climate is changing and how these changes affect different people and communities now and in the future. This evidence base should reflect scientific knowledge and diverse ways of knowing and should include and weave in Indigenous and local knowledge. Canada has a strong foundation. However, data and knowledge need to be accessible, standardized and targeted to the needs of users. Investing in new data and analyses can address gaps, including economic valuation of climate risks, building the business case for investment in adaptation, and foundations needed for innovation.

Informed decisions require an understanding of climate risks and vulnerabilities, as well as knowledge of available solutions and resources. Adaptation will involve choices and may entail trade-offs. Education and awareness raising are the main ways to communicate the need for incorporating adaptation into decisions and taking urgent actions. Shared understanding can help us work together to improve our collective resilience to climate change

Objectives

1	A robust evidence base for adaptation is in place through development, stewarding and sharing of existing and new data, knowledge (including Indigenous Knowledge and local knowledge), environmental and socio-economic analyses, and other ways of knowing.
2	Everyone in Canada is informed about climate risks and vulnerabilities. Available information is accessible, easy to understand, and designed for different audiences.

Tools and resources

To turn awareness into action, people in Canada need to be able to access tools, measures, and resources to address the climate risks they face. Local, regional and institutional capacity to consider climate change in decisions is key to taking action to adapt. Those at higher risk of climate impacts, including youth, racialized, and vulnerable groups and communities, require additional support to keep pace. Preparing for climate change impacts will require sustained public and private investments, but the cost of delays or inaction is much greater. The current approach—too often fragmented, short-term, and project-based—is insufficient to address the climate change challenges Canada is facing. There is a need to increase and shift investments to support coordinated and proactive measures that help avoid or reduce climate-related damages.

Objectives

3	Everyone in Canada has equitable access to the tools and supports needed to prepare for, reduce, and respond to climate change impacts.
4	Sustained, sufficient, and equitable public and private funding is in place to support adaptation to climate change.
5	Local, regional, and institutional capacity for adaptation contributes to self-sufficiency and participation in adaptation actions.

Governance and leadership

Strong leadership, clear responsibilities, and accountability are needed to align and improve adaptation actions across society. Adaptation governance mechanisms can bring together governments with differing jurisdictions, Indigenous Peoples as rights holders, and perspectives of marginalized groups. Effective governance supports decisions to address climate impacts taking place now (e.g., heatwaves, wildfires, and floods) and slow onset changes that will worsen over time (e.g., sea-level rise, habitat change, and thawing permafrost). It also helps reduce the risk that action in one jurisdiction does not become a barrier or compromise solutions for adaptation for others.

First Nations, the Métis Nation, and Inuit are distinct Peoples who have distinct identities and cultures, and experience different circumstances in relation to climate change adaptation. They hold rights and titles to lands and territories, and have unique cultural traditions, knowledge systems, worldviews, governance systems, and experience as stewards of their environment. They should each be supported and enabled to choose their own actions to build climate change preparedness in ways that align with their values and are effective and meaningful to their unique contexts. Supporting self-determined action across all five systems should include efforts to both provide opportunities and build capacity for First Nations, Métis Nation, and Inuit communities to be fully engaged, and to have the capacity, coordination, and shared information to support their own climate decision-making. The scope and range of these capacity needs varies widely from community to community, and relate closely to the equity objective.

Figure 9. Inuit mother and daughter on Baffin Island, Nunavut

The strength of our relationships and solidarity among members of a community, as well as extent of common resources available to plan and prepare for the impacts of climate change, are important determinants for effective adaptation. Our ability to cope with, withstand and recover from climate change impacts depends on the strength of our social connections, sense of belonging to our communities, and care for collective wellbeing. In turn, adaptation measures present an opportunity to improve community resources that build social cohesion as we experience inevitable climate impacts.

Sharing knowledge across borders, learning from international best practices, and improving inter-jurisdictional collaboration can help Canada learn from others as well as demonstrate international leadership.

Objectives

6	Effective governance for climate change adaptation is established and is inclusive of people who are disproportionately impacted by climate change.
7	First Nations, Métis Nation, and Inuit are prepared for and have the capacity to respond to climate change through self-determined adaptation actions that are grounded in their cultures, preferences, and community priorities.
8	Adaptation efforts improve social connections and reduce isolation in order to enhance overall community resilience to climate change.
9	Innovative solutions, through exchange of best practices and cross-jurisdictional cooperation, enhance adaptation outcomes across the country and position Canada as a global leader in supporting climate resilience.

National Adaptation Strategy timeframes, foundations, and evaluation

The Strategy is designed to evolve.

The federal government – in consultation with different orders of government, Indigenous Peoples, experts and stakeholders – will update the Strategy on a five year cycle, with associated action plans updated regularly. This will allow for an evolution of priorities and milestones as the climate continues to change, understanding of anticipated climate impacts advances, and experience with solutions grows. Regular reporting will promote transparency in how Canada is making progress toward the collective vision, goals, and objectives for climate change resilience as set out in the Strategy.

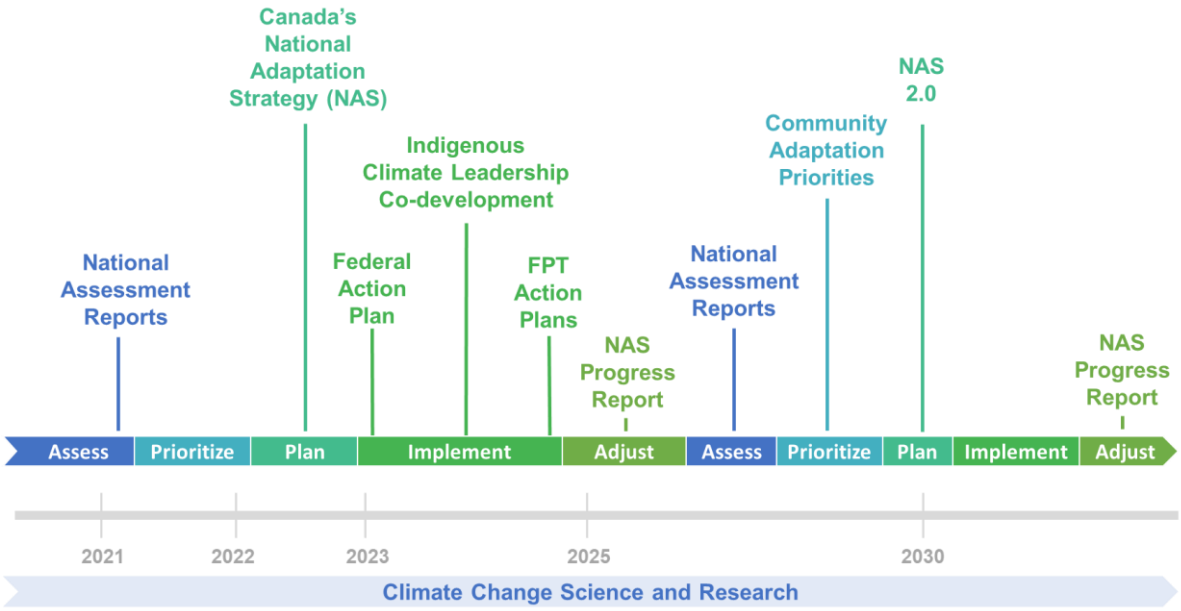


Figure 10. National Adaptation Strategy timeframe[1]. "FPT" stands for Federal-Provincial-Territorial.

The Strategy will keep up-to-date on the understanding of climate change risks.

The changing climate is putting us in an unprecedented situation. The National Adaptation Strategy is informed by our current science and knowledge, risk assessments, as well as local and Indigenous Knowledge. Federal, provincial, and municipal governments have all contributed assessments, as have Indigenous Peoples and organizations, the private sector, non-governmental organizations, academics, and other climate change experts. Some examples of these assessments are outlined in Annex C. Up-to-date and accessible information on current and projected climate change risks will continue to inform National Adaptation Strategy implementation and subsequent updates of the Strategy and action plans.

[1] The full series of national assessment reports is a multi-year process. Individual reports in the series focus on a particular theme or region where there is a need to synthesize recent literature and knowledge to support decision-making.

Implementation of the National Adaptation Strategy

Achieving the goals and objectives of this Strategy will require whole-of-society action and coordination among governments. Geographically, Canada is the second biggest country in the world and is experiencing climate change in many different ways. Given this, and respecting the jurisdiction and responsibilities of different orders of government, implementation of this Strategy will be through a series of action plans.

Federal actions

The Government of Canada has developed an action plan to outline the details of how the federal government is supporting the implementation of the National Adaptation Strategy, and contributing to meaningful and measurable improvements in climate resiliency in Canada. Updated regularly, and guided by this Strategy, the federal action plan will:

- Strengthen and streamline federal adaptation initiatives including key foundational actions such as climate change science and information;
- Make linkages with other commitments such as biodiversity conservation and climate change mitigation; and,
- Mainstream adaptation considerations in broader policies and programming, including through strengthening of governance mechanisms within and between governments and sectors.

Provincial and Territorial actions

Provincial and territorial governments have jurisdiction over many areas critical for achieving our collective climate change resilience goals. They are responsible and set the direction for a wide range of climate change adaptation measures in their jurisdiction. Provinces and territories are at various states of climate change preparedness. Most have undertaken assessments of climate change risks, many advance adaptation through broader climate change strategies, and some have begun implementing dedicated adaptation action plans. See Annex E for additional information on climate change adaptation initiatives in each jurisdiction.

Increasing climate change resilience for all people living in Canada requires governments to align policies and programming. This will enable scaled up efforts, ensure adaptation measures are delivered efficiently, and make effective use of public funding. The National Adaptation Strategy aims to transform the way governments in Canada work together to increase climate change resilience.

Federal-Provincial-Territorial cooperation

In order to respect and respond to local circumstances, differing climate risks faced in each region, and different levels of readiness in each province and territory, federal-provincial and federal-territorial action plans will be developed. This approach will support regional implementation of the Strategy and reflect the different risks and states of adaptation advancement in each province and territory. This approach will facilitate coordination, cooperation, and exchange of best practices between different orders of government. Bilateral action plans will support the goals and objectives of the National Adaptation Strategy and provincial and territorial governments' climate change adaptation priorities.

Indigenous-led action

First Nations, Inuit, and the Métis Nation are developing and leading self-determined climate change strategies and actions for their communities and regions, through national to community-level strategies and initiatives. Building increased capacity for ongoing action on climate change is a key focus for many Indigenous communities and organizations. For an illustrative list of Indigenous climate change strategies and actions, see Annex F.

Implementation of the National Adaptation Strategy with the Métis Nation, First Nations, and Inuit peoples and communities will be through partnership approaches. Over time, the **Indigenous Climate Leadership** initiative will be the main pathway for identifying and supporting Indigenous communities' adaptation priorities. This initiative is being co-led federally by Crown-Indigenous Relations and Northern Affairs Canada and Environment and Climate Change Canada over the next three years (2022-23 to 2024-25). The initial focus of this initiative is the co-development of an Indigenous Climate Leadership Agenda to support self-determined action in addressing Indigenous Peoples' climate priorities, as well as the phased implementation of distinctions-based climate strategies. Implementation of the National Adaptation Strategy will support self-determined action and contribute to overall efforts to vest authorities and resources progressively in the hands of Indigenous Peoples and governments.

Monitoring our progress

Monitoring and evaluation is an important step to document progress in implementation, support transparency, and enable better decision-making in adapting to climate change. The Strategy's monitoring and evaluation framework aims to establish a consistent mechanism to regularly review and evaluate progress on the Strategy, and to understand which adaptation actions are working and where adjustments to plans and priorities should be made. Over time, consistent monitoring and evaluation will ensure that future versions of the Strategy and action plans build on achievements and lessons learned.

Regular reporting on indicators at the national level can track national adaptation progress and build a better understanding of resilience in Canada. It will provide information on where collective efforts are yielding results and where more work is needed. Since climate change impacts are broad, from the economy and infrastructure to human health and the environment, the framework represents data and information from across sectors to capture a more complete picture of adaptation progress.

The first framework has an initial set of indicators (see Annex D) that will continue to be refined. This set of indicators is aligned with the Strategy's priorities and has been developed from available sources of quantitative information through ongoing coordination with partners and key stakeholders. Efforts to develop the monitoring and evaluation framework will continue as the Strategy evolves and as new indicators, partnerships, and data collection methods, including qualitative and other ways of knowing, are explored.

Conclusion

This first adaptation strategy for Canada sets a path for greater resilience to climate change. Setting a common purpose will help people in Canada work better together, and take coordinated and more ambitious action.

With a regular cycle for updates and consistent monitoring and evaluation, the Strategy is designed to evolve as the climate continues to change and we undertake more actions to prepare. Regular progress reports will support transparency.

We all have a role in keeping ourselves, our families, and our communities safe in the face of climate change. We need to better understand how climate change will affect our health and our livelihoods. We need to make informed decisions in our communities and businesses to manage climate change risks. We can set standards to ensure buildings and infrastructure across the country can withstand climate change impacts. We can make plans to reduce disruptions and loss from climate change-related disasters that we cannot avoid.

We can only meet the magnitude of the challenge if we all work together. With environmental justice at the heart of our shared goals, the National Adaptation Strategy can help people in Canada thrive in the face of climate change.

Annex A: Roles and Responsibilities

We are all part of the solution.

While different groups have different roles and responsibilities on adaptation, we are all part of the solution. Addressing the scale and complexity of our new climate reality will require shared commitment, aligned action, and an understanding of where we each fit in the solution. The National Adaptation Strategy offers the opportunity to scale up ongoing actions and advance new initiatives and leadership through the help of shared priorities and collaborative action.

What are our roles and responsibilities and what can we do?

The **federal government** makes key contributions to adaptation action by demonstrating leadership, supporting foundational science and information, building knowledge and capacity, convening partners to coordinate action, and investing in adaptation solutions. This includes, for example:

- Making policy and regulatory decisions on national and international issues.
- Creating federal laws and regulations.
- Creating incentives to support the national economy.
- Setting national codes and standards.
- Supporting emergency mitigation, preparedness, and response and recovery from natural disasters.
- Providing funding for programs, projects and partnerships to support action.
- Providing weather monitoring and forecasting, scientific research and analysis, and climate change information and advice.

Illustrative actions: Federal programming

The federal government has accelerated its programs and spending on climate adaptation in the past years, for example:

- Climate-resilient infrastructure: The *Disaster Mitigation and Adaptation Fund* supports communities better prepare for, and withstand, the potential impacts of natural disasters, including climate-driven extreme events such as flooding, wildfires, drought and permafrost thaw, to prevent infrastructure failures and protect Canadians and their livelihoods.
- Climate services: The *Canadian Centre for Climate Services* provides Canadians, across regions and sectors, with locally-relevant information and support to integrate climate change into decision-making. For example, the CCCS supports ClimateData.ca, a collaborative climate information portal that enables people across Canada to access, visualize, and analyze climate data; and provides related information and tools to support adaptation planning.

Provincial and territorial governments have important and unique roles to play on adaptation in their jurisdictions, particularly in relation to property and civil rights. As a result, provincial and territorial governments are able to advance adaptation in areas such as:

- Developing land-use planning laws and building regulations.
- Leading on health care systems, and natural resource and land management, including permitting and regulation.
- Making investments in resilient infrastructure.
- Delivering and designing emergency services, environmental protection, health, education, planning, economic development and transport.
- Collecting data and information and conducting science at local and regional scales that can be used to better understand climate change risks.

Illustrative action: Cross-government collaboration
Flood Hazard Identification and Mapping: Federal, provincial and territorial partnership to complete flood hazard maps of higher risk areas in Canada and make this flood hazard information accessible.

Indigenous Peoples and governing bodies are key partners in adaptation action, who hold rights to lands and territories, and are advancing self-determined or self-governed actions as keepers of their territories and communities. They are leaders, who hold deep knowledge of natural systems and millennia of experience acting as stewards of the environment. Some of the ways First Nations, Métis Nation, and Inuit peoples are advancing adaptation action include:

- Developing and advancing climate risk assessments and adaptation plans with actions for their regions and communities.
- Applying knowledge and information about the environment and climate change through environmental stewardship, disaster risk reduction, land use plans, resource management and emergency management.

Illustrative action: Knowledge Sharing and Collaboration:
The Indigenous Centre for Cumulative Effects (ICCE) is an Indigenous-led organization, and is a network for Indigenous communities to access information, resources and best practices about cumulative effects. The main objective of ICCE is to help build the technical and scientific capacity of Indigenous communities to address cumulative effects of climate change, development and other activities affecting Indigenous lands, waters, and peoples based on the values, perspectives and priorities of First Nations, Métis Nation, and Inuit communities across Canada.

Local and regional governments have been at the forefront of climate adaptation, providing a lens into local circumstance and directly involving local communities in adaptation efforts. Municipalities and regional governments are integrating adaptation considerations into decisions such as:

- Land-use planning and zoning.
- Water supply and wastewater management.
- Flood and wildfire risk management.

Illustrative action: Health Equity and Climate Change

The **City of Montreal** has a new collaboration agreement with the regional public health department (*Direction régionale de santé publique*), which will allow for a more upstream approach to issues related to health equity and climate change. This agreement will allow the city to better evaluate and anticipate possible impacts of climate change on the health of the Montreal population and the resulting social and equity issues, as well as to map the urban sectors that are more vulnerable to heat waves and other climate hazards.

The private sector is directly experiencing the current impacts of climate change and related uncertainties in the future. Many economic sectors in Canada are beginning to:

- Assess, address, and report on climate vulnerabilities in their operations, supply chains, and workforce.
- Make direct investments to develop innovative technical, financial and operational solutions that increase climate resilience and support adaptation action across the economy.
- Increase the number of private-public partnerships to fund innovative projects.

Illustrative action: Peer learning

Agriclimate, an initiative by Quebec farmers starting in 2017, aims to equip agricultural producers, experts and stakeholders for climate change mitigation and adaptation. Agriclimate has supported development of 10 regional climate adaptation plans in Quebec, as well as established a network of nearly forty pilot farms since fall of 2021, which will test and document farm climate resiliency measures along with their economic impact.

Electricity Canada, the national forum and voice of the evolving and innovative electricity business in Canada, developed climate adaptation planning guidelines for electricity companies in Canada. The guidelines are recommended processes for utilities to follow when creating tailored company-specific adaptation plans. Given the diverse geography and structure of the electricity sector in Canada, a series of workshops were also delivered across the country to work hands-on with utilities in interpreting and applying the proposed guidelines.

Professional associations create communities of practice, set standards of excellence, and promote professional development amongst professionals within a given field. Due to their leadership positions within specific areas of work, they are well placed to influence climate adaptation action and help support integration of adaptation into their professional activities, including by:

- Developing climate resilience guidelines for their members.
- Integrating climate change considerations into their codes of conduct and ethics.
- Establishing best practices related to climate change adaptation.
- Building awareness of climate risks and offering training and education to their members on adaptation.
- Integrating adaptation competencies into their education and professional development requirements.
- Providing up-to-date information on new technologies and approaches to reduce climate risks.
- Encouraging the uptake of new practices, designs, and technologies through guidance documents to spur innovation in industry.
- Regulating requirements for special designations.

Illustrative action: Professional Training and Guidelines
The Canadian Association of Physicians for the Environment's Climate Change Toolkit for Health Professionals has eight modules that can each be used as tools for health professionals and students in health care and public health sectors to engage more directly on climate change with their patients, and to prepare for climate change in their workplaces and communities.

Illustrative action: Raising Education and Public Awareness
Dairy Farmers of Canada, the national policy, advocacy and promotional organization representing Canadian dairy producers, developed the proAction program, a national quality assurance program for the Canadian dairy sector that includes a requirement for all dairy farmers in Canada to complete an Environmental Farm Plan (EFP). These plans help farmers assess their on-farm risks and map out a plan to manage and mitigate those risks (e.g., to nutrient management, soil health, water management and biodiversity). As of 2017, over 40% of farms in Canada have an EFP in place, with support from federal, provincial and territorial governments that incentivize adoption of on-farm beneficial management practices.

Academic institutions, researchers, scientists, and non-governmental organizations play a key role in generating and sharing knowledge on climate change adaptation and helping to mobilize adaptation action, including by:

- Incorporating adaptation in the curriculum for professional programs.
- Including adaptation as an eligible specialty for co-op programs and internships.
- Convening and leveraging research networks nationally and internationally.
- Undertaking climate adaptation research including in innovative solutions and adaptive management.
- Raising awareness of climate change and adaptation.
- Working with governments and other partners to understand, assess, and mobilize knowledge about climate impacts and develop new technology and innovative solutions.

Illustrative action: Data, Research, and Knowledge Mobilization
The Prairie Climate Centre (PCC), at the University of Winnipeg, brings an evidence-based perspective to communicating the science, impacts, and risks of climate change through high-quality maps, documentary video, research reports, and plain-language training, writing, and outreach. The PCC's goal is to inspire citizen participation, to support communities in making meaningful and effective adaptation and mitigation decisions for current and future generations, and to help Canadian society move from risk to resilience. The flagship project of the PCC is the Climate Atlas of Canada.

Illustrative action: Raising Education and Public Awareness
For example, the **University of British Columbia's** Faculty of Forestry's Climate Vulnerability and Adaptation is offering "a flexible 8-week online program that provides forest professionals with an understanding of climate science, vulnerability assessments, adaptation development, and how it is applied to management and business case adaptation".

Communities and individuals directly and indirectly experience the impacts of climate change, and can take action to adapt to climate change in ways such as:

- Educating themselves on climate change impacts and adaptation solutions.
- Integrating adaptation in their decisions to protect their health, safety, and assets at the individual, household, family or community level.
- Acting on their right to express and continue to advocate for their values and preferences for how adaptation is implemented in their communities and across the country.

Illustrative actions:
While some adaptation measures can be implemented through policy processes (e.g., codes, standards, by-laws), some will require individual action and broader support (e.g., re-zoning flood plains, wildfire resilient homes including using FireSmart Canada programming for homes and communities, and household measures to reduce the effects of storms and flooding). Individuals can also play an important role in preparing for the impacts of climate change, and showcasing measures which can lead to supporting greater uptake of adaptation measures in their communities and neighbourhoods.

Getting to know your neighbours and volunteering for elderly support networks, homeless shelters, resident associations, and neighbourhood community groups is an excellent way to contribute. For example, the Toronto St James Town Community Co-op aims to ensure marginalized communities in Toronto's downtown core have a "safe response plan for future pandemics, extreme weather, black outs, and other global and community crises". They have a climate and emergency resilience program for residents to cool down during extreme heat waves and have access to food during emergencies.

Individuals and homeowners can also act to improve the resilience of their own lives by preparing for the impacts of climate change by:

- Preparing and storing an emergency kit in a safe place in their home (e.g., food, water, flashlights/candles, batteries, battery charger for cell phones, cash, etc.).
- Investing in low impact development technologies (e.g., permeable pavement, rainwater gardens, sand bags, trees) and installing sump pumps and backwater valves in basements to reduce the impacts of flooding of a home (e.g., homeowners can better understand how to protect homes from flooding through the Home Flood Protection Check Up).
- Individuals can also play an important role in the **gathering of data to monitor and report** on climate events by volunteering and contributing to science and monitoring through various citizen-science databases (e.g., Abeilles citoyennes, Agroclimate Impact Reporter; Coastie Program; BC Parks iNaturalist Project).

Annex B: Engagement to inform the Strategy

The Strategy has been informed by targeted and expert engagement since early 2021, including:

- Engagement on the Strategy started with bilateral discussions in early 2021 with provinces and territories, National Indigenous Organizations, and other key partners.

- An international peer-learning event in May 2021 to learn about international best practices in the development of national adaptation strategies and action plans. The Organisation for Economic Co-operation and Development, Japan, Germany, and the United States, among others shared their expertise and lessons from their experiences.

- A virtual Strategy Development Forum in June 2021 identified early ideas for a National Adaptation Strategy for Canada. The 60+ participants included representatives from all provinces and territories, National Indigenous Organizations, professional and industry associations, youth organizations, climate service providers, research institutes, municipal and local community networks and other non-governmental organizations.

- Five expert Advisory Tables, launched in fall 2021, provided advice on transformational goals and objectives within five key systems: Health and Wellbeing, Natural and Built Infrastructure, Environment, Economy, and Disaster Resilience and Security. These tables included diverse representatives from Indigenous Peoples, youth, professional associations, the private sector, environmental organizations, academia, adaptation experts, and others. Reports by the advisory tables are available here.

- Public consultation was launched in May 2022, beginning with a national symposium, which brought together experts, practitioners, and policy makers highlighting the urgency for action, adaptation efforts across the country, the Strategy's systems and potential short-term measures. Close to 1,400 participants attended the symposium.

- Throughout the public engagement period, over 20 thematic workshops provided opportunities for key actors across Canada to input on adaptation actions and increased awareness of the importance of adaptation, impacts and opportunities for individuals and the private sector. Topics included each of the five systems, agriculture, and monitoring and evaluation.

- An online engagement platform was launched to support public consultations, with over 27,000 site visits; 2,000 site registrations; and 16,000 contributions (i.e., ideas, comments, votes on ideas). Engagement resulted in over 100 written submissions from

key organizations, stakeholder groups, and the public (e.g., Canadian municipalities, NGOs, universities, professional associations, etc.).

- Regular discussions with representatives of National Indigenous Organizations and some regional Indigenous organizations and governments have informed the Strategy.

- Bilateral engagement with provinces and territories continued throughout 2022 to inform development of the Strategy and federal actions, and to ensure provincial and territorial priorities are reflected.

Annex C: Climate Change Risk and Knowledge Assessments and Supporting Services

Knowledge and risk assessments

National climate change assessment processes include, but are not limited to:

- A series of national assessments reports coordinated by Natural Resources Canada, which provide the most up-to-date syntheses of knowledge on climate change, impacts and how Canada is adapting, and the foundation to inform decision-making on climate change adaptation in Canada. The assessments are developed through a rigorous, open process that ensures relevancy and credibility, and engage a broad partnership of subject-matter experts and assessment users from all orders of government, Indigenous organisations, universities, professional and non-governmental groups and the private sector.
- An output of the National Assessment Reports is the Map of Adaptation Actions. Canadians can explore case studies from across Canada to learn how communities and sectors are adapting to a changing climate to inspire adaptation action.
- The most recent report (2022) in the series, The Health of Canadians in a Changing Climate: Advancing our Knowledge for Action report, led by Health Canada, provides an evidence base for the health and wellbeing system in the Strategy. This report provides an assessment of the risks of climate change to the health of Canadians and to the health care system; and helps to support actions by health decision makers at local, provincial/territorial and national levels, as well as those who work in public health, health care, emergency management, research, and community organizations.
- Public Safety Canada is leading the development of a National Risk Profile to support a greater understanding of disaster risk, as per one of the key priorities under the Emergency Management Strategy for Canada: Toward a Resilient 2030. This initiative will bring Canada in-line with other countries. The National Risk Profile is a strategic national disaster risk and capability assessment that uses scientific evidence and stakeholder input to strengthen Canadian communities' resilience to the most costly natural hazards, including earthquakes, and climate-related hazards, such as floods and wildfires.
- Infrastructure Canada is leading a National Infrastructure Assessment to assess Canada’s long-term infrastructure needs, improve coordination amongst infrastructure owners and funders, and determine the best ways to fund and finance infrastructure.

A wide range of climate change risk and vulnerability assessments have been completed or are being completed by provincial, territorial, and Indigenous governments, Indigenous communities, urban and rural municipalities, sectors, and businesses.

Climate services

Climate services organizations play a critical role in the provision of data, information, training and tools that decision makers need to better understand the changing climate. Recognizing the need to improve access to climate data, as well as training and support to use this information, the Canadian Centre for Climate Services (CCCS) was established in 2018 as part of the Pan-Canadian Framework on Clean Growth and Climate Change. The CCCS supports a suite of online climate portals to disseminate climate information in a manner that aligns with the needs of climate information users. This includes information on ClimateData.ca, the CCCS Website and ClimateAtlas.ca. The CCCS also operates a Support Desk to answer questions and conducts outreach and training activities to support access and use climate data, information, and tools.

Through a partnership-based approach working with provinces, territories, climate services experts and regional climate service organizations such as Pacific Climate Impacts Consortium, ClimateWest, Ouranos and CLIMAtlantic, the CCCS aims to provide Canadians with the information and support they need to consider climate change in their decisions and thus, reduce their vulnerability and increase resilience to climate change impacts.

Training and skills

Although having access to these climate change assessment activities and to the science, data, and knowledge behind them is useful and important for understanding climate change risks, training, education, and capacity building are essential to further enhancing this understanding. Launched in the Pan Canadian Framework on Clean Growth and Climate Change, the Building Regional Adaptation Capacity and Expertise (BRACE) program has addressed some of the key training and capacity gaps in Canada, supporting the development of an adaptation competency framework to identify the core elements of adaptation expertise, the creation of training for key professions such as engineers and accountants, and internship programs.

Despite current government investments in expanding professional capacity for adaptation, there remain substantive gaps in training and skills with respect to using climate projections to inform the choice of action (e.g., including the skills needed to understand data availability and gaps, incorporate climate projections, and interpret and use regional climate data, and assess impacts, risks, and vulnerabilities). Training and capacity building is also needed to help with the application of climate information into assessments, planning and decision making for various sectors, such as infrastructure development, land-use planning, public health, emergency preparedness, agriculture, fisheries, mining and tourism.

Annex D: Targets, Monitoring and Evaluation

Proposed Targets

In order to spark whole-of-society action in the short-term, the Government of Canada is proposing this set of targets for discussion and refinement as needed. Achieving these proposed targets will require action from governments, communities, individuals, and the private sector.

Table 1. Proposed targets for the National Adaptation Strategy

Systems	
Disaster Resilience	
Objectives	**Targets**
Whole-of-society collaboration and governance	By 2025, federal, provincial, and territorial governments have engaged regularly, including with whole of society partners and Indigenous communities, to align emergency management adaptation activities to promote disaster resilience
Understanding disaster risks	By 2025, 60% of Canadians are aware of the disaster risks facing their household as a result of climate change
	By 2028, at least 200 out of 250 targeted high-risk areas identified as priorities in collaboration with PTs are covered by new flood hazard maps, produced in accordance with scientific guidance and made available to Canadians
Prevention and disaster risk reduction activities	By 2025, 50% of Canadians have taken measures to respond to climate change risks facing their household
Enhancing capacity and coordination	All communities in zones of high risk develop and implement a wildfire community protection plan by 2050, with 15% by 2028
Strengthening recovery efforts; building back better	By 2028, a national recovery strategy is developed which sets out shorter timeframes for displaced individuals to be able to return to their homes or resettle after climate change disaster events
	By 2025, in 65% of disaster events where provinces and territories seek support through the Disaster Financial Assistance Arrangements, they seek additional funding for measures to prepare for, respond to, and recover from future natural disasters

Health and Wellbeing	
Objectives	**Targets**
Health system capacity	By 2026, 80% of health regions will have implemented evidence-based adaptation measures to protect health from extreme heat
Tracking health impacts and evaluating progress	By 2030, health systems have identified risks, developed adaptation plans, and are measuring progress towards climate-resilience
Protecting people from health risks	By 2040, deaths due to extreme heatwaves have been eliminated
Mainstreaming health benefits	By 2030, consideration of health impacts and benefits are integrated into key climate change tools, guidelines and standards
Nature and Biodiversity	
Objectives	**Targets**
Halting and reversing biodiversity loss	Conserve 25% of our lands and waters by 2025 and 30% of each by 2030, working to halt and reverse nature loss by 2030 in Canada
	Identify and support at least 3 ecological corridors by 2026, to improve ecological connectivity between protected and conserved areas
Self-determined ecosystem stewardship	By 2026, support new and existing Guardians initiatives, establish new Indigenous Guardians Networks, and support Indigenous communities to build capacity to establish more Indigenous Protected and Conserved Areas
Nature-based solutions	Establish 15 new national urban parks by 2030
Infrastructure	
Objectives	**Targets**
Codes and standards	By 2030, robust guidance, codes and standards covering the top climate change risks for key public infrastructure systems are available to be adopted by all infrastructure decision-makers
Infrastructure decision-making	By 2030, 80% of public and municipal organizations have factored climate change adaptation into their decision-making processes
Resilient infrastructure funding	Starting in 2024, resilience to climate change impacts is factored into all new federal infrastructure funding programs

Economy and Workers	
Objectives	**Targets**
Skilled workforce	By 2027, 75% of the members of professional associations (i.e., civil engineers, planners, landscape architects, and accountants) have the capacity to apply climate change adaptation tools and information and communicate the business case for adaptation measures to their clients
Climate-exposed sectors	By 2027, 80% of highly exposed businesses include adaptation to climate change in plans and strategies in order to strengthen their competitiveness
Coastal communities	By 2030, coastal communities and businesses reduce the incremental costs of adaptation by 40%
Foundations	
Knowledge and Understanding	
Objective	**Target**
Information	By 2024, Canadians better understand how to use relevant information to support adaptation decision making

Monitoring and Evaluation

Monitoring and evaluation (M&E) is a critical part of the adaptation process, providing the information necessary to learn what is working and adjust the course of action. The National Adaptation Strategy M&E framework has been developed to help track adaptation progress in Canada, and is presented here for comment. The framework will be improved over time for a better understanding of the state of resilience across the country.

The following principles have been used to develop the framework:

Informed decision-making. The framework will track progress of the National Adaptation Strategy implementation efforts, as well as support broader learning objectives. Results will support evidence-based decision-making regarding adaptation actions and future iterations of the National Adaptation Strategy.

Data diversity. Process and output indicators will be used to monitor the implementation of the National Adaptation Strategy actions. Outcome indicators will help measure changes in resilience at the national level. While quantitative indicators allow for consistent comparisons of data, qualitative metrics, such as case studies, will also be used to provide a more holistic picture of on-the-ground climate change impacts and adaptation.

Equity and inclusiveness. Climate change does not impact everyone equally. Disaggregating indicators by equity factors can highlight gaps and contribute to informed decisions that support all people in Canada. In addition, the framework will seek to find opportunities to highlight Indigenous climate leadership and knowledge systems, while recognizing Indigenous data sovereignty.

Efficient resources. Relevant existing data will be used. This will enable the rapid deployment of indicators, avoid duplicative efforts, and help align the framework with other national priority areas. New and improved data-collection methods will be explored to fill knowledge gaps.

Meaningful indicators. Not all available data are worth using. Prospective indicators for the framework will be evaluated according to their relevance to the National Adaptation Strategy, accessibility, ease of interpretation, and data accuracy.

Iterative approach. Effective monitoring and evaluation of adaptation at the national level requires flexibility and ongoing improvement. Indicators will be updated as data become available. Results will be published as part of the National Adaptation Strategy reporting process, and, in turn, will inform the development of future strategies and objectives.

Adaptation indicators

Environment and Climate Change Canada has worked with Statistics Canada and other federal partners to collect available information that will help track progress on adaptation. Table 2 shows a first set of national adaptation indicators and the National Adaptation Strategy systems to which they pertain. These first indicators have already been published in national surveys or reports by federal departments, but they do not completely represent the state of adaptation across Canada. As the National Adaptation Strategy is implemented, more indicators will be developed with partners within and outside the Government of Canada to measure progress towards adaptation goals as well as the impacts of specific actions.

Table 2. First set of indicators for the National Adaptation Strategy.

Indicator	Systems	Relevance to Adaptation
Capital expenditures on environmental and flood protection infrastructure	Disaster Resilience, Infrastructure	Ongoing capital investments in infrastructure such as water and wastewater treatment and flood defences contribute to their resilience in the face of climate change.
Changes in land use, such as from forests to croplands and settlements	Nature and Biodiversity	Natural uses of land, such as forests, reduce the severity of some climate-related impacts.

Indicator	Systems	Relevance to Adaptation
Crop data: ratio of harvested acreage to planted acreage	Economy	As climate change continues to affect Canada's agricultural regions, crop data will contribute to a better understanding of the resilience of crop production systems and the impacts of climate change including extreme weather events (droughts and floods) and increased prevalence of pests and diseases.
Number of long-term drinking water advisories for public systems on reserve	Infrastructure	Sustainable delivery of drinking water through public systems on reserves will be more resilient to disruptions, including those caused by climate change.
Number of organizations with asset management plans	Infrastructure	Asset-management planning promotes the sustainable delivery and climate-resilience of public services that depend on those assets.
Percentage of households with cooling systems	Health and Wellbeing	As extreme-heat events increase, access to reliable cooling systems will help people withstand the worst effects of these events in their own homes.
Percentage of households with park or green space close to home	Health and Wellbeing, Nature and Biodiversity	In temperate, urbanized regions of Canada, ready access to green spaces promotes physical and mental health and wellbeing through fitness, recreation, and natural cooling.
Percentage of people in Canada with strong sense of belonging to local community	Foundations	A strong sense of belonging leads to resilience against shocks and disruptions, including those related to climate change.
Percentage of public and municipal organizations that factored climate change adaptation into decision-making processes for infrastructure	Infrastructure	Factoring adaptation into decision-making processes for municipal infrastructure assets is a first step in the process of ensuring their resilience to climate change.
Percentage of tree canopy cover in urban areas (urban greenness)	Nature and Biodiversity	Trees in cities, where the majority of people in Canada live, reduce the impact of extremes in temperature and precipitation, which are expected to worsen as the climate changes.
Proportion of terrestrial and marine area conserved	Nature and Biodiversity	Conserved areas help to maintain ecosystem services that, in turn, reduce the impacts of climate change on quality of life.
Status of key fish stocks	Nature and Biodiversity, Economy and Workers	As climate change continues to affect the temperature and chemistry of Canada's oceans, sustainable fisheries and continued opportunities to harvest fish hinges on the status of key fish stocks.

Indicator	Systems	Relevance to Adaptation
Total direct payments to agriculture producers under business risk management programs for protection against income and production losses	Economy and Workers	The provision of supports to agricultural producers will help them to recover from losses, including those driven by climate change.

Annex E: Climate Change Adaptation in Provinces and Territories

Provincial and territorial governments in Canada are responsible and set the direction for climate change adaptation measures in their jurisdiction. Provincial and territorial governments hold jurisdiction over property and civil rights, where land-use planning laws, building regulations, natural resource management, health care policy and public infrastructure decisions play a key role in advancing and streamlining climate change adaptation. In addition, provinces and territories directly deliver and design programming in key areas for climate adaptation, including emergency services, environmental protection, health, education, economic development and transportation. They collect data and information and conduct science at local and regional scales that can be used to better understand climate change risks.

To find the latest information and reports on provincial and territorial climate change adaptation initiatives, please consult each jurisdiction's respective website (see table below). In addition, national summaries for the latest state of adaptation measures are available through a number of reports, including Canada's National Communications report to the United Nations' Framework Convention on Climate Change.

Climate change impacts and vulnerabilities vary from region to region. The Canada in a Changing Climate report provides a regional perspective on the impacts of climate change across the country. Provincial and territorial governments also conduct climate risk and vulnerability assessments, where unique and local circumstances inform efforts to create resilient communities, environment and economy. See table below for additional information on regional climate risks.

North
For a regional perspective on how climate change is impacting communities, environment and economy in the North, see Canada in a Changing Climate report.
Yukon
For the latest state of action in the Territory, please see the Government of Yukon's website.
Northwest Territories
For the latest state of action in the Territory, please see the Government of Northwest Territories' website.
Nunavut
For the latest state of action in the Territory, please see the Government of Nunavut's website.

British Columbia
For a regional perspective on how climate change is impacting communities, environment and economy in British Columbia, see Canada in a Changing Climate report.
For the latest state of action in the Province, please see the Government of British Columbia's website.

Prairie Provinces
For a regional perspective on how climate change is impacting communities, environment and economy in the Prairie Provinces, see Canada in a Changing Climate report.
Alberta
For the latest state of action in the Province, please see the Government of Alberta's website.
Saskatchewan
For the latest state of action in the Province, please see the Government of Saskatchewan's website.
Manitoba
For the latest state of action in the Province, please see the Government of Manitoba's website.

Ontario
For a regional perspective on how climate change is impacting communities, environment and economy in Ontario, see Canada in a Changing Climate report.
For the latest state of action in the Province, please see the Government of Ontario's website.

Quebec
For a regional perspective on how climate change is impacting communities, environment and economy in Quebec, see Canada in a Changing Climate report.
For the latest state of action in the Province, please see the Government of Quebec's website.

Atlantic Provinces
For a regional perspective on how climate change is impacting communities, environment and economy in the Atlantic Provinces, see Canada in a Changing Climate report.
New Brunswick
For the latest state of action in the Province, please see the Government of New Brunswick's website.
Nova Scotia
For the latest state of action in the Province, please see the Government of Nova Scotia's website.
Prince Edward Island
For the latest state of action in the Province, please see the Government of Prince Edward Island's website.
Newfoundland and Labrador
For the latest state of action in the Province, please see the Government of Newfoundland and Labrador's website.

Annex F: Indigenous Climate Change Strategies and Adaptation Action

First Nations, Inuit, and the Métis Nation are leaders and drivers of climate action, who are addressing climate change in ways that reflect their distinct nationhood, cultures, and Knowledge. Many organizations, regions, and communities are advancing efforts to monitor, assess, and understand climate change impacts and to develop climate change strategies and action plans to address the unique needs of their communities and natural environments.

Below is an illustrative list that provides only a small sample of the great breadth and diversity of climate change adaptation strategies, plans, and actions being led and developed by and for First Nations, Inuit, and the Métis Nation.

First Nations:

- Assembly of First Nations National Climate Gathering Report (2020).
- *BC First Nations Climate Strategy and Action Plan* (2022).
- Poplar River First Nation Fire Vulnerability Assessment (2018).
- Indigenous Climate Hub website.

Inuit:

- *National Inuit Climate Change Strategy* (2019).
- *Inuvialuit Settlement Region Climate Change Strategy* (2022).
- Community Climate Change Manual by the Aqqiumavvik Society in Arviat.
- SmartICE program.

Métis Nation:

- *Métis Nation Climate Change and Health Vulnerability Assessment* (2020).
- *Lifestyle as Medicine: The Way We Have Always Lived* – Métis Climate Resilience Gathering Summary Report (2022).
- Métis Nation -Saskatchewan Community-Based Climate Monitoring Initiative.
- Métis Environmental Leaders of Tomorrow program.