

Canada's National Adaptation Strategy Advisory Table

Strong and Resilient Economy



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Environment and Climate Change Canada
Public Inquiries Centre
12th Floor, Fontaine Building
200 Sacré-Coeur Boulevard
Gatineau QC K1A 0H3
Telephone: 819-938-3860
Toll Free: 1-800-668-6767 (in Canada only)
Email: enviroinfo@ec.gc.ca

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Canada's National Adaptation Strategy

ADVISORY TABLE – STRONG & RESILIENT ECONOMY

January 10, 2022

Context

The five advisory tables will advance work over two phases. Phase 1 will focus on developing **transformational goals** for a resilient future for Canada and **medium-term objectives** for achieving those goals. Phase 2 will focus on establishing short-term actions for attaining those objectives, including discussion of performance indicators and reporting structures. The reports from Phase 1 will inform the overall National Adaptation Strategy, by building the frame of goals and objectives that will shape subsequent actions, funding, and accountabilities.

Summary

Vision

Canada is committed to sustainability while emphasizing the interdependence between the economy, society, and the environment. Proactive climate change decision-making and adaptation actions support a resilient economy, Indigenous rights, and equitable opportunities. These transformations have created a secure and adaptable country that supports the well-being of Canadians.

Transformational Goal

Through leadership, collaboration, and adaptive decision-making, Canadians create an economy that:

- anticipates, manages, and responds to climate change impacts;
- reflects the true value of nature and accurately prices climate change risks and costs;
- incentivizes investment in climate change adaptation (and mitigation);
- captures the social and economic opportunities of a changing environment, domestically and internationally; and
- is just, equitable, and empowering for communities, Indigenous people, and vulnerable sectors.

Medium-Term Objectives

1. Integrate the costs and benefits of **natural assets** into climate-resilient investment and policy
2. Develop the **business case for adaptation** through research and knowledge dissemination
3. Create the right **incentives** (and remove disincentives) for **pro-active adaptation**
4. Support **knowledge and skill development** to prepare a skilled, diverse and adaptable workforce
5. Attract **investment** in adaptation through leadership and collaboration

Introduction

Canadians are already witnessing and experiencing the devastating impacts of climate change. Canada's climate is warming two times faster than the global average, and three times faster in the North. Across the country, the impacts of climate change are affecting our communities, economy, and environment and pose serious risks to our health and well-being.

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

Canada is developing its first National Adaptation Strategy

In December 2020, as part of its strengthened climate plan, [A Healthy Environment and a Healthy Economy](#), the Government of Canada committed to develop Canada's first [National Adaptation Strategy](#) with provincial, territorial and municipal governments, Indigenous Peoples, and other key partners. A National Adaptation Strategy offers the opportunity to unite actors across Canada through shared priorities, cohesive action, and a whole-of-Canada approach to reducing climate change risks.

Climate change is a complex issue that affects social, environmental and economic aspects of our lives. Action is needed on **mitigation of greenhouse gas emissions** to reduce the magnitude of climate change, and on **adaptation and resilience**, to adjust to the new conditions and impacts of our changing climate and take advantage of climate-related opportunities. Work on climate change adaptation is underway (at all levels of government, Indigenous organizations, industry, businesses, not-for-profit groups, academia, youth etc.), yet **more effective and transformative action is needed to keep pace with the escalating impacts of climate change**. Given the broad scope of this challenge and the diversity of people involved in potential solutions, a National Adaptation Strategy (NAS) is urgently required to provide a strong coordinated roadmap to implement action on adaptation and build resilience across Canada.

The NAS aims to:

- Establish a **shared vision for taking urgent action** on climate resilience in Canada
- Identify **key priorities for increased collaboration and implementation of early actions**
- Establish a **framework for targets and milestones that will ensure a way for measuring progress** at the national level.

The ultimate goal of this strategy is to align collective and individual actions to **accelerate the pace, scope, and effectiveness of adaptation action** required to meet the urgency of this challenge.

What is a Strong and Resilient Economy?

In the context of the NAS, a 'Strong and Resilient Economy' refers to **strengthening the resilience and reducing the vulnerability** to impacts of climate change on Canadians, and Canada's individual economic and financial sectors. A strong and resilient economy recognizes opportunities and takes proactive steps to implement resilience measures. Building a strong and resilient economy that also provides a good quality of life will require Canada to continue to make advances toward a society that is more prosperous,

inclusive, and sustainable. The climate change crisis will directly and indirectly affect the health and wellbeing of individuals and communities, and in turn, the country's labour force due to the need to train and reskill workers to address labour market needs in growing sectors. In addition to adaptation-related risks, individual economic sectors will be required to meet the challenges of mitigating their greenhouse gas emissions in the transition to a net-zero economy. These factors are becoming increasingly important to the long-term performance of individual companies as investors and lenders place more and more importance on environmental, social and corporate governance considerations in their financing decisions.

Climate change-related risks that pose a significant threat of causing disruptions to the operations of Canada's individual economic sectors **are often crosscutting in nature**. Climate change impacts may affect certain sectors and regions more significantly, such as, the significant impact of the COVID-19 pandemic on Canada's air, rail, and service industries and of wildfires on Canada's communities and natural resources sectors. Many of these sectors and regions also need to consider treaty rights and impacts on Indigenous communities. As well, they can benefit from the knowledge and experience these communities contribute to resource management, job creation, and community resilience. Many crosscutting risks will also be addressed within the four other NAS Advisory Tables; however, individual economic sectors may have specific needs to respond effectively to these risks. The adaptation of Canada's individual economic sectors to the impacts of climate change **will require collaborative efforts to address both crosscutting and unique challenges faced by each of the sectors**. The sub-themes described below are components of a strong and resilient economy.

Strong and Resilient Economy Sub-Themes

Seven key sectors were identified in [Canada's National Issues Report](#) as being particularly vulnerable to the impacts of climate change. They all involve resources, operations, and connections that are exposed to the wide-ranging Canadian climate. While these sectors are accustomed to dealing with historic trends, the pace of climate change is forcing them to adapt to new, more frequent, and more extreme climate change impacts. The past no longer predicts the future, and novel events are becoming more likely. As the COVID-19 pandemic has illustrated, world events can have broad economic impacts, for example shortages of skilled labour and disruptions to supply chains. Climate change could have even farther-reaching impacts. Adaptation is needed in areas such as finance, investment, and insurance underwriting to support behaviours and products that enhance resilience. The **advisory table has explored each sub-theme, discussing both climate change impacts and potential solutions**, with a focus on levers and mechanisms available to support collaborative action to create a more resilient country.

Key economic sectors impacted by climate change: forestry, fisheries, agriculture, mining, energy, transportation, and tourism.

The economic significance of these sectors is amplified at both the local scale, with many Canadian communities deriving a large proportion of employment income from these sectors, and at the global scale, where Canada is among the world leaders in agriculture, forestry and mineral exports. This is also an opportunity to ensure Indigenous rights are respected and protected. The forest sector is challenged by pest outbreaks, wildfires, drought, flooding, landslides, access limitations, and long-term shifts in species composition; ocean temperatures and chemistry are already affecting aquatic species populations; and tailings containment in a changing climate is a major concern for the mining sector. While agriculture may benefit from longer growing seasons, it will also be challenged by extreme weather, extended drought, pests, and diseases. A changing climate affects energy demand and the full energy value chain, from exploration and production through to transmission and distribution. Transportation

systems are vulnerable to both slow-onset changes and extreme weather events. There are also domino effects, with impacts on forestry, mining, and agriculture affecting the amount of freight to transport. Winter access and northern tourism are particularly sensitive to climate variability.

Labour and Employment

Climate change impacts and adaptation will affect many aspects of labour and employment, including the safety of workers, the availability of jobs, and the viability of resource-dependent communities. For example, adaptation measures are needed to adjust to increased exposure to heat and vector-borne diseases for workers. Action to combat climate change will continue to have direct and indirect affects on jobs, sectors, and occupations. For example, there will be changes in regional distribution of jobs in climate-susceptible industries, some occupations will decrease while others will increase, and new jobs will need to be created. There will be an increased demand for workers with the skills necessary to plan and implement adaptation solutions across all sectors, from natural resources to finance and insurance. Thus, understanding the skills required and providing opportunities for people to learn adaptation-specific skills and competencies will support this transition to an economy that is more resilient and adaptable to a changing climate.

Trade and Supply Chains

Canada is dependent on international trade and will increasingly experience economic effects from climate-related extreme weather and the impacts of climate change and adaptation efforts elsewhere in the world, especially when close trading partners are affected. As recent events have emphasized, supply chains have a key role to play in supporting the safety, security, and well-being of Canadians. Both internationally and domestically, the transport of goods depends on the resilience of transportation systems and modes and the linkages that connect them. To adapt to new conditions and maintain efficient supply chains, an effective and adaptable workforce is required because labour shortages can lead to inefficiencies within supply chains. Strong and resilient supply chains are critical in supporting multiple economic and social sectors.

Finance and Investment

Climate change poses risks and opportunities to current, mid-term and long-term investments and asset management. An increase in the understanding of climate-related risks and their financial implications has driven uptake of voluntary climate-related disclosures, which has resulted in new regulations for mandatory climate-related disclosures across numerous jurisdictions in an effort to standardize and benchmark requirements and approaches for disclosing climate-related financial information. The Bank of Canada and the Office of the Superintendent of Financial Institutions, the Canadian Securities Administrators, and asset managers such as Blackrock have signalled the need to do more to regulate and standardize approaches that identify, assess, and disclose the financial implications of the physical and transitional risks of climate change. Without federal standards, jurisdictions requiring mandatory disclosures have expressed concern over the potential for “capital flight” because of climate-related financial disclosures as asset managers and institutional investors are required to assess and report on climate change risks in their corporate and investment strategies and annual financial reporting. Conversely, transparency and credible strategies to capture climate-related opportunities such as new low-carbon investments, and strategies that reduce climate-related risks present a competitive advantage.

Insurance

The insurance and reinsurance industry are key partners in managing the increasing severity and frequency of chronic and acute climate change-related risks such as flood, wildfire, heatwaves, hurricanes, drought, and sea level rise, as well as the corresponding insured losses. The P&C insurance and reinsurance sector has been identifying, measuring and managing climate-related risk as the core of its business model, and thereby have been modeling these risks for decades and developing innovative insurance products and public-private strategies to help companies, governments, and individuals insure and manage risk and finance increased resilience.

For example, the 2013 floods in southern Alberta led to insurers expanding their coverage to include overland flood damage, which had previously been unavailable in Canada. The availability of flood insurance enhances climate resilience by creating an incentive for property owners to reduce their own exposure to flood risk and by sharing the recovery costs from floods. Local and provincial governments can also protect their own financial resiliency by obtaining disaster risk insurance, which can allow for a rapid payment following an extreme weather event to fund their recovery and restoration efforts. New climate change-driven insurance products such as nature-based solutions are being developed as parametric insurance models that can protect and invest in natural barriers (e.g. wetlands) and resilience for mitigating the risks of climate-related risks. Research from the Bank for International Settlement found that while major natural catastrophes have significant negative effects on economic activity and human suffering, it is mainly the uninsured disaster-related losses that drive subsequent macroeconomic cost. However, increasingly severe and frequent climate-related events cannot be weathered endlessly by the insurance sector. There are thresholds where the costs will overwhelm the public and private sectors in terms of disaster assistance, infrastructure repair and replacement, and insurance payouts. Mitigation of the magnitude of climate change through net zero strategies paired with public-private actions to adapt and build resilience will help avoid financial risks to Canada's financial and insurance systems.

Vision

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In describing the desired destination, the vision is meant to set a path forward toward this change. It highlights the concept of sustainability, where the emphasis is not solely on growth, but on a more balanced economy that values the resources and other services provided by our ecosystems. In this time of transition, change is inevitable so we can choose to use this opportunity proactively to create a more sustainable and equitable world.

To achieve the vision, Canada is committed to urgent action on maintaining a stable climate and building resilience through early action on adaptation to the changing climate, while minimizing the negative social and economic impacts on the well-being and economic sustainability of Canada's communities, infrastructure, and its economic and the financial systems. By proactively integrating climate change-related risks and opportunities into our investment and policy decision-making in both the public and private sectors, climate adaptation actions will support an equitable and just climate resilient economy, including Indigenous rights and opportunities. This transformation must include timely progress measured at specified intervals and updated as our knowledge and understanding grows.

The transformational goal speaks to the scale of change required to achieve the desired vision. To shift towards an economy with a greater value on sustainability, we need to include elements of sustainable finance, sustainable technology and behavioural economics. In this economy, Canadians are equipped to assign value to nature, including the natural resources and holistic values (health, recreation, connection to the land, ecosystem services) it provides. A strong and resilient economy is one that supports healthy and resilient people and requires healthy and resilient natural resources as a foundation. Canada has created a resilient labour market and social policy that ensures that the Canadian economy offers safe and rewarding work and livelihoods. The economic structure supports equitable sharing of the risks, benefits, and costs of climate change so that all regions have secure supply chains, energy, and services.

Medium-Term Objectives

The ideas in this section are grouped by key challenges that need to be tackled to accelerate adaptation and build a strong and resilient economy. Each theme includes a description of the challenge and objectives to guide implementation of solutions. Note that the specific actors that will implement the solution will determine the exact nature of the solutions and objectives. The next phase of the NAS development will include actions, with details on who and how the objectives will be achieved.

1. Integrate the costs and benefits of natural assets into climate-resilient investment and policy

A strong and resilient economy is one that values the full range natural capital, including natural assets that provide natural resource inputs and environmental services for economic production as well as cultural and spiritual ecosystem services. Natural resource sectors provide goods and services while contributing to the economies of many resource-dependent communities across Canada. The services that ecosystems provide (including provisions, clean air and water, biodiversity co-benefits, climate regulation, carbon capture and storage, and flood protection) are already threatened by climate change. Canadian communities that depend primarily on natural resources (such as Indigenous, rural, northern) are more vulnerable to these changes in ecosystem services. More needs to be done to improve how society understands and determines the value of natural capital and the benefits it provides as well as the role of land management to contribute to that value. The impacts of natural variability and climate change on natural resources and ecosystem services are not fully understood and accounted for in our current economic systems.

Integrating the valuation of natural capital into decision-making will ensure the sustainability of our climate, ecosystems, economic sectors, financial system, and the communities that rely on them. This valuation should include the cost of risks, benefits, and opportunities related to climate change; the role of nature-based solutions to minimize climate change risk; and the impacts of the changing climate on natural capital. A holistic valuation of natural capital will require several worldviews, including Indigenous knowledge and economies, to help capture non-market and intrinsic values (such as extraction versus conservation/resource management and nature's inherent right to exist). Without adaptation, we cannot assume that our ecosystems will continue to provide the benefits we have relied on in the past. The medium term goal should use existing knowledge and frameworks on valuing natural capital (of which there are many globally) as a starting point rather than re-creating the wheel. It is important to incorporate the value derived from natural assets into cost-benefit analyses to inform decision-making and help prioritize investment. Investment in the data, tools, processes, and mechanisms is required for both the public and private sectors to address the uncertainty in anticipating climate change impacts/risk.

Preliminary objectives and actions:

- Create a framework that can be used by public and private entities to identify and integrate the regional cost of impacts from climate change on natural resources, communities, and ecosystem services into strategies, decision-making, and investments so that governments, corporate entities, and financial institutions report on the how they have integrated the costs and benefits of climate-related risks. This will be supported with **data systems and reporting frameworks**, informed by science, climate-risk scenarios, and Indigenous and traditional knowledge and research. This accounting needs to reconcile actual financial costs of these impacts, or translate them in other terms that promote clarity of risks and opportunities.
 - Consideration of sustainability credentials to be competitive in the market.
 - Opportunity to link this with Statistics Canada and Environment & Climate Change Canada Census of the Environment work

- Create **policies that require/integrate climate sustainability and mitigation of environmental risk across the full life cycle of natural resource commodities** for investment and innovation in business practices.
- Create **public and private funding and incentives** for investment in natural infrastructure and natural systems – such as restoring natural coastal barriers and wetlands to provide flood mitigation – that increases year over year until resilience and adaptation goals are met. For example, support for municipalities and communities to mitigate risks such as storm surge, flooding, and drought to protect communities and quality of life. Finance mechanisms may include public-private innovative finance, insurance, and nature-based solutions.
 - Consider the public sector accounting standards and ongoing efforts to determine whether the prohibition clause will be removed to allow public sector entities to recognize natural capital as an asset on their balance sheets.
- **Build science and traditional knowledge capacity** toward approaches to model climate scenarios by region and related risks/anticipated shocks (i.e. from heat waves, hurricanes, sea surface temperature, and wildfires) and related consequences so that we can better plan for and respond to catastrophic events. Determine the needs to support transparent and standardized climate risk disclosure. Small businesses in particular may need more support in the short-term to build capacity and knowledge.
- Build up the notion of **scenarios to address uncertainty** using machine learning and AI to effectively harness the best of the research community of scenario analysis to drive decision-making.

Cross-Table Considerations:

- Using the regenerative state of nature to help ecosystems recover [Thriving Natural Environment Table]

2. Develop the business case for adaptation through research and knowledge dissemination

To encourage action in adaptation, there needs to be a better understanding of the benefits of action and the costs of inaction. Similarly, adaptation needs to be understood as a benefit, not only a cost, as adaptation is an investment in resilience that helps to ensure continuity of service and safety for Canadians.

Crucial to developing the business case for adaptation is moving beyond short-term monetary considerations of costs and benefits to holistic and long-terms views. To facilitate this, we need an increase in knowledge and data available to decision makers so that they can understand the full picture beyond the short-term. This should be supported by investments in the science and research required to understand integrated cross-sector risks, vulnerabilities, and opportunities (especially over the medium- and long-term), as well as by investments in knowledge and data dissemination. Next, we need updated policies that enforce good practices in adapting and responding to climate change by putting this knowledge into practice and adjusting the regulatory and policy environment as needed.

Preliminary objectives and actions:

- **Collect and disseminate appropriate, understandable, and transparent data** that reveals holistic, crosscutting climate vulnerabilities and opportunities, and makes the business case for adaptation clear. Use this knowledge to establish and communicate clear metrics for success.

- The Canadian Centre for Climate Services will continue to provide and enhance access to authoritative climate information, tailored to support adaptation decision making across multiple and cross-cutting sectors.
- **Support research and planning that examines vulnerabilities** and provides a range of options with different costs and requirements that can support small and medium businesses that lack capacity to undertake these kinds of assessments.
- **Support research that focuses on the impacts on our social infrastructure**, which will also need to adapt as we continue to experience the impacts of climate change. Understand that impacts will be distributed unequally and that if we do not adapt our social infrastructure, these inequalities will get worse.
- **Examine accounting practices** used to make, or not make, the business cases for adaptation, i.e. so that Net Present Value calculations cannot be used to avoid necessary action in the present by discounting costs in the future.
- **Ensure that insurers have the information to appropriately assess climate risks** and assign policies and premiums that reflect that risk.
- Provide programs and incentives for sectors to **create and share best management practices for climate change adaptation** practices that support broad business and sustainability goals.
- Identify high-risk industries, rural areas, and environments and work from the bottom-up so that there is buy-in where it matters most.

3. Create the right incentives (and remove disincentives) for pro-active adaptation

There is growing evidence that it is more economical to invest up-front to adapt and become more resilient than to pay after the fact. However, it is hard to motivate people to make these investments now in order to avoid negative events later. In addition, some government assistance programs and insurance solutions may inadvertently make it easier for governments and businesses to maintain the status quo rather than proactively taking action to adapt and increase their resilience.

Governments (Federal, Provincial & Territorial, and local) and the private sector must work together to put adaptation knowledge into practice by working together to make sure that proper incentives are in place for pro-active action. This will entail identifying which disincentives currently exist, identifying the tools and levers available to the Federal government to encourage adaptation and resilience building in the public and private sectors, and implementing reporting and accountability standards to ensure goals are being met.

Preliminary objectives and actions:

- Following work on the business case for adaptation, **review regulatory and policy environment** to identify disincentives to pro-active action and use available tools and levers (such as subsidies, tax incentives, and regulations) to correct these distortions and align market structures with long-term goals relating to adaptation, resilience, and equity.
- **Support communities, small and medium sized businesses, and vulnerable groups** so that they have access to the climate funding required to support adaptation and resilience building, particularly those affected by economic transitions.
- **Align regulatory and market structures** to enable appropriate insurance policymaking, such as by establishing and promoting insurance products and government policies that provide incentives (including rebates, premium reductions) for proactive investments in climate adaptation retrofits and in reducing natural and built environment risks from climate change.

- Offer incentives for rail to invest in climate resilient transportation infrastructure and for shippers to transition to a different mode of transportation to reduce downstream emissions.
- To reduce financial credit risk, **invest in climate-smart adaptation and mitigation actions** for municipalities and small communities. These should be informed by vulnerability assessments and evaluation of future risks and cost/benefit scenarios within the larger embedded landscape.
- Government funding for innovation and private sector supports should require adaptation and GHG reduction plans as part of the funding process.
- **Implement and/or enhance reporting standards** to ensure that these disincentives are being removed from market structures and that governments and businesses are making measurable improvements on adaptation and resilience building.
- Target innovation dollars to support businesses impacted by climate change to incentivize them to innovate rather than rely on the status quo.

4. Support knowledge and skill development to prepare a skilled, diverse and adaptable workforce

Adapting to climate change requires investing in high quality jobs for Canadians. As climate change impacts increase, adaptation action will have direct and indirect effects on the workforce and what jobs are needed where (i.e., shifting industries, creation of new jobs, regional considerations, etc.). Workers will increasingly need a range of competencies to assess vulnerability, understand risk, prioritize and develop options, and then implement adaptation actions. Moreover, adaptation will generate new opportunities, services, products and business models, for example climate data and climate science, risk assessment, nature-based solutions, and climate finance. Training people entering the workforce and those already in the workforce for these new opportunities is crucial for a successful transition. This transition will affect some sectors, workers, and geographic regions differently than others; therefore, the approach needs to support equitable and inclusive economic opportunities for the workers of the future; particularly among populations traditionally marginalized in economic sectors, such as women in general and Indigenous women more specifically.

Preliminary objectives and actions:

- Focus on a range of industry-driven activities such as **reskilling/upskilling workers**, helping employers **retain and attract a skilled and diverse workforce**, and other creative solutions to help sectors address labour market needs and emerging fields.
- Use policy tools, government programs, collaborative approaches, mission driven organizations and investments to **ensure that existing and future workers receive the skills they need** to implement adaptation actions. Identify which workers and communities are most vulnerable so that they can be prioritized during transitions.
 - Labour market analysis will be a key piece to understand what skills workers currently have, where the needs are, what gaps exist and what skills will be required going forward. It is important to have workers from all sectors (including Indigenous businesses) engaged to develop sector-specific training requirements.
 - Examples of sector-specific training requirements:
 - Require fisheries managers to incorporate climate adaptation into decision-making.
 - Provide professional development opportunities, developed through sector-specific training. For example, the Climate Change Adaptation micro-certificate at UBC designed for professional foresters and government employees.
 - Accountants need to be trained in natural capital-based solutions and climate finance.

- Create and support **professional accreditation/micro-credentialing and associated training programs** so that adaptation skills are available in the labour market to increase climate literacy and adaptation literacy across all sectors and jobs, including gaps and emerging fields.
- Increase availability of **climate change adaptation programs and courses at educational institutions**. Make awareness of adaptation a part of all secondary and higher education.
- Provide support over time to communities, employers, and workers that are expected to be impacted directly by climate change to **help prepare, adjust, and potentially relocate businesses as needed**. For example, supporting more jobs around nature-based solutions (wetland management or urban drainage systems).
- **Support science-based knowledge exchange products** that are accessible and usable for diverse audiences to support climate literacy.
- Use of structures such as GBA Plus to **ensure equitable access to new opportunities** arising from adaptation (e.g., renewables), particularly among populations traditionally marginalized in the natural resources sectors, such as women generally and Indigenous women more specifically.

5. Attract investment in adaptation through leadership and collaboration

To attract the necessary investment in the above adaptation solutions, several steps are necessary. First, regulatory and policy measures in both public and private sectors should be used to encourage the assessment and disclosure of the material risks posed by climate change. Second, policies and regulations need to be updated and made more flexible to attract investment and allow people to adapt rapidly to changing climate conditions. Finally, shifts in governance and leadership in both public and private sectors are required to maintain and enhance Canada's attractiveness as a destination for investment.

At the same time, governance should be participatory, inclusive, and representative while continually ensuring that all groups are actively engaged in the process of adaptation and economic transition. This will ensure that Canada's economic transition is just.

Preliminary objectives and actions:

- Establish mandatory **climate-related risks and opportunities disclosure** for public and private entities that are consistent with national and international targets. Enhance financial disclosures by including targets for climate resilience, finance, and risk mitigation. Reporting requirements can be phased in based on the availability of data, and should support and align with national targets and transition planning.
- **Review policy and governance frameworks** to ensure that these have the required flexibility to adapt to rapidly changing conditions so that the appropriate actions and investments continue to be made. Assess and reduce regulatory and policy impediments to making appropriate investments in adaptation.
- Provide incentives and invest in programs to **facilitate collaboration** between governments, academia, industry, and non-governmental organizations to integrate data and knowledge around federal investments.
- Leadership in **communicating the importance of investment in adaptation**, and how this investment meets co-integrated goals.
- Support **climate change literacy and education for decision makers**, especially those in the finance and accounting community, so that they are able to support these efforts as key members of a knowledgeable professional ecosystem.

Goals and Objectives for Economic Sub-Themes

The following sub-themes support a strong and resilient economy. Goals and objectives for each of the sub-themes emerged from individual work, breakout group discussions, and plenary discussions. The information for the sub-themes offer context and detail behind the integrated goals and objectives above.

Forestry: By 2050, Canada has invested in science, training, and adaptive natural resource best management practices that have resulted in a sustainable climate and disturbance resilient country that respects the rights of Indigenous Peoples, workers, and communities.

Objectives:

- Canada has made policy changes and investments that value a thriving natural resource sector's contribution to climate resiliency and a thriving workforce, ensuring conservation of forest values through a range of strategies, including both active sustainable forest management and greater recognition of conservation areas within managed forest areas.
- Canada's forest sector continues to attract investment because it is seen as an adaptation and sustainability leader, particularly with regard to ESG metrics in financial markets.
- Policies are put in place that emphasize the full life cycle and benefits our forests provide to support workers, the economy, social cohesion, and species recovery.
- Canada has invested in education, research and transfer of knowledge and has invested in adapting our practices to ensure sustainably managed climate- and fire-resilient forests.
- All forest plans include climate change vulnerability assessments and adaptation values and are integrated into provincial and territorial adaptation strategies.
- The forest sector has access to a highly predictable supply of wood fibre. Operation and manufacturing are optimized for ecosystem service values, economic values, and sustainability and the forest sector is considered a key pillar of national adaptation and mitigation plans.

Fisheries: By 2050, impacts of human activity on coastal, interior waterways, and ocean carbon systems are considered in all resource management decisions, including fishing, shipping, and offshore energy.

Objectives:

- There is a diverse, agile, and innovative fish and seafood labour force.
- Fisheries management is adaptive and flexible, taking into consideration shifting conditions that support qualitative, rather than purely quantitative, growth of sector.
- The fisheries sector has equitable distribution of benefits from fish and seafood harvesting.
- Fisheries management and water management practices enable sustainable outcomes for fish and fisheries as well as enabling appropriate adaptation measures and investments in both built and natural infrastructure.

Agriculture: By 2050, Canada's agricultural sector is a trusted global leader in sustainable food supply.

Objectives:

- The agricultural sector provides leadership in natural climate solutions.
- The agricultural sector is resilient, sustainable, and has seized opportunities to expand market growth.

Mining: By 2050, Canada's mining sector has positioned itself as a secure and respected supplier of minerals and metals, through sustainable, equitable and inclusive practices, to the global materials supply chain in support of the transformation to a green economy.

Objectives:

- Canada's mining sector is sustainable at the local, regional and international level.
- The mining sector and resource-based communities are more resilient and account for regional differences.
- Canada has made investments that value a strong and resilient mining sector's contribution to clean technology to reach net-zero emissions and a thriving workforce.

Energy: By 2050, Canada's energy sector has adapted their operations and infrastructure to the impacts of a changing climate, ensuring resilience to weather-related disruptions.

Objectives:

- Canada energy system allows affordable, reliable, and equitable access to all communities and populations while also maintaining a high level of environmental quality.
- Financial, legal, regulatory and market systems enable investment in affordable, reliable, equitable, and sustainable energy production, distribution, and use.
- The energy system is sustainable at the local, regional, and international level.
- Energy infrastructure is hardened to withstand extreme weather events and avoid service interruptions.

Transportation: By 2050, Canada's transportation sector is more resilient through responding to the risks and opportunities presented by a changing climate, and reliably supports the movement of people and goods within and between communities.

Objectives:

- The transportation sector enables multi-modal transportation systems that reduce reliance on single points of failure.
- The transportation sector is decarbonized on a net emissions basis. Investments in a net-zero transition are leveraged wherever possible to achieve co-benefits on adaptation.
- Infrastructure and planning in the transportation sector takes a systems approach to increasing climate resilience and reducing or eliminating impacts from extreme weather events, as well as slow-onset changes.
- The transportation sector has adapted to climate change impacts by conducting regular risk and vulnerability assessments and implementing adaptation measures to increase resilience.
- The benefits and sustainability of rail over road transport is promoted, whether it be for the movement of people or goods.
- Inter-modal transportation is expanded, providing more fluid and resilient supply chain connectivity throughout the country.
- Transport sectors, such as the rail sector, collaborate with other supply chain partners to identify opportunities for adaptation and report on action implemented.

Tourism: By 2050, the tourism sector is resilient to the impacts of climate change because travel has embraced new ways to provide experiences while reducing and/or eliminating climate risks to the industry and the communities that rely on it.

Objectives:

- The tourism industry is aware of potential risks and opportunities to the sector, has adaptation plans in place to modify practices to reflect new realities, and is training its workforce to understand risks, keep tourists safe, and minimize the impact on tourism-dependent communities.
- Tourism operators and destination communities are adapting to diverse climate risks and opportunities based on industry-specific assessments.

Labour and Employment: By 2050, the workforce is resilient because we have supported a worker-centered transition that allows workers to actively participate and be supported by government labour programs, in the shift to sustainable, green jobs that offer decent, safe, and rewarding work.

Objectives:

- A strong and resilient economy has thriving, diverse, and safe workforces. No one has been left behind in the “just transition” for workers to a resilient, adaptive, and low-carbon world. Workers are included, and see themselves reflected, in discussions.
- Workers will be trained to have a range of skills that build resiliency and capacity to pivot to new economic opportunities (training and skills development will be timely, flexible, adaptable and linked to worker/employer needs).
- A just transition for Canada includes a green economy that focuses on consumer protection and capacity-building for small and medium-sized businesses.
- Work cultures are gender neutral and reflect the makeup of the communities they serve. Gender segregation by industry and occupation is a thing of the past and measures to attract women and gender diverse people and underrepresented groups to current and future jobs are implemented.
- Healthy communities are supported through the meaningful employment of community members and workers receive a living wage.
- There are policy supports and investments for work experiences and training programs in the green/adaptation sector to attract young adults to future employment opportunities that sustain Canada and our collective future.

Trade and Supply Chains: By 2050, Canada is a leader in supply chain resiliency both nationally and internationally. Canadian supply chains are resilient to the effects from extreme weather and other climate change impacts, and recipients of goods that have passed through Canadian borders can count on their timely delivery. Canada supports adaptation and gender equity efforts in countries with which it has strong trade ties.

Objectives:

- Canadian communities and organizations have strong and resilient supply chains that minimize supply interruptions due to extreme events.
- Identified levers and mechanisms available (such as digitization, transparency, and traceability) to support collaborative action for more resilient and efficient supply chains in Canada.

Finance and Investment: By 2050, Canada is well positioned to create significant net value from the global achievement of the Paris goals in advance of their 2050 target, reflecting a permanent shift towards

deeply sustainable practices, rather than incremental improvements, throughout the economy. Canada prioritizes financial investments in adaptation to secure our long-lived assets and economies.

Objectives:

- Costs and benefits associated with climate risks and opportunities and their relative resilience and adaptability are priced into financial instruments including but not limited to debt, equity, their derivatives, and insurance. These prices support better decision-making and result in appropriate investment in adaptation and a more sustainable economy.
- Companies regularly report on climate stability and resilience to climate risks, including factors such as economic well-being, biodiversity, health, quality of life and inclusion as part of their financial reporting.
- The financial sector measures success through value-based metrics that support sustainability over growth.
- Canada is differentiated from other trading nations and is better able to attract capital investment due to strong institutions and practices around climate adaptation. Investors value and reward Canadian transparency around climate risks and opportunities, as well as how that understanding has resulted in effective execution of adaptation strategies. Canadian resiliency leads to greater and more reliable returns on investment.

Insurance: By 2050, the insurance and reinsurance industries are a key partner in managing climate risks and have created innovative insurance products that help finance increased resilience. Appropriate investments in resilience and adaptation drives down insurance costs, while coverage is expanded to include more extreme weather and climate-related events. This reduces uninsured losses and overall societal costs, and speeds recovery.

Objectives:

- Insurance available to communities will reflect an informed understanding of climate risks and opportunities, as well as the steps communities have taken to reduce risks or expand opportunities.
 - For example, the 2013 floods in southern Alberta led to insurers expanding their coverage to include overland flood damage, which had previously been unavailable in Canada. The availability of flood insurance enhances climate resilience by creating an incentive for property owners to reduce their own exposure to flood risk and also by sharing the recovery costs from floods.
 - The government invests in the creation of urban forests to help green cities, promote social cohesion, and reduce the negative impacts associated with heat islands.
- Enhance equity in the insurance sector by ensuring climate-vulnerable populations and communities are able to access and afford appropriate insurance products and can have claims processed quickly after climate events. Insurance coverage goes hand in hand with investing in community resilience to reduce risks, and therefore insurance costs.