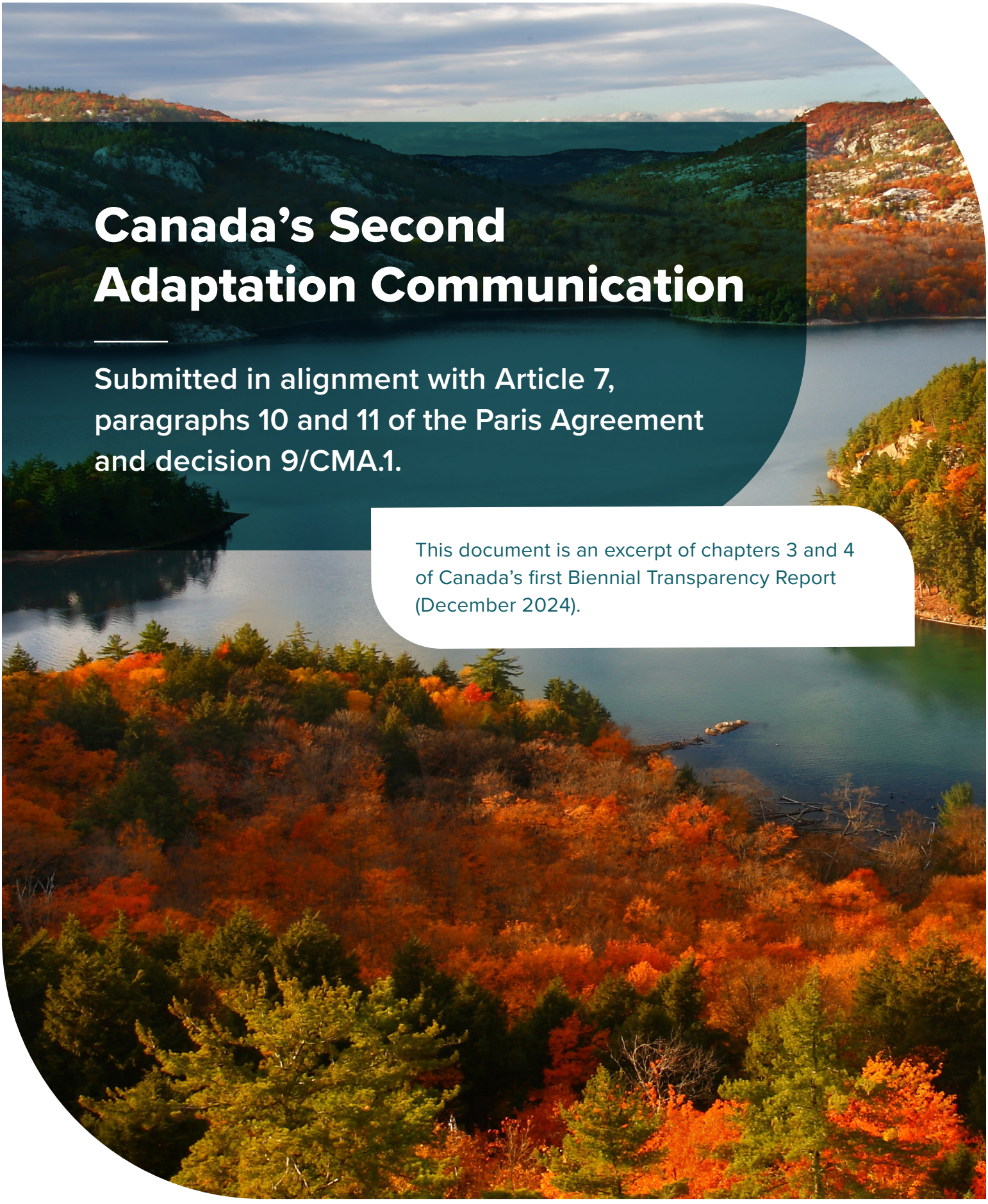


Canada's Second Adaptation Communication

Submitted in alignment with Article 7, paragraphs 10 and 11 of the Paris Agreement and decision 9/CMA.1.

This document is an excerpt of chapters 3 and 4 of Canada's first Biennial Transparency Report (December 2024).

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Canada

Cat. No.: En4-73/1-2025E
ISBN: 978-0-660-75933-3
EC24197

Environment and Climate Change Canada
Public Information Centre
Place Vincent Massey building
351 St-Joseph boulevard
Gatineau Quebec K1A 0H3
Toll free: 1-800-668-6767
Email: enviroinfo@ec.gc.ca

Aussi disponible en français

Chapter 3: Climate change impacts and adaptation

Chapters 3 and 4 of this report also serve as Canada's second Adaptation Communication under the Paris Agreement.

3.1 National circumstances, institutional arrangements, and legal frameworks

The following section addresses paragraph 106 of the MPGs.

3.1.1 National circumstances

The following section addresses paragraph 106(a) of the MPGs.

Canada's diverse climate, geographic and demographic circumstances, as well variations in social and economic activities require adaptation to be tailored to regional and local contexts. Despite its vastness, Canada's population remains the smallest among the G7, at 41.2 million in 2024. Two-thirds of Canada's population live in areas located within 100 kilometres of the Canada–US border, leaving large parts of the country sparsely populated.

Canada experiences a wide range of climate conditions, with most of southern Canada, where majority of the population lives, experiencing warm summers and cold winters. Long-term warming of Canada's climate is evident and well-documented. Northern regions have experienced the strongest amount of warming, while overall, Canada has warmed at about twice the global rate. Ongoing climate warming is increasing the frequency and intensity of many kinds of extreme weather events around the world, including those occurring in Canada.

3.1.2 Institutional arrangements and governance

The following section addresses paragraph 106(b) of the MPGs.

Adaptation is a shared responsibility spanning all orders of government and all sectors of Canadian society. Canada is a federation consisting of ten provinces and three territories that share a common federal government. Canada's Indigenous Peoples have an inherent right to self-government, which is recognized and affirmed under Section 35 of Canada's *Constitution Act, 1982*.

3.1.2.1 Federal government

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. For example, the government:

- generates climate change data and information to inform evidence-based decision-making related to climate change impacts and adaptation;
- convenes and facilitates collaboration amongst key partners and stakeholders to advance the alignment of climate change adaptation efforts;
- sets long-term policy in areas of national concern;
- uses the federal spending power to enable targeted actions by others in areas where there are strong justifications to do so;
- creates and implements nationally applicable measures, such as laws, regulations, codes, and standards, to meet the needs of Canadians living in various contexts across the country;
- advances Nation-to-Nation relationships with First Nations, Inuit, and Métis; and,
- supports the consideration of Indigenous science on par with western science.

3.1.2.2 Provincial and Territorial governments

Provincial and territorial governments play important roles in climate adaptation in their jurisdictions, particularly relating to property and social matters, through their work developing land-use planning and building regulations, managing healthcare and natural resources, investing in resilient infrastructure, funding and implementing emergency services and education, and collecting local data to assess climate risks. Territorial governments share the same areas of responsibility as their provincial counterparts; however, the specific challenges in Canada's North, such as less resourcing and capacity, influence their ability to implement the full range of adaptation policies and programming under their jurisdiction. As such, the federal government holds additional responsibilities in provision of financial, technical, and human resource capacity to address complex crises such as climate change in the territories.

3.1.2.3 Indigenous Peoples

Since time immemorial, the ability of Indigenous Peoples to adapt to and care for their territories has been crucial in ensuring a flourishing way of life and rich, strong cultures. Unique relationships with the land, waters, and ice compound the effects of climate change for Indigenous Peoples, leading to disproportionate impacts on First Nations, Inuit, and Métis, including intensified effects of wildfires and flooding, food insecurity, and health impacts.

Faced with the current challenges of anthropogenic climate change, First Nations, Inuit, and Métis are already leading efforts to adapt to the impacts of climate change and are developing climate change

strategies and actions to set out a long-term vision for adaptation in their communities and regions. These include national-, regional-, and community-level strategies and initiatives that reflect the diverse circumstances and priorities of Indigenous Peoples across the country. Adaptation actions in Indigenous communities and territories are more effective, meaningful, and durable when they are designed, delivered, and determined by and for Indigenous Peoples.

For First Nations, Inuit, and Métis, climate change adaptation must be premised on the right to self-determination and should support Indigenous Peoples in caring for their lands, waters, and ice and leading adaptation action within their territories. Indigenous-led strategies demonstrate that Indigenous Knowledge Systems encompass different perspectives for understanding environmental complexity, and they include action plans to reduce, manage, and adapt to environmental change in a place-based and holistic manner. In a changing climate, it is critical to prioritize Indigenous Knowledge Systems and support Indigenous self-determined actions and initiatives aimed at protecting biodiversity and maintaining the adaptive capacity of ecosystems. Indigenous Peoples have demonstrated the success of Indigenous-led climate action, from nature stewardship to clean energy projects, across the country. Indigenous Peoples are best placed to know the solutions that will work within their territories and are well-positioned to identify the actions that will support adaptation efforts as they cope with the impacts of climate change.

Indigenous Peoples have called for Canada to respond meaningfully to their priorities in the climate space and to make funding support for climate action more accessible and equitable for First Nations, Inuit, and Métis. Further, Indigenous Peoples have been calling for Canada to implement climate action that is consistent with the Paris Agreement, including urgent and transformative measures to slow climate change and address the impacts of a rapidly changing climate.

To support Indigenous Peoples' actions in response to their climate priorities and adaptation plans, the Government of Canada is committed to advancing an Indigenous Climate Leadership Agenda. The goal of the Indigenous Climate Leadership Agenda is to implement a model of partnership for climate action between the federal government and Indigenous Peoples that is based on the recognition of rights, respect, and cooperation.

3.1.2.4 Local and regional governments

Local and regional governments have been at the frontlines of climate adaptation, providing a lens into local circumstances and directly involving citizens and communities in adaptation efforts. Municipalities and regional governments are integrating adaptation considerations into the decision-making process, including land-use planning and zoning, water supply and wastewater management, and flood and wildfire risk management.

3.1.2.5 Private sector

Businesses of all sizes and across sectors in Canada are integrating climate considerations into their investments, planning, and operational decisions. There is growing demand for climate services and information. For example, many professional associations seek this information to inform and equip their members in addressing climate change.

3.1.3 Legal and policy frameworks and regulations

The following section addresses paragraph 106(c) of the MPGs.

Canada's first National Adaptation Strategy, released in 2023, provides a national policy framework for adaptation, establishing a shared vision for a climate-resilient Canada and setting goals and objectives to guide whole-of-society adaptation action.

Climate change adaptation is primarily managed by environment departments at federal, provincial, and territorial levels. Environment and Climate Change Canada leads coordination for the implementation of the National Adaptation Strategy, structured around five interconnected systems overseen by different federal departments, ensuring policy coherence and program integration.

To support a collaborative framework aimed at fostering a sustainable Prairie economy, the *Building a Green Prairie Economy Act* was passed in December 2022. The commitment by the federal government to have stronger coordination between federal departments is structured around five key pillars: growing key regional sectors; effective movement of goods, people, and information; expanding and capitalizing on clean electricity; community economic development; and economic reconciliation and inclusive growth, led by Indigenous Services Canada.

Some provinces and territories have legislation that supports adaptation. For example, British Columbia's *Climate Change Accountability Act* requires the Minister of Environment and Climate Change to prepare a public report each year that includes information on actions taken and planned to manage and progress on climate risks. Nova Scotia's *Environmental Goals and Climate Change Reduction Act* required the province to create a strategic plan to adapt to the impacts of climate change (the *Climate Change Plan for Clean Growth* was released in 2022, is reported on annually, and will be reviewed and updated within five years of its release), and the province also published *The Future of Nova Scotia's Coastline: A plan to protect people, homes and nature from climate change* (2024);. Prince Edward Island's *Net-Zero Carbon Act* requires the province to report on climate change risks and progress every fifth calendar year after 2021.

3.2 Impacts, risks, and vulnerabilities

The following section addresses paragraph 107 of the MPGs.

3.2.1 Current and projected climate trends and hazards

Canada's climate is undergoing irreversible changes, with consequences for current and future generations of people across the country. Climate change is increasing the frequency and intensity of many kinds of severe weather and climate events nationwide; additional climate warming will exacerbate the risks of such events. Additionally, slow-onset changes, such as permafrost thaw and sea-level rise, are transforming landscapes and coastlines, affecting communities, livelihoods, and identities.

Over the past two decades, Canada has led three comprehensive national climate change assessment processes, which included sector- and region-specific reports focusing on the risks and opportunities presented by climate change and assess the country's readiness to adapt to potential impacts.

A comprehensive national climate science report was included for the first time in the most recent assessment cycle. The 2019 *Canada's Changing Climate Report* concluded that both past and future warming in Canada is, on average, about double the global rate, while warming in Northern Canada is approximately three times the global average. As additional warming in Canada is inevitable, many of the climate trends already observed in Canada are projected to continue. These include more extreme heat, less extreme cold, longer growing seasons, earlier spring peak streamflow, shorter snow and ice cover seasons, thinning glaciers, thawing permafrost, and rising sea-levels along many Canadian coastlines. A warmer climate will also contribute to increased drought and wildfire risks, and more intense rainfalls will increase urban flood risks. The magnitude of changes projected for Canada, as for all countries, clearly depends on future emissions of greenhouse gases globally.

Building on the *Canada in a Changing Climate Report*, the 2021 *National Issues Report* focused on climate change impacts and adaptation issues of national importance, such as communities, water resources, economic sectors, and international dimensions. The report highlighted that people across Canada are already experiencing climate change impacts, which will persist and intensify over time, necessitating additional efforts to effectively adapt. It also concluded that lessons on good practices are continuing to emerge in Canada and are helping to inform successful adaptation.

The 2022 *Health of Canadians in a Changing Climate* assessed climate risks to health and provided evidence-based information on how climate change affects health and healthcare systems. The report concluded that without concerted action, climate change will continue to cause injury, illness, and death in Canada, with greater warming posing greater health risks. It emphasized the need for rapidly scaling up inclusive and equitable actions to adapt to these growing threats. The 2024 *For Our Future: Indigenous Resilience Report* is the first Indigenous-led assessment report that discusses climate change impacts, experiences, and adaptation from the perspectives of First Nations, Inuit, and Métis. The report provides numerous examples of Indigenous-led initiatives and case studies, to support urgent calls to action on climate change.

Reports by external organizations also identify key climate impacts, vulnerabilities, and risks across Canada. For example, the Canadian Climate Institute's *Costs of Climate Change* series comprised five reports and provide an understanding and quantification of the potential costs of a changing climate in Canada. The findings demonstrated that climate change is already resulting in large national income losses. By 2025, Canada is expected to experience $25 billion in losses relative to a stable-climate scenario, which is equal to 50% of projected GDP growth. These losses could rise to $78 billion and $101 billion annually by 2050 for a low- and high-emissions scenario respectively, and $391 billion and $865 billion respectively by 2100. The Canadian Climate Institute found that climate change will cause job losses and reduce productivity, which will contribute to raising prices and undermining the economy.[1] There are also social, environmental, and intangible costs associated with a changing climate.

In the event of a large-scale natural disaster, the Government of Canada also provides financial assistance to provincial and territorial governments through the Disaster Financial Assistance Arrangements (DFAA), administered by Public Safety Canada.[2] When response and recovery costs exceed what individual provinces or territories could reasonably be expected to bear on their own, the DFAA provide the Government of Canada with a fair and equitable means of assisting provincial and territorial governments. Through the DFAA, assistance is paid to the province or territory—not directly to affected individuals, small businesses, or communities. A request for reimbursement under the DFAA is processed immediately following receipt of the required documentation of provincial or territorial expenditures and a review by federal auditors. In late 2022, an advisory panel presented its work in a final report titled *Building Forward Together: Toward a more resilient Canada*. The report outlines key findings and recommendations on how to modernize the DFAA program to not only support disaster recovery, but also help build more resilient communities.

Since the DFAA program was established in 1970, the Government of Canada has contributed over $9 billion in post-disaster assistance to help provinces and territories with the costs of response and returning infrastructure and personal property to pre-disaster condition. $5.2 billion (62% of this contribution) was paid over the past decade.

3.2.2 Sector-specific impacts

The following section provides an overview of the latest knowledge on key climate impacts affecting Canadians, based on recent national assessments.

3.2.2.1 Extreme weather events and climate-related disasters

Canada has seen increasing trends in many kinds of extreme weather events and climate-related hazards in recent decades. The frequency of events such as heatwaves, wildfires, and extreme rainfall-induced floods has risen, which can lead to injuries, community displacement, significant economic disruptions and damages, and loss of life. The increasing frequency of these events, sometimes occurring in rapid succession, can place difficult pressures on emergency response systems and our capacity to prevent, prepare, respond to, and recover from these disasters.

3.2.2.2 Ecosystems and ecosystem services

Climate change is negatively affecting Canadian ecosystems and their capacity to provide services. Increasing climate-related hazards, including extreme weather events, as well as shifting climate patterns, will continue to impact ecosystems and biodiversity in a variety of ways, such as species geographical-distribution shifts and disruption of the timing of critical life events. These impacts affect the ability of ecosystems to provide multiple values (e.g., cultural, spiritual, and societal values) and services to communities (e.g., food and water, climate regulation, carbon sequestration, air purification), with impacts expected to grow in severity under a changing climate. The *Canada in a Changing Climate: National Issues Report* (2021) concluded that climate change presents a multitude of risks, opportunities and trade-offs for Canada's ecosystems and the people that rely on them. The nature and severity of the impacts will depend on the rate and magnitude of climate changes in the years to come and in the success of adaptation measures.[3]

3.2.2.3 Infrastructure

Canada's infrastructure delivers essential services, including wastewater and stormwater management, drinking water access, energy production and distribution, and the movement of goods and people. Due to factors like age and historical design practices, climate change is expected to increasingly impact Canada's infrastructure, heightening the exposure and vulnerability of these assets. Such impacts could lead to structural failures and service disruptions, negatively affecting health and well-being, service reliability, and public safety.

Unlocking the potential of infrastructure for adaptation and resilience requires policies and programs focused on significantly avoiding damages and providing co-benefits, such as enhanced livability and protection of Canada's biodiversity. There are opportunities 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 while considering the interdependencies across infrastructure systems. Additionally, natural infrastructure solutions are increasingly seen as win-win investments that support traditional infrastructure outcomes, such as stormwater management, while delivering valuable co-benefits, such as climate change resilience, reduced pollution, and carbon sequestration.

Decision-makers and professionals across Canada require tools and support for constructing and maintaining climate-resilient infrastructure. New climate-informed national guidance and standards are being developed to ensure infrastructure reflects current and future climate conditions, as many existing specifications are outdated. For example, updated floodplain maps and future extreme heat information are vital for optimal facility placement and design.

3.2.2.4 Health and well-being

People in Canada are already experiencing negative health impacts due to climate change, which are expected to worsen with continued warming. Climate change drives direct health effects related to rising temperatures, such as increasingly frequent and severe events like extreme heat and, wildfires, poor air quality, including due to wildfire smoke, and the spread of zoonotic diseases like Lyme disease. Climate change is also impacting mental health, both driving the onset of new mental health conditions and by exacerbating existing mental health conditions.[4] Climate change contributes to indirect health effects by impacting the social, environmental, cultural, and economic conditions that are critical to good health and strong health systems. Climate change is also increasing risks to health facilities and supply chains, disrupting the ability of health professionals to deliver essential health services. The 2022 *Health of Canadians in a Changing Climate* concluded that, without concerted action, climate change will continue to cause injury, illness, and death in Canada, with greater warming posing greater health risks.

3.2.2.5 Economy

The 2021 *National Issues Report* concluded that climate change is affecting nearly every sector of the Canadian economy, with impacts set to increase in the future. Natural resource-based sectors are particularly sensitive, including forestry, fisheries, agriculture, mining, energy, transportation, and tourism. For instance, the forestry sector faces risks including pest outbreaks, wildfires, and long-term species shifts, reducing the health and resilience of forests and constraining timber supply. It is important to understand the interconnections within and between multiple sectors. For some sectors, such as transportation, this is particularly evident given its critical role in supply chains.[5]

The costs of rebuilding from climate-induced damage and recovering from disasters limit households, businesses, and governments from making new investments that could address existing inequities, enhance productivity, or improve quality of life. Nonetheless, proactive adaptation is estimated to yield $13 to $15 in benefits for every dollar spent.[6]

3.2.2.6 Disproportionate impacts

Climate change exacerbates existing vulnerabilities and socio-economic inequities, disproportionately impacting certain populations, including Indigenous communities, Black communities, racialized groups, low-income individuals, 2SLGBTQI+ individuals, and women. These impacts can be compounded when multiple forms of inequities and disadvantages intersect. Marginalized and underserved populations, particularly in coastal communities, often have limited resources and capacity to cope with climate impacts; for example, residing more frequently in areas prone to climate risks like flood zones or in neighborhoods and buildings with limited cooling options during heat waves.

3.3 Adaptation priorities and barriers

The following section addresses paragraph 108 of the MPGs.

3.3.1 Adaptation priorities

Canada's National Adaptation Strategy, developed with provincial, territorial, and municipal governments, Indigenous partners, the private sector, non-governmental organizations, adaptation experts, and youth, outlines a shared vision for a climate-resilient Canada and offers the opportunity to scale-up ongoing actions and advance new initiatives and leadership through the help of shared priorities and collaboration for action.

Informed by key climate impacts and risks identified through the *Canada in a Changing Climate* National Assessment Process, the 2019 *Canada's Top Climate Risks* report by the Canadian Council of Academies, and Indigenous Knowledge Systems, the Strategy aims to direct whole-of-society action to achieve adaptation outcomes across five interconnected systems:

- reducing the impacts of climate-related disasters;
- improving health and well-being;
- protecting and restoring nature and biodiversity;
- building and maintaining resilient infrastructure; and
- supporting the economy and workers.

Building climate resilience is a long-term challenge that requires ambitious and sustained action. The National Adaptation Strategy is designed to be iterative as climate risks and adaptation needs and priorities evolve. Regular evaluation and refinement of the Strategy will build on the achievements and lessons learned from previous actions and set a flexible pathway to enable Canada to adapt. Up-to-date and accessible information on current and projected climate risks and impacts will continue to inform the Strategy as it evolves. The next update to the Strategy is expected in 2030.

3.3.2 Adaptation challenges and barriers

Canada has and continues to experience barriers and challenges to adaptation. Examples of barriers are provided in the 2023 *Canada in a Changing Climate Synthesis Report*. These include insufficient financial resources; lack of human resources capacity; constraining policies or regulations; limited access to relevant data and information; poor coordination and/or understanding of roles; market failures; behavioural barriers; history of colonization; and barriers to equitable participation.

The National Adaptation Strategy and the actions and measures contained in the associated federal Government of Canada Adaptation Action Plan seek to address these challenges/barriers and to accelerate and mainstream adaptation.

3.4 Adaptation strategies, policies, plans, goals, and actions to integrate adaptation into national policies and strategies

The following section addresses paragraph 109 of the MPGs.

Effective adaptation action requires a whole-of-society effort. In Canada, all orders of government, Indigenous Peoples, businesses, and civil society have increasingly taken individual and collective action to address climate risks over the past two decades.

3.4.1 National Adaptation Strategy

Canada's National Adaptation Strategy, establishes the following vision for a resilient Canada to guide whole-of-society action:

> "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 Strategy is underpinned by a set of guiding principles intended to direct and inform decisions on how adaptation actions are designed and advanced. They acknowledge the importance of how Canada reaches it goals and objectives. These principles are:

1. respect jurisdictions and uphold the rights of Indigenous Peoples;
2. advance equity and climate and environmental justice;
3. take proactive, risk-based measures to reduce climate impacts before they occur; and
4. maximize benefits and avoid maladaptation.

The Strategy goes beyond the individual hazards, risks, and assets approach by recognizing there are important connections among these systems and that adaptation actions in one area can affect outcomes in another. The Strategy identifies five interconnected systems of disaster resilience, health and well-being, nature and biodiversity, infrastructure, and economy and workers.

For each of the five National Adaptation Strategy systems, as well as the foundational elements, the Strategy sets long-term transformational goals for 2050 and medium-term objectives for 2030. The Strategy articulates specific, timebound, and measurable near-term targets to focus the efforts of governments and communities across the five systems and to help ensure future climate change adaptation investments are targeted and effective (see Section 3.6).

A series of actions are intended to support the implementation of the National Adaptation Strategy by outlining immediate and shared priorities on adaptation and helping to support investments, including the Government of Canada Adaptation Action Plan, federal–provincial and federal–territorial action plans, and the Indigenous Climate Leadership Agenda.

Alignment and collaboration between national and sub-national governments are essential to ensure effective support for local, place-based adaptation. In Canada's federal system, climate change adaptation is discussed in various federal–provincial–territorial fora, including at sector-specific tables such as forestry, fisheries, infrastructure, emergency management, health, etc. Federal–provincial and federal–territorial discussions are ongoing to establish shared priorities, to identify key areas for increased collaboration and alignment, and to support mainstreaming adaptation in the work of various ministries. In efforts to advance reconciliation, tri-lateral discussions with Indigenous governments or organizations will be prioritized, where agreed to by all partners, with the goal of furthering alignment and collaboration.

Efforts to co-develop the Indigenous Climate Leadership Agenda are well underway, with the aim of establishing a clear pathway to delivering on Canada's commitment towards a renewed partnership with First Nations, Inuit, and Métis on climate change. Distinctions-based strategies for implementation will build regional and national capacity and progressively vest authorities and resources to advance self-determined climate action, including adaptation, in the hands of First Nations, Inuit, and Métis communities, governments, and representative organizations.

3.4.2 Federal strategies, policies, plans, and goals

The federal Government of Canada Adaptation Action Plan comprises an evergreen inventory of federal measures that will contribute to the Strategy's goals, objectives, and targets. It includes new and existing investments and programming to address both short-term and long-term climate change issues and risks facing Canada. It also acknowledges that climate resilience requires alignment of efforts across the federal government and with partners and stakeholders. The federal action plan includes foundational and cross-cutting measures and actions to make targeted contributions to each of the five systems under the National Adaptation Strategy.

Federal departments and agencies also have commitments to enhance the climate resilience of the government's assets, services, and activities through the Greening Government Strategy. These commitments aim to reduce emissions from government operations while also minimizing the risk of disruption of critical government assets, services, and activities, and the costs associated with climate impacts.

The federal government is also working with internal and external stakeholders to develop a Climate Data Strategy to ensure that the private sector and communities have access to climate data to inform planning and infrastructure investments. The strategy aims to create an enabling environment for the implementation of climate change-related risk assessment for infrastructure, climate change-related financial disclosures, and the development of net-zero plans for federally regulated institutions. The Climate Data Strategy is anticipated to be released in 2025.

The Government of Canada is advancing nationally-driven, regionally-focused efforts to identify and accelerate shared economic priorities for a low-carbon future in the energy and resource sectors through the Regional Energy and Resource Tables (Regional Tables). Regional Tables are joint partnerships between the federal government and individual provinces and territories, in collaboration with Indigenous partners, and with input from key stakeholders. By aligning resources and timelines and better coordinating regulatory and permitting processes, each region can turn its individual strengths and unique mix of natural resources into a comparative advantage for the global, low-carbon economy.

The Regional Tables are supporting these efforts by helping to inform a vision of Canada's economic success: one that includes fostering clean energy growth, ensuring Indigenous participation, and setting clear economic objectives. Central to the Regional Tables initiative is better prioritizing federal action by undertaking regional analysis of labour markets, supply chains, and regional resource constraints.

As of October 2024, Regional Tables are formally underway in 10 provinces and territories (British Columbia, Manitoba, Ontario, New Brunswick, Nova Scotia, Price Edward Island, Newfoundland and Labrador, Yukon, Northwest Territories, and Nunavut). In addition, the federal government and Alberta are collaborating through an alternative process called the Alberta–Canada Working Group to discuss and develop a shared information base, helping to understand and provide certainty regarding actions and timeframes to achieve these governments' shared goals of economic prosperity and a carbon-neutral economy by 2050.

To date, three Regional Tables in British Columbia, Newfoundland and Labrador, and Nova Scotia have produced Collaboration Frameworks that outline agreed-upon areas of opportunity for the low-carbon economy and the joint, short- and medium-term actions required to realize them.

3.4.3 Provincial and territorial strategies, policies, plans, and goals

Canada's provinces and territories are influential in adaptation due to their jurisdiction over regional and local governance, natural resource management, health and healthcare, and community planning. Many are either implementing stand-alone adaptation strategies or are incorporating them into comprehensive climate change action plans, informed by climate risk and vulnerability assessments. Additionally, many provincial governments have also introduced legislation that mandates regular adaptation planning, implementation, and reporting. A concise summary of provincial and territorial adaptation plans and initiatives is provided in Section 3.5.2.

3.4.4 Indigenous strategies, policies, plans, and goals

First Nations, Inuit, and Métis have produced a rich breadth of climate strategies and action plans reflecting distinct bodies of knowledge, cultures, languages, ways of living, and nationhoods. These resources seek to advance self-determined efforts to predict, monitor, and address adverse climate impacts, provide scalable Indigenous-led climate solutions, highlight community and regional needs, and recommend ways to bridge gaps and guide localized mitigation efforts. For more details and a non-exhaustive list of strategies, plans, and actions being led by and for First Nations, Inuit, and Métis, please see Section 3.5.3.

3.4.5 Municipal strategies, policies, plans, and goals

Municipalities find themselves on the frontlines facing climate change impacts while simultaneously driving innovative adaptation solutions. Local governments, including various levels of Indigenous governments, are increasingly taking proactive measures to enhance resilience against climate risks. Their efforts encompass comprehensive adaptation plans, risk assessments, regulatory interventions through bylaws and land-use planning, training and communication initiatives, and the development of protective and resilient infrastructure.

3.5 Progress on implementation of adaptation

The following section addresses paragraph 110 of the MPGs.

All the actions taken by government, private and non-profit organizations, and individuals across the country collectively support the improvement of resiliency to climate change impacts across Canada. The first report to comprehensively assess progress against the National Adaptation Strategy's goals and objectives is planned for 2026. Some examples of efforts underway by various orders of government to adapt to climate change are provided below.

3.5.1 Federal actions

The Government of Canada Adaptation Action Plan is a comprehensive inventory of federal actions that support the implementation of the National Adaptation Strategy objectives. Federal actions in the Government of Canada Adaptation Action Plan are organized under each of the five National Adaptation Strategy systems and foundational elements. A summary of key actions in Government of Canada Adaptation Action Plan is presented below.

Taking action to enhance Canada's emergency management and disaster risk reduction capabilities: Canada is taking proactive measures to enhance the nation's emergency management and disaster risk-reduction capabilities, empowering Canadians to better prepare for, respond to, and recover from climate-related disasters. These efforts are backed by strategic government investments, including:

- the Wildfire Resilient Futures Initiative, which aims to enhance community prevention and mitigation activities, support innovation in wildland fire knowledge and research, and establish a Centre of Excellence for Wildland Fire Innovation and Resilience;
- expanding the Flood Hazard Identification and Mapping Program to provide Canadians with access to free, up-to-date, and high-quality flood hazard maps, working in collaboration with provinces and territories to increase Canada's resilience to flooding;

- developing an interest-free flood insurance program to protect households at high risk of flooding and without access to adequate insurance;
- creating a new, publicly accessible online portal to ensure Canadians have access to information on their exposure to flooding; and,
- identifying high-risk flood areas and implementing a modernized Disaster Financial Assistance Arrangements program to incentivize disaster mitigation efforts.

Taking action to protect the health and well-being of people in Canada: Recognizing the profound impacts of climate change on human health and well-being, Canada is taking critical action to rapidly scale up efforts to protect individuals, communities, and health systems from these challenges. Federal initiatives aimed at building resilience in the health sector include:

- providing the best available guidance and resources to Canadians in addressing extreme heat;
- supporting partners in creating climate-resilient and low-carbon health systems through a HealthADAPT Program; and,
- addressing climate change-related needs and vulnerabilities in health services for First Nations and Inuit through the Climate Change and Health Adaptation Program.

Taking action to enhance a thriving natural environment: To promote more resilient natural environments, Canada is implementing conservation programs that support projects focused on:

- supporting the goals of protecting 25% of Canada's land and waters by 2025, and 30% by 2030 by conserving and protecting national wildlife areas, supporting Indigenous-led conservation, including Indigenous Protected and Conserved Areas (IPCAs), and conserving species at risk and migratory birds through Canada's Enhanced Nature Legacy and Marine Conservation Program;
- strengthening ecological connectivity to allow species to move freely and better adapt to a changing climate through the National Program for Ecological Corridors; and,
- contributing to Canada's conservation targets through an innovative model called Project Finance for Permanence, where government and private funding is leveraged to support large-scale, long-term Indigenous conservation projects: Northwest Territories, Great Bear Sea, Qikiqtani, and Omushkego Wahkohtowin.

Taking action to enhance our resilient natural and built infrastructure: The Government of Canada is making substantial investments to build climate-resilient infrastructure that provides co-benefits to biodiversity across the nation. Key areas of focus include:

- the Disaster Mitigation and Adaptation Fund, which continues to help municipalities and townships build new infrastructure to increase community resilience to natural disasters;
- the Natural Infrastructure Fund, which supports and accelerates the uptake of nature-based solutions to enhance climate resilience;
- efforts to accelerate the use of climate-informed codes, standards, and guidelines for resilient infrastructure across Canada. For example, the Standards Council of Canada has started the Northern Infrastructure Standardization Initiative developing standards for the North that

consider a changing climate with federal financial support and in-kind staff support from many organizations including territorial governments, community governments, and industry; and,

- the development of a Climate Toolkit to increase the adoption of climate-resilient practices and investments in communities.

Taking action to protect the economy and workers: Canada's economy will anticipate, manage, adapt, and respond to climate change impacts and will advance new and inclusive opportunities within a changing climate, particularly for communities at greater risk, Indigenous Peoples, and vulnerable economic sectors. This will be done by:

- enhancing the resiliency of Canada's supply chains in the event of disasters, providing workers with the tools and the skills they need to thrive under a changing climate, and supporting industries, such as agriculture and mining, which are vulnerable to climate change; and,
- piloting a new approach to implementing regional climate resilience through the new Climate-Resilient Coastal Communities Program, which will enable communities to partner with other stakeholders to address barriers and develop novel solutions to climate change risks.

Building knowledge and understanding of Canada's changing climate: To ensure that Canadians have access to relevant climate change information and resources, expertise, advice, and services to support climate-informed decisions, the Government of Canada is:

- undertaking state-of-the-art climate modelling and research, and sharing this information in a meaningful way, using a user-driven approach, through the Canadian Centre for Climate Services and its regional partners;
- developing enhanced capability to make projections of future extreme events, to provide rapid event attribution results, to disseminate climate information to a wide range of Canadian stakeholders, and to deliver a new Canada-wide climate science assessment, which will provide authoritative knowledge and new data about ongoing and future climate change in Canada and underpin the direction for future adaptation; and,
- developing a climate data strategy through analysis of federal initiatives and federal data inventories that support the assessment of physical and transition risks in Canada, as well as the resulting identification of data gaps and barriers to accessing and using data.

Developing tools and resources to support communities in adapting: The Government of Canada is investing in capacity building tools and resources to support communities in greatest need, including:

- supporting community-based adaptation initiatives across Canada in collaboration with the Federation of Canadian Municipalities and the Green Municipal Fund's Local Leadership for Climate Adaptation; and,
- enhancing existing programs such as First Nation Adapt, Climate Change Preparedness in the North, and Indigenous Community-based Climate Monitoring, programs that aim to build adaptation capacity and support community-led adaptation measures in Indigenous and northern communities.

Establishing governance and demonstrating leadership: Clear accountabilities and responsibilities are needed to align and improve adaptation actions across society. Adaptation governance mechanisms bring together the perspectives of different orders of government, Indigenous Peoples,

marginalized groups, the private sector, and civil society. In addition, integrating adaptation efforts into federal policy, planning and investments, the Government of Canada is leading by example in building climate-resilient institutions. The Government of Canada will:

- continue to jointly advance an Indigenous Climate Leadership Agenda with First Nations, Inuit, and Métis that transforms the current model of federal support for Indigenous climate action to one that is holistic, enabling in nature, and responsive to Indigenous rights to self-determination; and,
- work to enshrine adaptation into everyday decision-making to ensure that all programs, policies, initiatives and departments consider climate change risks and support Canada's national adaptation objectives.

Taken together, as of 2024 the Government of Canada Adaptation Action Plan includes over 70 federal actions across 22 departments and agencies, illustrating the depth and breadth of action being taken.

3.5.2 Provincial and territorial plans and actions

Provinces and territories across Canada are implementing a range of measures to advance resiliency and adaptation to climate-related impacts. Below is an overview of each province and territory's current adaptation actions and priorities.

3.5.2.1 British Columbia

The *Climate Preparedness and Adaptation Strategy: Actions for 2022–2025* outlines a broad range of actions for 2022 to 2025 to address climate impacts and build resilience across British Columbia and is supported by $500 million in funding. The strategy addresses foundational needs for data, training, and capacity, and presents targeted actions that support Indigenous nations and communities, local governments, businesses, and industry so they can better prepare for and adapt to the changing climate. Notable adaptation achievements include the development of a provincial flood strategy and resilience plan and the development of an extreme heat preparedness plan, including a Provincial Heat Alert and Response System.

3.5.2.2 Alberta

The *Alberta Emissions Reduction and Energy Development Plan* (2023) includes a section on climate change adaptation and resilience that highlights current and future work. Alberta has established partnerships aimed at advancing climate resilience. These include investments in Climate West to generate regional climate data; the Indigenous Wisdom Advisory Panel; and the Municipal Climate Change Adaptation Centre to support urban and rural municipalities in developing climate adaptation and resilience plans.

The province's adaptation work is focused on flooding, wildfire, extreme weather, and the forestry and agricultural sectors, as well as the integration of climate adaptation considerations into government operations, policies and programs, and decision making.

3.5.2.3 Saskatchewan

The *Prairie Resilience: A Made-in-Saskatchewan Climate Change Strategy* (2017) strongly focuses on adaptation/resilience in five key areas: natural systems; physical infrastructure; economic sustainability; community preparedness; and human well-being. Saskatchewan's system-wide approach to climate resilience focuses on strengthening the province's ability to absorb, adapt, and transform throughout all key resilience areas. The province's Climate Resilience Measurement Framework monitors

resilience-related progress; this includes specific targets around resilient forest management practices, flood-proofing of the highway system, agricultural yield, and income.

3.5.2.4 Manitoba

The Made-in-Manitoba Climate and Green Plan (2017) aims to make Manitoba Canada's cleanest, greenest, and most climate-resilient province. The strategic framework includes adaptation as one of the keystones in which to guide progress. Manitoba's proposed resiliency objectives focus on creating a healthy agro-ecosystem, flood and drought forecasting and response, healthy forests and natural areas, and resilient infrastructure. Recent adaptation spending focused on building regional capacity-matching federal funding for adaptation capacity-building, and support for the agricultural sector in building watershed resilience and flood protection. There is also a Conservation and Climate Fund that funds adaptation projects.

3.5.2.5 Ontario

The Made-in-Ontario Environment Plan (2018) includes sections on protecting water, air, and natural spaces and species, and addressing climate change, to increase awareness and help prepare the province for the impacts of a changing climate. Climate change adaptation actions undertaken by the provincial government include: completing and releasing a provincial Climate Change Impact Assessment in 2023; establishing an advisory panel on climate change; and, developing a provincial flooding strategy.

3.5.2.6 Québec

Québec's 2030 Plan for a Green Economy sets out clear principles to guide the directions and actions of the government, and emphasizes collaborative efforts with Indigenous communities, municipalities, researchers, companies, and citizens to implement actions. Adapting to climate change is one of four key actions under the Plan, with a focus on protecting the health and safety of citizens, adapting infrastructure, building resilience in Québec's economy, and protecting ecosystems and biodiversity.

Québec employs a dynamic and scalable approach to implement its 2030 Plan, which is achieved through the development of five-year implementation plans that are updated annually. Québec is currently following its fourth implementation plan (available in French only), which covers the period from 2024 to 2029. Québec's adaptation priorities include building resilience in northern communities, protecting human health and safety, investing in built and natural infrastructure, supporting economic sectors and resilient ecosystems. Specific objectives include developing adaptive solutions to forest fires, preventing flooding risks, adapting infrastructure to climate change impacts, strengthening the adaptive capacity of the most vulnerable economic sectors, and acquiring and disseminating the knowledge needed to adapt to climate change.

3.5.2.7 New Brunswick

The New Brunswick *Climate Change Act* (2018) requires the province to review its action plan at least every five years. New Brunswick released its 2022–2027 Climate Change Action Plan (2022), which includes preparing for climate change as a core pillar. The adaptation actions are organized under priority commitments to advance climate resilience, including enhancing understanding and communication of climate change, moving from adaptation planning to implementation, and supporting biodiversity through nature-based solutions. A significant action in the plan is to conduct a comprehensive provincial climate change risk assessment, which will inform future adaptation planning efforts.

3.5.2.8 Nova Scotia

Nova Scotia's *Environmental Goals and Climate Change Reduction Act* (2021) legislates 28 climate action and sustainable prosperity goals. Nova Scotia released a provincial climate change risk assessment (Weathering What's Ahead, 2022), which outlines and ranks climate hazards and risks for Nova Scotia to support prioritization and planning. The *Our Climate, Our Future: Nova Scotia's Climate Change Plan for Clean Growth* was released in December 2022 and includes 68 actions, a subset of which are adaptation actions.

Nova Scotia's adaptation priorities include coastal protection. *The Future of our Coastline: A plan to protect people, homes, and nature from climate change*, Nova Scotia's three-year Coastal Protection Action Plan, has 15 actions that empower informed decision-making, support municipal leadership, and align government resources with coastal protection. As part of the action plan, an online Coastal Hazard Map and a resource guide for coastal property owners are available for Nova Scotians. Nova Scotians can also contact navigators who can help them use the Coastal Hazard Map and connect them with more resources. Also, the government is working hand-in-hand with municipalities to develop example by-law content that municipalities can tailor to the needs of their communities and use to regulate coastal protection.

Additional adaptation priorities include: updating the provincial climate change risk assessment; enhancing access and use of climate data and information; bolstering capacity for adaptation planning and action across government communities, and industry sectors; and, reducing climate impacts through the protection and restoration of natural areas and ecosystems. Seven climate adaptation coordinators have been hired by organizations representing a range of sectors (including agriculture, coastal parks, and freshwater) to support the development and/or implementation of sectoral climate adaptation plans. The province is coordinating research on how climate change will impact groundwater and biodiversity.

3.5.2.9 Prince Edward Island

Prince Edward Island released its *Building Resilience: Climate Adaptation Plan* in October 2022, aiming to match the ambition of its 2040 net-zero target. To date, the province has advanced several adaptation priorities, focusing on flood protection, forestry and agriculture sectors, climate information and tools, and awareness-raising. The province's updated adaptation plan outlines 28 detailed actions to support six key objectives in disaster resilience and response; resilient communities; climate-ready industries; health and mental well-being; natural and habitat biodiversity; and knowledge and capacity.

3.5.2.10 Newfoundland and Labrador

The Way Forward on Climate Change in Newfoundland and Labrador (2019 to 2024) includes support for infrastructure resilience, human health and municipal emergency planning, northern-specific adaptation activities, and the ocean environment. The province's adaptation work to date has focused on strengthening the understanding of climate impacts and improving the integration of climate change adaptation into decision-making. This includes the preparation of downscaled climate data and projections as well as localized coastal erosion studies, the implementation of infrastructure measures to enhance resiliency, and the development of resources and pilot projects to aid and assist stakeholders. This also includes the implementation of a wide range of policies to build provincial government's capacity across multiple departments and policy areas such as health, municipal planning, infrastructure, renewable resource management, emergency management, and adaptation in the north. A new stand-alone provincial adaptation strategy is being developed for the 2025 to 2030 period. This will be the province's first stand-alone adaptation plan.

3.5.2.11 Yukon

Our Clean Future: Yukon Strategy for Climate Change, Energy and a Green Economy (2020) includes adaptation objectives in several areas of the strategy. The adaptation target set out in Our Clean Future is that the Yukon will be highly resilient to climate change by 2030. In 2022, the Government of Yukon released Assessing Climate Change Risk and Resilience in the Yukon, the first Yukon-wide climate risk assessment. The top priority areas to build resilience in the Yukon include extreme weather and precipitation impacts on transportation infrastructure, floods, and fires affecting communities and livelihoods, permafrost thaw impacting infrastructure as well as health and well-being and changing conditions on the land. There are over 75 adaptation actions in Our Clean Future, with 25 new actions added in 2023. Work is underway in various areas such as developing and implementing community wildfire protection plans, establishing a geohazard monitoring program for priority hazards, and developing flood hazard maps in flood-prone communities.

3.5.2.12 Northwest Territories

The Government of the Northwest Territories (GNWT) has developed a *2030 Northwest Territories Climate Change Strategic Framework 2019–2023 Action Plan*, which is the first of two five-year Action Plans to support the implementation of the 2030 Northwest Territories Climate Change Strategic Framework and provide the Northwest Territories with a roadmap for addressing climate change. The Action Plan has three goals, two of which are adaptation-focused (improve knowledge of climate change impacts and build resilience and adapt to a changing climate). The GNWT is currently developing a 2025 to 2029 Northwest Territories Climate Change Action Plan for release in early 2025.The Northwest Territories' adaptation priorities include improving knowledge and information on climate impacts, including planning, management and use of information, and research and monitoring to improve knowledge, analysis on implications and impacts of community relocation due to permafrost thaw and coastal erosion, and management of winter roads and impacts on access to essential services and supplies of food and goods. The territory is also developing a Climate Monitoring Plan; however, it is important to note that access to robust data and climate hazard information in the North has been a considerable limitation.

3.5.2.13 Nunavut

Nunavut released its adaptation strategy, Upagioatavut Setting the Course, in 2011. Nunavut's Climate Change Secretariat, established in 2016, develops programs, policies, and partnerships that enable Nunavummiut to take leadership on adaptation, and promotes knowledge sharing of community-based climate change adaptation solutions. The Secretariat hosts a web-based climate change resource that shares climate change knowledge in Nunavut, while making information more accessible to the public. The website houses a wealth of resources, including climate change publications, updates on adaptation projects, and a community map where users can find community-specific climate change information and programs.

Nunavut is prioritizing adaptation to climate change through partnerships with universities, the private sector, the Federal Government, and communities. Research and monitoring efforts are underway to understand local impacts, while integrating climate education into school curricula aims to transfer knowledge from elders to youth. The territory also aims to raise awareness globally about climate impacts on Nunavut and Inuit culture and incorporate these considerations into emergency planning.

3.5.2.14 Pan-Territorial activities

Through the Pan-Territorial Adaptation Partnership, Yukon, Northwest Territories and Nunavut collaborate on adaptation as a result of the 2011 Pan-Territorial Adaptation Strategy. In September

2024, the three territories proposed “A Northern Approach” to support the implementation of the National Adaptation Strategy aiming to enhance the Government of Canada’s climate adaptation policies and programs to be more inclusive and accessible to the territories, and to better integrate Northern climate change adaptation priorities.

3.5.3 Indigenous strategies, plans, and actions

First Nations, Inuit, and Métis are already leading Canada’s efforts to adapt to the impacts of climate change and are developing climate change strategies and actions to set out a long-term vision for adaptation in their communities and regions. These include national, regional, and community-level strategies and initiatives that reflect the diverse circumstances and priorities of Indigenous Peoples across the country (see Section 3.4.4). Adaptation actions in Indigenous communities and territories are more effective, meaningful, and durable when they are designed, delivered, and determined by and for Indigenous Peoples.

Below is a non-exhaustive list of climate strategies, plans, reports, actions, and declarations from First Nations, Inuit, and Métis government and representative organizations who are leading efforts to mitigate climate change and adapt to the impacts of a changing climate.

First Nations:

- Assembly of First Nations National Climate Change Strategy (2023)
- Assembly of First Nations National Climate Gathering Report (2020)
- 2nd Assembly of First Nations Climate Gathering Report (2022)
- First Nations Fire Protection Strategy 2023 – 2028 (2023)
- Assembly of First Nations’ Urgent and Transformative Climate Action through the AFN National Climate Strategy (Resolution no. 36/2023)
- Assembly of First Nations’ Declaring a First Nations Climate Emergency (Resolution no. 05/2019)
- Open Letter to Prime Minister Trudeau on Perpetuating Climate Injustice Against First Nations (Chiefs of Ontario, 2023)
- Anishinabek Nation’s Final Report: Climate Change and Food Security Study (2022)
- BC First Nations Climate Strategy and Action Plan (2022)
- Poplar River First Nation Fire Vulnerability Assessment (2018)
- Yukon First Nation Reconnection Vision
- Indigenous Climate Hub

Inuit:

- National Inuit Climate Change Strategy (Inuit Tapiriit Kanatami, 2019)
- On Thin Ice: Inuit climate leadership for the world – UNFCCC COP28 Position Paper (Inuit Circumpolar Council, 2023)
- Statement of the Arctic Peoples’ Conference 2023 – Inuiaat Issittormiut Ataatsimeersuarnerat 2023 (Inuit Circumpolar Council, 2023)
- Nunavit Tunngavik Incorporated 2021-2022 Annual Report (2022)
- Nunavit Tunngavik Incorporated News Releases (2000-2024)
- Nunavik Climate Change Adaptation Strategy (2024)
- Nunavik and Nunatsiavut Regional Climate Information Update (2020)
- Aqqiumavvik Society in Arviat’s Community Climate Change Manual
- Upagiaqtavut Setting the Course: Climate Change Impacts and Adaptation in Nunavut (2010)
- Inuvaluit Settlement Region Climate Change Strategy (2021)
- Inuvialuit Settlement Region Energy Action Plan (2022)

Métis:

- Weaving Resilience and Building Métis Climate Leadership: The Métis Nation National Climate Strategy (2024)
- Manitoba Métis Foundation's Riel and Resilient: The impact of climate change on Red River Métis health (2023)
- Métis Nation Climate Change and Health Vulnerability Assessment (2020)
- Lifestyle as Medicine: The Way We Have Always Lived – Métis Climate Resilience Gathering Summary (2022)
- Métis Nation British Columbia's Climate Preparedness Workshop Series (2021)
- Métis Nation of Alberta's Health and Climate Change Toolkit
- Métis Nation of Alberta's Climate Action Plan (2017)
- Métis Nation - Saskatchewan Community-Based Climate Monitoring Program
- Métis Nation of Ontario Climate Change Forum Reports

For First Nations, Inuit, and Métis, climate change adaptation must be premised on the right to self-determination and should support Indigenous Peoples in leading adaptation action in and on their lands, territories, ice, and waters. To achieve this, the Government of Canada will work in partnership with First Nations, Inuit, and Métis to advance an Indigenous Climate Leadership Agenda, which will be the main pathway for implementing Indigenous communities' adaptation priorities. The Indigenous Climate Leadership Agenda will support the progressive transition of the resources and authorities necessary for Indigenous governments, communities, and representative organizations to implement self-determined climate actions.

3.5.4 Municipal actions

Many municipalities across Canada, both large and small, have developed plans to guide adaptation action within their jurisdictions and are taking action. Two examples are presented below, but many other municipalities across the country have climate change adaptation and plans.

The Municipality of Toronto released a 2019 *Resilience Strategy*, which focused on building climate resilience across sectors, including housing, mobility, equity, civic engagement, and community connectedness. Some current actions being taken by the municipality to increase climate resilience include Toronto's *Heat Relief Strategy* which aims to reduce the incidence of heat-related illness and death in Toronto due to extreme heat; its *Wildfire Smoke Response Strategy*, which was developed in 2023 in response to unprecedented air quality impacts from wildfire smoke; and the Green Streets initiative promoting green infrastructure to manage the impact of wet weather events and while garnering the social, economic and environmental co-benefits.

The Municipality of Halifax is building climate resilience by increasing their capacity to respond to climate-related impacts and disruptions. The municipality is addressing the need for adaptation by collaborating with Clean Foundation on implementing resilient home retrofits to build homes that can better withstand extreme weather events; implementing a green infrastructure approach for Shore Road in Eastern Passage through the construction of a nature-based approach for erosion mitigation, which will increase the long-term resilience of the shoreline to increasing climate change pressures; and funding the Joint Emergency Management Teams, which help respond to a wide range of climate emergencies.

3.6 Monitoring and evaluation of adaptation actions and processes

The following section addresses paragraphs 112, 113, and 114 of the MPGs.

Canada's National Adaptation Strategy recently established Canada's first national monitoring and evaluation framework for adaptation. The monitoring and evaluation framework is a critical component of Canada's adaptation process, providing the information necessary to learn what is working and adjust the course of action.

Canada's National Adaptation Strategy establishes a framework for measuring progress at the national level. It outlines a vision for climate resilience in Canada with five transformational goals for 2050 under each of the Strategy's five interconnected systems. As of November 2024, the framework includes 22 medium-term objectives targeted for 2030 and 23 near-term targets. These are supported by 10 medium-term objectives and two near-term targets underpinning the foundational elements necessary for effective adaptation.

The Strategy also includes an initial set of indicators (National Adaptation Strategy Annex D) to track national progress on adaptation across Canada. Since climate change impacts are broad, from the economy and infrastructure to human health and the environment, the Strategy's framework represents data and information from across the five systems. The monitoring and evaluation framework provides a national-level view of adaptation that is neither exhaustive nor exclusive of other monitoring systems in various regions and sectors.

The Strategy commits the federal government to working with other orders of government, Indigenous Peoples, and experts to build on this initial set of indicators as the Strategy is implemented. Indicators will be updated as relevant, new data becomes available to support ongoing improvement of the monitoring and evaluation framework. An updated monitoring and evaluation framework is anticipated to be completed prior to the first National Adaptation Strategy Progress Report, planned for release in 2026. The first progress report will provide a snapshot of collective progress in achieving the Strategy's goals, objectives, and targets, inform policy and investment decisions, and promote transparency and accountability to the public.

The Government of Canada reports on progress of its adaptation initiatives under a variety of reporting processes. This includes reporting on adaptation efforts through the Federal Sustainable Development Strategy, which supports Canada's efforts to advance the 17 Sustainable Development Goals of the United Nations 2030 Agenda for Sustainable Development, including Climate Action. The federal government also tracks and reports data through federal reporting mechanisms, such as reporting by each department delivering on adaptation programming under their respective annual Departmental Results Reports, Performance Information Profiles, and the new Climate Change Adaptation Horizontal Initiative.

The Government of Canada is actively engaging with Indigenous Peoples on adaptation through three distinctions-based Senior Bilateral Tables on Clean Growth and Climate Change. These tables are instrumental in fostering relationships between the federal government and Indigenous partners, sharing climate action that Indigenous Peoples are leading, and providing opportunities for cultural teachings and land-based learning. They are important spaces for identifying barriers, finding mutually beneficial solutions, and advancing joint climate priorities. Both the First Nations-Canada Joint Committee on Climate Action and the Métis Nation-Canada Goose Moon Table publish annual reports

that document positive strides towards reconciliation, highlight areas where further efforts are needed, and contribute to the forging of stronger climate partnerships. These reports also highlight shared strategies, challenges, and pathways to accelerate positive climate outcomes grounded in a rights-based approach.

Provinces, territories, and municipalities are also leading efforts to report on adaptation progress through their plans and strategies. Some provinces have legislated responsibilities for climate change adaptation reporting (see Section 3.1), and some provinces have frameworks to support reporting. For example, Saskatchewan's Climate Resilience Report shares trends and progress in meeting the province's climate change goals through a series of 22 resilience indicators. Similarly, Nova Scotia reports annually on progress against the 28 goals of the *Environmental Goals and Climate Change Reduction Act* (2021) and the 68 actions of the Climate Action Plan (2022), many of which are focused on adaptation. Nova Scotia also reports publicly on the 15 actions included in the Coastal Protection Action Plan.

3.7 Averting, minimizing, and addressing loss and damage associated with climate change impacts

The following section addresses paragraph 115 of the MPGs.

Canada does not apply a loss and damage lens to its domestic climate resilience interventions as it views adaptation as the main driver of climate resilience.

3.8 Cooperation, good practices, experience, and lessons learned

The following section addresses paragraph 116 of the MPGs.

Several elements are proving essential in supporting adaptation action across Canada and helping to make progress towards Canada's adaptation objectives. Some examples of key elements that have and continue to support adaptation across Canada are provided below. Many of these are elaborated upon in previous sections.

3.8.1 Knowledge and information

Authoritative, robust, and accessible information is essential to support decision-making on adaptation. Understanding how to use this information is as critical to enabling various users to meet their specific needs and context. The importance of this is demonstrated by the ongoing success (i.e., use and relevance) of the reports under the *Canada in a Changing Climate* National Assessment Process led by Natural Resources Canada. The report findings are used to help inform and advance adaptation decision-making and action.

3.8.2 Climate information and services

Climate data and information help inform decision-making in key sectors such as health, agriculture, infrastructure, transportation, and natural resource management. Accessing and understanding this information is foundational for assessing climate vulnerabilities and risks, as well as developing appropriate adaptation strategies. Climate services refer to "climate information prepared and delivered to meet users' needs"[7] and enhance users' knowledge and understanding about climate change and its impacts. In the context of adaptation, it includes climate data, information, tools, and assistance that support adaptation planning and decision-making by individuals and organisations in a tailored way.

Climate services in Canada bring together many actors, such as the federal, provincial, and territorial governments, as well as regional climate services providers.

Environment and Climate Change Canada is responsible for climate monitoring and climate information products and services including determination of trends, seasonal outlooks (e.g., bulletins and consultation process), value-added long-term historical climate data sets, past climate change and variability assessments, climate change projections and downscaled scenarios, and assessments of future climate change, with an emphasis on extremes.

In addition, the Department provides long-term historical climate data sets for internal and external users through its engineering climate services. Examples include historical snow and ice conditions, which are incorporated into the development of rooftop snow-load requirements for the National Building Code of Canada; wind-pressure analysis that informs the telecommunications and renewable energy industries; and analysis on the intensity, duration, and frequency of extreme rainfall to support storm and wastewater management.

Other federal departments are also building the knowledge base for sector-specific information and developing decision-making tools to support adaptation. Programs are advancing research and services related to how the changing climate affects permafrost and northern landscapes, coastlines, and aquatic ecosystems, as well as agriculture and food production.

3.8.3 Canadian Centre for Climate Services

In 2018, the Canadian Centre for Climate Services was established to provide information and support to those seeking to understand, and reduce their vulnerability to, climate change. The Canadian Centre for Climate Services leads a Government of Canada-wide approach, collaborating with provinces, territories, and climate science experts to provide credible, useful, and timely climate data, information, and tools for Canadians to consider climate change in their decisions.

Recognizing that regional approaches are required to address the unique needs across the country, the Canadian Centre for Climate Services created a national network of regional climate service providers. Regional organizations that are part of the national network include:

- Pacific Climate Impacts Consortium (PCIC), in the Pacific and Yukon region;
- ClimateWest, in the Prairies region (which covers the provinces of Manitoba, Saskatchewan and Alberta);
- ORCCA, in the Great Lakes and Ontario region;
- Ouranos, in the Québec region;
- CLIMAtlantic, in the Atlantic region (which covers the provinces of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador); and,
- In the North, the Canadian Centre for Climate Services has engaged with Crown–Indigenous Relations and Northern Affairs Canada, territorial governments, and representatives from northern and Indigenous organizations on potential northern climate services.

These regional climate service organizations are supported by the provincial and federal governments and are overseen by boards aiming for diverse representation.

To serve the needs of users with various capacities, the Canadian Centre for Climate Services supports a series of climate data portals. These portals provide a range of information and functionalities from broad, directional climate change trends to tools for analyzing high-resolution climate data. ClimateData.ca is a climate data portal produced collaboratively by the country's leading climate organizations and supported, in part, by the Government of Canada. The goal of this portal is to support climate change adaptation awareness, planning and decision-making across a broad spectrum of sectors and locations by providing the most up to date climate data, at a high resolution, in easy-to-use formats and visualization. It includes a range of climate indices and user-defined climate datasets, and various ways to analyze climate data.

- The Canadian Centre for Climate Services' Climate data viewer and Climate data extraction tool allow users to view mapped climate data or download subsets of climate data from a selection of Environment and Climate Change Canada datasets including future climate simulations, value-added historical datasets, and historical climate and river data. The Climate data viewer has recently been enhanced, notably with the ability to overlay supplementary datasets showing Indigenous communities, national parks, transportation networks, and meteorological/hydrological events from the Canadian disaster database.
- There are additional reputable sources of climate data and information in Canada, including the Pacific Climate Impact Consortia's Data Portal; the Canadian Climate Data and Scenarios data portal; and the Meteorological Service of Canada's Weather, Climate and Hazard Services and Information webpage.

The Canadian Centre for Climate Services operates a Support Desk that provides personalized support and guidance to help Canadians find, interpret, and use the data and information suitable for their individual needs. The Support Desk draws on a network of experts to respond to inquiries and support adaptation decision-making.

3.8.4 Early warning systems

Canada has an early warning system to warn residents of extreme weather events, with early warnings relying on sophisticated weather and environmental prediction models. The Meteorological Service of Canada operates a wide array of meteorological and hydrological networks to monitor and collect weather, water, climate data from the ground and above from satellites. Environment and Climate Change Canada works closely with emergency management organizations and delivers early warning and alert products for weather to the public via the internet, mobile applications, Weatheradio, social media, the National Public Alerting System, as well as through broadcast media. As a member of the World Meteorological Organization, Canada strives to meet the standards set out by the Global Basic Observation Network, which ensures the availability of data required for high quality weather forecasts and early warning systems that help improve the safety and well-being of citizens across Canada and the world.[8]

The Government of Canada is prioritizing the enhancement of its early warning systems for natural disasters, focusing on improving accuracy and timeliness of forecasts and notifications. Key goals include:

- upgrading weather products, services, modeling, and prediction capabilities;
- enhancing weather monitoring networks across the country;
- developing an Early Warnings for All Domestic Strategy; and,

- improving early warning systems for extreme weather events, particularly floods and storm surges.

These initiatives aim to protect all Canadians with effective early warning systems by 2027, aligning with the UN's Early Warnings for All initiative. The Government of Canada recognizes early warnings as one of the most cost-effective adaptation measures, contributing to Canada's broader climate adaptation goals. These efforts will strengthen the country's resilience to natural disasters and improve public safety across all regions.

3.8.5 Indigenous Science and Knowledge

Indigenous Knowledge Systems provide guiding principles and values that have developed over many lifetimes and serve as essential frameworks for decision-making on climate change. Indigenous Knowledge Systems are vast and diverse and cover a wide range of ethical, spiritual, legal, and epistemological frames to inform climate action, ambition, partnerships, and ways of being. Indigenous science is a culturally specific method of accumulating knowledge, refining hypotheses, and changing practices associated with the deep understanding that First Nations, Inuit, and Métis have of the natural world. Indigenous science is wholistic (a term used to describe the ecosystem as a whole), and deeply braids, or weaves, new information with a long-term perspective. Indigenous Knowledge Systems and Indigenous Science, with these embedded principles and values, urge Canada to focus its climate policies on restoring a holistic, respectful, and reciprocal relationship with Mother Earth, a relationship that has been essential to survival of Indigenous Peoples since time immemorial.

3.8.6 Monitoring, evaluation, and learning

Fundamental to the National Adaptation Strategy's adaptation policy cycle is building on past achievements and learning from past efforts to adjust and iterate over time. Despite the nascency and challenges around measuring adaptation, the importance of monitoring and evaluation is underscored by the inclusion of a robust national adaptation monitoring and evaluation framework and a commitment to continue refining the indicators needed to measure progress and to provide regular reporting to help inform future iterations of national adaptation policy development (see Section 3.6).

3.8.7 Collaboration, partnerships, and governance

Effective, efficient, and accountable horizontal and vertical governance mechanisms have been and continue to be strengthened to achieve results for adaptation across Canada. The level of collaboration required on adaptation spans all levels of government and across portfolios, both within and between departments at all levels of government. Collaboration and governance are essential to helping break down silos and mainstream adaptation and avoid maladaptive actions. Success in adaptation cannot be achieved without collaboration, partnerships, and strong governance.

Federal–Provincial–Territorial Environmental Governance

The Canadian Council of Ministers of the Environment (CCME) is an intergovernmental body that brings together representatives from federal, provincial, and territorial governments. Its primary objective is to facilitate discussions on national environmental priorities and drive collective action through cooperative efforts. The Climate Change Committee under the CCME plays a crucial role in enhancing coordination and alignment of adaptation policies across federal, provincial, and territorial governments.

3.8.8 Helping developing countries

Canada engages in multilateral forums to foster international collaboration on climate adaptation, including loss and damage. Through its engagement, Canada has sought to support effective and ambitious action on adaptation by sharing experiences and best practices with peer countries. Canada also provides significant support to developing countries as part of its climate finance commitment as detailed in Chapter 4 of this report.

Over the period covered by this Biennial Transparency Report, Canada has engaged in UNFCCC processes, actively contributing to the Paris Agreement's goals, including on adaptation. An outline of how Canada contributes to achieving the global goal on adaptation is provided in Section 3.9 of this chapter. In UNFCCC negotiations, Canada advocates for all countries to develop institutional capacity to plan and implement transformative adaptation action in a transparent and inclusive manner that encourages active participation of the people and communities on the frontlines of climate change, including women and girls in all their diversity, and Indigenous Peoples. Understanding countries in the Global South are experiencing impacts of climate change that are beyond the reach of adaptation action, Canada has engaged as a member of the Transitional Committee on Loss and Damage tasked to present recommendations at COP28 on the operationalization of the Fund for Responding to Loss and Damage.

3.9 Other information

The following section addresses paragraph 117 of the MPGs.

3.9.1 Global goal on adaptation

Canada's efforts on adaptation, as described throughout this chapter, contribute to achieving the targets in the UAE Framework for Global Climate Resilience. Federal government actions that support domestic progress towards targets on the thematic areas of human health, ecosystems and biodiversity, infrastructure, agriculture, and livelihoods are listed in Section 3.5 of this chapter. Canadian domestic work on adaptation for agriculture falls under the Economy and Workers system as outlined in the National Adaptation Strategy. Canadian domestic work on adaptation and water systems is related to the National Adaptation Strategy in the systems for Health and Well-Being, Natural Environments, and Infrastructure.

Regarding the UAE Framework targets related to the adaptation policy cycle, this chapter describes Canada's work on impacts, risks, and vulnerabilities (Section 3.2); national planning and instruments (Section 3.4); implementation (Section 3.5); and monitoring, evaluation, and learning (Section 3.6).

---

[1] Sawyer, D., Ness, R., Lee, C., & Miller, S. (2022). *Damage Control: Reducing the costs of climate impacts in Canada*. Canadian Climate Institute. https://climateinstitute.ca/wp-content/uploads/2022/09/Damage-Control_-EN_0927.pdf

[2] Public Safety Canada. (2024, April 3). *Disaster Financial Assistance Arrangements (DFAA).* https://www.publicsafety.gc.ca/cnt/mrgnc-mngmnt/rcvr-dsstrs/dsstr-fnncl-ssstnc-rrngmnts/index-en.aspx

[3] Molnar, M., Olmstead, P., Mitchell, M., Raudsepp-Hearne, C. & Anielski, M. (2021). Ecosystem Services. In F.J. Warren and N. Lulham (Eds.),; *Canada in a Changing Climate: National Issues Report (pp.265-344)*. Government of Canada.. https://changingclimate.ca/national-issues/chapter/5-0/

[4] Berry, P., Enright, P., Varangu, L., Singh, S., Campagna, C., Gosselin, P., Demers-Bouffard, D., Thomson, D., Ribesse, J., & Elliott, S. (2022). Adaptation and Health System Resilience. In P. Berry & R. Schnitter (Eds.), *Health of Canadians in a Changing Climate: Advancing our Knowledge for Action.* Government of Canada. https://changingclimate.ca/site/assets/uploads/sites/5/2022/02/CCHA-REPORT-EN.pdf

[5] Lemmen, D., Lafleur, C., Chabot, D., Hewitt, J., Braun, M., Bussière, B., Kulcsar, I., Scott, D. & Thistlethwaite, J. (2021). Chapter 7: Sector Impacts and Adaptation. In F. J. Warren & N. Lulham (Eds.), *Canada in a Changing Climate: National Issues Report* (pp.489-570). Government of Canada. https://changingclimate.ca/national-issues/chapter/7-0/

[6] Sawyer, D., Ness, R., Lee, C., & Miller, S. (2022). *Damage Control: Reducing the costs of climate impacts in Canada*. Canadian Climate Institute. https://climateinstitute.ca/wp-content/uploads/2022/09/Damage-Control_-EN_0927.pdf

[7] World Meteorological Organization (WMO). (2011). *Climate Knowledge for Action: A Global Framework for Climate Services – Empowering the Most Vulnerable* (WMO-No. 1065). The Report of the High-level Taskforce for the Global Framework for Climate Services. Geneva

[8] World Meteorological Organization. (2024). Early Warnings for All. https://wmo.int/activities/early-warnings-all#:~:text=Early%20warning%20systems%20are%20not,nearly%20tenfold%20return%20on%20investment

Chapter 4: Provision of financial, technological, and capacity-building support

4.1 Overview

As a party to the United Nations Framework Convention on Climate Change (UNFCCC), Canada is committed to the global fight against climate change. This includes providing climate finance, technology, and capacity building support to help developing countries mitigate and adapt to climate change and to support those most vulnerable to its effects. Canada is steadfast in its commitment to meet the objectives of the Paris Agreement, and to jointly mobilize, from a wide variety of sources, US$100 billion in climate finance per year through to 2025.

This chapter provides information on the climate finance that Canada has provided and mobilized over the calendar years 2021 and 2022, which totaled over $3.39 billion. This support, drawn from various sources, includes Canada's international climate finance commitments ($2.65 billion from 2015 to 2021 and $5.3 billion from 2021 to 2026), as well as other climate-relevant support to developing countries.

Beyond the climate finance it delivers, Canada plays a leadership role in improving transparency and encouraging further ambition among climate finance contributors. With Germany, and in close collaboration with contributors, Canada developed the Climate Finance Delivery Plan in 2021 and its Progress Report in 2022, to outline a common path forward towards meeting the US$100 billion goal and to take stock of progress. Since then, Canada and Germany have built on this work by co-authoring open letters providing periodic updates on climate finance delivery and efforts undertaken in priority areas, such as adaptation finance and private finance mobilization.

This chapter also provides information on the technological and capacity-building support provided during the reporting period, both from within and outside of Canada's climate finance program. To best adhere to the reporting guidelines, the activities are tagged to one of two categories, "Technology Transfer" or "Capacity Building". However, many of the activities include elements of both as capacity-building is crucial for ensuring successful technology deployment and sustained positive impacts over the long term.

4.2 National circumstances and institutional arrangements

The following sections address paragraphs 119 and 120 of the MPGs.

4.2.1 Information on national circumstances and institutional arrangements for the provision and mobilization of climate finance support

Canada rigorously tracks and reports its climate finance contributions from various sources to ensure a comprehensive and accurate representation of its climate finance flows. Canada applies a whole-of-government approach, whereby Environment and Climate Change Canada collects data from Government of Canada departments, as well as Crown Corporations and sub-national levels of government, to provide a holistic view of support provided and mobilized.

Canada's tracking and reporting of its climate finance adheres to international standards, including UNFCCC guidelines and, where relevant, requirements for Official Development Assistance (ODA) flows.

Projects funded under Canada's public climate finance commitment are selected through an investment planning process spearheaded jointly by Environment and Climate Change Canada and Global Affairs Canada. Recipients of funding are selected in accordance with UNFCCC Non-Annex 1 country eligibility requirements and adhere to ODA eligibility in accordance with Canada's *Official Development Assistance Accountability Act* (ODAAA). In line with the ODAAA, projects contribute to poverty reduction, consider the perspectives of the poor, and are consistent with international human rights standards.

Selected projects are subsequently assessed by environmental specialists in accordance with principles outlined in the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) Rio marker guidelines. Canada uses the Rio markers for Climate to identify and report climate finance projects as "principal" (i.e., entirely dedicated to climate) or "significant" (i.e., funded for other objectives but designed to meet climate concerns). Project activities and objectives are analyzed to attribute appropriate scoring on the Rio marker scale. For projects with the "significant" climate change marker, Canada counts 30% of the funding to the project as climate finance.

Projects must also integrate gender equality considerations and demonstrate alignment with the Climate Finance Program's Results Framework, which is used to track the outcomes of Canada's climate finance projects. Where relevant, projects should demonstrate alignment with the OECD-DAC blended finance principles. Projects are evaluated against these criteria during planning exercises.

Beyond its public climate finance commitments, Canada tracks and reports the climate share of its core contribution to multilateral institutions by applying the OECD's imputed multilateral shares for climate, where available. Where shares from the OECD are unavailable, Canada works with recipient multilateral institutions to compute a share of climate-relevant programming to apply to its core contribution. Canada also reports on climate-relevant investments by Export Development Canada (EDC) and Canada's development finance institution, FinDev Canada, by using the International Finance Corporation (IFC) Definitions and Metrics for Climate-Related Activities to identify eligible transactions and projects.

Through this whole-of-government approach, Canada maintains up-to-date internal records of climate finance provided and mobilized to inform public reporting exercises, both domestically and internationally. This includes data provision to the OECD to inform aggregate reporting on progress towards climate finance goals and to the Standing Committee on Finance to support the production of Biennial Assessments, as well as biennial (Biennial Reports, Biennial Transparency Reports) and quadrennial (National Communications) reporting exercises through the UNFCCC and Paris Agreement.

Data on climate finance is also provided for Government of Canada-wide reporting exercises where relevant, such as for the OECD's Total Official Support for Sustainable Development (TOSSD) survey, which tracks and encompasses all international assistance contributing to Sustainable Development Goals, including climate finance.

Environment and Climate Change Canada publishes information on projects funded through Canada's climate finance commitments on its climate finance project browser.[9] This includes information on project activities, outcomes and support provided and mobilized by year. Global Affairs Canada also publishes information on all international assistance projects funded by Canada on a separate project browser.[10]

Climate finance data tracking is an inherently complex undertaking, and Canada continues to identify ways to work through challenges. For example, Canada's climate finance disbursements are planned by fiscal year (April to March), rather than by calendar year, which is what is used to report under the Paris Agreement. Canada takes extra care to align its climate finance tracking and reporting practices across the two systems.

Additionally, climate finance in Canada, as in many countries, is not distributed from one single source. Several federal departments, crown corporations, and the province of Québec disburse funds, and even more shareholders and rightsholders play a role in programming. A holistic and transparent report of Canada's climate finance requires horizontal and vertical coordination among all these actors to track and consolidate data.

Canada strives to maximize the accuracy and comparability of its climate finance flows through sustained efforts towards improving practices. This includes the continued use of international standards such as Rio markers, imputed multilateral shares for climate, and the IFC Definitions and Metrics for Climate-Related Activities, to identify relevant activities and flows.

Beyond this, Canada works to improve the granularity of its climate finance reporting across sources, notably its public climate finance commitments. Since the publication of its Fifth Biennial Report (BR5) in 2022, Canada has updated its reporting methodology to more adequately capture the breadth of projects with both mitigation and adaptation objectives. The methodological change implicated projects coded with both a principal and significant climate change Rio marker. When attributing the type of support to projects with dual objectives, Canada previously attributed 100% of funding to the marker with the lead score. For example, projects coded with a principal adaptation marker and a significant mitigation marker were counted entirely as adaptation finance. Under the improved methodology, projects with dual markers have 70% of funding counted towards the lead marker and 30% towards the significant climate marker. This change in reporting is more accurate and better captures the nature of projects providing support for both mitigation and adaptation by accurately disaggregating funding by type of support at the project level.[11]

Canada also works to align its practices with those of other current climate finance contributors where possible, with the aim to improve harmonization in climate finance reporting.

4.2.2 Information on national circumstances and institutional arrangements for the provision of technology development and transfer and capacity building support

Canada's support for climate technology development and transfer and capacity building takes place largely through ODA funded projects under its climate finance envelope (as reported in Sections 4.4.2 and 4.4.3 of this chapter) through bilateral and multilateral channels.

Support for technology transfer and capacity building outside of the climate finance envelope is undertaken across the Government of Canada under the prerogative of individual federal departments and agencies and, unlike Climate Finance, is not coordinated through a central planning and implementation mechanism.

This reflects the reality that technology transfer and capacity building activities are embedded within the expertise of each department or agency, and the ability to undertake such activities is based upon what is possible within the mandate, resources, capacities, and legal parameters of each federal organization.

In 2023, Canada established an exercise to improve its tracking of technology transfer and capacity building support through the Total Official Support for Sustainable Development (TOSSD) Survey. To measure the full breadth of Canada's resources allocated to sustainable development in developing countries, Canada circulates a whole-of-government survey twice annually to implicated departments and agencies. To better track technology transfer support, survey administrators added a "technology development and transfer" field for respondents to indicate whether projects support the transfer of designs, inventions, materials, software, technical knowledge, research products, scientific findings, data, methods, etc. Respondents are also asked to indicate whether their projects support technical cooperation, which comprises activities whose primary purpose is to augment the level of knowledge, skills, technical know-how, or productive aptitudes of the population of developing countries (i.e., increasing their stock of human intellectual capital, or their capacity for more effective use of their existing factor endowment). This component of the survey tracks capacity building support provided by Canada.

Canada will aim to integrate results from this component of the survey in subsequent Biennial Transparency Reports to provide more granular information on the technology transfer and capacity building dimensions of Canada's climate finance support.

4.3 Underlying assumptions, definitions, and methodologies

The following sections address paragraphs 121 and 122 of the MPGs.

Canada's climate finance accounting captures sources, both public and private, of financing that seek to support mitigation and adaptation actions to address climate change. Canada considers public climate finance to be financial resources and instruments drawn from public sources, while private climate finance refers to financial resources and instruments drawn from private sources. For more information on private finance, refer to Section 4.3.2. Given the complexity and evolving nature of the international climate finance landscape, Canada is of the view that climate finance should be defined in a manner that is comprehensive to allow for effective implementation of the Paris Agreement. In line with this, Canada strives to apply a transparent approach to defining its climate finance by applying international guidelines and standards to robustly identify relevant flows and transparently report on them.

Canada recognizes the value in providing new and additional resources to support climate action in developing countries. Financial support beyond what was planned prior to the entry into force of the United Nations Framework Convention on Climate Change and the 2009 Copenhagen Accord is considered to be new and additional by Canada. Canada continues to undertake efforts to scale up the volume of climate finance it provides and mobilizes. Notably, climate finance provided through Canada's public climate finance commitment represents new and additional resources. The $5.3 billion public climate finance commitment (2021 to 2026) represents a doubling from Canada's previous $2.65 billion public climate finance commitment (2015 to 2021).

Canada's international climate finance aims to effectively address the needs and priorities of developing countries. It supports the transition to sustainable, low-carbon economies by strengthening their capacity to align with their own country-driven priorities, in line with Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs). Projects supported by Canada respond to the adaptation and mitigation needs of the people and communities that are most vulnerable to climate change, particularly those living in least developed countries (LDCs), small island developing states (SIDS) and coastal communities. Canada's climate finance is delivered through a range of financial instruments and channels to address the complex set of needs and priorities of developing countries across sectors and regions to ensure transformational and efficient delivery of climate finance, and to maximize access to finance.

Canada tracks the results of its climate finance investments by measuring the number of megatonnes of GHG emissions reduced or avoided, as well as the number of people benefitting from Canada's adaptation finance in developing countries. This approach to outcome measurement is centered around results that illustrate tangible benefits to developing country recipients; however, there are a broader range of climate-positive outcomes not captured under this approach which are considered through qualitative analysis.

More broadly, climate finance provided and mobilized by Canada aims to enable progress towards the long-term goals of the Paris Agreement, as outlined in Article 2. As such, the delivery of climate finance to developing countries is part of wider efforts to incentivize a whole-of-economy transformation

towards a future in which all financial flows are consistent with low greenhouse gas emissions and climate-resilient development. Beyond climate finance provision and mobilization, success in achieving the long-term goals of the Paris Agreement will depend on progress towards this overarching shift.

4.3.1 Notes on Common Tabular Format elements

In reporting climate finance dates through the Common Tabular Format (CTF) for the First Biennial Transparency Report, Canada applied the following methodologies and assumptions to various parameters:

Reporting date range: Data reported in this First Biennial Transparency Report covers climate finance provided and mobilized during the calendar years 2021 and 2022.

Status: Canada reports climate finance at the disbursement stage, except for transactions from FinDev Canada, which are reported on a commitment basis. FinDev Canada defines a commitment as a firm written obligation to provide resources of a specific amount under specified financial terms and conditions and for specified purposes. FinDev Canada transactions cover those committed to during the calendar years 2021 and 2022; funding will be disbursed over future years. Disbursements record the transfer of financial resources and are defined as the release of funds to a recipient or implementing partner; by extension, the amount spent.

Conversion to USD: Canada uses OECD exchange rates to convert funding amounts from CAD to USD for the purposes of this report. The rate applied for 2021 was 1.254 and the rate for 2022 was 1.302.

Delivery channel: Projects listed in the CTF tables are labeled as having been delivered through either bilateral or multilateral channels. Bilateral funds are channeled to bilateral partners and specific countries, while multilateral funds are delivered to multilateral organizations and not channeled to a specific country. Multi-bi funds are listed under bilateral support and are intended for a specific program and/or countries, but channeled via multilateral institutions (e.g., World Bank), in contrast to core contributions to multilateral organizations. Examples of multi-bi programming include Canadian facilities at multilateral development banks, such as the Canada-International Finance Corporation Blended Finance Program, and the Canadian Climate Fund for the Private Sector in Asia.

Funding source: Projects reported in this Biennial Transparency Report are identified as sourced either through Official Development Assistance (ODA) or Other Official Flows (OOF). Canadian ODA is defined in the *Official Development Assistance Accountability Act*. This definition is compatible with the international definition created by the DAC of the OECD. When support does not qualify as ODA, it is classified as OOF.

Financial instruments: Canada uses a blend of financial instruments to deliver its climate finance, including grants, concessional loans, equity, among others, in line with UNFCCC commitments. All instruments are reported at face value.

Type of support: Canada defines a climate project as a project with one of the following objectives or co-benefits: mitigation, adaptation, and cross-cutting. Canada’s definition of these sectors is based on those defined by the OECD-DAC. When funded activities support both adaptation and mitigation equally, support is identified as "cross-cutting" programming. Sectors are determined at a project level for bilateral contributions using OECD-DAC definitions.

Multilateral finance: Canada reports on the funds it disburses to multilateral institutions (i.e., its inflow contributions). Multilateral contributions are reported as “climate-specific” where the OECD-DAC

imputed share for the organization is available or if the contribution has a “principal” climate change marker based on the OECD-DAC Rio Markers for Climate. Contributions are reported as “core/general” if the imputed share of the organization is not available, but its portfolio includes some amount of climate finance and climate-related activities. Where a multilateral institution delivers climate support as part of its programming, but the OECD-DAC does not provide values for climate-related imputed shares, Canada works in consultation with the relevant organization to determine the climate-specific share of its contribution.

Avoiding double counting: In line with best international practice, Canada tracks climate finance delivered through bilateral, regional, and other channels at the project level. This level of granularity allows for a comprehensive picture of Canada’s climate finance and avoids double counting public flows. Where such a project involves multiple recipient countries, Canada lists the recipients and provides the total amount disbursed, as opposed to country-by-country reporting. In attributing climate-specific shares of funding for multilateral contributions, Canada uses inflow data to multilateral organizations only.

4.3.2 Private finance mobilization

Beyond its public international finance flows, Canada reports on private finance mobilized, which includes financial resources from private entities that have been mobilized as a direct result of an intervention by an official actor. Key criteria for counting mobilized private finance include causality and additionality. In terms of causality, there must be a clear causal link between the official intervention and the mobilization of private finance. The intervention must be a significant factor in the decision of private actors to invest. When determining additionality, the private finance mobilized must be additional, meaning that it would not have been invested without the official intervention. This criterion ensures that the reported mobilized finance represents genuinely new resources for development purposes.

When accounting for private finance mobilized, Canada follows the OECD-DAC's guidelines, which establishes a framework that all official actors must follow. These guidelines provide a standardized approach to measuring and reporting mobilized private finance. One of the key features of the OECD-DAC methodologies is that all official actors involved in a transaction receive credit for mobilized private finance according to their level of risk and amount invested, thereby ensuring there is no double counting. Furthermore, the OECD-DAC collects data on mobilized private finance centrally. This centralized approach allows for cross-checking and validation of reported data to identify and correct any potential double counting.

4.3.3 Technology transfer

The data collection exercise for this report approached technology transfer in line with the definition used in the IPCC Special Report on Methodological and Technological Issues on Technology Transfer (SRTT).[12] This defines the term ‘technology transfer’ as *“*a broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change” (IPCC). However, as required by the BTR guidelines, this report restricts the activities to flows from the Government of Canada not other sources as addressed by the IPCC.

The IPCC definition also sets out a useful expansion on the process which “comprises the process of learning to understand, utilize and replicate the technology, including the capacity to choose and adapt to local conditions and integrate it with Indigenous technologies”.[13]

4.3.4 Capacity building

Canada's approach to reporting on Capacity Building aligns with the definition as laid out in Paragraph 1 of Article 11 of the Paris Agreement: *"*Capacity-building should facilitate technology development, dissemination and deployment, access to climate finance, relevant aspects of education, training and public awareness, and the transparent timely and accurate communication of information". In UNFCCC negotiations related to Capacity Building, Canada supports transparent, needs-based, country-driven approaches that prioritize the specific challenges faced by developing countries.

Information collection on both tech transfer and capacity building activities for this report were undertaken leveraging the Government's Director General Climate Plan Implementation Committee (DG CPI). Using this Committee ensures reach to all relevant departments and agencies engaged in climate change activities in implementing the Government of Canada's climate agenda. Members of this committee (consisting of 18 or more departments and agencies) were provided with templates to provide information aligned with the requirements in the relevant CMA decision for the ETF and the ETF guidance document.

4.4 Financial support provided and mobilized under Article 9 of the Paris Agreement

The sections that follow address paragraphs 123, 124, and 125 of the MPGs.

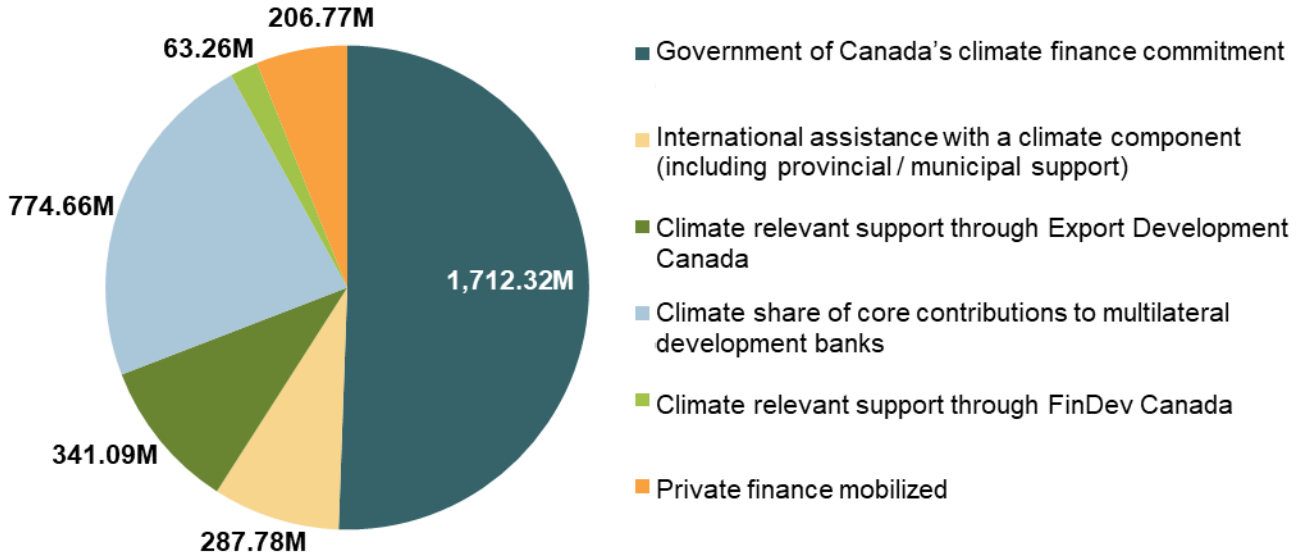
4.4.1 Overview of Canada's climate finance

Canada's climate finance support over 2021 and 2022 totaled over $3.39 billion from all sources. This support, drawn from various sources, includes Canada's public finance commitments ($2.65 billion from 2015 to 2021 and $5.3 billion from 2021 to 2026), as well as international assistance with climate elements, core contributions to multilateral development banks (MDBs) providing climate support, climate investments mobilized from the private sector through public finance in developing countries, and innovative climate resources, such as climate investments through Export Development Canada (EDC) and FinDev Canada.

This includes:

- $1.71 billion from Canada's $2.65 billion (delivered between 2015 and 2021) and $5.3 billion (being delivered between 2021 and 2026) climate finance commitments;
- $287.78 million from Canada's international assistance with a climate change component, which includes support from subnational governments;
- $774.66 million in core contributions to multilateral development banks (MDBs);
- $341.09 million in support delivered through Export Development Canada (EDC);
- $63.26 million in climate support from FinDev Canada; and,
- $206.77 million in private finance mobilized from Canada's public investments.

Figure 4-1 Canada's total climate finance delivered over 2021 and 2022, by source ($ millions)



4.4.1.1 Canada's public climate finance commitment

Building on its previous $2.65 billion climate finance commitment (2015 to 2021), Canada announced its five-year (2021 to 2026) $5.3 billion climate finance commitment in 2021. This commitment features four main thematic areas to guide programming: clean energy transition and coal phase-out, climate-smart agriculture and food systems, nature-based solutions and biodiversity, and climate governance.

In addition to thematic areas, Canada's $5.3 billion climate finance commitment includes the following policy targets:

- 40% of funding towards adaptation to help developing countries build resilience to climate change impacts;
- A minimum of 20% of funding to projects that leverage nature-based climate solutions and projects that contribute biodiversity co-benefits; and,
- 80% of projects that integrate gender equality considerations, in line with Canada's Feminist International Assistance Policy.

Through this commitment, Canada is also increasing its proportion of grant funding up to 40%, from 30% previously.

Increasing support for adaptation

Canada recognizes the need to support developing countries, particularly the poorest and most vulnerable, in their efforts to build resilience to climate change impacts. That is why Canada's $5.3 billion commitment is bolstering support for adaptation action by increasing its provision of funding towards adaptation to a minimum of 40%. This represents a more than doubling of funding for adaptation relative to Canada's previous public commitment. This funding plays an important role in contributing to the COP26 Glasgow Climate Pact's urging for developed country Parties to at least

double their collective provision of climate finance for adaptation to developing country Parties from 2019 levels by 2025.

Examples illustrating the type of initiatives supported by Canada's adaptation funding are outlined in sections below.

Leveraging nature-based solutions and biodiversity co-benefits

Canada recognizes that the climate and biodiversity crises are interconnected and aims to support positive nature outcomes through its climate finance. To support developing countries in the fight against the dual crises of climate change and biodiversity loss, Canada is allocating at least 20% of funding to projects that leverage nature-based solutions and projects that deliver biodiversity co-benefits.

For example, Canada is providing $10.3 million to the On-Air for Gender-Inclusive Nature-based Climate Solutions project in collaboration with Farm Radio International. This project supports the creation of a common understanding across Sub-Saharan Africa of what nature-based solutions (NbS) are for climate adaptation, using Farm Radio International's wide radio network and its innovative approaches to design, produce and air gender-responsive, interactive, and local radio programs. It also supports local sub-Saharan African communities, particularly women and youth, in implementing NbS (such as fruit tree forests for wind protection and food security or mangrove rehabilitation for erosion and storm protection). The High Impact Radio Series partners with 20 radio stations to produce broadcasts in Burkina Faso, Côte d'Ivoire, Ethiopia, Ghana, Uganda, and Zambia. The project aims to help local communities, particularly the hardest to reach, address their climate adaptation needs.

Gender equality and empowerment of women and girls

Canada's public climate finance prioritizes gender responsiveness, reflecting the Government of Canada's Feminist International Assistance Policy, which puts gender equality and empowering women and girls at the heart of its international assistance efforts. This policy considers women and girls as powerful agents of change to advance climate action and address biodiversity loss, environmental degradation, pollution, and other environmental concerns. Canada's feminist approach to environment and climate action focuses on supporting women's leadership and decision-making in all aspects of climate action and sustainable natural resource management, ensuring climate-related planning, policymaking and financing address the needs and challenges of women and girls, supporting employment and business opportunities for women in the renewable energy sector. Canada is ensuring that at least 80% of projects funded through its public climate finance commitment integrate gender equality considerations.

Project examples detailed throughout Chapter 4 illustrate the mainstreaming of gender considerations in Canada's climate finance.

Supporting locally led solutions and Indigenous climate leadership

Canada recognizes the importance of locally led solutions and that leadership from those on the frontlines of climate change is important to achieve effective climate action.

In line with this and as part of its public finance commitment, Canada is allocating $315 million to the Partnering for Climate initiative to fund projects from civil society, Indigenous Peoples and other organizations in Canada that will support climate change adaptation in Sub-Saharan Africa and other parts of the world. Funding for this initiative was announced in 2022. Of this funding, $300 million is

dedicated to supporting projects that use nature-based solutions to help countries, communities and people in Sub-Saharan Africa, a particularly climate-vulnerable region, become more resilient to the impacts of climate change. A further $15 million supports Indigenous Peoples Partnering for Climate, which was co-designed with representatives of national Indigenous organizations in Canada. This initiative emphasizes the importance of Indigenous climate leadership and seeks to foster partnerships between Indigenous Peoples that build the climate resilience of Indigenous Peoples in developing countries.

Enhancing access

Canada acknowledges the increasingly complex nature of the climate finance architecture, where significant barriers impeding access to climate finance for developing countries remain. This issue was highlighted in the Climate Finance Delivery Plan Progress Report in 2022 as one of the areas where more concerted action is needed. Canada is committed to continue working with a wide variety of stakeholders, such as the operating entities of the Financial Mechanism of the UNFCCC and the Paris Agreement, as well as MDBs, to address barriers to access, including by simplifying processes and enhancing the coherence of the wider climate finance system.

Canada is also prioritizing improved access through its public climate finance commitment. This includes providing direct support to initiatives designed to improve access, notably in small island developing states (SIDS) and least developed countries (LDCs), which face challenges due to insufficient human resources and technical capacity required to unlock climate funding. For example, Canada partnered with the Rocky Mountain Institute to launch the Climate Finance Access Network (CFAN) in 2020 and made an additional contribution in 2022 to expand the network. CFAN is a global network of climate finance advisors that help developing countries build their capacity to structure and secure public and private finance for their priority climate investments. Canada disbursed its $9.5 million pledge to CFAN in 2021 to support the launch of CFAN, notably for Pacific SIDS, and expand the network to the Caribbean. Canada has since pledged an additional $5.25 million to CFAN under its $5.3 billion commitment. Since then, CFAN has deployed advisors in 17 Pacific and Caribbean countries and three regional entities and has grown a pipeline of over 90 projects worth over $750 million, including over $60 million mobilized from various funding sources.

In addition, Canada recognizes the importance of grant funding in facilitating access to climate finance for the most vulnerable recipients. In line with this, as part of its $5.3 billion commitment, Canada is increasing its proportion of grant funding up to 40%, from 30% previously.

4.4.1.2 Mainstreaming climate in international assistance

Beyond its public climate finance commitment, Canada works to mainstream climate considerations into its development assistance. Canada seeks to ensure that international development funding to developing countries can help address climate change and its impacts, recognizing that climate change and biodiversity loss are inextricably linked to poverty, global security, financial stability, humanitarian issues and pandemics. This is consistent with the 2030 Agenda for Sustainable Development, particularly the Sustainable Development Goal (SDG) 13: taking urgent action to combat climate change and its impacts.

Over 2021 and 2022, $287.78 million of Canada’s international assistance was delivered with a climate change component. For example, in 2021, Canada disbursed $825,000 for Improved Rural Women Nutrition in Egypt. The project worked to improve equitable access to gender-sensitive, nutritious food for populations from 10 of the poorest villages in the Minya Governorate affected by the COVID-19 pandemic. Project activities included: reducing COVID-19 related barriers to carrying out smallholder

horticultural production and enhancing food system resilience, as well as persistent environmental and future climate change challenges; providing rural women, their households and communities, with improved access to efficient climate-smart agriculture practices and technologies. The project helped set up 20 greenhouses and tunnels that are making produce available all year round to ensure that the women were able to not only sell the produce to generate income but also improve nutritional outcomes.

Core contributions to MDBs

Multilateral development banks (MDBs) play a critical role in the global climate finance landscape and in supporting the transition towards low-carbon, climate-resilient and sustainable development. Canada's core contributions to MDBs help support climate action through a wide array of climate programming at various banks.

MDBs continue to work to increase their delivery of climate finance, notably reporting significant increases in total climate finance commitments for low- and middle-income economies in recent years, surpassing in 2022 the climate finance targets to 2025 previously set at the United Nations Secretary General's Climate Action Summit in 2019. In addition to being an important channel for public finance, MDBs are also a key mechanism to mobilize private finance. Canada continues to encourage MDBs to scale up the delivery of climate finance and improve private finance mobilization, and works with them to enable transformational change, such as the alignment of their operations with the goals of the Paris Agreement.

Over 2021 and 2022, Canada provided an estimated $774.66 million in climate-related imputed core contributions to MDBs that are increasing support towards climate change. This funding extends beyond Canada's climate finance commitment, to capture the relevant climate share of core support to these institutions.[14]

4.4.1.3 Climate-relevant support through FinDev Canada

The private sector plays a crucial role in achieving the scale of investment required for a successful transition to low-carbon economies, and development finance institutions (DFIs) were a key element in mobilizing resources and bridging the financing gap towards the achieved US$100 billion goal.

As Canada's DFI, FinDev Canada supports development through the private sector by providing a range of financing and investment solutions to mobilize private capital in and into emerging markets and developing economies, in alignment with Paris Agreement commitments and the Sustainable Development Goals (SDGs). Alongside gender equality and market development, climate and nature action is one of FinDev Canada's three development impact priorities, and currently, more than a quarter of all FinDev Canada's financial commitments support climate finance in one of the institution's priority sectors, including the financial industry, sustainable infrastructure, and the agribusiness and forestry value chains.

This aligns with FinDev Canada's investment strategy, focused on contributing to a low-carbon, climate-resilient, and nature-positive economy. The strategy allowed the institution to achieve a net negative GHG emissions portfolio in 2021, and these efforts have continued, assisted by the corporation's Climate Change Strategy, which also aims to address the nexus between gender and climate by including a gender lens to its portfolio decisions, conducting gender assessments and collaborating closely with its clients to identify opportunities to enhance gender inclusion and diversity practices.

As a concrete example, FinDev Canada is supporting Miro Forestry & Timber Products in enhancing its gender action plan, to enable the company to meet its ambitious target associated with providing quality jobs for women in Ghana and Sierra Leone. The company has a significant climate mitigation impact as it has reforested more land in Africa than any other organization over the past five years, with over 20 million trees planted over 20,000 hectares of degraded land.

Another example is the institution's work with IDB (Inter-American Development Bank) Invest to invest US$80 million dollars to support the launch of the region's second private sector blue bond, an innovative structure that crowd in financing to projects linked exclusively to the conservation of the ocean.

4.4.1.4 Climate-relevant support through Export Development Canada

Canada's efforts to scale up climate finance includes climate-related investments in developing countries by Canada's export credit agency, EDC. Over 2021 and 2022, EDC provided $84.9 million and $256.2 million respectively in climate finance support as part of the Government of Canada's commitment to the United Nations Framework Convention on Climate Change, which is directed to low-carbon or carbon-resilient transactions in developing countries. The increase in 2022 was a result of signing more high-value renewable energy financing contracts in 2022.

Export credit agencies can advance global efforts to address climate change by spurring investments in climate activities around the world. To this end, EDC supports the Government of Canada's efforts by supporting investments in the global transition to a low-carbon economy in line with the objectives of the Paris Agreement. Climate-relevant investments by EDC actively support clean technology deployment abroad and provide distinctive financing in areas such as water treatment, energy efficiency, the waste-to-energy sector, renewable energy generation, and smart-grid infrastructure. EDC's climate finance support consists of various financing solutions, including larger scale corporate lending, structured and project finance solutions, and smaller scale buyer financing. EDC is striving to improve its tracking and reporting methodology as it continues to improve its understanding of the impact of indirect financial solutions (e.g., guarantees and insurance) on climate and how these may be more accurately counted as climate finance going forward.

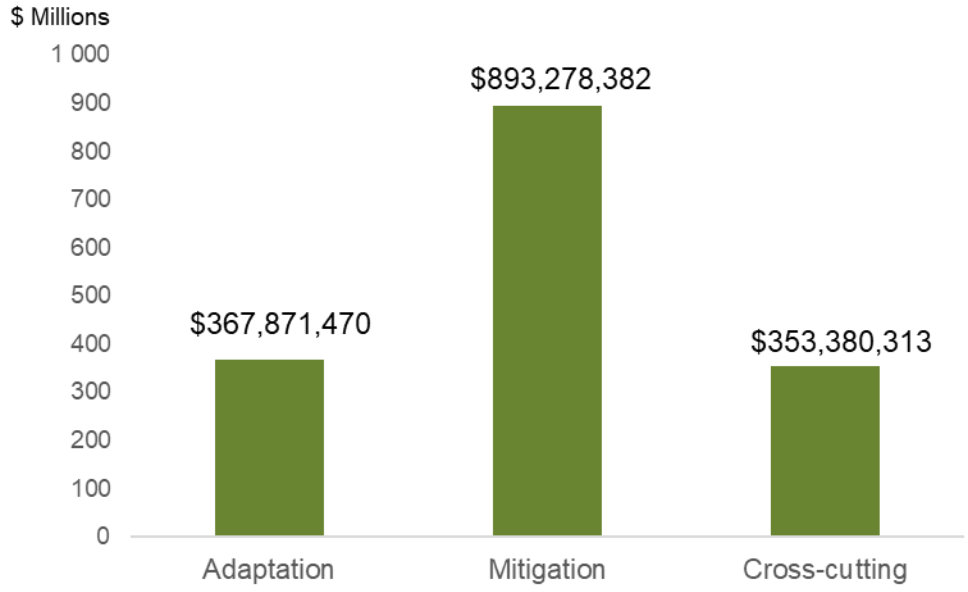
Green bonds are another growing financing vehicle used to drive private climate finance. EDC has been issuing green bonds since 2014 and was the first Canadian financial organization to do so. Funds raised by those green bonds have financed nearly 30 transactions worth more than $2 billion in a range of sectors, each contributing to environmental protection or climate change mitigation. As appropriate, EDC will include qualifying climate finance eligible investments in its green bond issuances. Furthermore, in 2022, EDC released a new, third-party reviewed Sustainable Bond Framework to enable greater support for initiatives that create a more equitable and sustainable world.

4.4.2 Bilateral, regional, and other channels

Canada's climate finance is delivered as mitigation, adaptation and cross-cutting support. Climate finance delivered through bilateral, regional and other channels funds projects which support programming in a variety of sectors, including agriculture, energy, forestry and disaster risk reduction.

In 2021 and 2022, Canada provided a total of $1.614 billion in bilateral climate finance support. Of this, $367.87 million was allocated for adaptation, $893.28 million was allocated for mitigation, and $353.38 million was allocated for cross-cutting projects.

Figure 4-2 Bilateral climate finance by type of support, 2021 and 2022



Over 2021 and 2022, Canada provided targeted bilateral climate funding to 87 developing countries across a wide variety of geographies. Canada also provided regional support to Asia and the Pacific, Latin America and the Caribbean, and Africa, through support for projects such as the **Women-led Coal Transition Mechanism** (of which $15 million was disbursed in 2022), which is providing support for Indonesia, India, South Africa and the Philippines. Various other countries are benefitting from Canada's support through multilateral funds, such as the **Green Climate Fund** and the **Global Environment Facility.** For example, as of June 2022, the Global Environment Facility had a presence in 144 countries and by the end of 2022, the Green Climate Fund was supporting projects in 107 countries.

Figure 4-3 Geographic spread of Canada's targeted bilateral climate funding, 2021 and 2022

4.4.2.1 Mitigation support

International collaboration is critical to ensure that the world's future energy needs are met on a sustainable basis and in line with the Paris Agreement. Recognizing the need to support the energy transition ambition of developing countries, clean energy transition and coal phase-out is one of the key priorities of Canada's climate finance. Canada is working with developing countries to boost investment and cooperation in clean technology innovation to promote affordable, reliable, and sustainable energy access for all, to support mitigation efforts.

For example, Canada is providing $15 million (of which $3.5 million was delivered in 2021 and $3.6 million was delivered in 2022) to the **Climate Change Action for Gender-Sensitive Resilience** project, in collaboration with the United Nations Development Programme. This project worked to advance the development and implementation of national climate change adaptation plans and climate change mitigation actions in nine Caribbean countries: Antigua and Barbuda, Belize, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines, and Suriname. It also developed and implemented plans and actions in sectors that greatly benefit women and girls such as agriculture and tourism. The objective of the project was to strengthen governance related to national climate change planning and to involve women in this planning. In this way, project proposals to access climate finance were not only technically sound but also gender responsive. By the end of 2022, this project had completed sector-level national adaptation plans (NAPs) and Nationally Appropriate Mitigation Actions (NAMAs) for seven countries, which included explicit gender equality and poverty reduction outcomes, impact indicators, and targets. It also completed analyses of social protection systems' responsiveness to shocks (disasters) for five countries and trained 60 individuals across sectors and agencies in applying and using resilient recovery systems.

In addition, Canada is providing $19.9 million (of which $372,630 was delivered in 2021 and $3,186,194 was delivered in 2022) to **the Sustainable Economic Development Through Renewable Energy in Jordan** project, in partnership with Cowater International, Inc. This project worked to improve the livelihoods of 150,000 women, men, and their families in poor communities of the Ajloun and Jordan Valley (Deir Alla) regions in Jordan through the introduction of renewable energy and energy efficiency (REEE) solutions in households. It supported improved skills and employment prospects, particularly for women and youth, in Jordan's renewable energy sector and strengthened the enabling environment for accelerated growth in this sector.

By the end of 2022, the project reported increased use of REEE solutions in the region, resulting in the cumulative emissions reduction of 11,134 t CO_2 eq (equivalent to 3,411 passenger vehicle emissions in one year), surpassing its target of 6,24 t CO_2 eq. The project also conducted REEE awareness-raising activities, reaching 103,000 people, including more than 24,000 school children. The project also helped 315 beneficiaries (191 men and 124 women) find employment opportunities or to become self-employed. It did so by enhancing their knowledge and skills to better suit the needs of the REEE sector, established linkages with employers, arranged interviews and job fairs, and created internship opportunities.

In addition, Canada is providing $20 million (of which $2.04 million was disbursed in 2022) from its $5.3 billion climate finance commitment in bilateral **support for the implementation of developing countries' Nationally Determined Contributions (NDCs)**. The funding supports four countries in West Africa: the Gambia, Ghana, Liberia and Togo. Implemented by a Canadian non-profit organization NovaSphere, Canada's financial support aims to strengthen domestic capacity to plan, scale and accelerate the implementation of country-driven climate priority actions that will support achievement of their NDC and the goals of the Paris Agreement. In 2022, project activities focused on domestic priority setting; identification of potential pilot project activities for implementation; and stakeholder engagement to support governance at different levels of government, and regular stakeholder dialogue.

Canada also partners with Multilateral Development Banks (MDBs) to advance global climate action through targeted climate finance programs. For example, through the World Bank Group (WBG), Canada funds a wide range of climate programs focused on energy transition, sustainable agriculture, and climate-resilient infrastructure. This includes a significant contribution of $400 million in 2022 to the Climate Investment Funds Accelerating Coal Transition (CIF-ACT), which backs renewable energy initiatives in developing countries.

4.4.2.2 Adaptation support

Canada recognizes that support for climate change adaptation is critical for developing countries, particularly the poorest and most vulnerable, as they face climate shocks and other changes with profound impacts on agriculture, infrastructure and well-being. That is why Canada is committed to enhancing the adaptive capacity of vulnerable communities and countries in responding to the impacts of climate change, including through its bilateral and regional support.

For example, Canada is providing $5 million (of which $900,000 was delivered in 2021 and $2,850,000 was delivered in 2022) to the **Advancing National Adaptation Planning in Developing Countries** project, in collaboration with the International Institute for Sustainable Development. This project was a part of a multi-donor, global initiative that aimed to reduce vulnerability to climate change for women and men, by improving the quality and integration of gender equality into national adaptation planning and action in developing countries.

As of March 2022, five Sub-Saharan African (SSA) countries (Central African Republic, Chad, Côte d'Ivoire, Ghana, and Kenya) and two small island developing states (SIDS) (Dominican Republic and the Republic of the Marshall Islands) had improved the quality and integration of gender equality in their National Adaptation Plans. In addition, four SSA countries (Côte d'Ivoire, Kenya, Somalia, and South Africa) and two SIDS (Grenada and the Republic of the Marshall Islands) had improved their capacity to develop and manage climate-related policy and programmes.

In addition, Canada is providing $7 million (of which $150,000 was delivered in 2021 and $2,100,000 was delivered in 2022) to the **Supporting Gender-Centered Climate Resilience in Africa** project implemented by the African Development Bank Group. This project contributes to the Africa Climate Change Fund and focuses on gender equality and climate action in Africa. Funding supports small-scale, climate-resilient projects aimed at increasing women's economic empowerment and initiatives that enhance women's participation in climate negotiations in countries across Africa. The project beneficiaries include women entrepreneurs and their communities as they adapt to climate change, government officials working on climate change strategies and negotiations, and stakeholders seeking to integrate gender equality considerations into the NDC process. By the end of 2022, seven of the ten projects selected through the call for proposals had begun implementation; 18 guideline notes on Gender-transformative Climate Change Adaptation were developed; and two extensive workshops in English and French on Gender-transformative Climate Change Adaptation were carried out with 35 participants (16 of them women) from 26 countries.

Canada is also making significant efforts to support projects that contribute to adaptation while leveraging nature-based solutions to protect oceans and make coastal communities more resilient. For example, Canada is contributing $9 million to the **Ocean Risk and Resilience Action Alliance (ORRAA)** (of which $1,187,860 was delivered in 2021 and $2,540,000 was disbursed in 2022) to support their ongoing work helping Small Island Developing States and coastal developing countries invest in projects that strengthen coastal communities in the Global South through innovative finance and insurance solutions. These solutions may include protecting fishers from extreme weather or funding mangrove restoration with carbon credits, for example. Canada is a founding partner of ORRAA, and this additional support builds on its previous $2.5 million contribution from the $2.65 billion climate finance commitment (2015 to 2021). Under Canada's contribution, ORRAA issued a Call for Proposals to identify 10 locally led projects to support, aiming to strengthen the resilience and adaptive capacity of vulnerable coastal communities in the Global South through finance and insurance products. The projects that ORRAA is managing are deploying an array of activities, including scoping and feasibility studies and pilot testing/implementing novel financing solutions integrated with conservation/blue carbon activities, capacity building, research, gender focus, policy engagement and public/private partnerships. Canada's support also enabled ORRAA to begin the scoping of the Sea Change Impact Financing Facility (SCIFF), an open platform that aims to drive at least US$1 billion of private investment into coastal and ocean ecosystems by 2030, a springboard from which to mobilize at least US$2.5 billion of broader finance capital.

4.4.2.3 Cross-cutting support

Cross-cutting climate change activities can integrate both mitigation and adaptation components and other co-benefits, such as biodiversity and gender equality, towards a sustainable pathway to development.

For example, Canada is providing $2 million (of which $577,837 was delivered in 2021 and $330,919 was delivered in 2022) to the **Building Community Resilience to Climate Change in Senegal** project with the Jane Goodall Institute. This project worked to improve rural communities' resilience to climate

change, especially for women, in the Kedougou region of Senegal. By distributing fonio (a type of heritage grain) seeds and agriculture inputs to 882 women in targeted villages, constructing fonio husking machines and storage spaces in communities, the project has increased the practice of climate-smart agriculture in the region. The project also increased women's roles in decision-making for sustainable livelihoods by providing training to women and community members on gender equality, governance and management structures, planting techniques, biomass briquette production, storage and sustainable forest management, and bush fire prevention. The project resulted in the planting of 3,125 wild trees and the distribution of 1,400 fruit trees to 690 community members (69% of them women), including baobab, guava, and mango trees to promote agroforestry and the use of indigenous tree species to enhance forest carbon sinks.

In addition, Canada is providing $4.5 million (of which $2,000,000 was delivered in or 2022) to the **Accelerating Green & Climate Finance in the Philippines** project, in partnership with the United Nations Development Programme. This project, which began in 2022, aims to improve the resiliency and environmental security of Filipino women and vulnerable communities through support for the climate financing environment in the Philippines. The project is working to create an ecosystem for innovative financing, address capacity gaps and strengthen monitoring and reporting on the Sustainable Development Goals (SDG) impacts of green and climate investments. The project is training finance institutions to design and incorporate gender-responsive and green and climate-related policies in their lending programs. These include the Department of Finance, Central Bank of the Philippines, Climate Change Commission, Department of Environment and Natural Resources, Securities and Exchange Commission, and Public Private Partnership Center.

4.4.3 Multilateral channels

In addition to bilateral and regional programming, Canada delivers climate finance through various multilateral channels. Canada's climate finance support through multilateral channels in 2021 and 2022 was mainly delivered through core contributions to multilateral organizations with a wide variety of activities. In 2021 and 2022, Canada contributed to the Green Climate Fund (GCF), Global Environment Facility (GEF), Adaptation Fund (AF), through the province of Québec, the Least Developed Countries Fund (LDCF), and the Montreal Protocol Multilateral Fund. Canada also provided support to multilateral financial institutions, regional development banks and specialized United Nations bodies.

Over 2021 and 2022, Canada notably disbursed $250 million to the GCF. The funds provided are part of Canada's $600 million pledge to the GCF for the Fund's initial resource mobilization (2015 to 2019) and first replenishment period (2020 to 2023). The GCF is the world's largest international climate fund dedicated to helping developing countries in their climate action.

As of July 2024, the GCF's portfolio included 270 projects with an expected total of US$58.7 billion, of which the GCF has committed US$14.9 billion in funding. The GCF's portfolio is currently composed of 57% public sector projects and 43% with the private sector. The GCF continues to program 50% of its adaptation support to least developed countries, small island developing states, and African States. Recent GCF funding approvals have shifted the Fund's overall profile to slightly more funding towards adaptation (55%) relative to mitigation (45%), in nominal terms.

As of October 2022, the GCF had received 131 adaptation planning proposals for the formulation of National Adaptation Plans and/or other adaptation planning processes under the GCF Readiness Programme. From mid-2018 to November 2022, 23 countries requested and received technical assistance to prepare adaptation planning proposals.

For example, the GCF is implementing a project with the goal of transforming agriculture in the Indus Basin by increasing resilience among the most vulnerable farmers and strengthening government capacity to support communities to adapt. With GCF grant funding of US$35 million and a total project value of US$47.7 million, this project is developing the country's capacity to use the information it needs to adapt to the impacts of climate change on agriculture and water management by putting in place state-of-the art technology. It builds farmers' climate resilience through skills, knowledge and technology enhancement activities while creating a wider enabling environment for continuous adaptation. The project is expected to directly benefit 1.3 million people, and another 16 million indirectly over its 10-year lifespan.

Canada also contributed $886,393 in 2021 and $19,056,180 in 2022 to the Montreal Protocol Multilateral Fund. The goal of the Montreal Protocol is the phasing out of ozone depleting substances (ODS) used in refrigeration, air-conditioning, aerosols, agriculture, and other sectors that contribute to the depletion of the ozone layer and global temperature rise. Phasing out ODS chemicals is one of the most important steps ever taken to curb climate change. Emissions avoided by eliminating ODS have a positive social and economic impact, saving trillions of dollars in recovery efforts by averting potential storms, heatwaves, wildfires, droughts, and other climate-related natural disasters. Between 1995 and 2021, 51.1 Gt CO_2 eq were avoided by developing countries thanks to the Montreal Protocol. This is approximately 1.4 times the global 2022 carbon dioxide emissions from energy combustion and industrial processes. Based on the Multilateral Fund's aggregated disbursement of US$3.63 billion until 2021, it costs the fund US$0.07 to remove 1 t CO_2 eq from the atmosphere.

Canada also works closely with Multilateral Development Banks (MDBs) to advance global climate action. In Latin America and the Caribbean, Canada's collaboration with the Inter-American Development Bank (IDB) supports efforts to combat climate change through sustainable urban development and water resource management initiatives. Canada's involvement with the African Development Bank (AfDB) focuses on adaptation and mitigation strategies crucial for the African continent, particularly in the areas of energy access, food security, and climate resilience. Additionally, Canada's partnership with the Asian Development Bank (ADB) promotes green infrastructure projects and sustainable energy solutions across Asia. These MDB partnerships collectively enable Canada to drive impactful climate solutions in vulnerable regions worldwide.

Through its support to multilateral channels, Canada aims to support the development of innovative facilities to deliver climate support. This includes the International Monetary Fund's new Resilience and Sustainability Trust (IMF-RST), created in 2022, which provides long-term, affordable financing to help low-income and vulnerable middle-income countries build resilience to external shocks, including climate change and pandemic preparedness. Canada has committed a total of 1.4 billion IMF Special Drawing Rights (approximately $2.4 billion) in new loan commitments to the RST and provided a $40 million grant.[15] As of October 2024, 20 RST financing arrangements have been approved for IMF members, all seeking to help countries tackle challenges stemming from climate change.

4.4.4 Information on finance mobilized through public interventions

While it plays a key role in supporting climate action, public finance provision cannot provide the level of resources required to meet the long-term goals of the Paris Agreement. Tapping into a wide variety of sources, instruments and channels is vital in unlocking the funds needed on the path towards low greenhouse gas, climate-resilient development. As such, leveraging the private sector to ensure resources available for climate action are used to their full potential is key in maximizing the effectiveness of climate finance. That is why Canada works with a range of partners to mobilize private finance through its public investments.

Canada is a leader in innovative approaches to mobilize private climate finance, by blending its concessional finance, which is provided on more generous terms (i.e., longer grace periods and lower-than-market interest rates), with commercial resources to more effectively catalyze investments by absorbing risks and removing barriers to private investment in developing countries. Canada uses grant financing where cost-effective market-based financing is not viable, such as for most adaptation projects in the poorest and most vulnerable countries. Blended finance can play a critical role in mobilizing private investments that otherwise would not occur by de-risking investments, as well as helping to create new markets by addressing market failures. These instruments can be adapted to local contexts and are consistent with the ambition of the Paris Agreement, which affirms the role of mobilizing private finance in achieving NDCs.

Canada delivers 60% of its $5.3 billion climate finance commitment (2021 to 2026) through Unconditionally Repayable Contributions (URCs), an innovative finance instrument akin to concessional loans. It uses repayable financial instruments to catalyze private and public sector investment in low-carbon activities such as renewable energy and energy efficiency projects, primarily in middle-income and lower-middle-income countries. In many cases, URCs are used to make private sector investment opportunities more attractive. These instruments allow Canada to absorb some of the risk of development projects so that the private sector can also invest in them.

One of the goals of URCs is to increase positive development impact by catalyzing and pooling new or additional channels of financial resources, including private sector funds, applying new public sources of innovative development financing, and maximizing the use of a new range of partnerships, tools, and policy and program innovations. URCs are also a way to put more capital (usually $50 million+ per project in the case of climate finance) toward climate solutions in a cost-effective manner, providing a quick influx of funding for urgently needed climate actions and initiatives.

Canada uses URCs to create bilateral funds or facilities with partners, including multilateral development banks (MDBs), for a specific purpose such as to catalyze public and private sector investment in climate change mitigation and adaptation in a specific geographic region, sector, or both. Canada has notably established Canadian climate funds at several multilateral development banks (MDBs), which are designed to catalyze public and private sector investment that would not otherwise happen due to market barriers in developing countries such as low returns on investment, and perceived versus actual risk that are, in part, due to political or social instability. These include funds with the African Development Bank, the Asian Development Bank, the Inter-American Development Bank Group, and the World Bank Group.

Phase I of the Canadian Climate Fund (C2F) was established in 2012 with a $250 million investment from Canada. C2F provides evidence of private sector mobilization though Canadian partnerships with MDBs. As of December 2022, US$1.7 billion in public and private resources have been mobilized through C2F-funded projects. Most fund resources have been deployed in renewable energy and infrastructure projects which, in 2022, abated 1,100,614 t CO_2 eq and produced 2,371,220 MWh of renewable energy.

Together with IDB Invest, the private sector arm of the Inter-American Development Bank (IDB) Group, Canadian climate finance is mobilizing private finance through the second phase of the **Canadian Climate Fund for the Private Sector in the Americas (C2F2)**. Canada is contributing $223.5 million to C2F2, $62,000,000 of which was disbursed in 2021. As part of C2F2, IDB launched the New Juazeiro Bifacial Solar Power Project, consisting of the design, construction, operation, and maintenance of a 187-megawatt four bifacial photovoltaic power plants and other interconnection

facilities in the state of Bahia, Brazil. This project is made possible through blended finance arranged by IDB Invest which totals US$42.8 million, of which US$7.5 million came from C2F. IDB Invest also worked with the borrowers to provide employment opportunities in science, technology, engineering, and mathematics not only for women, but also for Afro-descendant Brazilians, whose participation rate in the labour force, particularly in STEM disciplines, is disproportionately low.

4.5 Support for technology development and transfer provided under Article 10 of the Paris Agreement

The following section addresses paragraphs 126 and 127 of the MPGs. MPG 127 is addressed in more detail in Annex 5, Section A5.7.

Developing countries, especially the poorest and most vulnerable, require support for accessing clean, innovative, and affordable technologies to support their economic growth in a manner that does not compromise environmental integrity and exacerbate climate impacts. The right technologies will enable a transition that is sustainable, low-carbon, climate-resilient, nature-positive, and inclusive.

This section provides an overview of the technology transfer activities undertaken by the Government of Canada that facilitated the adoption and use of Canadian clean technologies and related expertise in 2021 and 2022.

4.5.1 Forest and land use carbon modelling

Canada has provided knowledge, mentoring and guidance on forest GHG emissions mitigation and forest management adaptation through the provision of the Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3) and Generic Carbon Budget Model (GCBM).

Software technical support has been readily available for both the CBM-CFS3 and GCBM since their public release. The user community frequently provides feedback through technical support about the training and software, including coding problems and how to improve the training or software to meet evolving needs, and this information is passed along to the software development team to make potential adjustments.

Technology development and transfer was also achieved through financial support to Moja Global. Moja Global is a collaborative project under the Linux Foundation (initiated by the Australian Government and supported by the Canadian Forest Service at Natural Resources Canada) that supports climate action by bringing together a community of experts to develop open-source software including the Full Lands Integration Tool (FLINT) software which allows users to accurately and affordably estimate GHG emissions and removals from agriculture, forestry, and other land uses (AFOLU).

Moja Global promotes domestic and international collaboration on open-source tools to estimate emissions and removals from forests and harvested wood products and developing uncertainty estimates in support of policy. Through the collaboration with Moja Global, the Canadian Forest Service has advanced and implemented the Generic Carbon Budget Model on the FLINT platform to support developing countries in the establishment of advanced measurement, reporting and verification (MRV) systems to quantify forest sector carbon balances.

In 2021-22, the Chile Pilot continued to represent a successful demonstration of the implementation of a FLINT configuration using Canada’s Generic Carbon Budget Model implementation and

documentation. The pilot was implemented by Chilean expert Julian Cabezas Pena in collaboration with the National Forest Corporation or CONAF (Corporación Nacional Forestal) of the Chilean Government. Chile Case Study details can be found online.

The SLEEK (System for Land-based Emissions Estimation in Kenya) is the National Carbon Accounting System for Kenya. The SLEEK used FLINT as an integration tool that brings in datasets from different databases and modules (land cover change, forest biomass, climate, soil, etc.) and provides emissions associated with land use changes. Kenya Case Study details can be found online.

In 2021-22, Moja Global built upon previous efforts to establish and differentiate FLINT in the market by:

- documenting the FLINT's existing applications;
- developing a joint proposal with (IUCN) and ten national governments to support implementation of FLINT-based systems;
- developing an online training platform and online training materials; and,
- significantly improving the quality of Moja Global communications and messaging.

Pilot applications in Chile and Kenya have contributed to the interest expressed by the ten countries who are part of the joint proposal with the IUCN. The online training has also contributed to the growth in interest and support within the technical community. The training and country engagement has also been effective at correcting a degree of misunderstanding and misrepresentation of the FLINT as suitable only for countries with advanced forest and land use inventories, long running monitoring systems and abundant high-quality data.

To encourage international forestry community participation in Moja Global for the purposes of continued development and increased application of the FLINT and GCBM, an informative virtual UNFCCC workshop was held in 2021. Participants from 125 countries attended the workshop.

4.5.2 Global Fire Early Warning System / Fire Danger Rating System

For the Malaysia Fire Danger Rating System / Fire Early Warning System, Canadian experts provide virtual subject matter expertise to support updating the Fire Early Warning (EWS) System in Malaysia, operated by MetMalaysia. Malaysia has been using an adaptation of the Canadian Fire Weather Index (FWI) System as an EWS or Fire Danger Rating System (FDRS) for over 20 years. Their MetMalaysia service produces national danger rating maps, as well as maps for the Association of Southeast Asian Nations (ASEAN) region.

The Canadian Forest Service made its experts in technology and fire danger rating available at all stages of the process, and assistance included the following:

- Shared open-source technology to generate Canadian FWI System outputs;
- Shared documentation on technology that generates FWI System output; and,
- Supported installation and implementation virtually through email and meetings.

MetMalaysia organized and hosted a virtual two-day workshop (January 25 to 27, 2022) on FDRS, FWI, and Fire Behaviour as part of their weeklong workshop on their updated FDRS. Three Canadian Forest Service experts presented on different topics of fire danger rating and implementation of software to generate FDRS outputs.

At a seminar in April 2021, Argentinian and Canadian wildfire experts shared information regarding the current status of FDRS in their respective countries. Argentina has adapted the FWI System in parts of

the country and were interested in hearing more about fuels and further implementation of EWS and FDRS in Argentina. Canadian Forest Service experts in fire danger rating and fire behaviour as well as representatives from the Canadian Forest Service's trade and international affairs division participated in this seminar.

4.5.3 Support for the phase-down of hydrofluorocarbons (HFCs) and improving energy efficiency in the refrigeration sector

Canada also provides technology transfer support to developing countries through its climate finance program. For example, Canada is providing bilateral support to Colombia, Senegal, and Peru to support the phase-down of hydrofluorocarbons (HFCs) and improve energy efficiency in the refrigeration sector in these countries.

In collaboration with the United Nations Development Programme (UNDP), Environment and Climate Change Canada (ECCC) is supporting technology transfer and capacity-building to assist four countries (Colombia, Mexico, Peru, and Senegal) in reducing their use and emissions of HFCs while improving energy efficiency in the refrigeration sector. Canada is providing a total of $2.2 million for this project (of which $854,828 was disbursed in 2022). Activities include the provision of technologies, equipment, tools, and expertise in selected enterprises in these countries, the demonstration of innovative low-global warming potential (GWP) refrigeration systems, and training of refrigeration technicians and equipment operators. Specifically, under each of the project, activities being undertaken include the following.

Colombia: Two manufacturers in Bogota are receiving assistance to build two prototype centralized refrigeration systems than use low-GWP "CO_2 transcritical" technology instead of traditional high-GWP HFC-based technologies. The prototypes will then be installed in two small supermarkets and monitored for their performance. CO_2 transcritical technology not only eliminate the need for HFC refrigerants but can also significantly enhance the energy efficiency of centralized refrigeration systems. A mobile CO_2 transcritical training unit has been provided by a Canadian supplier and is being used in Colombia to train refrigeration technicians on this technology. The project is part of a larger strategy by the government of Colombia to gradually transition supermarket refrigeration in the country towards the use of low-GWP technologies.

Mexico: Five refrigeration units functioning on HFCs to cool small cold rooms used in public markets in Mexico City will be replaced by units using lower-GWP refrigerants. The new units will demonstrate the use and performance of these alternative refrigerants in Mexican public markets to encourage the further take-up of these technologies. In addition, an HFC-based centralized system in a large supermarket will be converted to low-GWP CO_2 transcritical technology. Associated training for the operators of the system will also be provided.

Senegal: Equipment to recover, recycle and re-use (RRR) HFCs is being provided to a refrigeration training centre in Dakar, which will then carry out training of refrigeration technicians on the use of the equipment. The equipment will then be distributed to selected technicians who successfully complete the training. The effective implementation of RRR practices avoids the venting of refrigerants when servicing equipment and reduces the need to import new HFCs, thereby leading to a reduction of use and emissions. In addition, throughout the project, the refrigeration centre will be reinforced through the provision of expertise and equipment to share best practices to reduce emissions, transition to lower-GWP refrigerants, and improve energy efficiency throughout the refrigeration and air conditioning sector in Senegal.

Peru: Three training institutes are receiving CO_2 transcritical training units and associated training to prepare the refrigeration industry and technicians in the country in the use of this low-GWP technology across the commercial refrigeration sector in the country.

4.6 Capacity-building support provided under Article 11 of the Paris Agreement

The following section addresses paragraphs 128 and 129 of the MPGs.

Capacity-building is the critical foundation for implementing adaptation and mitigation measures, ensuring their success and longevity. Enhanced capacity of institutions, communities, and individuals, also helps create the necessary enabling environments that will attract investment and create the conditions for new technologies and systems to take hold for the long term.

This section provides an overview of the Government of Canada's capacity-building efforts in 2021 and 2022.

4.6.1 International Model Forest Network

The International Model Forest Network (IMFN) is a voluntary global community of practice whose members and supporters work toward the sustainable management of forest-based landscapes and natural resources through the Model Forest approach. The Government of Canada announced the development of an International Model Forest Network at the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, with a goal to scale up the lessons learned from Model Forests in Canada and provide a platform to share its experiences with international partners.

The primary goal of the IMFN is to establish a global network of Model Forests that represents the majority of the major forest ecosystems of the world. It also strives to ensure that all partners, regardless of political or economic status, can contribute to, and share in, the benefits of the Network as they work toward the sustainable management of forest-based landscapes.

Through the creation of this global network, the IMFN's vision is to support the management of the world's forest resources in a sustainable manner, reflecting environmental and socio-economic issues from the perspective of local needs and global concerns.

The IMFN Secretariat was officially established in 1995, and today continues to be hosted by the Government of Canada at Natural Resources Canada's Canadian Forest Service in Ottawa, Canada. The IMFN has over than 60 Model Forests in over 30 countries and includes several international capacity-building initiatives.

One such capacity-building initiative is RESTAURacción: Wildfire Restoration in Latin America, launched by the Government of Canada in 2020, in response to widespread wildland fires that occurred in Latin America in 2019 and 2020, to support collaborative forest landscape restoration across the Latin American Model Forest Network.

Delivering on Canada's commitment at the 2019 G7 Leaders' Summit, RESTAURacción aims to:

- Advance women's leadership in post-fire and degraded landscape ecosystem restoration;
- Plan and cost post-fire restoration; and
- Promote longer-term investments in sustainable land use.

Strong first year results in calendar year 2021 unlocked an additional investment by Canada in 2022 in the Latin American Model Forest Network. Besides its overarching objective of gender equity and inclusion, RESTAURacción continues to make use of our long standing, mature and proven partnerships within the IMFN.

RESTAURacción is financed by Global Affairs Canada and led by the Canadian Forest Service through the IMFN Secretariat. To enable lasting forest and landscape restoration after fires, communities must be meaningfully involved in planning and implementing initiatives that affect their lives. RESTAURacción's formula for success directly relates to the established governance platforms, the Model Forests, fostering close cooperation with local stakeholders, eager to contribute to the restoration of their landscapes.

From 2021 to 2022 inclusive, through the IMFN's RESTAURacción initiative, among many key achievements, Canada and its implementing partners trained over 3,000 people on topics including forest fire management and control, gender equity, leadership and governance, forest landscape restoration implementation and monitoring in degraded areas (47% were women and girls). Seventy-eight future restoration leaders were provided with university scholarships to study forest landscape restoration and monitoring in degraded areas (69% are women).

Annual key achievement reports of IMFN's RESTAURacción initiative are available in English, French and Spanish online.

4.6.2 Forest carbon accounting software training

There continues to be a global high demand for operational-scale forest carbon accounting software for national inventory reporting, Nationally Determined Contribution reporting, Reduce Emissions from Deforestation and Forest Degradation, Foster Conservation, Sustainable Management of Forests, and Enhancement of Forest Carbon Stocks (REDD+) projects, and assessment of mitigation and adaptation opportunities using forests, and the CBM-CFS3 and GCBM continue to serve these needs.

As a result of the COVID-19 pandemic, which began in 2020, self-guided video training for the CBM-CFS3 was developed and made freely available online to the international user community in English (2021) and French (2022).

Self-guided video training for the GCBM was also made available online to the international user community in English in 2021 (development of the French version began in 2022).

There are growing demands for carbon accounting tools to track the fate of carbon in harvested wood products (HWP), and ongoing development of the Abstract Network Simulation Engine (ANSE) and self-guided training to develop custom HWP models for use with ANSE will help in addressing these needs. Distribution of the ANSE and training in the development of HWP carbon models for use with it have been limited (not yet available online) mainly to researchers in Canada since 2011, however it has been applied in by researchers in Canada, the United States and Mexico. Software, user documentation and training remain under development.

As a result of capacity building, training, and technical support of the CBM-CFS3, GCBM, and ANSE, dozens of applications have occurred in and outside of Canada, leading to the generation of numerous publications:

- Publication of applications of the CBM-CFS3 are available for over 30 countries (Canada, China, Czech Republic, European Union (all countries), Ireland, Italy, Kazakhstan, Korea,

Mexico, Poland, Romania, Russia, Slovenia, Turkey, the United Kingdom, and the United States), which supports sharing of lessons learned and best practices.
- Publication of applications of the GCBM are available for three countries (Canada, Chile, Korea), which supports sharing of lessons learned and best practices.
- Publication of applications of the ANSE and custom HWP models are available for three countries (Canada, Mexico, United States), which support sharing of lessons learned and best practices.

4.6.3 Nuclear safety

The Canadian Nuclear Safety Commission (CNSC) collaborated with countries in support of helping build their nuclear program and capacity building, offering information and lessons learned on multiple regulatory topics.

CNSC capacity-building support is always planned based on needs and priorities expressed by the receiving country. CNSC has conducted capacity-building efforts that assist developing countries prepare for nuclear activities, with the goal of achieving a high level of nuclear safety that is consistent with the IAEA safety standards. CNSC shared information that would provide insights into what was needed to successfully develop a nuclear program in preparation for technology development (advanced reactors, SMRs, etc.).

In 2021 and 2022, CNSC had a strategic priority related to Global Influence. This priority included:

- influencing the development of international standards, guidance, and good practices in support of high levels of safety and security globally;
- promoting international cooperation, sharing and adoption of international best practices; and,
- deepening technical collaboration with priority international bilateral regulatory partners, influence harmonised international approaches to regulatory standards, and encourage continuous improvement and promotion of good practices for nuclear safety, security, and safeguards globally.

The CNSC's capacity-building activities focused on cooperation and information exchanges in support of sharing CNSC expertise. The goal was to promote CNSC regulatory principles, educate countries on international best practices, and provide insight into lessons learned in the support of high levels of safety and security.

During 2021 and 2022, the CNSC conducted technical exchanges with Ghana on licensing fees and borehole disposal, and a technical exchange with India on digital instrumentation and control equipment.

CNSC has participated in International Atomic Energy Agency (IAEA) review missions to provide technical expertise on assessing a country's regulatory framework and offer areas of improvement, activities included:

- the CNSC led an Integrated Regulatory Review Service (IRRS) follow up mission to India (2022) to review their regulatory infrastructure; and,
- CNSC staff participated in an IRRS mission to Morocco (2022) to assess reviewing areas of their regulatory framework.

The CNSC also participated in IAEA forums that directly offer support to emerging nuclear nations in developing regions, this includes:

- active member and provider of regulatory information as a member of the Regulatory Cooperation Forum in 2021 and 2022; and,
- CNSC took over as Chair of the Forum in September 2022, with the goal of delivering a new strategic plan, increasing interest in advanced technologies, building relationships with aspiring nuclear countries, promoting gender equity, and supporting emerging regulators' nuclear needs.

CNSC worked with Global Affairs Canada to establish treaty level agreements with nations interested in trading significant nuclear material, equipment, and information. Canada has had a Nuclear Cooperation Agreement (NCA) with the Philippines since 1983 which established this relationship. In 2022, the CNSC began engaging with the Philippines to establish an Administrative Arrangement (AA), as required per Article VI.2 of the NCA, that enabled the implementation and operationalization of the NCA, facilitating trade. Once in place, an AA allows for Canada and Canadian organizations to engage in the trade of nuclear material, equipment, and information, which enables the development of a nuclear energy and technology sector within the Philippines. Work to establish the Canada-Philippines AA is ongoing.

4.6.4 Greening government operations

Launched by the Governments of the United States and Canada in April 2021, the Greening Government Initiative (GGI) is a first-of-its-kind initiative that enables countries to exchange information, promote innovation, and share best practices to support global efforts to green national government operations and meet Paris Agreement commitments on climate change.

The GGI provides opportunities for countries to share ongoing efforts, present projects, discuss potential ways to work together, and help each other recognize and address challenges involved in greening national government operations. The GGI allows governments to demonstrate to the international community how they, through their own operations, are leading by example in climate resilience and sustainability.

At the end of 2022, approximately 44 countries from around the world had joined the Greening Government Initiative (GGI), about a third of which were developing countries. All countries can participate in the GGI by endorsing the GGI Concept Note. GGI participation does not require membership, financial commitments, or sector commitments.

Participants are responsible for suggesting topics for GGI meetings based on their needs and interests. Selected topics in 2021 and 2022 include sustainable public procurement, carbon-free electricity, climate adaptation and resilience, and net-zero emissions vehicle fleets.

At each convening of the GGI, co-chaired by the Governments of Canada and the US, two to three countries or organizations present on the chosen topic and often highlight challenges, lessons learned, and best practices related to capacity building.

On occasion, non-national governments such as the United Nations Development Programme and the World Bank have presented to the GGI community, offering outside perspectives, best practices, and resources to build the capacity of national government to green their operations.

All participants are encouraged to maximize the benefits of the GGI by sharing their knowledge, providing suggestions or feedback, connecting with the GGI network, participating in or offering to (co-)lead a working group, and by spreading the word.

Participants receive capacity-building support through the lessons learned and best practices shared by other governments. By adopting the successful capacity-building actions of other organizations or by implementing their own innovative approaches, developing countries are empowered to share their own progress, lessons, and successes.

4.6.5 Energy efficiency

4.6.5.1 Support through the IEA

As a member of the International Energy Agency (IEA), Canada works to advance the global energy efficiency agenda. As a longstanding member in the Energy Efficiency Working Party, Canada helps determine the IEA's energy efficiency analytical priorities and works to advance energy efficiency with international partners. For example, Canada shares input on the themes and priorities of the IEA's annual Energy Efficiency Market Report, providing guidance and comments on its draft iterations. Canada is also a founding member of the IEA-affiliated Energy Efficiency Hub (EE Hub), which is the primary mechanism for international collaboration on energy efficiency. The membership of the EE Hub is broader than the IEA, allowing Canada greater opportunities to engage on policy best practices with emerging economies within the EE Hub's membership.

4.6.5.2 SmartDriver Training

In 2022, a five-year Statement of Intent (SOI) under the SmartDriver program was signed between the Agencia Chilena De Eficiencia Energética of the Republic of Chile, the Department of Natural Resources of Canada (NRCan), the US Environmental Protection Agency and the International Council on Clean Transportation.

SmartDriver offers a series of free online courses, including in-classroom and on-road instructor resources, to help professional drivers of medium and heavy-duty commercial vehicles reduce fuel consumption, operating costs, and harmful vehicle emissions. Through this SOI NRCan helped to adapt the SmartDriver for Highway Trucking Curriculum for Chilean drivers. The SmartDriver adaptation involved translation to Spanish, including an in-depth review and edit/translation of the text to tailor it to the Chilean dialect, as well as adaptation to local circumstances such as removing elements related to winter driving behaviours and focusing on technologies like cab coolers over cab heaters.

4.6.6 Climate Technology Centre and Network

During the reporting period (2021 to 2022), the Government of Canada continued its long-standing support for the work of the UNFCCC's Climate Technology Centre and Network (CTCN).

Canada's financial contributions to the CTCN for this reporting period are captured under the climate finance portion of this report. During 2021 and 2022, Canada also continued its support for the Advisory Board to the CTCN by serving as a member on the Board. The Board provides strategic direction and budgetary oversight to the CTCN, approving its annual budget, annual reports to the UNFCCC COP, and operating plans. As a Board member Canada also promotes the work of the CTCN through various channels, increasing the CTCN's visibility and supporting fundraising efforts of the CTCN.

Canada's on-going support demonstrates the importance of CTCN's mandate to provide demand-driven technical assistance and capacity-building support for technology development and transfer to developing countries. The CTCN works with each country's focal point for climate technology to develop tailored solutions that match local needs based on the country's NDC.

The CTCN delivers support in three major areas of work: technical assistance; networking and collaboration; and capacity-building and knowledge-sharing.

The technical assistance is provided at no cost to developing countries through a network of over 800 organizations, including private companies, academic institutions, research organizations and multilateral organizations.

4.6.7 Support to the Climate Resilience Execution Agency of Dominica (CREAD)

Canadian support to the Climate Resilience Execution Agency for Dominica (CREAD) aims to contribute to Dominica's vision to be the world's "First Climate Resilient Nation." This has involved developing the Climate Resilience and Recovery Plan to operationalize the National Resilience Development Strategy. CREAD works to make Dominica's people, infrastructure and systems more resilient to climate-related and natural disasters so they can recover more quickly following disasters. Since 2019, Canada has provided support to CREAD for the implementation of key Government of Dominica recovery and reconstruction projects. An important mandate of CREAD is to assist in building the capacity of government ministries and other public sector agencies.

For example, between March and December 2022, CREAD began the capacity building programme for the public service when it held sessions on three topics (Project Management, Contract Administration, and Monitoring and Evaluation; Environmental and Social Safeguards; and Financial/Procurement). A total of 95 public officers (72 women and 23 men) attended the workshops.

In addition, through its Community Emergency Readiness Initiative, the project identified a demand for capacity building by communities throughout the country. In 2022, more than 120 community members received training in community disaster management, emergency response, and communication in disaster using ham radio. An additional 131 community members participated in capacity building in conflict management and leadership, as well as vulnerability assessment and hazard analysis. Moreover, in 2022, more than 70 individuals were trained in Damage Assessment and Needs Analysis.

The Disaster Management Committees of several communities in the eastern region of the country benefited from the increased capacity of its members when the area was affected by a destructive weather system in November 2022. After being isolated from the rest of the country, these committees and different aspects of their disaster management plans were put into operation to assist communities in search and rescue, damage assessment, relief, shelter management and transportation.

4.6.8 Creole Garden Revalorisation

Since 2019, Canada has supported the work of Agronomes & vétérinaires sans frontières (AVSF) in the South Department of Haiti to develop its agroforestry systems based on coffee and cocoa. This department is particularly vulnerable to climate change, thus aggravating environmental degradation and directly impacting agricultural activities and the entire value chain.

To ensure the sustainability of the agroforestry systems ("creole gardens"), the project seeks to improve the capacity of producers to adapt to climate change; encourage the creation of skills on agroforestry adaptation to climate change by improving training curricula; and strengthen the governance capacities of local and departmental authorities on adaptation to climate change.

Project activities include:

- installation and innovative and sustainable management of 250 hectares of new plantations by more than 800 families under the leadership of youth and women;
- strengthening the economic empowerment and social recognition of women involved in these agroforestry sectors by promoting their access to strategic roles and functions; and,

- improving the capacity of value chain actors in organizational management, commercialization, and marketing to ensure better access to niche markets by improving the quality of the commodities produced. The project expects to add value to the targeted agri-food chains, particularly for the benefit of women and youth in the targeted regions, while respecting the environment. The project also aims to make agri-food chains better adapted to climate change.

During 2021, three training workshops were held to explain the challenges and opportunities related to agroforestry systems to farming communities, as well as to the leaders from the coffee and cocoa cooperatives. As a result of the information received, 524 people participated in 12-day training programmes and the same number of agreements were signed to put into place either coffee or cocoa agroforestry systems. In the first two years of the project, 48,000 forest trees, 24,000 fruit trees, 192,000 banana trees, and 96,000 yam beds were planted in these agroforestry systems, which all contribute to carbon emissions reductions and the fight against climate change.

---

[9] Government of Canada. (2024, March 18). *Canada's Climate finance Initiatives and Programs.* https://climate-change.canada.ca/finance/

[10] Government of Canada. (n.d.). *Project Browser.* https://w05.international.gc.ca/projectbrowser-banqueprojets/?lang=eng https://w05.international.gc.ca/projectbrowser-banqueprojets/?lang=eng

[11] This methodological change was implemented in 2023 and, therefore, applies only to calendar year 2022 climate finance data in Common Tabular Format.

[12] Metz, B., Davidson, O. R., Martens, J. W., van Rooijen, S. N. M., & Van Wie McGrory, L. (Eds.). (2000). *Methodological and Technological Issues in Technology Transfer.* Intergovernmental Panel on Climate Change. Cambridge University Press. https://archive.ipcc.ch/ipccreports/sres/tectran/index.php?idp=0

[13] Anderson, S. O., Chandler, W., Christ, R., Davidson, O., Devotta, S., Grubb, M., Gupta, J., Heller, T. C., Iyer, M., Kammen, D. M., Klein, R. J. T., Kruger, D., Kumar, R., Levine, M., Erda, L., Iturregui, P., Hedger, M. M., McMichael, A., Mansley, M., … Worrell, E. (2000). Summary for Policymakers: Methodological and Technological Issues in Technology Transfer. In B. Metz, O. R. Davidson, J. W. Martens, S. N. M. van Rooijen, & L. Van Wie McGrory (Eds.), *Methodological and Technological Issues in Technology Transfer* (pp. 1-10). Intergovernmental Panel on Climate Change. Cambridge University Press. https://archive.ipcc.ch/ipccreports/sres/tectran/index.php?idp=507

[14] This core support captures funds disbursed to MDBs in the relevant calendar year, for example as part of replenishments to concessional windows or capital increases.

[15] Canada applies the OECD's imputed multilateral share for climate to the grant component of its support to the IMF RST and reports this amount as climate finance delivered through multilateral channels.