



**Fall 2017**

## **Reports of the Commissioner of the Environment and Sustainable Development to the Parliament of Canada**

**Independent Auditor's Report**

### **REPORT 2**

**Adapting to the Impacts of Climate Change**



Office of the  
Auditor General  
of Canada

Bureau du  
vérificateur général  
du Canada





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## Performance audit reports

This report presents the results of a performance audit conducted by the Office of the Auditor General of Canada under the authority of the *Auditor General Act*.

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# Table of Contents

<b>Introduction</b>	<b>1</b>
Background .....	1
Focus of the audit .....	4
<b>Findings, Recommendations, and Responses</b>	<b>5</b>
Federal leadership for climate change adaptation .....	5
Environment and Climate Change Canada did not develop an action plan .....	7
Environment and Climate Change Canada did not provide adequate leadership and guidance to help departments and agencies adapt to a changing climate .....	11
Departmental actions to address the impacts of climate change .....	14
Five departments and agencies assessed their climate change risks and took actions to address them ....	14
Fourteen departments and agencies had not fully assessed their climate change risks .....	20
<b>Conclusion</b>	<b>27</b>
<b>About the Audit</b>	<b>28</b>
<b>List of Recommendations</b>	<b>33</b>



# Introduction

## Background

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### Canada's changing climate

2.1 Canada's climate is changing. According to Natural Resources Canada, the climate is becoming warmer and wetter, and extreme weather events are becoming more frequent. Climate change impacts are felt across Canada and pose significant risks to Canadians and the economy. Changes include thawing permafrost, reduced sea ice, rising sea levels, and more severe wildfire seasons (Exhibit 2.1). Northern, coastal, Indigenous, and remote communities are more vulnerable to these impacts, and may experience significant health, social, cultural, ecological, and economic consequences.

2.2 Risks from climate change cannot be completely eliminated. However, vulnerabilities can be reduced by taking measures to adapt. Adaptation is about making informed, forward-looking decisions to manage the risks that climate change presents and take advantage of new opportunities. Effective adaptation measures can save lives, minimize damage, strengthen industry competitiveness, and lower long-term costs for individuals, businesses, organizations, and governments.

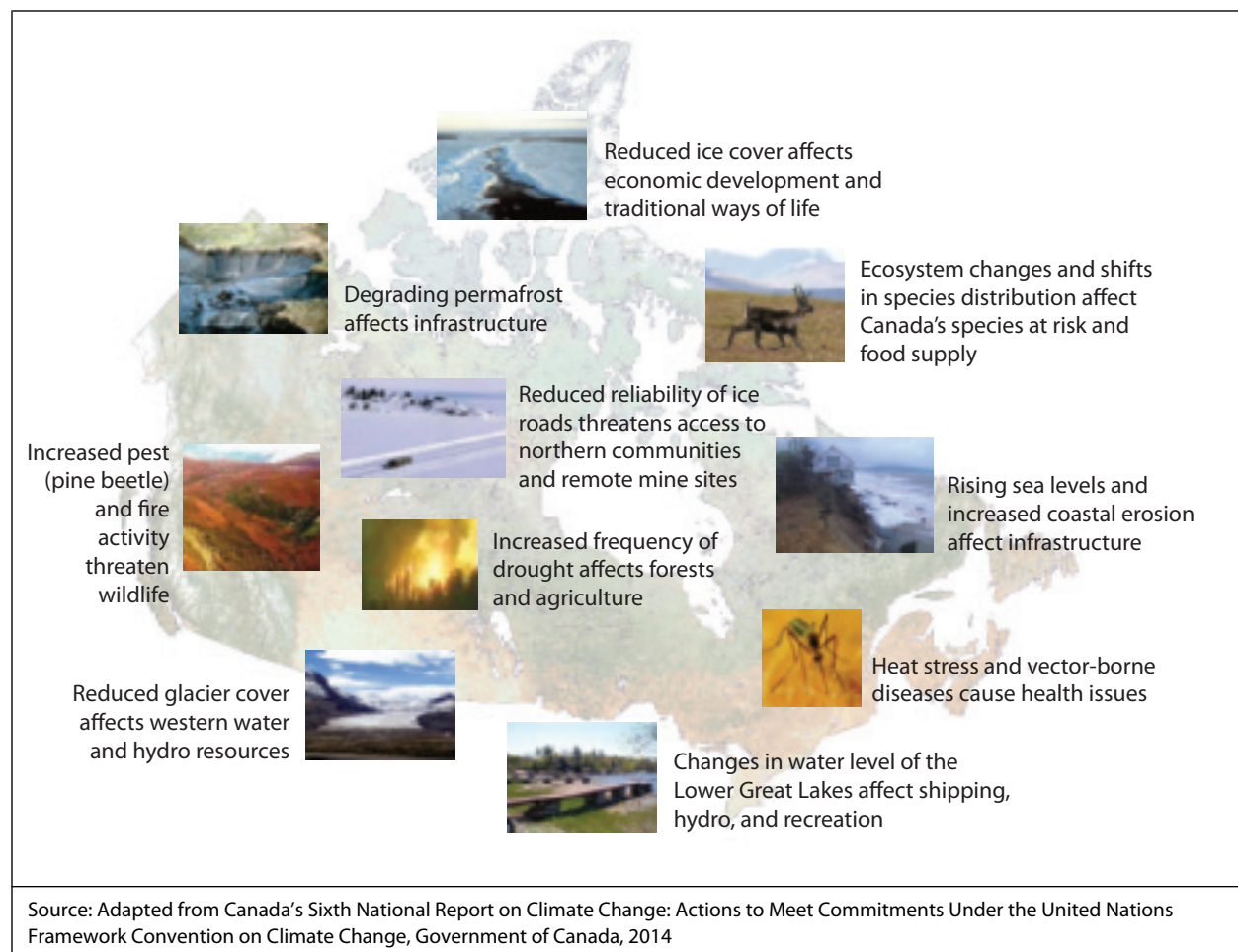
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### Federal roles and responsibilities

2.3 **Leadership by example.** The Government of Canada has a variety of roles and responsibilities for adapting to climate change. As Canada's largest organization, with operations in all regions of the country, it needs to lead by example to ensure its own resilience to climate change impacts. According to its 2016 financial statement, the federal government has tangible capital assets with a net value of approximately \$66 billion. These assets include land, buildings, infrastructure, machinery, and equipment. Adaptation means ensuring that departments can continue to carry out their activities to support Canadians despite the unpredictable conditions caused by a changing climate. This includes investing in and protecting critical infrastructure against climate-related failures, particularly in vulnerable northern and coastal regions.

2.4 **Policy and plan development.** Building resilience also involves integrating climate change adaptation into federal policy and planning. Each federal organization must manage the potential impacts of climate change that could affect its continued mandate delivery. This includes, for example, ensuring that government organizations can function in the event of severe weather, with ongoing programs and services to Canadians. Federal policies, plans, and agreements can enable or constrain the adaptation responses of other jurisdictions, individuals, or the private sector.

## Exhibit 2.1 Climate change impacts are felt across Canada



**2.5 Information sharing.** The federal government is particularly well positioned to develop and disseminate climate change information, guidance, and tools to help Canadians adapt. For example, the federal government develops innovative technologies and practices, monitors the environment, and conducts research. In some cases, this knowledge and expertise is not found elsewhere in Canada.

**2.6 Capacity building.** The federal government helps the private sector, other levels of government, communities, and organizations build their capacity to adapt to climate change impacts. It has programs that help with assessing and managing the risks and complexities of a changing climate, and with taking effective, sustainable action.

**2.7 Direct responsibility and actions.** Federal government departments and agencies have direct responsibilities for vulnerable areas and populations, including oceans, the North, and Indigenous peoples. They also take steps to reduce illnesses from extreme heat and lessen the risk of climate-driven infectious diseases, such as Lyme disease. Adaptation at the federal level also means understanding how the mountain pine beetle



is spreading, how ice roads in the North are changing, and how the changes in water temperature and availability are affecting Canada's forestry, mining, energy, and fisheries sectors. Federal responsibilities to adapt and remain competitive also mean investing in infrastructure and developing climate-resilient building codes and standards. For our recent findings on this topic, see the 2016 Spring Reports of the Commissioner of the Environment and Sustainable Development, Report 2—Mitigating the Impacts of Severe Weather.

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## Adaptation activities and investments

**2.8 Lead department.** Environment and Climate Change Canada is the federal lead on climate change, including adaptation. The Department led the development of the 2011 Federal Adaptation Policy Framework. This framework states that the federal government must take action to effectively integrate climate change considerations into its programs, policies, and operations, and facilitate action by others. Each federal organization is responsible for applying its experience in risk management to the climate change issues that could affect its ability to deliver its mandate.

**2.9** To manage the risks and help protect Canadians, the federal government needs effective adaptation planning, with a solid understanding of the risks involved. Effective climate change adaptation requires

- scoping the potential impacts,
- identifying and assessing the risks and opportunities,
- setting priorities and choosing measures,
- implementing measures, and
- monitoring the outcomes.

**2.10 Funding.** Since 2011, the federal government has allocated \$538.6 million to climate change adaptation programs, including

- \$148.8 million to some federal departments and agencies for the 2011–2016 period, and
- \$389.8 million to some federal departments and agencies in the 2016 and 2017 federal budgets together for up to five years.

**2.11** The federal government also recently allocated funding to support climate-resilient infrastructure at the national, provincial, territorial, and municipal levels, including

- \$460 million in the 2016 federal budget to support green and climate-resilient infrastructure initiatives;
- \$40 million over five years in the 2016 budget to integrate climate resilience into building design guides and codes;

- \$9.2 billion for the 2017–2028 period to provinces and territories for a variety of related objectives, including helping communities prepare for challenges resulting from climate change; and
- \$2 billion over the next 11 years in the Disaster Mitigation and Adaptation Fund to help mitigate natural disasters and extreme weather events, and build climate resilience into infrastructure projects.

## Focus of the audit

2.12 This audit focused on the extent to which federal organizations had made progress in adapting to climate change. We examined federal leadership efforts and whether departments and agencies implemented the Federal Adaptation Policy Framework. The framework states that all federal departments and agencies must take action and consider climate change impacts in their programs, policies, and operations.

2.13 We examined progress by determining whether 19 key departments and agencies identified and assessed climate change risks and took measures to adapt to climate change in their areas of responsibility. We used a questionnaire and interviews to gather evidence from

- Agriculture and Agri-Food Canada;
- the Canadian Food Inspection Agency;
- the Department of Finance Canada;
- Environment and Climate Change Canada;
- Fisheries and Oceans Canada;
- Global Affairs Canada;
- Health Canada;
- Indigenous and Northern Affairs Canada;
- Infrastructure Canada;
- Innovation, Science and Economic Development Canada;
- National Defence;
- Natural Resources Canada;
- Parks Canada;
- the Privy Council Office;
- the Public Health Agency of Canada;
- Public Safety Canada;
- Public Services and Procurement Canada;
- Transport Canada; and
- the Treasury Board of Canada Secretariat.

2.14 This audit is important because federal leadership supports public and private sector institutions as they prepare Canadians to adapt to climate change impacts. The cost of inaction is estimated to greatly exceed the cost of taking action. To minimize costs, federal organizations must proactively manage climate change risks that could affect their mandate delivery.

2.15 As part of this audit, we did not examine actions carried out by provinces, territories, municipalities, or other local actors. We also did not audit the effectiveness of federal adaptation programs.

2.16 Canada's provincial auditors general partnered together and with the federal Commissioner of the Environment and Sustainable Development, through the Office of the Auditor General of Canada, to examine and report on progress on climate change action within their governments. This audit report on adapting to climate change is one of the federal contributions to this project.

2.17 More details about the audit objectives, scope, approach, and criteria are in **About the Audit** at the end of this report (see pages 28–32).

## Findings, Recommendations, and Responses

### Federal leadership for climate change adaptation

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#### Overall message



2.18 Overall, we found that Environment and Climate Change Canada did not provide adequate leadership and guidance to other federal organizations to achieve adaptation objectives. Although it developed the Federal Adaptation Policy Framework, the Department did not set priorities or develop an adaptation action plan to advance the framework across the federal government. We also found that Environment and Climate Change Canada did not provide adequate tools and resources to help other departments and agencies assess and adapt to climate change risks. During 2017, the Department began to make progress under the Pan-Canadian Framework on Clean Growth and Climate Change.

2.19 These findings matter because to adapt to a changing climate, the federal government needs to set priorities and identify concrete targets, timelines, actions, and accountabilities that are supported by an assessment of climate change risks. Otherwise, it cannot demonstrate that the climate change risks to its areas of responsibility, including its assets, programs, and other activities, are understood or addressed.

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## Context

2.20 In 2006 and 2010, we examined the federal government's efforts to adapt to climate change. Our 2010 audit found no federal adaptation plan or policy in place, with departments and agencies lacking central direction to prioritize and coordinate their efforts. We recommended that Environment and Climate Change Canada, with support from Natural Resources Canada and other federal organizations, develop a federal adaptation strategy and action plan. Since our last audit, there have been a variety of developments:

- In 2011, the Federal Adaptation Policy Framework was released. The framework is intended to result in the federal government's resilience to climate change and in its proactive and explicit inclusion of adaptation considerations in federal processes.
- In 2015, the Prime Minister identified climate change as a key challenge for the country and a priority for government.
- In December 2015, under the United Nations Framework Convention on Climate Change, Canada signed the Paris Agreement (ratified in October 2016). The agreement outlines the need for countries to engage in climate change adaptation planning, including assessing impacts and vulnerabilities with a view to prioritizing actions.
- In March 2016, Canada's first ministers released the Vancouver Declaration on Clean Growth and Climate Change as a joint federal, provincial, and territorial commitment to deliver on the Paris Agreement. This was followed by the government's release of the **Pan-Canadian Framework on Clean Growth and Climate Change**, which was adopted in December 2016 by the first ministers (except the premiers of Saskatchewan and Manitoba). It includes climate change adaptation and resilience as one of four main pillars.
- Action on climate change adaptation was also included in the 2013–16 and 2016–19 federal sustainable development strategies. The 2016–19 Federal Sustainable Development Strategy also commits all departments and agencies to transition to a low-carbon government through actions like understanding and addressing climate change impacts and exploring how to integrate them into program design.
- In November 2016, the federal government announced the new Centre for Greening Government at the Treasury Board of Canada Secretariat. The Centre was created to lead the federal government's greenhouse gas emissions reduction program and other greening

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**Pan-Canadian Framework on Clean Growth and Climate Change**—A commitment by federal, provincial, and territorial governments to address climate change through an economy-wide approach, accelerating clean economic growth, and building resilience to the impacts of climate change. One of its four main pillars is to mobilize action on adaptation to help protect Canadians from climate change risks, build resilience, and ensure that our society thrives in a changing climate.

government objectives, including working with departments to identify and address potential climate vulnerabilities of federal infrastructure and services. The scope of the Centre's work is still under development.

## Environment and Climate Change Canada did not develop an action plan

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### What we found

2.21 We found that, in response to our 2010 audit, Environment and Climate Change Canada led the development of the Federal Adaptation Policy Framework. The framework contains broad objectives related to developing tools, awareness, and resilience to adapt to the impacts of climate change. However, it does not identify concrete actions, priorities, and targets to achieve its objectives.

2.22 We also found that the Department did not develop an action plan with clear direction for departments and agencies on how to implement the framework, and that this contributed to a lack of strategic and coordinated action across the government.

2.23 Our analysis supporting this finding presents what we examined and discusses the following topics:

- Federal Adaptation Policy Framework
- Federal adaptation action plan

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### Why this finding matters

2.24 Climate change impacts vary across the country and can affect the ability of federal departments and agencies to deliver their mandates. An adaptation action plan, based on a government-wide understanding of risks, would offer clear direction for departments and agencies to set priorities and adapt to a changing climate.

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### Recommendations

2.25 Our recommendations in this area of examination appear at paragraphs 2.31 and 2.35.

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### Analysis to support this finding

2.26 **What we examined.** We examined whether Environment and Climate Change Canada, with help from its federal partners, developed an adaptation strategy and action plan to help the federal government assess and prioritize climate change risks to its programs, policies, assets, and activities.

2.27 **Federal Adaptation Policy Framework.** In response to our 2010 recommendation, Environment and Climate Change Canada committed to working with its federal partners to develop an adaptation policy framework to guide future programming. The framework was meant to develop a vision for adaptation, define the federal role, set objectives, and establish criteria to identify priorities. We found that the Department led the development of the Federal Adaptation Policy Framework, which Cabinet approved in 2010.

2.28 The framework contains a vision that Canada is resilient to a changing climate by successfully adapting to related challenges and opportunities. It describes the federal government's role in ensuring that the government effectively integrates climate change considerations into programs, policies, and operations, and facilitates action by others. It also contains the following broad objectives: that Canadians understand climate change and its impacts on their quality of life; that they have the tools to adapt; and that the federal government, as an institution, is resilient to climate change.

2.29 However, the framework does not set priorities or identify concrete actions with targets, timelines, and accountabilities to ensure that the federal government fulfills its roles and objectives. For example, the framework states that each federal organization should apply its risk management experience to climate change issues that could affect its mandate delivery. But it does not clarify when or how federal departments and agencies should assess and manage their risks.

2.30 Furthermore, the framework was not broadly communicated. Despite being disseminated to deputy ministers in 2011, the full document was available only upon request until it was posted on the Government of Canada's website in August 2016, during the course of our audit.

2.31 **Recommendation.** Environment and Climate Change Canada, in consultation with central agencies (such as the Treasury Board of Canada Secretariat's Centre for Greening Government), should

- provide clear direction and guidance to federal departments to assess climate change risks to their areas of responsibility, and
- gather individual departments' resulting information to build government-wide awareness of climate change risks and opportunities to inform adaptation planning.

***Environment and Climate Change Canada's response.** Agreed. The federal government recognizes that addressing climate change is a priority. While individual departments assess the climate change risks to their areas of responsibility, Environment and Climate Change Canada, in collaboration with central agencies (such as the Treasury Board of Canada Secretariat's Centre for Greening Government), will provide further guidance and support the sharing of information within the federal government to increase awareness of climate risks and opportunities.*

2.32 **Federal adaptation action plan.** We found that the 2011 Federal Adaptation Policy Framework did not have an action plan to guide its implementation across the federal government. Over the years, senior manager interdepartmental committees on adaptation held discussions, but never finalized a plan. Departments and agencies lacked central direction on how to prioritize and coordinate their efforts to manage climate change risks and integrate adaptation considerations into ongoing activities. As a result, few have done so (see paragraphs 2.61–2.77).

2.33 In the absence of an action plan to direct the Canadian government's adaptation activities, we reviewed climate change adaptation planning in countries identified as leaders among Organisation for Economic Co-operation and Development (OECD) members, and we learned some useful lessons (Exhibit 2.2).

### **Exhibit 2.2 International approaches to climate change adaptation planning offer useful lessons**

According to the Organisation for Economic Co-operation and Development (OECD), 24 of its then 34 member countries had published strategies for adaptation by 2015. Among these countries, several had developed adaptation plans with concrete actions to address climate change impacts. These plans offer useful lessons for Canada.

**Embed climate change adaptation in legislation.** The United Kingdom's *Climate Change Act 2008* requires the government to periodically assess climate change risks and develop adaptation plans. Finland's *Climate Change Act* of 2015 also requires a national adaptation plan.

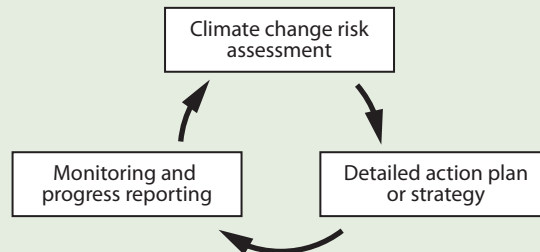
**Assess climate change risks.** Comprehensive, evidence-based adaptation planning assesses climate change risks and vulnerabilities, and the options to address them. When done periodically, these climate change risk assessments also allow countries to monitor progress, assess changes in adaptation priorities, and identify emerging risks. For example, in the United Kingdom, the government must prepare a national climate change risk assessment every five years. The 2008 German Strategy for Adaptation to Climate Change focused on vulnerabilities in 15 areas of activity. Building on this work, Germany's 2015 climate change vulnerability assessment identified specific priorities.

**Select and prioritize actions.** These actions involve addressing the most significant risks—and ensuring the efficient use of public resources. For example, France enhanced its 2006 adaptation strategy with a 2011 adaptation plan containing 230 measures for departments to implement, along with timelines. In the United Kingdom, the adaptation program must address priority risks (identified in the national climate change risk assessment) and identify responsibilities and timelines for implementation. In Germany, an action plan in 2011 supplemented the adaptation strategy and identified concrete federal government actions needed to advance the strategy. In December 2015, the strategy was updated by a progress report, and an updated action plan was adopted, including about 140 measures.

## Exhibit 2.2 International approaches to climate change adaptation planning offer useful lessons (continued)

**Establish oversight.** Some countries also established oversight committees to monitor and evaluate the progress made on their adaptation plans. For example, the United Kingdom's Committee on Climate Change has an Adaptation Sub-Committee to give Parliament an independent assessment of progress on its national adaptation program. In Finland, a national monitoring group coordinates the implementation of the government's adaptation plan, with representatives from relevant ministries, research institutes, and various regions and locales.

In summary, from our review of Finland, France, Germany, and the United Kingdom, we distilled comprehensive, evidence-based adaptation planning into three basic steps:



2.34 We found that, although little progress was made on a federal adaptation action plan between 2011 and 2016, Environment and Climate Change Canada had recently begun to consider such matters as part of its commitment to the Pan-Canadian Framework on Clean Growth and Climate Change. We noted that roles and responsibilities, actions and activities, and measuring and reporting on progress were under discussion and development.

2.35 **Recommendation.** Environment and Climate Change Canada, in collaboration with other key federal departments and agencies, should develop a federal adaptation action plan that

- describes how the federal government will achieve its adaptation objectives and commitments;
- identifies concrete, prioritized actions with timelines to respond to climate change impacts on federal areas of responsibility, based on evidence from climate change risk assessments;
- clearly identifies roles and responsibilities, including who is responsible for overseeing the plan and which departments and agencies are accountable for implementing the actions; and
- requires measuring and reporting on the plan's progress.

**Environment and Climate Change Canada's response.** *Agreed. Environment and Climate Change Canada, in collaboration with departments and agencies, will continue to implement the Pan-Canadian Framework on Clean Growth and Climate Change as the government's*



*plan to grow the economy while reducing emissions and building resilience to adapt to a changing climate.*

*Through the framework, the federal government has identified priority actions to respond to climate change impacts on federal areas of responsibility; outlined roles and responsibilities, including who is responsible for overseeing the plan and governance structures; determined what departments are accountable for implementing these actions; and developed a process to measure and report on progress. The federal government will continue to implement these actions under the framework as the federal action plan.*

*In addition, the Treasury Board of Canada Secretariat's Centre for Greening Government will continue to track greenhouse gas emissions centrally and coordinate efforts across government to lower emissions. In particular, as the lead for the Federal Sustainable Development Strategy's low-carbon government goal, the Centre will work with Environment and Climate Change Canada and other departments and agencies in order that they better understand the wide range of climate change impacts that could potentially affect federal assets, programs, and services across the country; ensure service disruptions are avoided; and explore how climate change impacts can be integrated into program design considerations.*

## **Environment and Climate Change Canada did not provide adequate leadership and guidance to help departments and agencies adapt to a changing climate**

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### **What we found**

2.36 We found that Environment and Climate Change Canada shared some tools to help other departments and agencies identify their climate change vulnerabilities and established a committee to coordinate federal adaptation policies and activities. However, the Department did not meet its commitment to coordinate resource sharing and best practices among government departments and agencies so that they could improve their decision making and planning. There was a lack of adequate leadership to ensure that departments and agencies understood their responsibilities and had the necessary tools and guidance to do so.

2.37 Our analysis supporting this finding presents what we examined and discusses the following topics:

- Guidance and tools across government
- Interdepartmental committees on adaptation
- Leadership to advance adaptation

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### **Why this finding matters**

2.38 This finding matters because strong leadership, guidance, and tools support collaboration across government so that it can make coordinated, informed, and effective decisions on climate change adaptation.

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**Recommendation**

2.39 Our recommendation in this area of examination appears at paragraph 2.47.

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**Analysis to support this finding**

2.40 **What we examined.** In response to our 2010 audit, Environment and Climate Change Canada committed to sharing tools and best practices to help integrate climate risk assessment and adaptation into government decision making and planning. The Department also committed to establishing an interdepartmental committee to coordinate this work. We examined whether Environment and Climate Change Canada carried out these commitments and showed leadership to advance the federal government's adaptation to climate change.

2.41 **Guidance and tools across government.** We found that Environment and Climate Change Canada took some steps to coordinate the federal government's response to climate change. In 2013, the Department drafted guidance for departments and agencies on assessing climate change risks. The Department shared this guidance with 15 federal departments and agencies through interdepartmental committees, working groups, and bilateral support. The Department also held a climate change risk assessment workshop in 2013 to educate participants about identifying, assessing, and prioritizing climate change risks.

2.42 However, we found that the guidance document had not been finalized or updated since 2013, and was not available online. There were no further workshops drawing on the lessons learned from departments and agencies with more experience in climate change risk assessments. Departments and agencies told us that continuing these previous efforts would be valuable. They indicated a need for clear direction and standardized guidance on conducting climate change risk assessments, evaluating and measuring progress, and setting mandate-specific adaptation goals and targets.

2.43 Departments and agencies also pointed to a need for a centralized, easily accessible source of information (such as climate data) and tools (such as guidance and training) to help them understand climate change and what impact it could have on their organizations. Some said that several different departments and agencies produced useful information, but that it was often hard to find. They suggested that a central portal for resources and mechanisms to exchange expertise and best practices would allow less advanced departments and agencies to benefit from others' progress and lessons learned.

**2.44 Interdepartmental committees on adaptation.** In response to our 2010 recommendation, Environment and Climate Change Canada established and led a committee of directors general from 17 federal departments and agencies to help implement the Federal Adaptation Policy Framework. The Department also created a companion working-level committee to coordinate adaptation across the federal government. While these committees fostered greater collaboration across departments and agencies, they did not lead to systematic climate change risk management to support related decision making and planning.

**2.45 Leadership to advance adaptation.** We found that departments and agencies highlighted the leadership of others—such as Transport Canada, Indigenous and Northern Affairs Canada, Fisheries and Oceans Canada, and Natural Resources Canada—that were more advanced in assessing their climate change risks and able to share lessons learned. For example, Natural Resources Canada’s Adaptation Platform was reportedly a helpful Canada-wide forum that gathered practitioners to discuss common challenges and share knowledge.

**2.46** Departments and agencies included in this audit told us that to move the federal government’s commitment forward, stronger leadership from key players is needed, including from Environment and Climate Change Canada and the central agencies, such as the Department of Finance Canada, the Privy Council Office, and the Treasury Board of Canada Secretariat.

**2.47 Recommendation.** Environment and Climate Change Canada, in collaboration with other federal departments and agencies, should

- assess what tools, guidance, expertise, and resources federal departments and agencies need to manage their climate change risks;
- create a centralized portal of tools, guidance, expertise, and resources; and
- make ongoing training and sharing of best practices and lessons learned available to departments and agencies.

***Environment and Climate Change Canada’s response.*** Agreed.

*Environment and Climate Change Canada, in collaboration with other federal departments and agencies, will continue to share information, tools, promising practices, and lessons learned to build awareness and capacity to respond to climate change risks and opportunities within the federal government.*

*Environment and Climate Change Canada will continue to provide support and training workshops in the application of climate data and scenarios for other federal departments and agencies.*

## Departmental actions to address the impacts of climate change

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### Overall message



2.48 Overall, we found that few federal departments and agencies assessed or acted on the climate change risks related to their areas of responsibility. Of the 19 departments and agencies we audited, 5 had assessed and addressed their risks related to their mandates. The remaining 14 did not fully assess their climate change risks, although several took some measures to adapt.

2.49 These findings matter because proactive planning is more effective and less costly than reacting to climate change impacts as they happen. Preparing for climate change requires federal organizations to manage risks that could prevent them from delivering on their mandates.

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### Context

2.50 Climate change impacts touch nearly all government portfolios. The Federal Adaptation Policy Framework states that federal departments and agencies must be proactive to integrate climate change adaptation into their programs and services. Departments and agencies are expected to be aware of the risks to their mandates and adapt their policies and practices based on their vulnerability assessments. This is consistent with the Treasury Board's Framework for the Management of Risk (Exhibit 2.3).

2.51 Some organizations may choose to integrate adaptation into policies and decision making rather than implement stand-alone adaptation measures. However, in fulfilling the Federal Adaptation Policy Framework's objective of integrating adaptation into corporate risk management, it is important to explicitly identify adaptation opportunities and how they influence the screening, prioritization, and expected results of policies and projects. Integrating and preparing for adaptation as part of existing policies and programs requires foresight, and—like any other issue—needs to be based on a full understanding of the risks.

## Five departments and agencies assessed their climate change risks and took actions to address them

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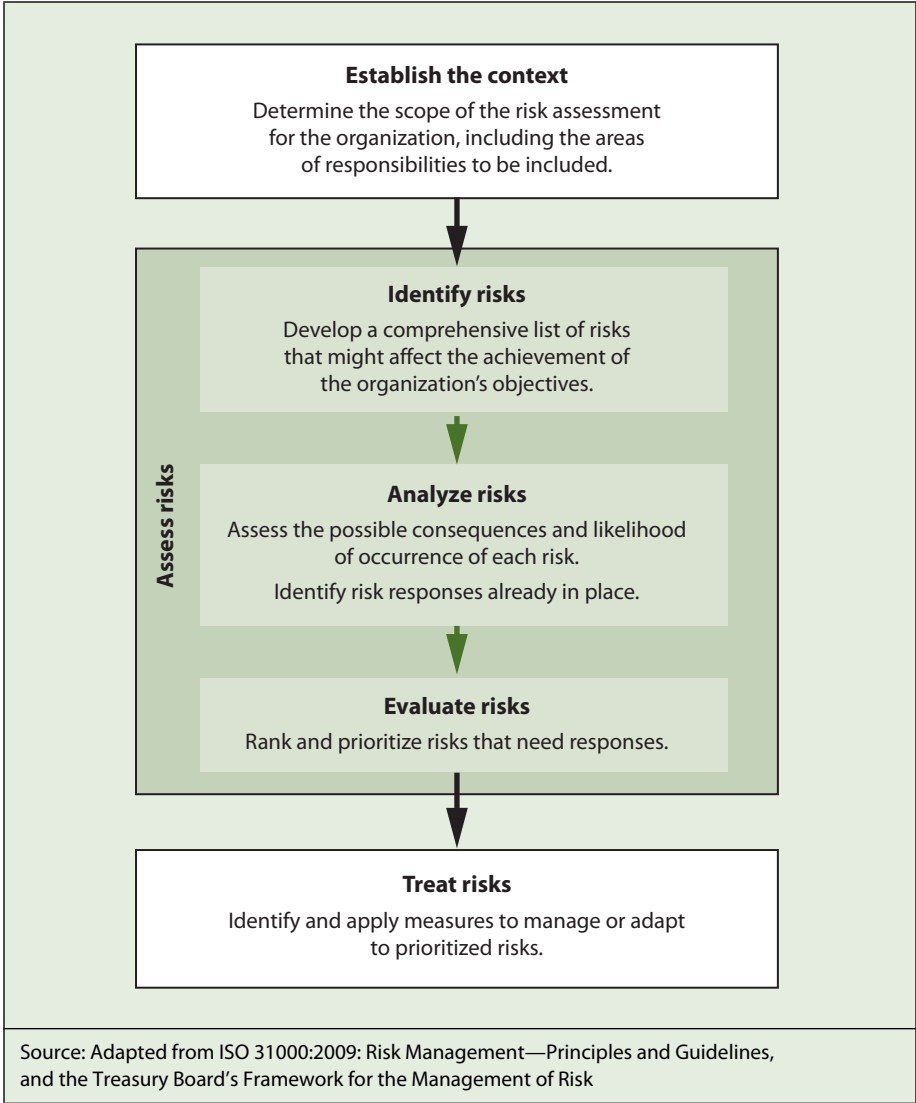
### What we found

2.52 We found that 5 of the 19 departments and agencies we examined assessed climate change risks in their areas of responsibility, incorporated them into their broader corporate risk management activities, and implemented measures to respond to them.

2.53 Our analysis supporting this finding presents what we examined and discusses the following topics:

- Risk assessments to adapt to climate change
- Actions to address identified risks

**Exhibit 2.3** A risk management process identifies, assesses, and treats climate change risks in departments and agencies



Why this finding matters	2.54 This finding matters because understanding the potential risks of climate change is key to ensuring that federal government programs and services are resilient. Each federal organization must manage the risks that could affect its ability to deliver on its mandate as envisioned by the Federal Adaptation Policy Framework.
Recommendations	2.55 We made no recommendations in this area of examination.

2.56 **What we examined.** We examined 19 departments and agencies to determine whether they identified and assessed climate change risks in their areas of responsibility and took measures to address them.

2.57 **Risk assessments to adapt to climate change.** We found that five federal departments—Fisheries and Oceans Canada, Health Canada, Indigenous and Northern Affairs Canada, Natural Resources Canada, and Transport Canada—completed comprehensive risk assessments and integrated adaptation into their programs and activities. Their assessments described their most significant climate change risks and identified their most likely affected program areas.

- **Fisheries and Oceans Canada.** In 2005, the Department identified the greatest risks to its mandate, and in 2012, it refined its analysis. Identified risks included potential negative impacts on ecosystems, fish stocks, and the safety and accessibility of waterways, as well as impacts on infrastructure, such as small craft harbours and Canadian Coast Guard assets.
- **Health Canada.** In 2015, the Department assessed climate change risks affecting its programs and activities, and the health of Canadians. Health Canada identified and ranked 39 corporate and program-level risks, and set 6 of them as priorities for action. Some of the high risks were that severe flooding could disrupt critical services, that extreme weather events could create challenges for emergency planning, and that the Department could need to provide additional support to First Nations and Inuit communities on traditional food safety and security issues.
- **Indigenous and Northern Affairs Canada.** In 2011, the Department mapped possible climate change impacts to its departmental activities, including in northern programming and community infrastructure. Its risk assessment identified vulnerabilities, such as diminishing food supplies due to changes in water resources and ecosystems.
- **Natural Resources Canada.** In 2010, a departmental assessment identified 14 risks to the Department's mandate areas, including the forestry, mining, and energy sectors. Risks included more severe and frequent forest fires and floods, rising sea levels, and thawing permafrost. These risks could have an impact on the viability of resource projects, including their access and distribution. The Department has since managed its highest risks through up-to-date corporate risk planning.
- **Transport Canada.** In 2012, the Department assessed potential climate change impacts to its assets, regulatory activities, and programs. Risks included the impacts of sea level rise and storm surges on some ports, and thawing permafrost at northern airports. In 2017, Transport Canada and Natural Resources Canada released a

report, *Climate Risks and Adaptation Practices for the Canadian Transportation Sector 2016*, which includes current knowledge about climate risks to the Canadian transportation sector. The report identifies current and potential adaptation practices.

**2.58 Actions to address identified risks.** We found that these same five federal departments—Fisheries and Oceans Canada, Health Canada, Indigenous and Northern Affairs Canada, Natural Resources Canada, and Transport Canada—made progress in responding to the climate change risks they identified.

- **Fisheries and Oceans Canada.** Through its Aquatic Climate Change Adaptation Services Program, the Department conducted 38 research projects and developed 22 adaptation tools to monitor and study the impacts of climate change on Canada's fisheries, aquatic ecosystems, coastlines, and coastal infrastructure. While departmental research projects built knowledge, associated tools helped integrate climate change considerations into programs and policies. Exhibit 2.4 gives concrete examples of adaptation tools developed and applied.
- **Health Canada.** In response to climate change impacts on traditional foods and health in First Nations and Inuit communities, the Department funded 36 food safety projects in northern communities, which included decision-making tools and capacity-building activities. However, work remains to be done to respond to the Department's other high-priority risks.
- **Indigenous and Northern Affairs Canada.** Since 2008, the Department's climate change adaptation program has supported First Nations, Inuit, and northern communities to assess their climate change vulnerabilities and build infrastructure that is more resilient to extreme weather events. Following its risk assessment, the Department adjusted its programming to focus on infrastructure and emergency management.
- **Natural Resources Canada.** To address rising sea levels and degrading permafrost, the Department provided geoscientific expertise to land-use planners and industry through its Climate Change Geoscience Program. This program aims to support the management of risks related to natural resource development in the North.
- **Transport Canada.** The Department and its partners conducted infrastructure engineering assessments of three northern airports to identify potential vulnerabilities of the airports' infrastructure to the changing climate. Transport Canada also supported research to make railway operations more reliable in cold weather.

#### Exhibit 2.4 Fisheries and Oceans Canada responded to coastal infrastructure vulnerability with its Small Craft Harbours program

Canada has one of the longest coastlines in the world. Many coastal areas are of great economic, social, historical, or environmental significance. However, climate change impacts—including rising sea levels and water temperatures, increasing ocean acidity, and decreasing sea ice and permafrost—pose considerable challenges.

Fisheries and Oceans Canada's Small Craft Harbours program manages more than 750 core commercial fishing harbours with approximately 7,000 structures and a replacement value of \$5.2 billion. The Department has identified potential infrastructure damage from climate change impacts as a high risk.

In response to this risk, the Department has developed climate change adaptation tools for coastal infrastructure. These include two web-based tools: the Canadian Extreme Water Level Adaptation Tool (CAN-EWLAT), which provides future projections of sea level rise, and the Coastal Infrastructure Vulnerability Index, which combines environmental, harbour engineering, and socio-economic data into a relative measure of harbour vulnerability to combined climate change impacts. This helps engineers and managers plan where best to invest in adaptation projects.

##### Example—Margaree Harbour, Nova Scotia

One example of CAN-EWLAT's application is depicted below at Margaree Harbour, Nova Scotia. Rising sea levels and increasing storm surges compromised harbour infrastructure. In 2010, the wharf was breached and much of the facility was underwater. Using information provided by CAN-EWLAT, the Department raised the wharf by 0.7 metre in 2016 to accommodate projected sea level rise over the structure's operational lifetime.



Margaree Harbour (2010): Wharf breached by rising sea levels



Margaree Harbour (2016): Wharf raised 0.7 metre

Source: Adapted from text provided by Fisheries and Oceans Canada  
Photos: Fisheries and Oceans Canada

2.59 We found that these five organizations shared common characteristics. Each of them considered relevant climate change impacts to see how they might affect program delivery, infrastructure assets, program beneficiaries, and other stakeholders. In most cases, they also prioritized the resulting climate change risks and formally incorporated them into their broader corporate risk management processes. Transport Canada went a step further by establishing a climate change action plan with corporate objectives, expected results, roles, responsibilities, corporate actions, and timelines.



2.60 Exhibit 2.5 provides examples of climate change impacts, risks identified, and adaptation measures undertaken in these departments.

**Exhibit 2.5** Five departments assessed climate change impacts, risks, and how to address them

Department	Examples of impacts identified	Examples of risks to mandate identified	Examples of measures undertaken
Fisheries and Oceans Canada	<ul style="list-style-type: none"> <li>• Changes in water temperature, abundance, quality, composition, and circulation patterns</li> <li>• More frequent severe weather events and changes to storm tracks</li> <li>• Changes in ice cover and sea ice</li> </ul>	<ul style="list-style-type: none"> <li>• Ecosystem and fisheries degradation</li> <li>• Increased demand for emergency response</li> <li>• Infrastructure damage</li> <li>• Changes in waterway access and navigation</li> </ul>	<ul style="list-style-type: none"> <li>• Conducted research on the impacts of climate change on freshwater and marine ecosystems in the Arctic</li> <li>• Published information and maps online to support decision making on adaptation in coastal communities</li> </ul>
Health Canada	<ul style="list-style-type: none"> <li>• Increasing climate and weather extremes</li> <li>• Destruction of crops, livestock, and aquatic animal populations</li> <li>• Air pollution</li> </ul>	<ul style="list-style-type: none"> <li>• Additional support to First Nations and Inuit communities to address traditional food safety and security issues</li> <li>• Increased demand for services in extreme weather emergencies and disease outbreaks</li> </ul>	<ul style="list-style-type: none"> <li>• Provided funding for food safety projects in northern communities</li> <li>• Delivered workshops with First Nations and Inuit organizations on health risks associated with climate change</li> </ul>
Indigenous and Northern Affairs Canada	<ul style="list-style-type: none"> <li>• Thawing permafrost</li> <li>• More frequent extreme weather events</li> <li>• Changes to water resources and ice dynamics</li> <li>• Changes to ecosystem structure and function</li> </ul>	<ul style="list-style-type: none"> <li>• Infrastructure vulnerability and failure (roads, houses, utilities)</li> <li>• Decreased quality, quantity, and availability of potable water</li> <li>• Habitat changes with impacts on ecology, hunting, and fishing</li> </ul>	<ul style="list-style-type: none"> <li>• Provided funding to support climate change risk assessments and adaptation planning in First Nations, Inuit, and northern communities</li> <li>• Engaged with northerners and experts on new infrastructure standards that consider the impacts of permafrost on foundations</li> </ul>
Natural Resources Canada	<ul style="list-style-type: none"> <li>• Loss of permafrost, erosion, changes to freeze-thaw cycles and sea ice, and extreme weather</li> <li>• Greater numbers of invasive species and more wildfires</li> </ul>	<ul style="list-style-type: none"> <li>• Climate change impacts that could limit access to natural resources and affect communities and industries</li> <li>• Lack of adaptation knowledge and expertise to inform decision making</li> </ul>	<ul style="list-style-type: none"> <li>• Established an adaptation platform enabling collaborative work on adaptation priorities with stakeholders, including the natural resources sector</li> <li>• Provided geoscientific expertise to land-use planners through the Climate Change Geoscience Program</li> </ul>

**Exhibit 2.5 Five departments assessed climate change impacts, risks, and how to address them (continued)**

Department	Examples of impacts identified	Examples of risks to mandate identified	Examples of measures undertaken
Transport Canada	<ul style="list-style-type: none"> <li>• Thawing permafrost</li> <li>• Changing sea ice conditions</li> <li>• Rising sea levels and storm surges</li> </ul>	<ul style="list-style-type: none"> <li>• Damage to coastal infrastructure</li> <li>• Service disruptions and damage to transportation infrastructure (for example, roads and bridges)</li> </ul>	<ul style="list-style-type: none"> <li>• Conducted studies on current and future navigation traffic and patterns in the Arctic related to changing ice conditions</li> <li>• Used satellites to monitor bridge stability and movements, which can be affected by various factors, including climate change</li> </ul>

**Fourteen departments and agencies had not fully assessed their climate change risks**

**What we found**

2.61 We found that nine departments and agencies did not fully assess climate change risks in their areas of responsibility. Instead, each included climate change broadly as an influence in their corporate risk management documents. The nine departments were

- Agriculture and Agri-Food Canada,
- the Canadian Food Inspection Agency,
- Environment and Climate Change Canada,
- Global Affairs Canada,
- Infrastructure Canada,
- National Defence,
- Parks Canada,
- the Public Health Agency of Canada, and
- Public Safety Canada.

2.62 We also found that two other federal organizations—Public Services and Procurement Canada, and Innovation, Science and Economic Development Canada—did not assess their climate change risks.

2.63 Finally, three central agencies—the Department of Finance Canada, the Privy Council Office, and the Treasury Board of Canada Secretariat—told us that they had limited areas of responsibility affected by climate change. We found that existing guidance and tools used in reviewing policy, plan, and program proposals from other federal organizations did not proactively and explicitly consider climate impacts.

2.64 Our analysis supporting this finding presents what we examined and discusses the following topics:

- Adaptation not fully considered in corporate risk processes—nine federal organizations
- Adaptation not included in corporate risk processes—two federal organizations
- Lack of action to formally assess climate change risks
- Central agency review of policy, plan, and program proposals—three federal organizations

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**Why this finding matters**

2.65 This finding matters because without a clear understanding of climate change risks, it is difficult to manage them properly. Without considering these risks, the federal government's central agencies cannot effectively review policy and program proposals of other departments and agencies.

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**Recommendations**

2.66 Our recommendations in this area of examination appear at paragraphs 2.74 and 2.77.

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**Analysis to support this finding**

2.67 **What we examined.** We examined the departments and agencies included in the audit to determine if they had identified, assessed, and addressed the climate change risks related to their areas of responsibility.

2.68 **Adaptation not fully considered in corporate risk processes—nine federal organizations.** We found that nine departments and agencies did not fully assess climate change risks in their areas of responsibility. None provided specific information on the possible consequences, likelihood, or magnitude of climate change impacts. However, each included climate change broadly as an influence in their corporate risk management documents as just one of many possible contributors to natural threats, crises, or disasters.

2.69 Although the Public Health Agency of Canada, National Defence, and Agriculture and Agri-Food Canada did not assess how climate change could affect all their areas of responsibility, they did take measures to address some of the climate change impacts identified in their corporate risk management documents:

- The Public Health Agency of Canada examined climate change impacts to Canadians' health in such areas as extreme weather, waterborne diseases, food security, and mental health. The Agency also identified climate change as a contributor to the risk of infectious diseases. In response, the Agency took measures to monitor, predict, and reduce threats from diseases such as the West Nile virus and Lyme disease.

- National Defence recognized that climate change and the resulting melting ice in the Arctic will make this region increasingly accessible. This could lead to more demands on search and rescue, surveillance, and requirements for the security of Canadian territory. In response to the risk of disruption of its operations in the North, the Department established Operation NANOOK to train personnel to respond to security and environmental threats.
- Agriculture and Agri-Food Canada identified climate change as a contributing factor to catastrophic crises, such as droughts and violent storms. In response to the risk of droughts and resulting production losses, the Department reviewed its financial support to farmers under the Business Risk Management programs to ensure that the Department adequately supported producers in such events.

2.70 We found that the Canadian Food Inspection Agency, Global Affairs Canada, Infrastructure Canada, Parks Canada, and Public Safety Canada did not explicitly link any activities to the climate risk drivers identified in their corporate risk management documents. Although they identified some measures related to climate change adaptation, these measures were either at an early stage of implementation or limited in scope.

2.71 We found that Environment and Climate Change Canada did some preliminary work to include adaptation in its corporate risk processes. The Department incorporated climate change into a registry of corporate risks and began, but did not complete, a formal climate change risk assessment for its areas of responsibility. This preliminary work did not lead to any adaptation measures being implemented.

2.72 **Adaptation not included in corporate risk processes—two federal organizations.** We found that two other departments—Public Services and Procurement Canada, and Innovation, Science and Economic Development Canada—did not include climate change considerations in their corporate risk management documents at all, nor did they demonstrate having assessed such risks. Although they supported some initiatives related to adaptation, these were undertaken outside the context of corporate risk management.

2.73 **Lack of action to formally assess climate change risks.** The absence of clear direction and an action plan to implement the Federal Adaptation Policy Framework contributed to the lack of action to formally assess and respond to climate change risks in most of the departments and agencies we examined, leaving the government largely unaware of its climate change vulnerabilities.

**2.74 Recommendation.** The following departments and agencies should identify, assess, prioritize, and address the climate change risks related to their areas of responsibility:

- Agriculture and Agri-Food Canada;
- the Canadian Food Inspection Agency;
- Environment and Climate Change Canada;
- Global Affairs Canada;
- Infrastructure Canada;
- Innovation, Science and Economic Development Canada;
- National Defence;
- Parks Canada;
- the Public Health Agency of Canada;
- Public Safety Canada; and
- Public Services and Procurement Canada.

***Agriculture and Agri-Food Canada's response.*** Agreed. Agriculture and Agri-Food Canada will continue to assess and address climate change risks to the sector and the Department, and build on existing assessments. This includes continuing to integrate and further documenting climate change risks and programs that respond to climate change impacts in the Department's corporate risk profile. Under the Canadian Agricultural Partnership, the next federal-provincial/territorial agriculture policy framework to be launched in April 2018, Agriculture and Agri-Food Canada and provinces and territories have identified climate change adaptation as a priority. Agriculture and Agri-Food Canada, in collaboration with provinces and territories, will build on existing programming to ensure ongoing support to identify, prioritize, and address climate change risks to the agriculture and agri-food sector. By December 2018, the Department will review, prioritize, identify, and more clearly document adaptation measures to address its existing and evolving climate risks to its area of responsibility.

***The Canadian Food Inspection Agency's response.*** Agreed. In addition to creating various mandate-related risk profiles, the Canadian Food Inspection Agency also initiated a refresh of its corporate risk profile to contemplate climate change risks. The Agency will use the corporate risk profile, along with other risk intelligence products, to inform corporate and program priorities. The risk profiles will also support the identification of any necessary adjustments to plans or new actions required to address risks. This work will be completed by 31 March 2018.

***Environment and Climate Change Canada's response.*** Agreed.

*Environment and Climate Change Canada will undertake an assessment of climate risks to key programs and activities within the Department, and will identify potential measures to address these risks.*

***Global Affairs Canada's response.*** Agreed. *Global Affairs Canada will ensure that climate change is considered when identifying and prioritizing the operational risks for the programs in the Department's Program Inventory. The actions associated with this recommendation will be completed by April 2018.*

***Infrastructure Canada's response.*** Agreed. *Infrastructure Canada is committed to addressing climate change challenges and to working with provincial, territorial, municipal, and Indigenous partners on this issue. To this end, the Department entered into an agreement in 2017 with the Federation of Canadian Municipalities to deliver the Municipalities for Climate Innovations Program, which supports integrating climate change mitigation and adaptation objectives into municipal infrastructure investment planning. The Department will also enter into integrated bilateral agreements with the provinces and territories to deliver \$33 billion in federal infrastructure investments, of which \$9.2 billion will support green infrastructure projects, including projects to prepare for climate change. The Department will also apply a climate lens more broadly to all funding streams under the agreements to encourage consideration of climate change in project planning.*

*In addition, the \$2 billion Disaster Mitigation and Adaptation Fund will be launched in the 2017–18 fiscal year to provide funding for large-scale infrastructure projects supporting mitigation of natural disasters and extreme weather events and to strengthen climate resilience.*

*Finally, with respect to managing its corporate responsibilities, Infrastructure Canada will continue to assess climate change risk and ensure that assessments are clearly incorporated and documented in ongoing corporate risk management activities, starting in fall 2017.*

***Innovation, Science and Economic Development Canada's response.***

*Agreed. Innovation, Science and Economic Development Canada will continue to use its Integrated Risk Management Framework where department-wide corporate risks are identified and assessed and mitigation activities are established. Using this framework—and in alignment with Treasury Board of Canada Secretariat directives and Environment and Climate Change Canada guidance—Innovation, Science and Economic Development Canada will strengthen existing processes to identify, assess, prioritize, and address climate change risks related to its areas of responsibility.*

**National Defence's response.** *Agreed. Strong, Secure, Engaged: Canada's Defence Policy recognizes climate change as a key factor contributing to the growing complexity of operations. National Defence will document how climate change could affect its operations by April 2019. The identified risks associated with adapting to the impact of climate change will be incorporated into departmental risk management activities. As risk assessments are refined, the Department will adopt measures for climate change adaptation in accordance with departmental risk management decisions.*

**Parks Canada's response.** *Agreed. Parks Canada is committed to identifying, assessing, prioritizing, and addressing climate change risks across the Agency's areas of responsibility. Building on its existing programs and policies, such as the Conservation and Restoration Program, the Agency will complete a comprehensive assessment of climate change risks and mitigation measures by fall 2019.*

**The Public Health Agency of Canada's response.** *Agreed. The Public Health Agency of Canada will build on, strengthen, and enhance existing processes used to identify, assess, prioritize, and address climate change risks related to its areas of responsibility. This work will be completed by 31 March 2018.*

**Public Safety Canada's response.** *Agreed. Public Safety Canada will ensure that its corporate risk documents reflect the climate change risks related to its areas of responsibility.*

**Public Services and Procurement Canada's response.** *Agreed. Public Services and Procurement Canada will conduct a climate change adaptation risk assessment on programs and operations that climate change could have an impact on. Mitigation plans will be developed according to the Department's risk tolerances and appetite. In addition, climate change will be explicitly identified as a driver of risk in the next version of the corporate risk profile.*

**2.75 Central agency review of policy, plan, and program proposals—three federal organizations.** Unlike the other departments and agencies that own or manage assets, programs, or services affected by climate change, three central agencies—the Department of Finance Canada, the Privy Council Office, and the Treasury Board of Canada Secretariat—are mandated to respond to proposals from other government departments and agencies. The Federal Adaptation Policy Framework is intended to result in the proactive and explicit inclusion of adaptation considerations in such federal processes so that adaptation planning and programming occurs as part of ongoing federal activities.

2.76 While central agencies have guidance and tools—such as **strategic environmental assessments**—designed to ensure that departments and agencies consider environmental effects, our audits for the past three years have found that strategic environmental assessment was not adequately applied to most policy, planning, and program proposals. For our recent findings on this topic, see the 2017 Fall Reports of the Commissioner of the Environment and Sustainable Development to the Parliament of Canada, Report 4—Departmental Progress in Implementing Sustainable Development Strategies. Furthermore, we found that climate impacts were not explicitly and proactively considered in central agencies' guidance on strategic environmental assessments.

2.77 **Recommendation.** Central agencies, including the Department of Finance Canada, the Privy Council Office, and the Treasury Board of Canada Secretariat, should recalibrate existing guidance and tools used in program, plan, and policy reviews to support organizations' explicit consideration of climate change impacts and adaptation actions in ongoing federal activities.

***The Department of Finance Canada's response.** Agreed. The Department of Finance Canada agrees to work with other central agencies to ensure that the explicit and proactive consideration of climate change impacts is incorporated into existing guidance and tools used in the reviews of programs, plans, and policies with adaptation elements.*

***The Privy Council Office's response.** Agreed. Consistent with its response to the Audit Recommendation on Departmental Progress in Implementing Sustainable Development Strategies, the Privy Council Office will review and update its due diligence tool and guidance by September 2017 to include a question about whether a department or agency has completed a preliminary environmental assessment or scan. As part of the Privy Council Office's updated due diligence requirements, departments and agencies will be required to confirm that they have considered climate change, including climate change impacts, in their preliminary environmental assessment or scan, when appropriate.*

***The Treasury Board of Canada Secretariat's response.** Agreed. The Treasury Board of Canada Secretariat will continue to work with departments and agencies to help improve the application of the strategic environmental assessment process to proposals submitted to the Treasury Board. The Secretariat will develop additional guidance for departments in the next year to support a clear demonstration by departments that the*

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**Strategic environmental assessment**—An environmental assessment of proposed policies, plans, and programs that seeks to incorporate environmental considerations into the development of public policies and strategic decisions. It also serves to strengthen accountability and provide greater public confidence that the federal government considers potential environmental impacts when making decisions.



*relevant portion of the Cabinet directive was fully considered and, where warranted, that environmental considerations, including climate change impacts and adaptation, were taken into account for all proposals submitted for approval to the Treasury Board.*

## Conclusion

2.78 We concluded that Environment and Climate Change Canada, in collaboration with other federal partners, did not provide adequate leadership to advance the federal government's adaptation to climate change impacts. Although the Federal Adaptation Policy Framework and the recent Pan-Canadian Framework on Clean Growth and Climate Change provided a foundation, there was no action plan nor clear direction to ensure that the federal government would integrate climate change considerations into its own programs, policies, and operations.

2.79 Most of the federal departments and agencies we examined did not take appropriate measures to adapt to climate change impacts by assessing and managing the climate change risks to their programs, policies, assets, and operations. As a result, the federal government could not demonstrate that it was making progress in adapting to a changing climate. Stronger federal leadership is needed.

## About the Audit

This independent assurance report was prepared by the Office of the Auditor General of Canada on federal leadership for climate change adaptation. Our responsibility was to provide objective information, advice, and assurance to assist Parliament in its scrutiny of the government's management of resources and programs, and to conclude on whether the federal government's efforts in adapting to climate change complied in all significant respects with the applicable criteria.

All work in this audit was performed to a reasonable level of assurance in accordance with the Canadian Standard for Assurance Engagements (CSAE) 3001—Direct Engagements set out by the Chartered Professional Accountants of Canada (CPA Canada) in the CPA Canada Handbook—Assurance.

The Office applies Canadian Standard on Quality Control 1 and, accordingly, maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

In conducting the audit work, we have complied with the independence and other ethical requirements of the Rules of Professional Conduct of Chartered Professional Accountants of Ontario and the Code of Values, Ethics and Professional Conduct of the Office of the Auditor General of Canada. Both the Rules of Professional Conduct and the Code are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour.

In accordance with our regular audit process, we obtained the following from management:

- confirmation of management's responsibility for the subject under audit;
- acknowledgement of the suitability of the criteria used in the audit;
- confirmation that all known information that has been requested, or that could affect the findings or audit conclusion, has been provided; and
- confirmation that the findings in this report are factually based.

### Audit objectives

The objectives of this audit were

- to determine whether Environment and Climate Change Canada, in collaboration with federal partners, had taken appropriate measures to lead the federal government's adaptation to climate change impacts; and
- to determine whether selected federal departments had taken appropriate measures to adapt to climate change impacts in their areas of responsibility.

### Scope and approach

Environment and Climate Change Canada is the federal lead for climate change, including adaptation. Our audit focused on two of its key roles: as a coordinator of federal policies on climate change adaptation through various interdepartmental committees, and as a primary federal organization responsible for advancing the Federal Adaptation Policy Framework.

Other organizations included in the audit are

- Agriculture and Agri-Food Canada;
- the Canadian Food Inspection Agency;
- the Department of Finance Canada;
- Fisheries and Oceans Canada;
- Global Affairs Canada;
- Health Canada;
- Indigenous and Northern Affairs Canada;
- Infrastructure Canada;
- Innovation, Science and Economic Development Canada;
- National Defence;
- Natural Resources Canada;
- Parks Canada;
- the Privy Council Office;
- the Public Health Agency of Canada;
- Public Safety Canada;
- Public Services and Procurement Canada;
- Transport Canada; and
- the Treasury Board of Canada Secretariat.

All organizations included in this audit are subject to the Federal Adaptation Policy Framework, approved by Cabinet in 2011, which states that the federal government must take action to ensure that it effectively integrates climate change considerations into its own programs, policies, and operations. The organizations included in this audit are also involved in interdepartmental initiatives on climate change adaptation.

Central agencies, including the Department of Finance Canada, the Privy Council Office, and the Treasury Board of Canada Secretariat, are included in this audit because they are also subject to the Federal Adaptation Policy Framework. Specifically, the framework supports “decision-making in federal organizations . . . and in central agencies reviewing of programs with adaptation elements.”

During our audit, we administered a questionnaire to the above-mentioned 19 organizations to assess their efforts and plans on climate change adaptation, and understand their perceptions of the resources and support provided by the Government of Canada. Organizations were required to provide documentary support for all responses related to departmental or agency efforts and plans. We also conducted interviews with department and agency officials and reviewed documents. In addition, we conducted an overview of other countries’ frameworks on climate change adaptation.

## Collaborative climate change audit initiative

Canada's provincial auditors general partnered together and with the federal Commissioner of the Environment and Sustainable Development, through the Office of the Auditor General of Canada, to examine and report on progress on climate change action within their governments. This audit report on adapting to climate change is one of the federal contributions to this project. Audit work for the territories was carried out by the Office of the Auditor General of Canada, as independent auditor to Canada's northern legislatures.

## Criteria

Criteria	Sources
<b>To determine whether Environment and Climate Change Canada, in collaboration with federal partners, had taken appropriate measures to lead the federal government's adaptation to climate change impacts, we used the following criteria:</b>	
Environment and Climate Change Canada, in coordination with other federal partners, has developed a federal adaptation framework and action plan to respond to prioritized climate change risks to the federal government.	<ul style="list-style-type: none"> <li>• <i>Department of the Environment Act</i></li> <li>• Federal Adaptation Policy Framework, Environment Canada, 2011</li> <li>• Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada 2013–2016, Environment Canada, 2013</li> <li>• Achieving a Sustainable Future: A Federal Sustainable Development Strategy for Canada 2016–2019, Environment and Climate Change Canada, 2016</li> <li>• United Nations Framework Convention on Climate Change, 1992</li> <li>• Paris Agreement, United Nations Framework Convention on Climate Change, 2015</li> <li>• Management Accountability Framework, Treasury Board of Canada Secretariat</li> <li>• Framework for the Management of Risk, Treasury Board, 2010</li> <li>• Risk Management Capability Model, Treasury Board of Canada Secretariat</li> <li>• 2010 Fall Report of the Commissioner of the Environment and Sustainable Development, Chapter 3—Adapting to Climate Impacts, Recommendation 3.53 and the related departmental response</li> </ul>

Criteria	Sources
<b>To determine whether Environment and Climate Change Canada, in collaboration with federal partners, has taken appropriate measures to lead the federal government's adaptation to climate change impacts, we used the following criteria: (continued)</b>	
Environment and Climate Change Canada has played a leadership role in coordinating federal adaptation policies and activities, and sharing good practices and tools across the federal government.	<ul style="list-style-type: none"> <li>• <i>Department of the Environment Act</i></li> <li>• <i>Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada 2013–2016</i>, Environment Canada, 2013</li> <li>• <i>Achieving a Sustainable Future: A Federal Sustainable Development Strategy for Canada 2016–2019</i>, Environment and Climate Change Canada, 2016</li> <li>• <i>Federal Adaptation Policy Framework</i>, Environment Canada, 2011</li> <li>• <i>Paris Agreement, United Nations Framework Convention on Climate Change</i>, 2015</li> <li>• <i>2010 Fall Report of the Commissioner of the Environment and Sustainable Development, Chapter 3—Adapting to Climate Impacts, Recommendation 3.18 and the related departmental response</i></li> </ul>
<b>To determine whether selected federal departments had taken appropriate measures to adapt to climate change impacts in their areas of responsibility, we used the following criteria:</b>	
Selected federal departments and agencies have assessed the climate change risks related to their areas of responsibility.	<ul style="list-style-type: none"> <li>• <i>Federal Adaptation Policy Framework</i>, Environment Canada, 2011</li> <li>• <i>2010 Fall Report of the Commissioner of the Environment and Sustainable Development, Chapter 3—Adapting to Climate Impacts, Recommendation 3.25 and related departmental responses</i></li> <li>• <i>Framework for the Management of Risk</i>, Treasury Board, 2010</li> <li>• <i>Risk Management Capability Model</i>, Treasury Board of Canada Secretariat</li> <li>• <i>Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada 2013–2016</i>, Environment Canada, 2013</li> <li>• <i>Achieving a Sustainable Future: A Federal Sustainable Development Strategy for Canada 2016–2019</i>, Environment and Climate Change Canada, 2016</li> <li>• <i>Departmental Climate Change Risk Assessment Guidance (draft)</i>, Environment Canada, 2013</li> </ul>

Criteria	Sources
<b>To determine whether selected federal departments had taken appropriate measures to adapt to climate change impacts in their areas of responsibility, we used the following criteria: (continued)</b>	
Selected federal departments and agencies have taken action to address the highest prioritized risks to their areas of responsibility.	<ul style="list-style-type: none"> <li>• Federal Adaptation Policy Framework, Environment Canada, 2011</li> <li>• Planning for a Sustainable Future: A Federal Sustainable Development Strategy for Canada 2013–2016, Environment Canada, 2013</li> <li>• Achieving a Sustainable Future: A Federal Sustainable Development Strategy for Canada 2016–2019, Environment and Climate Change Canada, 2016</li> <li>• Management Accountability Framework, Treasury Board of Canada Secretariat</li> <li>• Framework for the Management of Risk, Treasury Board, 2010</li> <li>• Risk Management Capability Model, Treasury Board of Canada Secretariat</li> <li>• Departmental Climate Change Risk Assessment Guidance (draft), Environment Canada, 2013</li> </ul>

### Period covered by the audit

The audit covered the period between June 2010 and June 2017. This is the period to which the audit conclusion applies.

### Date of the report

We obtained sufficient and appropriate audit evidence on which to base our conclusion on 15 June 2017, in Ottawa, Ontario.

### Audit team

Principal: Kimberley Leach  
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# List of Recommendations

The following table lists the recommendations and responses found in this report. The paragraph number preceding the recommendation indicates the location of the recommendation in the report, and the numbers in parentheses indicate the location of the related discussion.

Recommendation	Response
<b>Federal leadership for climate change adaptation</b>	
<p><b>2.31</b> Environment and Climate Change Canada, in consultation with central agencies (such as the Treasury Board of Canada Secretariat's Centre for Greening Government), should</p> <ul style="list-style-type: none"> <li>• provide clear direction and guidance to federal departments to assess climate change risks to their areas of responsibility, and</li> <li>• gather individual departments' resulting information to build government-wide awareness of climate change risks and opportunities to inform adaptation planning.</li> </ul> <p><b>(2.27–2.30)</b></p>	<p><b>Environment and Climate Change Canada's response.</b> Agreed. The federal government recognizes that addressing climate change is a priority. While individual departments assess the climate change risks to their areas of responsibility, Environment and Climate Change Canada, in collaboration with central agencies (such as the Treasury Board of Canada Secretariat's Centre for Greening Government), will provide further guidance and support the sharing of information within the federal government to increase awareness of climate risks and opportunities.</p>
<p><b>2.35</b> Environment and Climate Change Canada, in collaboration with other key federal departments and agencies, should develop a federal adaptation action plan that</p> <ul style="list-style-type: none"> <li>• describes how the federal government will achieve its adaptation objectives and commitments;</li> <li>• identifies concrete, prioritized actions with timelines to respond to climate change impacts on federal areas of responsibility, based on evidence from climate change risk assessments;</li> <li>• clearly identifies roles and responsibilities, including who is responsible for overseeing the plan and which departments and agencies are accountable for implementing the actions; and</li> <li>• requires measuring and reporting on the plan's progress.</li> </ul> <p><b>(2.32–2.34)</b></p>	<p><b>Environment and Climate Change Canada's response.</b> Agreed. Environment and Climate Change Canada, in collaboration with departments and agencies, will continue to implement the Pan-Canadian Framework on Clean Growth and Climate Change as the government's plan to grow the economy while reducing emissions and building resilience to adapt to a changing climate.</p> <p>Through the framework, the federal government has identified priority actions to respond to climate change impacts on federal areas of responsibility; outlined roles and responsibilities, including who is responsible for overseeing the plan and governance structures; determined what departments are accountable for implementing these actions; and developed a process to measure and report on progress. The federal government will continue to implement these actions under the framework as the federal action plan.</p> <p>In addition, the Treasury Board of Canada Secretariat's Centre for Greening Government will continue to track greenhouse gas emissions centrally and coordinate efforts across government to lower emissions. In particular, as the lead for the Federal Sustainable Development Strategy's low-carbon government goal, the Centre will work with Environment and Climate Change Canada and other departments and agencies in order that they better understand the wide range of climate change impacts that could potentially affect federal assets, programs, and services across the country; ensure service disruptions are avoided; and explore how climate change impacts can be integrated into program design considerations.</p>

Recommendation	Response
<p><b>2.47</b> Environment and Climate Change Canada, in collaboration with other federal departments and agencies, should</p> <ul style="list-style-type: none"> <li>• assess what tools, guidance, expertise, and resources federal departments and agencies need to manage their climate change risks;</li> <li>• create a centralized portal of tools, guidance, expertise, and resources; and</li> <li>• make ongoing training and sharing of best practices and lessons learned available to departments and agencies.</li> </ul> <p><b>(2.40–2.46)</b></p>	<p><b>Environment and Climate Change Canada’s response.</b> Agreed. Environment and Climate Change Canada, in collaboration with other federal departments and agencies, will continue to share information, tools, promising practices, and lessons learned to build awareness and capacity to respond to climate change risks and opportunities within the federal government.</p> <p>Environment and Climate Change Canada will continue to provide support and training workshops in the application of climate data and scenarios for other federal departments and agencies.</p>
<p><b>Departmental actions to address the impacts of climate change</b></p> <p><b>2.74</b> The following departments and agencies should identify, assess, prioritize, and address the climate change risks related to their areas of responsibility:</p> <ul style="list-style-type: none"> <li>• Agriculture and Agri-Food Canada;</li> <li>• the Canadian Food Inspection Agency;</li> <li>• Environment and Climate Change Canada;</li> <li>• Global Affairs Canada;</li> <li>• Infrastructure Canada;</li> <li>• Innovation, Science and Economic Development Canada;</li> <li>• National Defence;</li> <li>• Parks Canada;</li> <li>• the Public Health Agency of Canada;</li> <li>• Public Safety Canada; and</li> <li>• Public Services and Procurement Canada.</li> </ul> <p><b>(2.68–2.73)</b></p>	<p><b>Agriculture and Agri-Food Canada’s response.</b> Agreed. Agriculture and Agri-Food Canada will continue to assess and address climate change risks to the sector and the Department, and build on existing assessments. This includes continuing to integrate and further documenting climate change risks and programs that respond to climate change impacts in the Department’s corporate risk profile. Under the Canadian Agricultural Partnership, the next federal–provincial/territorial agriculture policy framework to be launched in April 2018, Agriculture and Agri-Food Canada and provinces and territories have identified climate change adaptation as a priority. Agriculture and Agri-Food Canada, in collaboration with provinces and territories, will build on existing programming to ensure ongoing support to identify, prioritize, and address climate change risks to the agriculture and agri-food sector. By December 2018, the Department will review, prioritize, identify, and more clearly document adaptation measures to address its existing and evolving climate risks to its area of responsibility.</p> <p><b>The Canadian Food Inspection Agency’s response.</b> Agreed. In addition to creating various mandate-related risk profiles, the Canadian Food Inspection Agency also initiated a refresh of its corporate risk profile to contemplate climate change risks. The Agency will use the corporate risk profile, along with other risk intelligence products, to inform corporate and program priorities. The risk profiles will also support the identification of any necessary adjustments to plans or new actions required to address risks. This work will be completed by 31 March 2018.</p> <p><b>Environment and Climate Change Canada’s response.</b> Agreed. Environment and Climate Change Canada will undertake an assessment of climate risks to key programs and activities within the Department, and will identify potential measures to address these risks.</p>



Recommendation	Response
	<p><b>Global Affairs Canada’s response.</b> Agreed. Global Affairs Canada will ensure that climate change is considered when identifying and prioritizing the operational risks for the programs in the Department’s Program Inventory. The actions associated with this recommendation will be completed by April 2018.</p> <p><b>Infrastructure Canada’s response.</b> Agreed. Infrastructure Canada is committed to addressing climate change challenges and to working with provincial, territorial, municipal, and Indigenous partners on this issue. To this end, the Department entered into an agreement in 2017 with the Federation of Canadian Municipalities to deliver the Municipalities for Climate Innovations Program, which supports integrating climate change mitigation and adaptation objectives into municipal infrastructure investment planning. The Department will also enter into integrated bilateral agreements with the provinces and territories to deliver \$33 billion in federal infrastructure investments, of which \$9.2 billion will support green infrastructure projects, including projects to prepare for climate change. The Department will also apply a climate lens more broadly to all funding streams under the agreements to encourage consideration of climate change in project planning.</p> <p>In addition, the \$2 billion Disaster Mitigation and Adaptation Fund will be launched in the 2017–18 fiscal year to provide funding for large-scale infrastructure projects supporting mitigation of natural disasters and extreme weather events and to strengthen climate resilience.</p> <p>Finally, with respect to managing its corporate responsibilities, Infrastructure Canada will continue to assess climate change risk and ensure that assessments are clearly incorporated and documented in ongoing corporate risk management activities, starting in fall 2017.</p> <p><b>Innovation, Science and Economic Development Canada’s response.</b> Agreed. Innovation, Science and Economic Development Canada will continue to use its Integrated Risk Management Framework where department-wide corporate risks are identified and assessed and mitigation activities are established. Using this framework—and in alignment with Treasury Board of Canada Secretariat directives and Environment and Climate Change Canada guidance—Innovation, Science and Economic Development Canada will strengthen existing processes to identify, assess, prioritize, and address climate change risks related to its areas of responsibility.</p> <p><b>National Defence’s response.</b> Agreed. Strong, Secure, Engaged: Canada’s Defence Policy recognizes climate change as a key factor contributing to the growing complexity of operations. National Defence will document how climate change could affect its operations by April 2019. The identified risks associated with adapting to the impact of climate change will be incorporated into departmental risk management activities. As risk assessments are refined, the Department will adopt measures for climate change adaptation in accordance with departmental risk management decisions.</p>

Recommendation	Response
<p><b>2.77</b> Central agencies, including the Department of Finance Canada, the Privy Council Office, and the Treasury Board of Canada Secretariat, should recalibrate existing guidance and tools used in program, plan, and policy reviews to support organizations' explicit consideration of climate change impacts and adaptation actions in ongoing federal activities. <b>(2.75–2.76)</b></p>	<p><b>Parks Canada's response.</b> Agreed. Parks Canada is committed to identifying, assessing, prioritizing, and addressing climate change risks across the Agency's areas of responsibility. Building on its existing programs and policies, such as the Conservation and Restoration Program, the Agency will complete a comprehensive assessment of climate change risks and mitigation measures by fall 2019.</p> <p><b>The Public Health Agency of Canada's response.</b> Agreed. The Public Health Agency of Canada will build on, strengthen, and enhance existing processes used to identify, assess, prioritize, and address climate change risks related to its areas of responsibility. This work will be completed by 31 March 2018.</p> <p><b>Public Safety Canada's response.</b> Agreed. Public Safety Canada will ensure that its corporate risk documents reflect the climate change risks related to its areas of responsibility.</p> <p><b>Public Services and Procurement Canada's response.</b> Agreed. Public Services and Procurement Canada will conduct a climate change adaptation risk assessment on programs and operations that climate change could have an impact on. Mitigation plans will be developed according to the Department's risk tolerances and appetite. In addition, climate change will be explicitly identified as a driver of risk in the next version of the corporate risk profile.</p> <p><b>The Department of Finance Canada's response.</b> Agreed. The Department of Finance Canada agrees to work with other central agencies to ensure that the explicit and proactive consideration of climate change impacts is incorporated into existing guidance and tools used in the reviews of programs, plans, and policies with adaptation elements.</p> <p><b>The Privy Council Office's response.</b> Agreed. Consistent with its response to the Audit Recommendation on Departmental Progress in Implementing Sustainable Development Strategies, the Privy Council Office will review and update its due diligence tool and guidance by September 2017 to include a question about whether a department or agency has completed a preliminary environmental assessment or scan. As part of the Privy Council Office's updated due diligence requirements, departments and agencies will be required to confirm that they have considered climate change, including climate change impacts, in their preliminary environmental assessment or scan, when appropriate.</p> <p><b>The Treasury Board of Canada Secretariat's response.</b> Agreed. The Treasury Board of Canada Secretariat will continue to work with departments and agencies to help improve the application of the strategic environmental assessment process to proposals submitted to the Treasury Board. The Secretariat will develop additional guidance for departments in the next year to support a clear demonstration by departments that the relevant portion of the Cabinet directive was fully considered and, where warranted, that environmental considerations, including climate change impacts and adaptation, were taken into account for all proposals submitted for approval to the Treasury Board.</p>



**Fall 2017**

**Reports of the Commissioner of the Environment  
and Sustainable Development to the Parliament of Canada**

**The Commissioner's Perspective**

1. Progress on Reducing Greenhouse Gases—Environment and Climate Change Canada
2. Adapting to the Impacts of Climate Change
3. Funding Clean Energy Technologies
4. Departmental Progress in Implementing Sustainable Development Strategies
5. Environmental Petitions Annual Report and Retrospective