

Troubling Evidence

**The Harper Government's Approach
to Climate Science Research in Canada**

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Troubling Evidence: The Harper Government's Approach to Climate Science Research in Canada

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Executive Summary

Public understanding of the gravity of the threat of climate change, and of the need for government policies to cut emissions of greenhouse gases (GHGs), has been driven by scientific research more than by anything else. The world's major National Science Academies have jointly called on governments to take urgent action to cut emissions. But in Canada, the government of Prime Minister Stephen Harper has failed to take significant action to cut GHG emissions. Although it says that it accepts the science of climate change, the government's inaction seems to suggest the opposite. We therefore decided to investigate the Harper government's approach to climate science research in Canada.

What we uncovered, and have documented in this report, is a troubling catalogue of actions by the present federal government that undermine Canadian climate science research and its practitioners:

- Through its budget decisions, the government appears to be expressing a clear desire to reduce the volume of university-based climate science research in Canada. Most notably, in its 2010 budget the government again refused to provide new funds to the Canadian Foundation for Climate and Atmospheric Sciences (CFCAS), the most important funding body for university-based research on climate science in Canada. Our analysis shows that the government's abandonment of CFCAS will likely result in total federal funding for university-based climate science research (excluding infrastructure) falling to less than half of the level at which it has been for the past several years.
- The federal government's support for infrastructure used for climate science research has seen a recent sharp increase. However, this approach is creating a situation where scientists may be able to update their facilities and equipment but cannot afford the costs of operating their labs and conducting research. Also, according to the Canadian Meteorological and Oceanographic Society, the infrastructure-intensive activity of climate monitoring, particularly in the North, continues to fall short of international scientific standards.
- In 2007 the government decided to replace the independent National Science Advisor, reporting to the Prime Minister, by a Science, Technology and Innovation Council reporting to the Minister of Industry. Only one-third of the council's members currently hold a position conducting scientific research.
- Also in 2007, Environment Canada adopted a new media relations policy requiring the department's scientists, or "subject matter experts," to refer all media requests to Media Relations Headquarters. Anonymous sources within Environment Canada have told Climate Action Network Canada that the new policy has reduced the media's access to, and coverage of, the department's scientists. This is confirmed by our own analysis of media coverage. The policy has drawn intense criticism from journalists, independent scientists and climate scientists within Environment Canada.

- In 2008, two major federal government reports on the projected impacts of climate change in Canada were published in a manner suggesting that ministers did not want them to receive significant attention. The 450-page Natural Resources Canada report *From Impacts to Adaptation: Canada in Changing Climate* was completed in December 2007, but the department finally posted the report on its website only in March 2008, late on a Friday. Publication of the 500-page Health Canada report *Human Health in a Changing Climate: A Canadian Assessment of Vulnerabilities and Adaptive Capacity*, was also delayed for several months before being released late on a Thursday afternoon at the end of July.
- In December 2008, the government prevented a senior Environment Canada Scientist, chair of the organizing committee for the World Meteorological Organization (WMO)'s World Climate Conference-3, from travelling to a meeting of the committee in Poznan, Poland, despite his trip being funded by the WMO. The cancellation of the trip prompted the scientist, Don MacIver, to resign as chair of the conference organizing committee, and to state that the government had caused a “public embarrassment to Canada.”
- Since taking office in 2006, Prime Minister Stephen Harper has appointed three climate change “skeptics” to the boards of two key granting agencies for university-based scientific research, the Natural Sciences and Engineering Research Council and the Canada Foundation for Innovation. The three individuals’ views are completely at odds with the international scientific consensus on climate change and with views expressed by the government’s own ministers.

“The Government of Canada has cut virtually all programs aimed at funding climate science. I get the sense that they feel that science is a nuisance. They ignore science in their decision making; they muzzle their federal scientists by imposing impossible media-contact regulations; they cut programs designed to allow scientists to develop knowledge.” — Andrew Weaver, professor at the School of Earth and Ocean Sciences, University of Victoria, and Canada Research Chair¹

This report also includes six recommendations for changes in federal government policy in response to the issues that it raises. They are summarized in Section 5.

Maintaining a vigorous Canadian research effort on climate science is important. That GHGs from human activities are the dominant driver of current climate change is not in serious doubt. But significant knowledge gaps and uncertainties remain concerning the severity and details of the impacts we can expect in the coming decades in Canada and elsewhere. Reducing those gaps and uncertainties is necessary to better understand the threat and inform our response to it. Also, climate science is an area in which Canada has invested to build up an advantage that it would now be wasteful to squander. Canada’s research effort is particularly vulnerable to an exodus of scientific talent to the U.S. in light of President Barack Obama’s investments in climate science research.

Overall, it is difficult not to arrive at the conclusion that the government of Prime Minister Stephen Harper sees climate change only as a political problem, not a real-world threat. And in order to reduce its political problem, the government seems quite willing to undermine scientific research and those who undertake it, in federal departments and Canadian universities.

1. Introduction

Public understanding of the gravity of the threat of climate change, and of the need for government policies to cut emissions of greenhouse gases (GHGs), has been driven by scientific research more than by anything else. The reports of the UN's Intergovernment Panel on Climate Change (IPCC), summarizing thousands of peer-reviewed scientific papers, have propelled the international negotiation process on climate change. The world's major National Science Academies have endorsed the IPCC's findings and jointly called on governments to take urgent action to cut emissions.² Many other scientific bodies have spoken out in similar terms.

In Canada, however, the government of Prime Minister Stephen Harper has failed to take significant action to cut GHG emissions after more than four years in office. Although it says that it accepts the science of climate change, the government's inaction seems to suggest the opposite.

We therefore decided to investigate the Harper government's approach to climate science research in Canada, based on its funding for such research, its actions regarding the governance of the Canadian research effort, and the government's treatment of its own climate scientists and their work.

What we uncovered, and have documented in this report, is a troubling catalogue of actions by the present federal government that undermine Canadian climate science research and its practitioners.

The report begins by explaining the importance of continuing a vigorous Canadian research effort on climate science, which depends on public funding (Section 2). We then examine the federal government's recent and current level of funding for climate science research (Section 3). Section 4 documents a series of actions by the government regarding the governance of the Canadian research effort and the treatment of climate scientists working in federal departments and their work. Section 5 presents conclusions.

2. The Need for Climate Science Research in Canada

Below we present two lines of reasoning that point to the importance of maintaining a vigorous Canadian research effort on climate science:

- That GHGs from human activities are the dominant driver of current climate change is not in serious doubt. But significant knowledge gaps and uncertainties remain concerning the severity and details of the impacts we can expect in the coming decades in Canada and elsewhere. Reducing those gaps and uncertainties is necessary to better understand the threat and inform our response to it.
- Until now climate science has been an area in which Canada has been strong relative to other countries. In other words, it is an area in which Canada has invested to build up an advantage that it would now be wasteful to squander. Canada's research effort is particularly vulnerable to an exodus of scientific talent to the U.S. in light of President Barack Obama's investments in climate science research.

2.1 Overcoming Knowledge Gaps and Uncertainties

The IPCC's *Fourth Assessment Report* (2007) made a significant contribution to climate science by increasing certainty concerning the extent of observed climate change, the causes of this change, and projections of future change.

"Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level."³

"Most of the observed increase in global average temperatures since the mid-20th century is *very likely* [over 90% probability] due to the observed increase in anthropogenic [human-caused] GHG concentrations."⁴

However, alongside these "robust findings," the report also identified a number of areas where "key uncertainties" remain.⁵ Among the most significant of these are: limited climate data coverage in some regions, uncertainties concerning some climate processes, and uncertainties surrounding regional (continental scale or smaller) projections of climate change. We discuss these in turn below.

2.1.1 Climate Monitoring

Monitoring systems to collect data on the atmosphere, oceans, and terrestrial ecosystems are fundamental to climate science. Canada has, moreover, legal obligations to “support... efforts to strengthen systematic observation” of the climate system under article 5 of the UN Framework Convention on Climate Change, and to “promote the maintenance and the development of systematic observation systems” under article 10 of the Kyoto Protocol.

The UN Climate Change Secretariat recently noted that Canada “is building up a significant body of activities relating to research and systematic observation.”⁶ However, both this statement and the UN legal obligations are vague and unquantified. In fact, according to the Canadian Meteorological and Oceanographic Society, Canada’s climate monitoring continues to fall short of international scientific standards.

“Canada’s climate monitoring north of the 56th parallel is sparse and does not meet the minimal guidelines set by the World Meteorological Organization. In addition, research and modelling activities, particularly in the academic sector, are at risk of being compromised severely by a lack of funding. It is of primary importance that the upcoming federal budget include measures to ensure the integrity of the observing network, its expansion in the North, and an increased support to ocean, atmospheric and terrestrial climate research in federal laboratories and universities.” — Canadian Meteorological and Oceanographic Society, 2009⁷

2.1.2 Tipping Points

Projections of climate change in the coming decades rely on complex computer models that seek to represent accurately all the key physical processes in the climate system. Improved understanding of climate processes is particularly important for assessing the risk of reaching “tipping points.” These are thresholds where a small amount of change (e.g., temperature increase) triggers an “abrupt” and potentially “irreversible” shift in the climate system.⁸ The consequences of such shifts are “likely to be severe” “for ecosystems and societies,” causing “substantial disruption in human and natural systems.”⁹

Scientists at the U.S. Geological Survey, National Oceanic and Atmospheric Administration (NOAA), and the National Science Foundation (NSF) have also identified nine key knowledge gaps to be overcome concerning the potential for abrupt climate change.¹⁰ In the coming years, scientists hope to establish “early warning systems” to detect when tipping points are starting to become unstable due to current levels of anthropogenic climate change.¹¹

There is now considerable scientific and political agreement (expressed most recently in the Copenhagen Accord) that the threshold of a “dangerous” amount of climate change is a global average temperature rise of 2°C above the pre-industrial level.¹² However, further scientific research is needed to determine whether any of the tipping points that have been identified — notably the Greenland ice sheet and Arctic summer sea ice — could in fact be triggered by warming below the 2°C threshold. If so, then emission reduction efforts based on limiting warming to 2°C may not be adequate to prevent “dangerous” climate change.

Table 1. Tipping points identified by the UN Environment Program¹³ (based on work by Lenton et al.¹⁴)

Tipping point	Description	Increase in global average temperature (relative to current levels) that could trigger the tipping point	Possible time-frame for resulting abrupt and/or irreversible change
Indian summer monsoon	The regional atmospheric brown cloud is one of the many climate change-related factors that could disrupt the monsoon.	unknown	One year
Sahara and West African monsoon	Small changes to the monsoon have triggered abrupt wetting and drying of the Sahara in the past. Some models suggest an abrupt return to wet times.	3–5°C	10 years
Arctic summer sea ice	As sea-ice melts it exposes darker ocean, which absorbs more heat than ice does, causing further warming.	0.2–2°C	10 years
Amazon rainforest	Losing critical mass of the rainforest is likely to reduce internal hydrological cycling, triggering further dieback.	3–4°C	50 years
Boreal forests	Longer growing seasons and dry periods increase vulnerability to fires and pests.	3–5°C	50 years
Atlantic Ocean thermohaline circulation	Regional ice melt will freshen North Atlantic water. This could shut down the ocean circulation system, including the Gulf Stream, which is driven by the sinking of dense saline water in this region.	3–5°C	100 years
El Niño-Southern Oscillation (ENSO)	El Niño already switches on and off regularly. Climate change models suggest ENSO will enter a near-permanent switch-on.	3–6°C	100 years
Greenland ice sheet	As ice melts, the height of surface ice decreases, so the surface is exposed to warmer temperatures at lower altitudes which accelerates melting that could lead to ice-sheet break up.	1–2°C.	300 years
West Antarctic ice sheet	The ice sheet is frozen to submarine mountains, so there is a high potential for sudden release and collapse as oceans warm.	3–5°C	300 years

2.1.3 Canadian Impacts and Adaptation

A 2008 report by Natural Resources Canada, entitled *From Impacts to Adaptation*, documented the projected impacts of climate change in Canada. It states that climate change is “already evident in every region of Canada” and “will exacerbate many current climate risks, and present new risks and opportunities, with significant implications for communities, industry, infrastructure and ecosystems.”¹⁵

Table 2. Projected impacts in Canada from a 2°C rise in global average temperature (relative to the pre-industrial level)¹⁶

Average temperature increases	Average temperature increases for Canadian provinces are projected to range from 2°C to 6°C, with the largest increases in the Arctic.
Heat-related deaths	In Ontario, the number of days at or above 30°C is projected to double, with a consequent doubling of heat-related deaths, and an increase in deaths due to air pollution.
More droughts	Although total precipitation is expected to increase in most provinces, its timing — coupled with less snow accumulation, earlier thawing, greater evaporation, and receding glaciers — is projected to contribute to more frequent and severe drought conditions.
Stress on wildlife	Declining sea ice, more severe winter storms, shifting ecosystems and loss of wetlands will negatively affect many iconic and culturally important Canadian species, such as polar bears, ringed seals, caribou, and ducks.
Sea level rise	Sea level is projected to rise more in some places than the global average, increasing the risk of coastal flooding, more frequent and severe storm surges, and rapid erosion. Regions most at risk include much of Atlantic Canada, the Beaufort Sea coast and the Fraser River Delta.
Stress on forests	Increased drought and more favorable conditions for pests are projected to greatly increase the mortality of susceptible tree species, including jack pine, whitebark pine, and white and black spruce.
Thawing or thinning of frozen soils	Over 50% of Canada’s permafrost is at risk of thawing in the near future, threatening critical infrastructure and potentially releasing significant amounts of carbon dioxide.
Loss of sea ice	The summer extent of sea ice is projected to decline by 50–60% this century in the North, with some models predicting a possible complete loss of summer sea ice.

As noted above, the IPCC’s *Fourth Assessment Report* identified regional (continental scale or smaller) projections of climate change as an area of climate science where considerable uncertainty remains. The Natural Resources Canada report identifies five related knowledge gaps where further research is required to support adaptation decision-making within Canada:¹⁷

- quantitative economic analysis, including costs and benefits of impacts and of adaptation options
- analyses of adaptation processes
- enhanced climate and socioeconomic scenarios to support more detailed impact assessment and adaptation decision-making, as well as understanding of uncertainty associated with those scenarios
- improved understanding of thresholds within both natural and human systems, beyond which adaptation is either ineffective or prohibitively expensive, and
- development of methods and tools to assist mainstreaming of climate change adaptation into sectoral planning processes.

The Natural Resources Canada report concludes that these uncertainties do not justify government inaction, as “existing knowledge is sufficient to start undertaking adaptation activities in most situations.”¹⁸ Further research is required, however, to fill the knowledge gaps and ensure that adaptation efforts in Canada are ultimately successful.

A recent analysis of Canada’s fourth national communication under the UN climate convention, undertaken by the UN Climate Change Secretariat, found that research “gaps” regarding adaptation remain, primarily because many potential impacts in Canada have not yet been quantified in socio-economic terms.¹⁹ The report found that “[a]daptation responses have not been considered in a consistent way and lack institutional coherence, particularly in the case of integrated planning and disaster risk reduction.”²⁰ A few research areas were singled out as having not yet received adequate attention, such as projections of sea-level rise, the threat to Arctic ecosystems, the vulnerability of biodiversity, and the impacts on hydroelectric power generation of constraints in the water supply.²¹ The report recommended that Canada, in its next national communication, “[p]rovide an integrated analysis of the adverse and positive impacts of climate change, in a coordinated vulnerability and impact assessment for Canada as a whole... using a range of climate models and scenarios and quantitative assessments.”²²

2.2 Maintaining an Area of Canadian Strength in the Context of Increased U.S. Investments

A 2006 report by the Council of Canadian Academies entitled *The State of Science & Technology in Canada* identified climate science as an area where Canada was “strong” in research performance.²³ Prepared for the government in response to a request from the Industry Minister, the report employed four “lenses” to measure Canada’s scientific strength in various disciplines, two of which yielded results for climate science.²⁴ First, a large-scale opinion survey of over 1,500 Canadian science and technology experts ranked climate science as Canada’s 25th strongest research sub-area (out of 50), with a mean score of 5.11 (on a seven point scale).²⁵ Second, an analysis of bibliometric data (published research in scientific journals) revealed that Canadian climate science was an area of “unequivocal strength.” That is, it had both a Specialization Index (a measure of research “intensity”²⁶) and an Average Relative Impact Factor (a measure of research “quality”²⁷) above the world average (1.00), scoring 1.45 and 1.05 respectively.²⁸ Despite these qualitative strengths, however, Canadian climate science experienced a decrease of 9.4% in the number of publications from 1997–2000 to 2001–2004 — a decrease of 12.8% relative to the 3.4% world growth in number of publications.²⁹

There are no readily available data concerning the total number of climate scientists (public or private) employed in Canada. However, the Canadian Foundation for Climate and Atmospheric Sciences has estimated that since its inception in 2000 its funds have trained or developed upwards of 1,500 “high qualified people”.³⁰ The foundation has already observed an out-migration of climate scientists due in part to the increasing uncertainty and decrease in federal funding (see Section 3) as well as the perception that climate research is of peripheral policy concern to the federal government.³¹

Climate science is clearly an area of research in which Canada has invested to build up an international advantage. Without continued financial support, the investment and the advantage will be lost.

"When young scientists do not see continuity of resources for their work they will move to where opportunities do exist. That is a resource we lose forever. We've invested in a Canadian intellectual capacity that we will lose if we are unable to sustain funding." — Gordon McBean, Chair of the Canadian Foundation for Climate and Atmospheric Sciences³²

The commitment that President Obama has recently made to increase already-generous U.S. funding for climate science could lead to a further exodus of Canadian scientists. President Obama's recent fiscal year 2011 (October 2010 to September 2011) budget request to Congress proposes substantial increases in funding climate science research. In addition, the Obama administration recently announced its plans to create a new office for organizing and providing business, researchers and the public with climate-related resources and information. This new Climate Service is expected to be up and running before the start of the 2011 FY.³³

Table 3. U.S. federal investment in climate science

Agency	Funding increase for climate science research in President Obama's fiscal year (FY) 2011 budget request
National Aeronautics and Space Administration (NASA)	An additional US\$382 million in FY 2011, and an additional US\$1.8 billion over four years, for earth and climate science. This represents an increase of nearly 30% over the four-year funding in the FY 2010 budget. ³⁴
National Oceanic and Atmospheric Administration (NOAA)	An additional US\$16 million in FY 2011 for climate research, an increase of 7% over the enacted FY 2010 budget. ³⁵
National Science Foundation (NSF)	An additional US\$66 million in FY 2011 for research in geosciences (which includes climate science), an increase of 7% over the FY 2010 estimate. ³⁶
US Global Climate Research Program (USGCRP)	An additional US\$439 million in FY 2011, an increase of 21% over the enacted FY 2010 budget. ³⁷ (The USGCRP is a multi-agency program essentially focused on climate science; this funding increase is included in those described above for NASA, NOAA and the NSF.)

3. Recent and Current Funding of Canadian Climate Science Research

Like any other area of fundamental research, climate science research depends on public funding. This needs to be balanced between the federal government’s “in-house” scientists and independent scientists at research-based universities. Neither sector can substitute for the other because they have different capacities, mandates, and research cultures. As they operate with a high degree of autonomy, university scientists are needed to ensure that research does not develop in a manner that serves only the government of the day’s immediate political interests. Government research capacity, on the other hand, is required for large-scale initiatives — to provide the extensive informational and technological resources required for climate research (e.g., high-altitude weather balloons), to ensure continuity and the long-term commitment of individuals, and to maintain long-term weather and climate data collections.

This section examines the recent and current public support for research both by Canada’s independent climate scientists and those working in federal departments.

3.1 University Scientists

The following sections examine each of the major public sources of support for independent climate science research in Canada.

3.1.1 Natural Sciences and Engineering Research Council of Canada (NSERC)

NSERC is a federal government agency that provides financial support to university-based scientific research and training. In contrast to the federal departments (see Section 3.2.2), NSERC is highly transparent, providing details on all the grants and scholarships it awards. NSERC supports climate science primarily through the Environmental Earth Sciences committee of its Discovery Grants program.

We analyzed NSERC’s awards database to estimate the sums awarded to climate science research over the past decade. The results cover 18% of NSERC-supported projects and are certainly an over-estimate: we included all awards in certain sub-disciplines that encompass more than climate science, and many individual projects cover both climate science and other

topics.³⁸ The results indicate that NSERC funding for climate science has remained fairly constant, at around \$10 million per year, for the past several years.

Table 4. NSERC funding for climate science research³⁹

Fiscal year in which grant made	Estimated amount
2000–1	\$5,450,394
2001–2	\$5,231,428
2002–3	\$8,151,493
2003–4	\$9,039,460
2004–5	\$10,009,483
2005–6	\$10,267,310
2006–7	\$10,921,414
2007–8	\$9,646,986
2008–9	\$10,015,707
Total	\$78,733,675

3.1.2 The Canada Foundation for Innovation (CFI)

The CFI is an independent corporation created by the federal government in 1997 that provides funding for the infrastructure that is required for scientific research, such as state-of-the-art equipment, buildings, laboratories, and databases.⁴⁰ Since its creation in 1997, the CFI has committed almost \$5.2 billion in support of 6,353 projects at 130 research institutions in 65 municipalities across Canada.⁴¹

We analyzed the CFI's project database to estimate the foundation's investment in climate science-related infrastructure over the past decade. The results cover 19% of CFI-supported projects and, like the NSERC numbers above, are certainly an over-estimate: we included all projects in Atmospheric Science (which encompasses more than climate science), and many individual projects cover both climate science and other topics — likely even more so than is the case with NSERC grants.⁴² The results indicate that CFI funding for infrastructure used for climate science research has fluctuated widely. In particular, funding fell sharply in 2007, and then rose sharply again in 2009. To some degree, such fluctuations can be attributed to the fact that CFI funding tends to be dominated each year by one or two very large projects.

Table 5. CFI funding for infrastructure used for climate science research⁴³

Fiscal year in which grant decisions finalized	Estimated amount
1998–9 (partial)	\$2,677,795
1999–2000	\$6,375,673
2000–1	\$7,533,484
2001–2	\$32,362,770
2002–3	\$30,334,587
2003–4	\$25,300,220
2004–5	\$2,172,383
2005–6	\$3,232,793
2006–7	\$9,551,782
2007–8	\$2,339,597
2008–9	\$3,056,381
2009–10 (partial)	\$19,905,799
Total	\$144,843,264

The recent upturn in CFI funding corresponds to changes introduced in the 2009 federal budget, which cut funding from its three research granting agencies (NSERC, SSHRC,⁴⁴ and CIHR⁴⁵) by \$148 million over three years, but increased support for the CFI by \$150 million for the 2009 Leading Edge and New Initiatives Funds Competition and by \$600 million for future competitions to be launched by the end of 2010 (actual grants will flow over a longer period).⁴⁶

However, this approach is creating a situation where scientists may be able to update their facilities and equipment but cannot afford the costs of operating their labs and conducting research. For example, James Drummond, the chief scientist at the Polar Environmental Atmospheric Research Laboratory (PEARL) in Eureka, Nunavut, received \$1.8 million out of a special allocation of up to \$85 million (over two years) in the 2009 federal budget for maintaining or upgrading key existing Arctic research facilities.⁴⁷ All of this funding, however, is earmarked for new infrastructure, while funds for day to day operations have run out. As a result, at the time of writing Drummond's team is making plans to close the laboratory.⁴⁸

“Recent federal stimulus measures have targeted investment in infrastructure. CMOS believes such measures to be ineffective in the long term if not coupled with corresponding investment in the education of people, in knowledge and innovation.” — Canadian Meteorological and Oceanographic Society, 2009⁴⁹

3.1.3 The Canadian Foundation for Climate and Atmospheric Sciences (CFCAS)

Through its support for over 150 projects, two major initiatives, 24 research networks, and the coordination of international activities, the Canadian Foundation for Climate and Atmospheric Sciences (CFCAS) has been the most important funding body for university-based research on climate, atmospheric, and oceanic science in Canada since its inception in 2000–1.⁵⁰

The foundation received an initial \$60 million from the federal government in 2000–1 and then another \$50 million in 2003–4.⁵¹ Of this, the government and CFCAS agreed that \$101.5 million would be allocated for scientific research grants and the remaining \$8.5 million would be used for administration, with all funds to be spent by the end of the 2010–11 fiscal year.⁵²

Since scientific research projects typically take several years, the foundation committed its entire grant budget by July 2006, in order to ensure that all funds would be expended by March 2011.⁵³ It was, however, able to combine some revenues from interest on previous government grants with some funds recovered from completed projects to organize modest additional two-year grants for 2008–09.⁵⁴ Numerous research projects have secure CFCAS funding until the end of March 2010. But the flow of CFCAS funds will plummet in fiscal year 2010–11, and many mature projects will have to be shut down.⁵⁵ University-based scientific research, once stopped, can take years to be re-established — with an associated loss of institutional momentum, human resources, and international reputation (see Section 2.2).

Anticipating the exhaustion of its funds in 2010, in 2007 CFCAS asked the federal government for \$25 million per year in order to extend its mandate beyond the 2010–11 fiscal year. The foundation made its case before several parliamentary committees in 2008, and chairman Gordon McBean had (what he felt was) a constructive meeting with new Environment Minister Jim Prentice in the fall of 2008.⁵⁶ However, the foundation did not receive the lifeline it was hoping for in the 2009 federal budget. Minister Prentice’s press officer, Frédéric Baril, even claimed that “the government has not received a formal proposal for additional funding from the foundation” — despite the foundation’s Executive Director, Dawn Conway, having put forward repeated requests through various channels.⁵⁷ The minister’s office also stated that the foundation was funded until 2011.⁵⁸ This is extremely misleading: only the foundation’s administrative office has the funding to operate until all research reports are in and the books are closed in March 2011.⁵⁹

In the fall of 2009, Minister Prentice accorded CFCAS a one-year extension to its mandate.⁶⁰ This extends its activities to March 31, 2012, but provides no new funds and thus no possibility of supporting new climate research. In advance of the 2010 federal budget the foundation again asked Minister Prentice for renewed funding of \$50 million over three years and made the case to the House of Commons Finance Committee for \$250 million over ten years.⁶¹

Table 6. CFCAS funding levels⁶²

Fiscal year	Funds invested in scientific research
2000–1	\$355,569
2001–2	\$6,039,835
2002–3	\$11,251,525
2003–4	\$13,584,563
2004–5	\$12,438,067
2005–6	\$14,149,201
2006–7	\$14,792,888
2007–8	\$14,616,767
2008–9	\$13,142,298
2009–10	\$12,776,159
2010–11	\$3,096,826
Total	\$116,243,698

However, in its March 2010 federal budget, the government again chose to provide no new funds to CFCAS.

3.1.4 The International Polar Year

The International Polar Year (IPY) was a large-scale research program on the Arctic and the Antarctic that took place from March 2007 to March 2009 (i.e., two years). It involved over 200 projects, with thousands of scientists from over 60 nations examining a wide range of physical, biological, social, and health research topics.⁶³

In September 2005, then Deputy Prime Minister Anne McLellan committed the federal government to provide \$150 million in new funding for the IPY.⁶⁴

The money was used as follows:⁶⁵

- \$100 million for 45 research projects
 - \$54 million for research into climate science
 - \$22 million for research into biology and ecology
 - \$24 million for research into health science and community well-being
- \$50 million for supporting initiatives
 - \$11 million for communications and outreach

- \$16.5 million for logistics, emergency preparedness, and licensing
- \$7 million for data management
- \$7.5 million for training and capacity building
- \$8 million for program delivery

The total multinational budget for IPY was US\$1.2 billion;⁶⁶ the Government of Canada therefore clearly made a major contribution. As mentioned in Section 3.1.2, the 2009 federal budget also provided up to \$85 million over two years to invest in maintaining or upgrading key existing Arctic research facilities. The 2010 budget committed \$18 million over five years to “commence the pre-construction design phase” of a Canadian High Arctic Research Station.⁶⁷

However, Canada still does not have a national policy for polar research to set clear research objectives, ensure long-term funding, and co-ordinate scientists’ efforts.⁶⁸ The Canadian Polar Commission has a mandate that includes requirements to “monitor polar knowledge in Canada and around the world, work with Canadian and international institutions to determine scientific and other priorities [and] encourage support for Canadian polar research.”⁶⁹ But the federal government has allowed the Commission to languish without a chair or board for the past 18 months.⁷⁰

3.1.5 Summary

By repeatedly refusing to provide new funds to CFCAS, the federal government appears to be expressing a clear desire to reduce the volume of university-based climate science research in Canada. There has been no indication of any intention on the part of the government or NSERC to compensate for the demise of CFCAS. The 2010 budget did provide an extra \$13 million per year to NSERC,⁷¹ but it is not clear whether this is even adequate to reverse the 2009 budget’s reduction in funding for NSERC (see Section 3.1.2).

If NSERC funding for climate science continues at the current level of at most \$10 million per year (Section 3.1.1), then the numbers in Table 6 shows that the government’s abandonment of CFCAS will result in total federal funding for university-based climate science research (excluding infrastructure) falling, in 2010–11 and subsequent fiscal years, to less than half of the level at which it has been for the past several years. The additional decrease in funding resulting from the end of the International Polar Year makes matters even worse.

“For now there is no other granting program that could replace the funding from [CFCAS]... a large number of scientists will be out of a job... Canada will lose the capacity to understand its own environment and will have to rely on other countries to know what’s happening to it.” — James Drummond, professor in the Physics and Atmospheric Science Department at Dalhousie University and Canada Research Chair⁷²

“The Government of Canada has cut virtually all programs aimed at funding climate science. I get the sense that they feel that science is a nuisance. They ignore science in their decision making; they muzzle their federal scientists by imposing impossible media-contact regulations [see Section 4]; they cut programs designed to allow scientists to develop knowledge.” — Andrew Weaver, professor at the School of Earth and Ocean Sciences, University of Victoria, and Canada Research Chair⁷³

The federal government's support for infrastructure used for climate science research has fluctuated widely, and has seen a recent sharp increase. But the infrastructure-intensive activity of climate monitoring, particularly in the North, still falls short of international scientific standards (see Section 2.1.1).

There is a compelling case for federal funding for university-based climate science research (Section 2), and CFCAS is the obvious vehicle for distributing that funding. The foundation's request for \$25 million per year for 10 years is modest in comparison with levels of funding in the U.S. (see Section 2.2), and would provide the stability needed to sustain a robust research community. As noted in Section 3.1.3, funding would need to be found very quickly to prevent the shutdown of many mature research projects.

Recommendation #1

To maintain university-based climate science research in Canada, the federal government should move as quickly as possible to provide \$25 million per year for 10 years to the Canadian Foundation for Climate and Atmospheric Sciences.

3.2 The Federal Departments

It is impossible to determine, based on publicly available documents, how much funding is presently being devoted to climate science research within the federal government. Two factors account for this: the lack of a central agency with a mandate to coordinate climate science research, and the lack of transparency in the allocation of resources.

3.2.1 Lack of a Coordinating Agency

Due to its interdisciplinary nature, climate science research occurs in no fewer than five federal departments: Agriculture and Agri-Food Canada, Environment Canada, Fisheries and Oceans Canada, Indian and Northern Affairs Canada and Natural Resources Canada.

There is currently no Canadian equivalent to the United States Global Change Research Program (USGCRP), which has a legislated mandate from Congress to co-ordinate and integrate climate science research across 13 federal departments and agencies.⁷⁴ The USGCRP operates through Interagency Working Groups that span a wide range of climate science issues and are composed of representatives from the federal departments and agencies responsible for research in each area.⁷⁵

The Canadian Climate Impacts and Adaptation Research Network (C-CIARN) was established by Natural Resources Canada in 2001 with a mandate of “promoting and encouraging research on climate change impacts and adaptation, as well as promoting interaction between researchers and stakeholders.”⁷⁶ C-CIARN was modelled on the earlier federal Climate Research Network, which operated from 1993 until 2001.⁷⁷ However, in 2007, the government stated that C-CIARN had “successfully met the mandate it was given” and closed it down.⁷⁸ In 2009, Environment Canada established the Canadian Climate Change Scenarios Research network with a mandate to “support climate change impact and adaptation research in Canada” and ensure access to that research.⁷⁹

Neither of these networks, however, was given a more substantive mandate to coordinate and organize climate science research efforts across departments, such as establishing research sub-priorities and distributing financial resources. In 2003, the Treasury Board Secretariat took the lead in developing a “management and accountability framework” for all the federal government’s activities related to climate change. However, the Harper government “set aside” “work on completing the... framework” when it took office in 2006.⁸⁰

Recommendation #2

To co-ordinate and integrate climate science research across federal departments and agencies, the government should establish a body equivalent to the United States Global Change Research Program. To ensure long-term stability, the mandate of the new body should be set out in legislation.

3.2.2 Lack of Transparency in Reporting on Public Science Spending

Public reporting on the government’s allocation of resources for climate science research lacks transparency at both the macro- and micro-level. In other words, there is a lack of transparency in both the policies and decision-making procedures that determine how resources are allocated among the various departments that conduct scientific research *and* the ways that resources are specifically used within each department.

“[T]he principles, structures, and decision making processes whereby the macro or higher-level allocations [of funding for science, technology and innovation] are made are neither clear nor well understood, and this has led to significant misunderstandings that jeopardize constructive relations between the federal government and STI community.” — Preston Manning, Former Leader of the Reform Party, 2009⁸¹

“Unfortunately, responsibility for allocating resources to various groups [for science, technology and innovation] is divided across half a dozen authorities, and the decision-making process lacks transparency, leading to significant misunderstandings about the government’s commitments to STI. This not only affects relations between the federal government and the research community, it prevents a clear assessment of the total resources in Canada being allocated to innovation. The federal government needs to clarify the principles that govern how it allocates financial resources to support STI, and with input from all stakeholders, intelligently decide how to distribute those resources.” — Public Policy Forum, 2009⁸²

We pursued four avenues of investigation in an attempt to establish an estimate of spending on climate science in federal departments. The limitations of each approach are described below.

3.2.2.1 The Estimates Process

As part of the government’s Estimates process, every federal department is required to prepare a Departmental Performance Report (DPR) in the fall of each year that outlines its spending and achievements from the previous fiscal year. Unfortunately, concrete numbers are typically only provided for a department’s three to five overarching priorities or objectives (sometimes including sub-priorities as well). Departments very rarely disaggregate spending on the specific activities (such as climate science research) undertaken to meet each priority. Also, the priorities

(and corresponding activities) of each department are often redefined from year to year, especially when there is a new minister or new government, hindering year-on-year comparisons.

For example, DPRs for Environment Canada, where the majority of federal climate science research is undertaken, conflate standard meteorological (weather prediction) services with climate research. So although there has been a steady increase in funding for the relevant sub-priority over the past few years, it is not possible to determine if there has been a corresponding increase in funding for climate science research — or whether the additional funds have perhaps instead been directed towards meteorological services, the formation of government policy, or departmental administration.

Table 7. Environment Canada spending categories that include climate science^{83,84,85}

“Strategic outcome”	“Program activity”	2006–7	2007–8	2008–9
“Weather and environmental predictions and services reduce risks and contribute to the well-being of Canadians”	“Improved knowledge and information on weather and environmental conditions influences decision-making”	\$139 million	\$147 million	\$160 million

3.2.2.2 Access to Information Requests

Our attempts to ascertain funding levels through requests under the *Access to Information Act* yielded the response that there are no documents summarizing spending on climate science research.

3.2.2.3 Information Requests Made to Scientists

In response to email inquiries, senior climate scientists at the various departments would either (i) not respond, (ii) state that the DPRs contain all the relevant information, (iii) state that no-one really knows how much is being spent, or (iv) provide the amount of funding that they themselves have had for their single research project. This information did not allow us to establish an overall spending level for the federal government.

3.2.2.4 Enquiries Addressed to Departments

E-mails sent to the “general enquiries” addresses of each of the relevant departments went unanswered.

Recommendation #3

To ensure full accountability, the federal government should increase transparency concerning how much funding is being allocated to climate science research within government departments. First, the government should make a full policy statement of the principles, structures, and decision-making processes used to allocate this funding. Second, the government should provide a degree of disaggregation in the annual Departmental Performance Reports sufficient to clearly quantify the level of funding for climate science research.

4. Recent Federal Actions Regarding Climate Science Research

This section documents a series of actions by the present federal government — separate from the question of public funding explored in Section 3 — that have undermined Canadian climate science research and its practitioners. These actions concern the governance of the Canadian research effort and the government’s treatment of its own climate scientists and their work. They are described in chronological order beginning in 2006.

4.1 The Replacement of the National Science Advisor with the Science, Technology, and Innovation Council

In 2004, then Prime Minister Paul Martin decided to create the position of National Science Advisor. The Advisor was given a mandate to “provide the Prime Minister with sound, unbiased, and non-partisan advice on science and technology.”⁸⁶ Arthur Carty, a distinguished chemist, former president of the National Research Council, and dean of research at the University of Waterloo, was appointed to the position on April 1, 2004.⁸⁷

In October 2006, the government decided to shift Carty and his office from the Prime Minister’s Office (PMO) to Industry Canada.⁸⁸ As he now reported to the Minister of Industry instead of directly to the Prime Minister, Carty reported that he and his staff became “increasingly marginalized” and had little input in crafting the new government’s science and technology strategy.⁸⁹

A year later, in the fall of 2007, Carty was told that his services would no longer be needed as the government had decided to cancel the position of National Science Advisor.⁹⁰ Instead, the government opted to establish a new Science, Technology and Innovation Council, with a secretariat based in Industry Canada, which would begin “providing the government with independent advice on science and technology.”⁹¹

The new Science, Technology and Innovation Council was given a mandate to provide “evidence-based science and technology advice on issues, referred to it by government, which are critical to Canada’s economic development and social well-being” and also to “produce regular national reports benchmarking Canada’s science and technology performance against international standards of excellence.”⁹² It consists of a chair, prominent chemist Howard Alper, and 17 members, appointed by then Industry Minister Jim Prentice, who are a mix of scientists, government officials, industry leaders, and university administrators.⁹³

Table 8. Criticism of the replacement of the National Science Advisor with the Science, Technology and Innovation Council

<p>Former National Science Advisor Arthur Carty</p>	<p>Appearing before a House of Commons committee meeting in March of 2008 Carty expressed that he was “dismayed and disappointed” by the government’s decision to discontinue his office.⁹⁴ “There are, I think, negative consequences of eliminating the position,” said Carty, specifically the “potential to tarnish our image” as a world leader in science and innovation.⁹⁵ Carty also noted that he found it “strange” that the federal government had decided to cancel the position considering that “most countries are looking to get more science advice, rather than less.”⁹⁶</p>
<p>The Canadian Scientific Community</p>	<p>In October 2008, an open letter to Prime Minister Harper and the other four principal federal party leaders cited the cancellation of the National Science Advisor as one “blatant example of instances when systems developed to provide non-partisan scientific advice were undermined, interfered with, or dismantled for political reasons.” Signed by 85 Canadian academic scientists and entitled “The Politicization of Science in Canada,” the letter stated that “ignoring and subverting science and scientific processes is unacceptable.”⁹⁷</p>
<p>The International Scientific Community</p>	<p>A February 2008 editorial in <i>Nature</i>, a prominent international science journal, also cited the cancellation of the National Science Advisor as one example of the Harper government’s “manifest disregard for science.” Entitled “Science in retreat,” the editorial argued that the new Science, Technology and Innovation Council, as it is comprised of not only scientists but industry leaders, government officials, and university administrators, “can be expected to be markedly less independent” than the National Science Advisor.⁹⁸</p>

Only one-third of the 18 members of the Science, Technology and Innovation Council currently hold a position conducting scientific research; only four are employed as a scientist full-time; there are more members with backgrounds in industry and business than scientific research; and three government officials sit on the council.⁹⁹

Climate change is recognized by governments and leading scientific bodies worldwide as a major threat that will be with us for decades, if not centuries. The Government of Canada needs to receive the best possible scientific advice on that threat — and that advice needs to be delivered publicly, so that Canadians can evaluate the appropriate response.

Recommendation #4

To ensure that Canada’s response to climate change is based on the best information and analysis, the government should establish a permanent commission consisting of independent experts with a mandate to periodically review and publicly report on the science, impacts and economics of climate change and solutions to it. To ensure long-term stability, the mandate of the commission should be set out in legislation.

Table 9. Makeup of the Science, Technology and Innovation Council

Member	Current position			
	Science	Industry / business	Government	University administration
Dr. Howard Alper	✓			
Dr. Francesco Bellini		✓		
Mr. Eric Bergeron		✓		
Mr. Richard Dicerni			✓	
Mr. David B. Fissel	✓	✓		
Mr. Peter MacKinnon				✓
Dr. Terence Matthews		✓		
Mrs. Marie-Lucie Morin			✓	
Dr. Heather Munroe-Blum	✓			✓
Mr. David O'Brien		✓		✓
Mr. J. Robert S. Prichard		✓		
Mr. Morris Rosenberg			✓	
Dr. Guy Rouleau	✓			
Dr. W. A. (Sam) Shaw				✓
Dr. Molly Shoichet	✓			
Dr. Mihaela Ulieru	✓			
Dr. Harvey Weingarten				✓
Mr. Rob Wildeboer		✓		
Total number of members	6	7	3	5

4.2 Environment Canada's New Media Relations Policy

In November 2007, Environment Canada instituted a new Media Relations Policy. The new policy was based on the principle that “just as we have ‘one department, one website’ we should have ‘one department, one voice’.”¹⁰⁰ The new policy requires Environment Canada scientists, or “subject matter experts,” to refer all media requests to Media Relations Headquarters.¹⁰¹ Media Relations Officers are then to work with Environment Canada staff in deciding “how best to

handle the call.”¹⁰² “[D]epending on the nature of the call,” this could include having a Media Relations Officer return the call on behalf of the department, asking the “subject matter expert” to respond to the call with “approved lines,” or referring the call to the Minister’s office.¹⁰³ The policy does not state, nor were Environment Canada officials able to clarify, how “approved lines” are being written.¹⁰⁴

This policy has drawn intense criticism from a range of sources:

Table 10. Criticism of Environment Canada’s new media relations policy

<p>The news media</p>	<p>In a letter to then Environment Minister John Baird, responding to the new policy, the Society of Environmental Journalists stated “we consider restricting scientists’ freedom to communicate with us a major threat to performing our job of distributing information and analysis in a timely manner to decision makers and the rest of the public.”¹⁰⁵</p> <p>“Environment Canada is beginning to look like the Environmental Protection Agency in the US: an official body whose staff are treated by the government [of George W. Bush] as enemies of the state.” — George Monbiot, British environmental journalist and author¹⁰⁶</p>
<p>Independent scientists</p>	<p>Andrew Weaver, a professor at the School of Earth and Ocean Sciences, University of Victoria, and Canada Research Chair, argued that the policy was a deliberate, “Orwellian”¹⁰⁷ attempt to “muzzle” Environment Canada scientists and “manufacture the message of science.”¹⁰⁸</p> <p>“Science put the threat of climate change on the international public policy agenda and science can play a key role in finding solutions. As important as is adequate funding, it is equally important that governments foster open scientific dialogue. A healthy democracy needs a free and vibrant scientific establishment.” — John Stone, member of the IPCC Bureau for the 3rd and 4th Assessment Reports.¹⁰⁹</p>
<p>Climate scientists within Environment Canada</p>	<p>After the policy’s inception, one senior scientist spoke out anonymously and said that it was “insulting,” while other insiders noted that it was blocking communication and infuriating scientists.¹¹⁰</p> <p>Anonymous sources within Environment Canada have told Climate Action Network Canada that many scientists continue to be quite frustrated with the new policy. One particular complaint concerns the fact that scientists are required to write detailed responses to questions submitted by journalists which — despite being strictly scientific in nature and whose answers require only well-established facts — must be approved by a series of senior managers at Media Relations before a interview can be given. Scientists have come to perceive that the new policy questions their professionalism and their scientific expertise, and is intended merely to prevent them from speaking to the media.¹¹¹</p> <p>“In thirty years of service in the Environment Department I was never stopped from giving the public my views on scientific issues. Now I am controlled and told what to say or I am not allowed to talk. I feel that the public pay for the scientific information we gain as government scientists and the public have a right to know what we are thinking. But we are afraid of the consequences if we speak out now. Democracy cannot work without access to the information needed for decision making.” — Anonymous Environment Canada Climate Scientist¹¹²</p>

4.2.1 The Policy's effect on the Media's Access to Environment Canada Scientists

Environment Canada managers responded to the criticisms made immediately after the new policy came to light. Director General of Communications Charles Slowey stated that the new policy's objective was to ensure that media requests were responded to "quickly, accurately, and in a consistent way across Canada,"¹¹³ while Acting Director of Ministerial and Executive Services Gregory Jack stated that there would be "no change in terms of allowing scientists access to the media speaking on areas of their expertise."¹¹⁴

However, anonymous sources within Environment Canada have told Climate Action Network Canada that the new policy significantly reduced the media's access to scientists during its first months of implementation. Many scientists reported not having received a response from Media Relations Headquarters after they forwarded requests for science interviews.¹¹⁵

The same anonymous sources have told Climate Action Network Canada that the policy has had a lasting effect of reducing media coverage of Environment Canada scientists. That is, media coverage of Environment Canada scientists with respect to climate change has declined by more than three-quarters since before the new policy was instituted.¹¹⁶

This decrease in media coverage can be attributed to two factors. First, scientists at Environment Canada have become reluctant to accept media requests over concerns about the process and the workload involved, such as having to write out extended answers to scientific questions requiring approval from Media Relations officers. Second, many journalists operate with a same-day deadline and have come to be extremely frustrated by the extended process required to attain the approval needed for interviewing an Environment Canada scientist.¹¹⁷

Our own analysis confirms that there has been a sharp decrease in media coverage of prominent Environment Canada climate scientists since the new media relations policy came into effect:

Table 11. Effect of the new media relations policy on news coverage of prominent Environment Canada climate scientists¹¹⁸

Scientist	Citations in media outlets covered by the FPinfomart media monitoring service				
	Nov 15, 2005 to Nov 14, 2006	Nov 15, 2006 to Nov 14, 2007	New Media Relations Policy Came Into Effect	Nov 15, 2007 to Nov 14, 2008	Nov 15, 2008 to Nov 14, 2009
Francis Zwiers	5	15		3	1
Heather Auld	9	1		0	2
Greg Flato	0	5		0	0
John Fyfe	1	8		4	0
Total for all Environment Canada atmospheric science experts ¹¹⁹	40	45	30	8	

4.2.2 The Policy's Coherence with That of the Government of Canada

Slowey and Jack, the Environment Canada managers cited above, also both argued that the department's new Media Relations Policy is consistent with those that govern media relations in other federal departments, private organizations, and the not-for-profit sector.¹²⁰ Likewise, Slowey stated that the policy is in line with the Government of Canada's Communications Policy.¹²¹

The Government of Canada's Communications Policy states that:

“Institutions must ensure processes and procedures are in place to assist managers and employees in responding to media calls.”¹²²

Beyond this, it does not specify to what degree media relations officers are to “assist” employees in responding to media calls. That is, it does not distinguish between “processes and procedures” in which media relations officers facilitate journalists’ direct access to relevant “subject matter experts,” and those in which media relations officers respond with “approved lines” or in which scientists have to write out extended answers to journalists’ questions that must be approved before any interview can take place.

Since the Environment Canada's new departmental policy has made it difficult for journalists who operate within a same-day deadline to access government scientists, the department could, in fact, be seen as violating the government's overall Communications Policy, which states that:

“Institutions must operate and respond effectively in a 24 hour media environment. They must be able, on short notice, to reach and inform the media on issues of importance to decision makers and the public.”¹²³

In a democratic society there can be no justification for limiting the ability of experts employed by the government to speak freely to the media in their area of expertise, in the absence of any compelling grounds for confidentiality.

Recommendation #5

Environment Canada should revise its Media Relations Policy to ensure that journalists once again have adequate and timely access to the department’s scientists and other experts. Other federal departments, particularly those that employ scientists, should also ensure that their media relations policies meet the same standard.

4.3 The Release of Natural Resources Canada and Health Canada Reports on Climate Change Impacts

In recent years the federal government has prepared two major reports on the projected impacts of climate change in Canada. Both reports were published in a manner suggesting that ministers did not want them to receive significant attention.

4.3.1 Natural Resources Canada Report

The 450-page Natural Resources Canada report *From Impacts to Adaptation: Canada in Changing Climate* was completed in December 2007, but the government chose to delay its release. It is the final product of the Canadian Climate Impacts and Adaptation Network (C-CIARN) (see Section 3.2.1) and includes the work of 145 authors and 110 expert reviewers.

As the government chose to delay the report’s release immediately prior to the high-profile UN climate change conference in Bali, Indonesia (where the Government of Canada received significant international criticism), opposition critics argued that the government was intentionally trying to suppress the report’s findings in an attempt to avoid political embarrassment.¹²⁴

In response, Prime Minister Harper assured the House of Commons that the government was not intentionally suppressing a key federal report on climate science but did not offer an explanation as to why the report’s release had been delayed.¹²⁵ On December 3, then Minister of Natural Resources Gary Lunn stated that questions about the report should be directed to then Environment Minister John Baird, because he was the government’s lead spokesperson going to Bali.¹²⁶ Then, on December 4, Minister Baird told a parliamentary committee that questions about the report should be directed to Minister Lunn as it was commissioned by his department.¹²⁷

Natural Resources Canada finally posted the report on its website in March 2008. A spokesperson for the department confirmed that a top public relations firm, Hill and Knowlton, had been given a \$50,000 contract in 2007 to craft the unveiling of the report.¹²⁸ The firm had

prepared list of organizations and media potentially interested in the report, and had trained the report's authors to speak to different audiences.¹²⁹ Natural Resources Canada officials at NRCan had been anticipating a national launch, followed by regional events across the country, said a source speaking on the condition of anonymity.¹³⁰ But then, after the CBC leaked the contents of the report, the department chose to discreetly release the report by posting it on its website late on Friday, March 7 — the worst possible moment for attracting any further interest from the media.¹³¹

Unsurprisingly, the report's contents generated little media coverage, frustrating many of the contributing government scientists, public servants, and academics.¹³²

4.3.2 Health Canada Report

In July 2008 Health Canada published a 500-page report outlining the harmful impact that climate change is projected to have on the health of Canadians. The report, entitled *Human Health in a Changing Climate: A Canadian Assessment of Vulnerabilities and Adaptive Capacity*, describes climate as a “key determinant of health.”¹³³ It forecasts that more frequent heat waves will substantially increase the prevalence of heat-related illness and deaths, leading to more respiratory and cardiovascular disorders, especially for children and the elderly.¹³⁴ The report also projects that climate change will lead to an increased incidence of vector-borne infectious diseases native to Canada and the emergence of infectious diseases new to Canada.¹³⁵ Aboriginal communities in Canada's North are singled out as being particularly vulnerable to a changing climate, primarily because impacts on wildlife will affect food security, and also because of impacts on water availability.¹³⁶

On July 3, 2008, the scientists involved with the report were informed via conference call that the government was preparing a “low-profile release.”¹³⁷ It was eventually released late on a Thursday afternoon at the end of July.¹³⁸

As the report was expected to be released several months earlier, with considerable media fanfare including a pan-Canadian tour, many of its authors were critical of the government.¹³⁹ For instance, Colin Soskolne of the University of Alberta, one of 20 key contributors to the report, thought that the federal government had a “strange” approach in handling the release of scientific reports and drew a parallel with an environmental assessment he did five years earlier for the government of Azerbaijan, a former Soviet state.¹⁴⁰

Health Canada has still not published the report on its website but will provide it on request.¹⁴¹

4.4 The Cancellation of an Environment Canada Scientist's Presentation at the UN Climate Conference¹⁴²

Don MacIver, the director of the Adaptation and Impacts Research Division at Environment Canada, was the chair of the organizing committee for the World Meteorological Organization (WMO)'s World Climate Conference-3. A meeting of the organizing committee was to take place on December 5, 2008 in Poznan, Poland at the same time as the annual UN climate conference.

As the Government of Canada had refused to approve his travel costs, MacIver's trip to Poland was to be funded by the WMO. Despite this, he was unexpectedly told by the government to cancel his trip and scheduled appearance at the last minute — while he was on his way to the airport.

The government's decision drew criticism from opposition parties and reportedly sparked a buzz of interest among delegates from other countries who were puzzled about why his key presentation had been cancelled. MacIver himself stated that the government had caused a “public embarrassment to Canada.”

In response, Environment Minister Jim Prentice stated that the decision to cancel MacIver's presentation and trip was made by senior bureaucrats in the department who attempted to trim down Canada's delegation at Poznan for budgetary reasons. He was unaware that the WMO had offered to cover MacIver's travel expenses. Prentice added that he had reviewed the slides of MacIver's planned presentation in Poznan and did not feel it was a critical part of the government's participation in the UN meetings.

The cancellation of the trip prompted MacIver to resign as chair of the World Climate Conference organizing committee:

“I have been placed in an untenable position and I say this with great reluctance because I remain hopeful that the essential milestones for World Climate Conference-3 can be achieved. However, given the delays in EC [Environment Canada]'s support for this globally significant event and the ongoing embarrassment to Canada, it is clear that another chair from another supporting country is needed to provide critical leadership.”

4.5 The Appointment of Three Climate Change “Skeptics” to the Boards of NSERC and CFI

Since taking office in 2006, Prime Minister Stephen Harper has appointed three climate change “skeptics” to the boards of two key granting agencies for university-based scientific research (see Section 3.1), the Natural Sciences and Engineering Research Council (NSERC) and the Canada Foundation for Innovation (CFI). Table 12 below summarizes the three individuals' views on climate science in comparison to those of the IPCC — representing the international scientific consensus on climate change — and the stated views of federal ministers.

4.5.1 Christopher Essex

Christopher Essex is a Professor and Associate Chair in the Department of Applied Mathematics at the University of Western Ontario and former director of its Program in Theoretical Physics.¹⁴³ In 2002, he wrote a book with Ross McKittrick, entitled *Taken by Storm*, which attempted to challenge the “myth” of climate change.¹⁴⁴

On November 2, 2006, Essex was appointed to the board of NSERC, which funds university-based scientific research in Canada.¹⁴⁵ The 18-member board makes strategic decisions on the agency's priorities, while funding decisions in regards to specific projects are approved by a separate panel that operates at arm's length from the council.¹⁴⁶

4.5.2 Mark Mullins

Mark Mullins holds a PhD in Economics from the London School of Economics and was the Executive Director of the Fraser Institute, a free-market think-tank, from 2005 to 2009.¹⁴⁷ The Fraser Institute has cast doubt many times on the seriousness of climate change and on its attribution to human activities.¹⁴⁸

On April 23, 2009, Mullins was appointed to the board of NSERC.¹⁴⁹

4.5.3 John Weissenberger

John Weissenberger holds a PhD. in Geology from the University of Calgary and has worked in the oil and gas industry, notably Husky Energy in Alberta, for over 20 years.¹⁵⁰ He is a friend of Prime Minister Harper and a former chief of staff in his government.¹⁵¹

On April 23, 2009, Weissenberger was appointed to the board of directors of the CFI.¹⁵² The duties of the 15-member board — seven of whom are appointed by the government — include setting strategic objectives and making final decisions on projects to be funded.¹⁵³

Table 12. Statements by Harper government appointees on climate change

Statements by the appointees	Statements by the IPCC or Harper government ministers
<p>“To those who doubt the scientific basis of global warming theory, we say: Don’t let a cabal of government-funded scientists, environmental activists and journalists convince us they’re the mainstream.”</p> <p>— John Weissenberger, April 28, 2006¹⁵⁴</p> <p>“[T]he great weakening of the Stalinist intellectual monument of global warming theory continues in regular increments.”</p> <p>— George Koch (from a blog published jointly with Weissenberger), September 13, 2008¹⁵⁵</p>	<p>“The IPCC has presented compelling scientific proof that the world’s climate has changed because of human action and industrial growth... [The IPCC’s <i>Fourth Assessment Report</i>] represents an important contribution to the body of scientific research on the topic. The evidence is in, and it is clear the time is now for concrete and realistic actions to deal with climate change and air pollution to improve the health of Canadians.”</p> <p>— Then Environment Minister John Baird, February 2, 2007¹⁵⁶</p>
<p>“The climate-change issue is somewhat sensational and definitely exaggerated... It strikes me that the science is not settled.”</p> <p>— Mark Mullins, September 21, 2007¹⁵⁷</p> <p>“The claim that there is a global warming crisis threatening to bring chaos and destruction upon the world is so feeble you were probably feeling skeptical anyway. You were right.”</p> <p>— Christopher Essex and Ross McKittrick, 2002¹⁵⁸</p>	<p>“Climate change [is] perhaps the biggest threat to confront the future of humanity today.”</p> <p>— Prime Minister Stephen Harper, June 2, 2007¹⁵⁹</p>

Statements by the appointees	Statements by the IPCC or Harper government ministers
<p>“The actual climate change in many locations has been relatively small and within the range of known natural variability. There is no compelling evidence that dangerous or unprecedented changes are underway.”</p> <p>“[T]here will remain an unavoidable element of uncertainty as to the extent that humans are contributing to future climate change, and indeed whether or not such change is a good or bad thing.”</p> <p>— The Fraser Institute’s <i>Independent Summary for Policymakers IPCC: Fourth Assessment Report</i>, of which Essex was a member of the writing team, 2007.¹⁶⁰</p>	<p>“Warming of the climate system is unequivocal, as is now evident from observations of increases in global air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.”</p> <p>“Most of the observed increase in global average temperatures since the mid-20th century is very likely [over 90%] due to the observed increase in anthropogenic [human-caused] greenhouse gas concentrations.”</p> <p>— The IPCC’s <i>Fourth Assessment Report</i>, 2007.¹⁶¹</p>

Recommendation #6

The government should “establish a Public Appointments Commission to set merit-based requirements for appointments to government boards, commissions, and agencies,” including science funding bodies, as it promised in its 2006 election platform.¹⁶²

5. Conclusions and Summary of Recommendations

This report documents a troubling catalogue of actions by the present federal government that undermine Canadian climate science research and its practitioners. Through its budget decisions, the government appears to be expressing a clear desire to reduce the volume of university-based climate science research in Canada. The government has replaced the independent National Science Advisor by a council of which only one-third of the members currently hold a position conducting scientific research. Environment Canada has adopted a new media relations policy that makes it much more difficult for journalists to have direct access to government scientists. Two major federal government reports on the projected impacts of climate change in Canada were published in a manner suggesting that ministers did not want them to receive significant attention. The government has appointed three climate change “skeptics” to key granting agencies for university-based scientific research.

Overall, it is difficult not to arrive at the conclusion that the government of Prime Minister Stephen Harper sees climate change only as a political problem, not a real-world threat. And in order to reduce its political problem, the government seems quite willing to undermine scientific research and those who undertake it, in federal departments and Canadian universities.

This report includes six recommendations:

1. To maintain university-based climate science research in Canada, the federal government should move as quickly as possible to provide \$25 million per year for 10 years to the Canadian Foundation for Climate and Atmospheric Sciences.
2. To co-ordinate and integrate climate science research across federal departments and agencies, the government should establish a body equivalent to the United States Global Change Research Program. To ensure long-term stability, the mandate of the new body should be set out in legislation.
3. To ensure full accountability, the federal government should increase transparency concerning how much funding is being allocated to climate science research within government departments. First, the government should make a full policy statement of the principles, structures, and decision-making processes used to allocate this funding. Second, the government should provide a degree of disaggregation in the annual Departmental Performance Reports sufficient to clearly quantify the level of funding for climate science research.

4. To ensure that Canada's response to climate change is based on the best information and analysis, the government should establish a permanent commission consisting of independent experts with a mandate to periodically review and publicly report on the science, impacts and economics of climate change and solutions to it. To ensure long-term stability, the mandate of the commission should be set out in legislation.
5. Environment Canada should revise its Media Relations Policy to ensure that journalists once again have adequate and timely access to the department's scientists and other experts. Other federal departments, particularly those that employ scientists, should also ensure that their media relations policies meet the same standard.
6. The government should "establish a Public Appointments Commission to set merit-based requirements for appointments to government boards, commissions, and agencies," including science funding bodies, as it promised in its 2006 election platform.

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