

**Written Submission for the Pre-Budget  
Consultations in Advance of the 2020 Budget**

**By: Evidence for Democracy**

- **Recommendation 1:** Invest \$10-15 million per year for five years in partnership-based climate and atmospheric research, especially in the Arctic.
- **Recommendation 2:** Provide support for fundamental science through investment in the federal granting councils and scientific trainees.
- **Recommendation 3:** Restore funding for federal science to levels achieved in 2011.
- **Recommendation 4:** Implement Departmental Science Advisors in all science-based departments and agencies and examine mechanisms for improved evidence-based policy-making.
- **Recommendation 5:** Promote openness and transparency through full implementation and adherence to Scientific Integrity Policies and open access to government science and data.

## **Budget 2020- Strong science for our changing climate**

On June 17th 2019, the federal Government declared a climate emergency. In light of evidence demonstrating that Canada is warming at twice the global rate<sup>1</sup>, scientists have indicated that dramatic actions are required to avoid catastrophic outcomes. By declaring an emergency, the government has made it clear that they are serious about meeting our Paris agreement commitments and making progress towards protecting our future.

Investing in science is essential in Canada's response to the climate crisis. Advances in science, research and technology play an important role in climate change measurement, mitigation, and adaptation. Science allows us to measure and respond to changes in our climate and environment at different temporal and spatial scales. New technologies allow us to develop and adopt sustainable and renewable energy solutions, and research provides evidence to ensure our climate decisions are informed by robust, up-to-date and accurate information. As well, transparency in our climate policy decisions builds trust in our institutions, protects government integrity and increases accountability in the face of an important and time-sensitive challenge.

In Budget 2020, Evidence for Democracy (E4D) encourages our government to invest in science, evidence-informed decision-making and a culture of transparency and openness.

### **Direct Support for Climate Science**

**Recommendation: Investment of \$10-15 million per year for five years in partnership-based climate and atmospheric research, especially in the Arctic.**

Climate and atmospheric science impact our lives. Canadians depend on high quality scientific information about weather, climate, and air quality to plan activities, make informed financial and business decisions, ensure health and safety, and develop infrastructure. In the face of a climate emergency, climate science is critical to help us understand extreme events, climate variations, and the related impacts of climate change.

Canada, with its geography, human talent, knowledge base, and infrastructure, is uniquely positioned to lead in climate and atmospheric science, particularly in the Arctic. However, we are not fully utilizing our capacities in this area. In recent years, a number of high-profile climate, atmospheric, and Arctic research programs have closed or faced funding challenges.

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<sup>1</sup> Canada's Changing Climate Report; Government of Canada, 2019 <https://changingclimate.ca/>  
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Research capacity that has taken years to build has been diminished, along with the ability to respond to emerging challenges.

E4D recently conducted a study<sup>2</sup> on the state of Canadian climate science funding by surveying scientists. The report showed that scientists are very concerned over the lack of sustainable funding for the field, and that this could impact Canada's ability to make evidence-based policy decisions on climate in the future. 97% of Canadian climate scientists think funding for the field should be increased; 77% say students and trainees are leaving the field due to funding instability and 82% expressed concern over the federal government's current approach to funding the field.

Though the Canadian government has increased investment in climate-related environmental science and ecology, direct funding for atmospheric science has remained stagnant from year to year. As well, though atmospheric sciences receive 8.2% of total climate-related research funding globally, in Canada, the same field receives only 2.3% of research funds. It is clear that Canada hasn't prioritized atmospheric climate science.

Given the Government's commitment to addressing climate change, atmospheric and climate science should be at the forefront of funding priorities. To address identified gaps, **we recommend investment of \$10-15 million per year in dedicated funding to climate and atmospheric science.**

This investment would support the next generation of climate scientists and should incorporate collaborative projects between government researchers, industry, and international partners.

Climate science fieldwork, especially in the Arctic and at sea, can be expensive. As such, scientists in the field often rely on collaboration with public or private partners and relationships with local communities. Though existing competitive processes such as NSERC's Alliance grants, designed for collaborative research, could fund climate science projects, restrictions on these grants prevent many climate scientists from applying.

Until 2017, Canada had a dedicated climate science funding stream: the Climate Change and Atmospheric Research (CCAR) Program, administered by NSERC. In 2017, the federal government did not renew CCAR despite an excellent evaluation and an explicit recommendation from NSERC to renew.

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<sup>2</sup> Investing in Canadian Climate Science, Evidence for Democracy, June 2019

[https://evidencefordemocracy.ca/sites/default/files/reports/climate-science-report-web\\_final.pdf](https://evidencefordemocracy.ca/sites/default/files/reports/climate-science-report-web_final.pdf)

CCAR funded seven climate science projects including the Polar Environment Atmospheric Research Laboratory (PEARL) in Eureka, Nunavut. The projects were carried out by academic scientists in collaboration with government and other partners. Each project received roughly \$1 million annually which supported students and technicians, fieldwork, travel, equipment, and infrastructure maintenance.

After CCAR funding stopped, the government provided one-time funding of \$1.6 million to ensure PEARL would not close. However, without a comprehensive, long-term solution, PEARL and other critical climate and atmospheric research projects could end in 2019.

Without the capacity to measure and monitor our changing climate, Canada is not prepared to respond appropriately to the climate emergency. A strong foundation in climate science will allow Canada to be the lead in this field, and will equip us with the appropriate evidence to make informed decisions.

## **Funding for Science and Research**

**Recommendation: Provide support for fundamental science through investment in the federal granting councils and scientific trainees.**

Research investments are critical for maintaining international competitiveness, training the next generation of business and scientific leaders, and continuing to build on benefits that past research investments have yielded for Canadians. Canada is currently falling behind: we are no longer in the top 30 nations in terms of total research intensity, and decisive action is needed to reassert our position as a global research powerhouse.

In the face of a climate emergency, fundamental research ensures we have the human capital, technological tools and scientific evidence to address the issue adequately and urgently. Investing in research can allow us to explore and test clean energy solutions, provide solutions for mitigating climate change, develop infrastructure and monitoring tools, investigate social and cultural impacts of climate change and train the next generation of climate experts.

Discovery science is made possible by our federal granting councils. Though Budget 2018 included investment in “core” open competition programs via the granting councils (\$690 million over the first four years), this represents only 60% of recommendations made in Canada’s Fundamental Science Review (FSR)<sup>3</sup> (\$1.2 billion over four years). In order to

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<sup>3</sup>Canada’s Fundamental Science Review, Government of Canada, April 2017

<http://www.sciencereview.ca/eic/site/059.nsf/eng/home>

ensure Canadian scientists continue developing the critical tools and solutions required to address key challenges, we recommend increasing granting council funding to the full recommended amount.

In addition, E4D's climate science report indicated that existing climate science funding streams do not support researchers at different stages. Though Budget 2019 included \$114M over five years for scholarships, this investment also falls short of the FSR recommendation of \$140 over four years. We recommend investing this full amount, including new funding for postdoctoral researchers. This will ensure Canada is equipped with the trainees and capacity required for our changing future.

**Recommendation: Restore funding for federal science to levels achieved in 2011.**

Federal government research has an important role in Canada's science landscape. Between 2012-2014, \$223 million in government funding for intramural science was eliminated, and although science and research funding is recovering, funding for federal science hasn't returned to 2011 levels<sup>4</sup>. In a survey to federal scientists, >50% indicated they don't feel current funding levels are adequate to fulfill their mandates<sup>4</sup>.

Following previous federal science cuts, many critical climate-related programs suffered, including ECCC's ozone monitoring program, and DFO's monitoring of our Great Lakes and waterways<sup>5</sup>. Investing in federal science is critical to ensure our federal scientists can continue contributing to the climate change response.

**Evidence-Informed Decision-Making**

The climate emergency we are facing will present significant policy challenges to our federal departments for decades to come. However, it also presents an opportunity to ensure that mechanisms to support evidence-informed decision-making (EIDM) are engrained across government. Access to and use of robust evidence will help decision-makers effectively weigh complex options, and make fully informed decisions that benefit all Canadians.

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<sup>4</sup> PIPSC, Restoring Federal Science Capacity: A Fact Sheet, September 2018  
<https://www.pipsc.ca/news-issues/scientific-integrity/restoring-federal-science-capacity-fact-sheet>

<sup>5</sup> Canada Cuts Environment Spending, The Guardian, November 2011  
<https://www.theguardian.com/environment/2011/nov/09/canada-cuts-environment-spending>  
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**Recommendation: Implement Departmental Science Advisors in all science-based departments and agencies and examine mechanisms for improved evidence-based policy-making.**

The government has taken steps to build bridges between science and research, including the appointment of a Chief Science Advisor (CSA) to support decision-makers on science issues. In addition, several Departmental Science Advisors have emerged to support the CSA through a science advice network to provide subject-specific input, build strong connections with experts within and outside of government, and bolster evidence-informed decision-making. To build on this investment, we recommend that the government further invest in this EIDM network, by **implementation and adherence of DSAs in all science-based departments and agencies.**

As well, though EIDM is a key factor in addressing climate change, the process by which EIDM actually occurs in government policy, as well as existing gaps in the process, is not well understood. To better equip our government for informed decision-making, we recommend a whole-of-government review of EIDM. This review should be led by the Privy Council Office, with support from the CSA and DSA networks, as well as appropriate non-partisan third parties, if required.

## **Transparency and Openness**

Climate change is an emotional issue for many Canadians, and despite strong evidence indicating our changing climate, it is a topic that is still often contentious and polarizing. Enhancing government openness and transparency with regard to climate-related decisions will help Canadians feel safe, included and informed. Transparency also provides opportunities for collaboration and ensures that decision makers have access to the best available information. Improving access to science and data regarding climate can help improve scientific research, build better solutions, and enhance public understanding and trust.

**Recommendation: Promote openness and transparency through full implementation and adherence to Scientific Integrity Policies and open access to government science and data.**

A critical component to openness and transparency is ensuring that scientists can effectively share their work with the public and media. In 2019, the federal Government implemented

Scientific Integrity Policies<sup>6</sup> to help ensure this was possible. Although some departments have implemented these policies, it has not been widespread. We recommend Budget 2020 make commitments to **ensure that all science-based departments and agencies implement Scientific Integrity Policies that ensure federal scientists can freely talk about their work, as well as have oversight to ensure adherence to these policies.**

As well, in line with existing work relating to Open Government, we recommend new commitments that advance open access to government data and government science. This includes implementing policies mandating that scientific publications resulting from publicly funded research be openly accessible to the public. Although the government has implemented a policy in which all research funded by the tri-councils must be made publicly accessible within 12 months of publication<sup>7</sup>, this does not apply to government publications. We recommend **expanding open access policies to government publications.**

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<sup>6</sup> Scientific Integrity Policies, Government of Canada, November 2018  
<https://www.canada.ca/en/treasury-board-secretariat/services/information-notice/scientific-integrity-policies.html>

<sup>7</sup> Tri-council Publishing Policy, Government of Canada, December 2016  
[http://www.science.gc.ca/eic/site/063.nsf/eng/h\\_F6765465.html?OpenDocument](http://www.science.gc.ca/eic/site/063.nsf/eng/h_F6765465.html?OpenDocument)





*Evidence for Democracy (E4D) is the leading fact-driven, non-partisan, not-for-profit organization promoting the transparent use of evidence in government decision-making in Canada.*

*Through research, education and issue campaigns, we engage and empower the science community while cultivating public and political demand for evidence-based decision-making.*

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