Evidence for Democracy's

Pre-Budget Submission

to the House of Commons Standing Committee on Finance

August 4, 2017

Evidence for Democracy

Strong science.
Strong democracy.

123 Slater St, 6th Floor
Ottawa, ON K1P 5H2
info@evidencefordemocracy.ca

@E4Dca

Executive Summary

Budget 2018 presents an opportunity for Canada to continue to focus on the research, science, and evidence that improves the lives of Canadians, and bolsters our productivity, competitiveness, and leads to innovative advancements that benefit businesses and the Canadian economy. We include 6 recommendations:

1. *An increase of $1.3 billion over four years for fundamental research, with $386 million beginning in 2018. $135 million of these funds should be earmarked for investigator-led research.*
2. *Increase investments in federal intramural research to reach the hiring target of an additional 1,500 federal scientists.*
3. *Investment of $2.5 million/year to fund Cochrane Canada.*
4. *Investment of $1.5 million/year to make PEARL a national facility; reinstating a research funding mechanism in the model of CFCAS.*
5. *Increase the $2 million/year currently earmarked for the Office of the Chief Science Adviser.*
6. *Invest 1% of departmental program funding to policy experimentation.*

Introduction

Scientific discovery, innovation, and fundamental research have led to numerous advancements for Canada, and underpins our strong economy and high quality of life. We should be immensely proud of Canadian science.

However, science and innovation are still recovering from neglect and funding cuts.[1] Our scientific research capacity, the fundamental tool we use to make wise decisions to ensure our continued health and prosperity, is lagging behind our peers internationally,[2] and causing concern among researchers and Canadians alike. Fortunately, we have seen some improvement for Canadian science.

Budget 2017 invested heavily in the Innovation Agenda, looking to secure Canada's lead in innovation, and job growth in the "new" economy.[3] With significant resources going towards Superclusters, Innovation Canada, artificial intelligence, and quantum computing, it is clear this government prioritizes discovery, innovation, and economic progress that benefits all Canadians.

However, research has shown the importance of fundamental research to success in innovation.[4] This government has greatly improved several parts of the "innovation pipeline," but it must address the imbalance between applied and basic research if we are to see the greatest benefits result from Canada's investments in the Innovation Agenda.

Budget 2018 presents an opportunity to continue to focus on the research, science, and evidence that improves the lives of all Canadians, and bolsters our productivity, competitiveness, and leads to innovative advancements that benefit businesses and the Canadian economy.

Our recommendations are divided into two groups: **Public science for the public good,** and **Transparent, innovative, and evidence-based decision-making.**

Public Science for the Public Good

Fundamental Research Support

Recommendation: An increase of $1.3 billion over four years, with $386 million beginning in 2018. $135 million of these funds should be earmarked for investigator-led research.

The government has initiated the important task of taking stock of the situation for fundamental research in Canada. The Fundamental Science Review expert panel produced a well-balanced roadmap to revitalizing research in Canada. We would like to echo the point made by the expert

[1] "Investing in Canada's Future: Strengthening the Foundations of Canadian Research," p. xi. http://www.sciencereview.ca/eic/site/059.nsf/eng/home (April 2017)
[2] The World Bank, http://data.worldbank.org/country/canada
[3] "Budget in Brief, Skills and Innovation" http://www.budget.gc.ca/2017/docs/bb/brief-bref-en.html#section1 (March 2017)
[4] "Investing in Canada's Future: Strengthening the Foundations of Canadian Research," p. 21. http://www.sciencereview.ca/eic/site/059.nsf/eng/home (April 2017)

panel: the government must prioritize re-balancing the ratio of funding for investigator-led vs priority-driven research to a 70-30 split. Without fixing this ratio, Canada is at risk at falling even further behind our peers in research and development, making Canadians' skills and businesses less competitive globally. We support the recommendations made by the Fundamental Science Review Panel, and recommend:

- The creation of a **National Advisory Council on Research and Innovation** to provide oversight of the research and innovation ecosystem along with increasing coordination and accountability of the funding councils.
- Increase funding for fundamental research by $386 million in 2018, including **$135 million for investigator-led research** to address the imbalance caused by governments favouring priority-driven targeted research.[5]
- Policy created specifically to **support early career researchers,** who have been most harmed by cuts to funding.

Intramural government science

Recommendation: Increase investments in intramural research, and hire additional federal scientists, continuing on growth pattern from FY 2016-17, as opposed to current projected cuts in personnel (loss of 0.7% of federal FTE between 2016-17 and 2017-18).[6]

This government has delivered on its promises to strengthen government science, and ensure federal scientists are provided safeguards for communicating science, and carrying out their work free from undue political interference. However, scientific integrity also relies on capacity. Without sufficient capacity, federal scientists cannot carry out the mandate of their departments to keep Canadians safe, healthy and prosperous.

From 2015-16 to 2016-17, there was a 1.9% increase in federal personnel involved in science and technology activities, however, there was a 4.8% increase in administrative activities, meaning that much of the growth for Science & Technology employees came in the form of increases to staff for the administration of extramural programs. [7]

E4D recommends meeting the hiring recommendations of the Professional Institute of the Public Service of Canada to hire an additional 1,500 federal scientists to ensure that departments have enough capacity and scientific knowledge to fulfill their mandates. The need for this capacity will be particularly heightened given the recommended changes to environmental assessments, in particular that all decisions be based on the best available evidence, including transparently declaring how evidence is used in decision-making, ensuring more robust peer review, and an open science platform for all Canadians.[8]

E4D suggests that proper funds are allocated to increase scientific capacity in order to provide sound environmental science and evidence for the robust evaluation of proposed projects.

---

[5] Ibid, Exhibit 7.5
[6] CANSIM table 358-0166 http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=3580166&tabMode=dataTable&p1=-1&p2=9&srchLan=-1
[7] CANSIM table 358-1246 http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=3580146&tabMode=dataTable&p1=1&p2=-1&srchLan=-1
[8] Government of Canada, "Environmental and Regulatory Reviews: Discussion Paper" https://www.canada.ca/en/services/environment/conservation/assessments/environmental-reviews/share-your-views/proposed-approach/discussion-paper.html#science (June 2017)

Cochrane Canada

Recommendation: Federal investment of $2.5 million per year to fund Cochrane Canada, ensuring their work to bolster evidence-informed decision-making in health care can continue to benefit Canadians.

Healthy citizens are the bedrock of the labour force. In order for Canadians to be productive and competitive, they require accessible, evidence-based health information. Cochrane Canada publications are an important part of Canada's healthcare system: for years they have provided Canadians with unbiased, evidence-based information that has helped healthcare practitioners, policymakers, and patients make better healthcare decisions.

As part of an international network, Canada is one of 130 countries involved in this important group promoting evidence-based medicine. Many of the other international Cochrane entities are funded by their governments, as Cochrane does not receive any funds from commercial organizations, to ensure their neutrality.[9]

Cochrane Canada was funded by CIHR, receiving $9.6 million over 5 years (2010-2015). CIHR has been the primary funder of Cochrane Canada for over 12 years. [10] The organization's systematic reviews have been estimated to cost 80% less to create than one CIHR knowledge synthesis.[11] Cochrane Canada is a low-cost, high-reward investment in evidence-based health care. A funding commitment of **$2.5 million per year** from the government would support the creation of high-quality, evidence-based information for all Canadians.

It was announced in 2014 that Cochrane Canada's funding would be cut. This was not because of performance, but because CIHR removed directed grants. Cochrane Canada is a unique research project and as such should have both directed grant opportunities with CIHR, and government funding, to insure this invaluable source of health information is available for years to come.

CCAR and PEARL

Recommendation: An investment of $1.5 million per year to make PEARL a national facility; and reinstating a climate change and atmospheric research funding mechanism in the model of CFCAS.

E4D recommends the government reinstate funding for a program similar to the Canadian Foundation for Climate and Atmospheric Sciences (CFCAS), which the previous government ceased funding. This previous model supported a diverse range of projects in addition to the 7 projects currently funded by its successor, the Climate Change and Atmospheric Research Program (CCAR). Given the Government's commitment to addressing climate change, climate and atmospheric science should be at the forefront of funding priorities. In addition, recent cuts to climate sciences in the United States will negatively impact the international research community as a whole, and provide Canada an opportunity to lead.

Canada is an Arctic nation. To reach its potential as a world-leader in Arctic and climate research, it needs to invest in long-term research programs. While the Canadian High Arctic Research Station (CHARS) is a valuable asset to Canadian stewardship of polar science, the Polar Environment Atmospheric Research Laboratory (PEARL) is a unique platform for

[9] Cochrane.org http://www.cochrane.org/about-us/our-partners-and-funders
[10] Ibid
[11] Ibid

Canadian atmospheric and climate science with strengths and capabilities CHARS lacks. PEARL is the most-northern Arctic research station studying the carbon cycle and atmospheric change in the world. From its scientifically strategic location, over 1200 km further north than CHARS, PEARL is able to investigate ozone depletion and the polar vortex, support satellite measurements, and monitor high Arctic climate changes. After over a decade of internationally-recognized scientific output, PEARL is at risk of closing unless new funding is forthcoming.

Beyond the reinstatement of the CFCAS-funding model, E4D recommends the government consider transforming PEARL into a National research facility, to be overseen by Polar Knowledge Canada or Environment and Climate Change Canada. This would restore the original vision for it as a permanent facility, as its original founding in 1993 was as the ECCC Arctic Stratosphere Ozone Laboratory (AStrO)[12]. This would complement the existing government investment in CHARS, filling its gaps in high Arctic and atmospheric research capabilities. Due to the long-term nature of PEARL research, E4D recommends an investment of $1.5 million per year for PEARL operations. The funding of PEARL would not only help to promote our research profile internationally, but maximizes on a uniquely Canadian competitive advantage.

Transparent, innovative, and evidence-based decision-making

The office of the Chief Science Advisor

Recommendation: Increase the $2 million per year currently earmarked for the Office of the Chief Science Adviser.

E4D would like to congratulate this government on delivering on an election promise to establish a federal Chief Science Advisor (CSA). Given the outline of work established by the Ministry of Innovation, Science, and Economic Development, the scope of the CSA's work requires an increase to the $2 million earmarked for its office. An increase in resources would allow the CSA to carry out more science diplomacy, which is desperately needed for Canada today, and deliver on the proposed CSA mandate.

Policy Experimentation in Government

Recommendation: Invest 1% of departmental program funding to policy experimentation

This government has taken positive steps forward in evidence-based decision-making and policy experimentation. By declaring both as priorities for the government, Canada is achieving progress in evidence-based policy. These initiatives must be expanded, and funded, if they are to be successful.

In line with the Experimentation Directive[13], E4D suggests that 1% of program funds from all departments be devoted to policy experimentation. This amount will support a shift from policy

[12] "PEARL" http://cnnro.ca/wp-content/uploads/2015/03/Polar-Environment-Atmospheric-Research-Laboratory-PEARL-.pdf (March 2 2015)
[13] Government of Canada, Directive to Deputy Heads https://www.canada.ca/en/innovation-hub/services/reports-resources/experimentation-direction-deputy-heads.html (December 2016)

innovation to experimentation, with appropriate funds to ensure experimentation is carried out and evaluated, in agreement with the Policy on Results.[14]

Policy experimentation should continue to play a leading role in the government's approach to transparent evidence-based decision-making. Policy experimentation helps to create policy interventions that are more efficient, have better returns on investment, and are more evidence-based.[15] 2018 presents a unique time to build on policy experimentation initiatives, with projects like Smart Cities and Clean Tech primed for new, innovative, experimentation-focused policy interventions.

Conclusion

Investments in Canadian science have shown to produce advancements that improve the health of our workforce, protect our economic resources, and fuel the innovations that grow our economy[16]. Without a well-funded and balanced federal approach to science, Canadians cannot become more productive, and Canadian business cannot keep up with an ever-changing international business landscape. 2018 presents an opportunity to invest in intramural science, re-balance extramural science, and to take steps forward in initiatives that support and enhance evidence-based decision-making.

[14] Government of Canada, Policy on Results, Evaluation, and Internal Audits https://www.tbs-sct.gc.ca/pol/topic-sujet-eng.aspx?ta=1
[15] "Promoting Experimentation: Learning from Canada's example" Nesta http://www.nesta.org.uk/blog/promoting-experimentation-government-learning-canadas-experience (June 2017)
[16] Fundamental Science Review, p. 17

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.

Contact:
Kathleen Walsh
Director of Policy

Evidence for Democracy
123 Slater St, 6th Floor
Ottawa ON K1P 5H2

e. kathleen@evidencefordemocracy.ca
o. 613-909-8807
c. 613-282-7573