

Written Submission for the Pre-Budget Consultations in Advance of the 2021 Budget

Submission by the



**CANADIAN
CONSORTIUM FOR
RESEARCH**

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The Canadian Consortium for Research (CCR) is the largest advocacy consortium for researchers in Canada, focusing on research funding across all disciplines, and supporting for post-secondary education. The CCR includes 21 organizations that represent more than 50,000 researchers and 650,000 students across disciplines. For more information about the CCR, please visit <https://ccr-ccr.ca/>.

RECOMMENDATIONS

1. That the federal government revisit the recommendations from the 2017 Fundamental Science Review (FSR) Report, *Investing in Canada's Future: Strengthening the Foundations of Canadian Research*¹, to address the critical knowledge/science gaps that remain to be filled.
2. That the federal government, in accordance with the Fundamental Science Review (FSR) Report, increase the base funding for each of the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC) by at least 10% yearly, until commensurate with other G7 countries.
3. That the federal government increase funding for graduate scholarships and post-doctoral fellowships by \$140 million in 2021, with an additional \$40 million per year phased in over the following three years, and refinance/refurbish the Tier 1 Chairs with an additional \$140 million over the next two years (fiscal 2021/22 – 2022/23) for early career scientists/scholars.

¹ Advisory Panel for the Review of Federal Support for Fundamental Science (2017). Canada's Fundamental Science Review Final Report. *Investing in Canada's Future: Strengthening the Foundations of Canadian Research*. <http://www.sciencereview.ca/eic/site/059.nsf/eng/home>

BACKGROUND

The Canadian Consortium for Research (CCR) is pleased to provide this 2021 pre-budget consultation submission to the House of Commons Standing Committee on Finance.

Science and COVID-19

Whether in terms of its biological outcomes, economic, environmental, health, research, psychological and/or social consequences, the impacts of COVID-19 in Canada and globally are unprecedented and will shape human behaviour for years to come.

Science across various disciplines from the health, humanities and social sciences, and natural sciences and engineering has played a critical role in addressing and understanding the COVID-19 pandemic: transmission mechanisms, effectiveness of various treatments and interventions, creating vaccines, development of medical and personal protective equipment, psychosocial consequences of COVID-19 (violence, mental health impacts of physical distancing, needs and support for children/youth/seniors), fostering community behaviour change, differential impacts on people from marginalized groups, transition to online learning for students of all ages, and workplace/telework accommodations – just to name a few.

It will continue to play a key role in assessing the numerous short- and long-term consequences of COVID-19 and ensuring that Canada remains competitive in the international research landscape by creating new knowledge and driving innovation.

COVID-19 and the Research Ecosystem

The CCR recognizes the federal government's recent and positive support of Canada's graduate students, researchers, and Canadian science. These rapid-response research funds and financial measures were necessary to assist Canadians in mitigating and understanding the impacts of COVID-19. Despite science's contribution to managing the pandemic, Canada's research ecosystem has itself been impacted by COVID-19.

- Research labs, studies, careers and post-doctoral fellowships were postponed, halted and in some cases, ended as a result of physical distancing restrictions and/or family responsibilities.
- Research funding from sources outside of the funding agencies, namely charities and non-profits, has reduced to the point that early career researchers who have previously benefited from their support will be disadvantaged for many years in future funding opportunities.
- Canada's academic institutions and research programs were negatively impacted by the departure of international students from Canada, some of whom will not return. To address their economic impacts, some universities will not be able to hire new faculty, will have to end or not renew contracts with existing faculty, and/or may have to accept fewer students.
- Some research, in its original form, has not been resumed, and may not resume for long periods of time, particularly if labs/universities cannot re-open.
- Modified research methods introduced in response to the COVID-19 restrictions may not be as effective at generating research data needed to answer some research questions.

Given these ongoing impacts, it is more critical than ever that the federal government increase its support for Canada's research funding agencies, students, early career researchers, academic institutions, international research, and research labs.

Canada's Investment in Research and Development

High-quality knowledge, which is gained primarily through research and development (R&D) investment, is key to global competitiveness within the science, technology and innovation fields. R&D includes fundamental research undertaken in academia and industry; applied research directed towards specific objectives; and experimental development to produce new, or improve existing, products and processes.

As noted in *Investing in Canada's Future: Strengthening the Foundations of Canadian Research*, Canada's science and technology ecosystem has a place internationally given Canada's higher education research and development expenditure (HERD) rather than its government expenditure in research and development (GERD).

OECD data show that Canada's gross domestic expenditure in R&D has steadily declined since 2001 when its investment was 2.03%. At 1.56% in 2018, Canada's investment is well below the OECD average of 2.40% and significantly lower than competitor countries such as the U.S. (2.82%), Korea (4.52%), Germany (3.13%), Sweden (3.30%) and Denmark (3.03%)².

Canada's academic institutions may never recover economically from COVID-19; increasing Canada's GERD to maximize the contribution of science will help to both re-start Canada's economic recovery and find solutions to the many pressing and complex challenges facing Canada and society, particularly in light of COVID-19.

While the federal government has, to date, partially implemented the recommendations of the FSR report, a vibrant research ecosystem capable of comprehensively tackling significant societal and economic problems, particularly those presented by COVID-19, requires robust and stable long-term funding.

The 2017 FSR Report presented a robust plan to strengthen Canada's research ecosystem by addressing the need for:

- increased funding to the base budgets of the three granting councils (CIHR, SSHRC, NSERC), and for scholarships and fellowships;
- stabilized funding for the Canada Foundation for Innovation for infrastructure support;
- increased funding for facilities and administrative costs of research through the Research Support Fund;
- a balance across all research disciplines as a foundational principle for funding; and
- increasing support to diversity in research, emphasizing the importance of research across disciplines, addressing gender equity, and providing support for early career scientists, visible

² <https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm>

minorities, researchers with disabilities, and Indigenous researchers.

Moreover, it highlighted how a decade of sustained funding neglect has seen Canada's research competitiveness greatly diminish.

RECOMMENDATIONS

Recommendation #1

That the federal government revisit the recommendations from the 2017 Fundamental Science Review Report (FSR), *Investing in Canada's Future: Strengthening the Foundations of Canadian Research*³, to address the critical knowledge/science gaps that remain to be filled.

Canadian researchers and students are at the forefront of important discoveries and new knowledge; however, as noted, for many COVID-19 has halted and/or stopped much of this critical research thereby significantly impacting Canada's research ecosystem.

Through Budgets 2018 and 2019, the Government of Canada has acted on some of the 2017 FSR Report's recommendations; however, critical recommendations remain to be implemented.

The federal government must revisit the recommendations from the 2017 FSR Report to address the knowledge/science gaps⁴ to:

1. support evidence-based policy-making in a period of accelerated change and complex domestic and global challenges across a wide range of domains;
2. support Canadians living longer/healthier lives;
3. protect and promote Canada's diverse cultures and heritage;
4. promote the development of innovative technologies, goods, and services that contribute to our economic prosperity, which in turn creates meaningful jobs;
5. sustain the country's economic sovereignty, standard of living, and valued social programs;
6. support and inspire the next generation of researchers, entrepreneurs and innovators who can translate insights from basic to applied research into ideas, products, and services for the public and private sectors, and create economic value for Canadians; and
7. attract talented people and innovative businesses to Canada.

³ Advisory Panel for the Review of Federal Support for Fundamental Science (2017). Canada's Fundamental Science Review Final Report. *Investing in Canada's Future: Strengthening the Foundations of Canadian Research*. <http://www.sciencereview.ca/eic/site/059.nsf/eng/home>

⁴ Adapted from a presentation delivered by Dr. David Naylor, Chair of the FSR Panel, at a Summit co-hosted by the CCR and the Canadian Psychological Association in Ottawa, May 2019.

Recommendation #2

That the federal government, in accordance with the Fundamental Science Review (FSR) Report, increase the base funding for each of the Canadian Institutes of Health Research (CIHR), the Natural Sciences and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC) by at least 10% yearly, until commensurate with other G7 countries.

Science – social sciences and humanities, health, natural sciences and engineering – is a fundamental part of Canada’s economy and growth potential, having relevance in an era marked by a public health crisis to societal well-being, human functioning, health, technology, innovation, entrepreneurship, and productivity. Canada’s federal funding agencies play a critical role in supporting science and Canadian scientists at all career stages.

Funding to each of CIHR, NSERC and SSHRC’s base budgets should be increased by at least 10% yearly, until commensurate with other G7 countries, for investigator-driven research. As noted in the Fundamental Science Review (FSR) Report, such an investment would ensure the sustainability and competitiveness of Canada’s research ecosystem at a minimal cost to Canada’s annual budget – for example, if the base funding of the tri-councils were to be increased from \$3.5billion to \$4.8billion over a four-year period, it would amount to an additional 0.4% of the Government of Canada’s annual budget.

Recommendation #3

That the federal government increase funding for graduate scholarships and post-doctoral fellowships by \$140 million in 2021, with an additional \$40 million per year phased in over the following three years, and refinance/refurbish the Tier 1 Chairs with an additional \$140 million over the next two years (fiscal 2021/22 – 2022/23) for early career scientists/scholars.

Supporting graduate/early career-level teaching, research, and experience through scholarships, fellowships and research chairs will build a foundation for economic and social development, foster highly skilled and trained workers who will drive innovation and productivity, encourage the pursuit of graduate-level education, position Canada internationally as a solid training ground, and ultimately significantly mitigate the impacts of the pandemic on Canada’s future researchers and scholars.

As such, the CCR recommends that the federal government:

- increase funding for graduate scholarships and post-doctoral fellowships by \$140 million in 2021, with an additional \$40 million per year phased in over the following three years; and
- refinance/refurbish the Tier 1 Chairs with an investment of \$140 million over the next two years (\$35 million in fiscal 2021/22; \$115 million in fiscal 2022/23) for early career scientists/scholars.

CONCLUSION

The global response to the pandemic has shown that science is relevant and impactful at all levels, from individuals and businesses to municipalities, regions, nations and the world. Science knows no boundaries; it has been, is, and will continue to be relied upon by decision-makers for continued management of the pandemic and to re-start Canada's economy.

Canada's capacity to innovate and compete internationally, and in turn recover and thrive economically, is dependent on sustained support of a broad spectrum of research carried out in various environments (academic, industrial, research institutions, government laboratories, not-for-profit settings). Science advances and innovations that enhance the economy and work to address issues such as those that have arisen as a result of COVID-19 happen when students and researchers from all disciplines and sectors (e.g., universities, government departments, data collection agencies, libraries) are supported with graduate scholarships, research funding, infrastructure support, institutional support, and career development opportunities.

The FSR report represents a detailed, well-researched, and measured roadmap for how the federal government can boost the economy via fundamental science and research. What must happen now is that the remaining recommendations of the FSR Report are implemented quickly with continued monitoring and assessment to significantly mitigate the impacts of the pandemic and thereby ensure that Canada's needs are met and researchers are able to address society's most pressing questions.

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