Written Submission for the Pre-Budget Consultations in Advance of the 2022 Budget

Submission by the

CANADIAN CONSORTIUM FOR RESEARCH

CONSORTIUM CANADIEN POUR LA RECHERCHE

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

RECOMMENDATIONS

Recommendation #1: That the federal government address the outstanding recommendations from the 2017 Fundamental Science Review report. The Government of Canada has acted on some of the FSR Report's recommendations; however, the government needs to address the critical 60% gap between the recommended increase to base funding for basic science and what has been implemented to date.

Recommendation #2: That the federal government increase its research and development (R&D) investments in Canada to re-start Canada's economic recovery and find solutions to the many pressing and complex challenges facing Canada and society, including:

- a 1% increase in Canada's gross domestic expenditure in R&D which, at 1.56%, is at its lowest since 2001 (OECD average is 2.4%)
- increased funding to the base budgets of each of CIHR, SSHRC, and NSERC for fundamental basic and applied research by at least 10% yearly, until commensurate with other G7 countries
- increased support for diversity in research particularly as relates to gender equity, visible minorities, researchers with disabilities, and Indigenous researchers

Recommendation #3: That the federal government provide better coordination and oversight for science and research in Canada so that Canada is effectively positioned to address the next major issue impacting Canada that requires scientific input and analysis by:

- establishing the National Advisory Council on Research and Innovation
- ensuring that the Chief Science Adviser is established as a permanent position within the Canadian government

Recommendation #4: That the federal government increase its support for graduate students, post-doctoral fellows, early career scientists and international students by:

- increasing funding for graduate scholarships and post-doctoral fellowships by $185 million in 2022 to increase both value and number awarded, with an additional $55 million per year phased in over the following three years
- extending the temporary funding packages introduced to assist students impacted by COVID
- restoring funding of the Canada Research Chairs program to 2012 levels with an investment of $140 million over the next two years ($35 million in fiscal 2022/23; $115 million in fiscal 2023/24), asymmetrically allocating new chairs to Tier 2 awards to help early career researchers

Recommendation #5: That the federal government increase its support for facilities and administrative costs of research by:

- increasing the Research Support Fund from 21% to 40%
- increasing funding to meet the small-medium equipment needs of individual researchers
- ensuring the viability of research labs and institutional settings in which research is conducted

The Canadian Consortium for Research (CCR) is pleased to provide this 2022 pre-budget consultation submission to the House of Commons Standing Committee on Finance.

CANADA'S INVESTMENT IN RESEARCH AND DEVELOPMENT (R&D)

In 2016, then Minister of Science, Honourable Kirsty Duncan, launched an independent review of federal funding for fundamental science to ensure that federal programs that support Canada's research efforts were aligned in such a way as to ensure they are strategic, effective, and focused on meeting the needs of scientists in Canada. The resultant 2017 report, *Investing in Canada's Future: Strengthening the Foundations of Canadian Research* (FSR report), contained many significant recommendations which, to date, have been unfilled – there is a 60% gap in funding investments between the report's recommendations and the government's investment to date; the pandemic has shown that those recommendations remain more relevant than ever.

Recommendation #1: The federal government address the outstanding recommendations from the 2017 FSR report to address the knowledge/science gaps[1] to:

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

Prior to the pandemic, Canada was already on a downward trend across such indicators as innovation indices, competitiveness, productivity, business investments in R&D, and government investments in external and internal R&D research. Since the pandemic, those downwards trends have continued when looking at the investments being announced by the United Kingdom, Germany and the United States.

Echoing the recommendations in the FSR report, Canada's Chief Science Advisor Dr. Mona Nemer recently stated, "It's clear that the reason we're able to fight the virus … is because of other research that was totally unrelated that we had done in the past. If we want to be prepared for future emergencies, we need to have a strong basis of research in all disciplines…what the pandemic has shown us is that we have a lot of knowledge gaps that persist and that we need to continue to invest in fundamental research."

Science and research will continue to play a key role in assessing the numerous short- and long-term consequences of COVID-19. It is also essential to ensure that Canada remains competitive in

[1] 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.

the international research landscape by creating new knowledge, driving innovation, and having a strong science culture that will attract and retain internationally renowned high-quality researchers. However, it can only do so with sufficient investments in R&D in: fundamental research undertaken in academia, government labs, and industry across all research disciplines; applied research directed towards specific objectives; and experimental developments to produce new, or improve existing, products and processes.

Recommendation #2: To re-start Canada's economic recovery and find solutions to the many pressing and complex challenges facing Canada and society, the federal government should increase its R&D investments in the form of:

- a 1% increase in Canada's gross domestic expenditure in R&D which, at 1.56%, is at its lowest since 2001 (OECD average is 2.4%)
- increased funding to the base budgets of each of CIHR, SSHRC, and NSERC for fundamental basic and applied research by at least 10% yearly, until commensurate with other G7 countries
- increased support for diversity in research particularly as relates to gender equity, visible minorities, researchers with disabilities, and Indigenous researchers

SCIENCE, RESEARCH AND COVID-19

Across various disciplines from the health, humanities and social sciences, and natural sciences and engineering, science played a critical role in addressing and understanding numerous aspects of the COVID-19 pandemic: transmission mechanisms; effectiveness of various treatments, interventions and public health measures; creating diagnostic tests, vaccines and predictive models; 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.

The pandemic showed that science and research mattered to people, society, and the planet; they will matter even more in a post-pandemic world. Establishing advisory bodies on research and innovation, regularly consulting with the Chief Science Advisor and the research community, and using oversight structures such as the recently passed motion for a House of Commons Science and Research Committee will ensure that Canada is effectively positioned to address the next major issue that requires scientific input and analysis.

Recommendation #3: That the federal government provide better coordination and oversight for science and research in Canada by:

- establishing the National Advisory Council on Research and Innovation, an independent body to advise the government on research spending and strategy, and to coordinate various funded research activities
- ensuring that the Chief Science Adviser is established as a permanent position within the Canadian government

COVID-19'S IMPACT ON CANADA'S RESEARCH ECOSYSTEM

Whether in terms of its biological outcomes, economic, environmental, health, research, psychological and/or social consequences, it is abundantly clear that the impacts of COVID-19 were unprecedented, swift, severe and will shape people and society for years.

The CCR recognizes the federal government's positive support of Canada's students, researchers, and Canadian science. The rapid-response COVID-19 research funds and temporary financial measures put in place were necessary to assist Canadians in understanding and mitigating the impacts of COVID-19. Despite this however, Canada's research ecosystem was significantly disrupted. For example:

- Research studies/programs, fellowships, and careers were halted, postponed, and in some cases, ended due to physical distancing restrictions and/or family responsibilities. Particularly hard-hit were students, women, parents, early career researchers, researchers doing non-COVID-related research, and researchers/scientists from historically under-represented groups for whom the pandemic was already magnifying disparities and inequities.
- Schools and university campuses were closed, impacting thousands of students, and setting behind career paths, research programs and knowledge gains for years to come.
- Research funding from sources outside of the funding agencies, namely charities and non-profits, was reduced to the point that early career researchers who had previously benefited from their support will continue to be disadvantaged for many years in future funding opportunities.
- Modified research methods introduced in response to the COVID-19 restrictions were not as effective at generating research data needed to answer some research questions.
- Many research labs were closed and fieldwork was cancelled; some research, particularly in its original form, has yet to resume, and may not resume for long periods of time.
- Due to the departure/drop in international students/enrollment, Canada's academic institutions and research programs suffered significant financial loss ranging from $377 million to $3.4 billion in 2020/21. 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.

Recommendation #4: To mitigate COVID's impacts on Canada's next generation of researchers, the federal government increase its support for graduate students, post-doctoral fellows, early career scientists and international students

- increasing funding for graduate scholarships and post-doctoral fellowships by $185 million in 2022 to increase both value and number awarded, with an additional $55 million per year phased in over the following three years
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Recommendation #5: That the federal government increase its support for facilities and administrative costs of research by:

- increasing the Research Support Fund from 21% to 40%
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CONCLUSIONS

COVID-19 showed that science is relevant and impactful at all levels, from individuals and businesses to municipalities, 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, for important discoveries and new knowledge, to re-start Canada's economy, and to innovate and compete internationally. This is dependent on sustained support of a broad spectrum of research carried out in various environments (academic, industrial, research institutions, government laboratories, NFPs). Science 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 – investments that show the government's support for a prosperous science culture.

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