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

Submission by the

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. **Independent Operating Grants within the Tri-Councils**
   $85M, phased in for the next two years, for open competitions to reach steady-state target identified by the Fundamental Science Review (FSR) Panel.

2. **Graduate Students and Post-Doctoral Fellows**
   Implement a total base increase of $140M per year, with additional equal increments of $40M/year, phased in over three years.

3. **Facilities and Administration Costs**
   Provide additional $100M/year for the next three years to reach the FSR-identified steady-state target.

The CCR is pleased to provide this 2020 pre-budget consultation submission to the House of Commons Standing Committee on Finance. The CCR and its member organizations and members are of the belief that the themes for Budget 2020 of climate change, national research, and development and innovation, are inter-dependent themes that are critical to progressing on the goal of growing and sustaining Canada's prosperity.

The federal government is uniquely positioned to play a leadership role in building the foundation of a science/research ecosystem across Canada with the mandate to find solutions to the many pressing and complex challenges facing Canada and society. Sustained financial investment and leadership by the federal government is essential to ensure that fundamental research needed to achieve global challenges is viable over the long-term. While the federal government has, to date, partially implemented the recommendations of the Fundamental Science Review (FSR) report, a vibrant research ecosystem capable of comprehensively tackling significant societal and environmental problems, like climate change, requires robust and stable long-term funding.

Many recent reports not only capture the many climate change-related issues, but also outline various actionable strategies and options for government.

- The Treasury Board Secretariat's (TBS) *Greening of Government Strategy*, makes clear climate change has significant social and economic impacts: "[i]n Canada and abroad, the effects of climate change are becoming evident. Impacts such as coastal erosion; thawing permafrost; increases in heat waves; droughts and flooding; ecosystem changes; and risks to critical infrastructure; and food and water security are already being felt in Canada and globally. The science is clear that human activities are driving unprecedented changes in the earth's climate, which pose significant risks to human health, security, and economic growth."[1] The benefits of acting on climate change through increased funding for fundamental research and enhanced access to post-secondary education will reduce risks and create new economic opportunities and good jobs for Canadians.

- The Council of Canadian Academies' (CCA) report, *Canada's Top Climate Change Risks*, outlines a robust approach to addressing climate change science with a focus on twelve major areas of risk (agriculture and food; coastal communities; ecosystems; fisheries; forestry; geopolitical dynamics; governance and capacity; human health and wellness; indigenous way of life; northern communities; physical infrastructure; and water).[2]

- A 2018 collaborative report by Canada's auditors general shows that current efforts have fallen short of both federal and provincial government commitments on climate change and provide guidance on adaptation and mitigation.[3]

[1] https://www.canada.ca/en/treasury-board-secretariat/services/innovation/greening-government/strategy.html
[2] https://cca-reports.ca/wp-content/uploads/2019/07/Report-Canada-top-climate-change-risks.pdf
[3] http://www.oag-bvg.gc.ca/internet/docs/osh_20180327_e_42964.pdf

- In 2019, *Canada's Changing Climate Report* was released by federal government scientists, providing a climate science foundation for the forthcoming National Assessment reports addressing the impacts of climate change in Canada and how we are adapting to reduce risk.[4]

- Finally, in terms of research funding, a 2019 survey of climate scientists included in the report *Investing in Canadian Climate Science*, shows a lack of continuity in climate-science funding and one that has led to a loss of promising researchers in Canada.[5]

Given the complexity and cross-cutting nature of climate change, one key effective approach remains making sustained investments into peer-reviewed fundamental research more broadly, rather than by attempting to target funding. Basic research not only has much to offer to better understand and address climate change-related hazards and health risks,[6] it also supports the necessary foundation for early stage technology development. But it requires both investment in academic research and infrastructure as part of a clear pan-Canadian strategy.

The federal government should revisit the recommendations from the 2017 FSR Report, *Investing in Canada's Future: Strengthening the Foundations of Canadian Research*, to both address the knowledge/science gaps related to climate change identified in the above-mentioned reports, and also:

1. support evidence-based policy-making in a period of accelerated change and complex domestic and global challenges (including climate change) 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. They in turn can translate insights from basic to applied research into ideas, products, and services for the public and private sectors creating economic value for Canadians; and
7. attract talented people and innovative businesses to Canada.[7]

The 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); scholarships and fellowships; stabilized funding for the Canada Foundation for Innovation (CFI) for infrastructure support; increased funding for indirect costs of research through the Research Support Fund (RSF); 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 minorities, researchers with disabilities, and Indigenous researchers. Moreover, it

[4] https://changingclimate.ca/CCCR2019/
[5] https://evidencefordemocracy.ca/sites/default/files/reports/climate-science-report-web_final.pdf
[6] https://www.canada.ca/content/dam/themes/environment/documents/weather1/20170125-en.pdf
[7] 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.

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

Through Budgets 2018 and 2019, the Government has acted on some of the report's recommendations. More can and must be done to further support Canada's research community and thereby advance Canada's global competitiveness and prosperity. Canadian researchers and students are at the forefront of important discoveries, and their expertise and ability to inform progress related to climate change, society, and the economy could be better leveraged. This leveraging can best happen if the recommendations made in the FSR are fully implemented. Consistent with its previous pre-budget submissions, the CCR specifically recommends the following:

Operating Grants

FSR Recommendation: $405M per year as the steady-state target for the open competitions, and another $80M per year in steady state funding for specialized competitions.

Status: The federal government provided funding for specialized competitions primarily through the reallocation of funding from the Networks of Centres of Excellence of Canada (NCEs). Yet the total steady-state commitment to open competitions remains $170 million less than the FSR-recommended amount in the third year.

CCR Recommendation: $85M, phased in for the next two years, for open competitions to reach the FSR-identified steady-state target.

Support for Graduate Students, Postdoctoral Fellows and Early Career Scientists

FSR Recommendation: Total base increase of $140 million per year be phased in over four years, in equal increments of $35 million per year. In addition, it identified the need for harmonizing, upgrading, and bringing strategic focus to the system of graduate student and post-doctoral fellow supports, and recommended creating research chairs for excellent scholars and scientists with a focus on early career researchers making the transition to mid-career, with a $35 million investment this year and a $105 million the following year.

Status: Budget 2018 provided for an investment in Tier 2 Chairs as recommended by the FSR panel yet did not commit to refinancing / refurbishing the Tier 1 Chairs. Budget 2019 provided $22.8M per annum for the next five years and $26.5M in ongoing funding for graduate students across the three granting councils but made no allocation to post-doctoral fellows and no revision to the award levels.

CCR Recommendation: Refinancing / refurbishing of the Tier 1 Chairs with a $35 million investment this year and $105 million the following year. The CCR also recommends implementing a total base increase of $140M per year as per the FSR recommendation, with additional equal increments of $40M per year phased in over three years, and doing the tri-council work needed to review and streamline the existing suite of graduate scholarships and post-doctoral fellowships.

Facilities and Administration (F&A) Costs

FSR Recommendation: The FSR report proposed a much-needed plan to support institutions in maintaining research facilities and equipment, administering research grants and awards, and dealing with broad operational research costs. In Canada, the Government contributes toward F&A costs on a sliding scale through the RSF; the scale gives much higher percentage payments to small institutions, while institutions with higher total values for operating grants get markedly lower percentages of reimbursement.

Average audited F&A costs in Canadian institutions typically run over 50 cents for each direct operating dollar. Many large institutions were receiving 20-25% as an F&A rate. The FSR panel recommended raising the floor for reimbursement to 40% of the value of eligible operating grants awarded to a given institution, and maintaining higher rates for small institutions because of their inherent diseconomies of scale.

Status: Budget 2018 ignored the call for increases in the RSF to enhance the F&A reimbursement rates. The budgeted increase was $58.8M in steady state. The corresponding increase in eligible operating funds in steady state was at least $300M – this amount x 20% = $60M, meaning that the budgeted RSF increase wasn't enough to cover new F&A costs even at the current rates.

CCR Recommendation: $100M per year for the next three years to reach the steady-state level.

Governance and Oversight

FSR Recommendation: The FSR report also outlined a comprehensive agenda to strengthen the foundations of Canadian research through coordinated oversight by two review bodies, and a review of the funding formula for the tri-agencies.

Status: In 2018, the Government created the Canada Research Coordinating Committee; in 2019, it created the Council on Science and Innovation. Budget 2018 departed slightly from the usual 40:40:20 ratio for NSERC:CIHR:SSHRC, providing SSHRC with 23.3%.

CCR Recommendation: Supports efforts to improve coordination and harmonization, promote collaboration, and share best practices among CIHR, SSHRC, NSERC and CFI, and encourages the inclusion of external research experts in oversight roles. It also supports the report's call for balance across all research disciplines as a foundational principle for funding.

CONCLUSION

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 climate change to societal well-being, human functioning, health, technology, innovation, entrepreneurship, and productivity. Science is relevant and impactful at all levels, from individuals and businesses to municipalities, regions, nations and the world – science knows no boundaries.

Science advances and innovations that enhance the economy and work to address climate change 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 and address climate change via fundamental science and research. What must happen now is that the remaining recommendations of the FSR Report are implemented in a timely fashion with continued monitoring and assessment of needs and impact accompanied by adjustment to maintain a science competency in Canada that can deliver what Canada needs and the needs of our planet.

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