Canadian Association of University Teachers
Association canadienne des professeures et professeurs d'université

Successes, Challenges and Opportunities for Science in Canada

Submission to the Standing Committee on Science and Research

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Summary

The Canadian Association of University Teachers (CAUT) is pleased to submit this brief for the study, *Successes, Challenges and Opportunities for Science in Canada*, undertaken by the House of Commons Standing Committee on Science and Research. As the national voice of 72,000 academic staff across Canada, CAUT recommends federal leadership to support Canadian-led science and research by significantly rebalancing investments from targeted research to basic research. We recommend the government increase investments in basic science by $600 million and commit an additional $185 million to base funding per year ongoing, to fully implement the recommendations of the 2017 report of the Advisory Panel on Federal Support for Fundamental Science.

Introduction

Founded in 1951, CAUT represents more than 72,000 teachers, librarians, scientists, researchers, general staff, and other academic professionals in 125 Canadian post-secondary institutions including universities, colleges, and polytechnics. CAUT works in the public interest to improve the quality and accessibility of Canada's post-secondary education.

Our membership represents an integral part of Canada's research and science workforce. As such, CAUT actively seeks to improve government support for the science and research undertaken within Canada's post-secondary education sector, as well as the training, mentoring, and teaching of Canada's next generation of scientists and researchers.

The pandemic has highlighted the critical importance of science and research, and a strong research community. Canadians look to our scientists and researchers for the information and tools necessary to guide us through this health and economic crisis, and address the social, economic, and environmental challenges of tomorrow.

Yet, the pandemic has had a negative impact on research in many areas, stalling or stopping vital inquiries. A survey of CAUT members demonstrated that 64 per cent of academic staff reported their research has slowed or stalled completely because of the pandemic.[1] This hiatus in research work will have significant downstream impacts on the innovation and knowledge that supports Canadian's well-being, security, and global competitiveness.

Science in Canada is underfunded

Canada is falling behind in the science and research needed to tackle the important challenges of our time, including pandemic preparedness and climate change. At just 1.5 per cent in 2019, spending on research and development as a share of gross domestic product puts Canada second to last among our G7 peers, and well below the OECD average.[2] Insufficient federal investment for science and research over the last twenty years means that vitally important research and discovery knowledge cannot be done as researchers compete for a limited pool of money. Without renewed investment, Canada risks the long-term viability of our research and scientific capacity, as well as falling even further behind in our ability to attract and retain scientists.

Of particular concern is the underfunding of basic, fundamental scientific research in Canada. Basic research is curiosity-driven investigation, often motivated by a gap in knowledge, and the commercial relevance or utility of this research does not always have an obvious or immediate benefit. Indeed, discovery research can take decades, if not longer, before its impacts are understood and applied. The lineage of federal investments in fundamental scientific research going back to the 1980s helped lay the groundwork for developing RNA-based medicines which led to the creation of a

1 Canadian Association of University Teachers. The Impacts of COVID-19 on Post-Secondary Education Staff. (2020).

2 OECD. Gross domestic spending on R&D (indicator). (2021) doi: 10.1787/d8b068b4-en

COVID-19 vaccine and a path toward our pandemic recovery.[3]

The time, however, between discovery research and its applicability or commercialization, and government's desire to maximize short-term returns, may indicate why federal investments lean more toward applied research. The 2021 federal budget, for instance, focused on targeted and priority-driven research—such as bio-manufacturing capacity and increasing clinical research capacity—with no increases to basic research. While some may defend that the pandemic created extraordinary pressures to drive our immediate recovery, federal investments in fundamental science have been declining for two decades[4], well before our current health crisis.

Invest in fundamental science

The report of the Advisory Panel on Federal Support for Fundamental Science, released in 2017, provides a blueprint for how the federal government can support science and research in Canada. The report included a full review of our research community and comprehensive analysis of the erosion of Canada's capacity for basic research. In doing so, the report included recommendations to increase base funding for Canada's three research granting agencies (the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council, and the Social Sciences and Humanities Research Council) from $3.5 billion to $4.8 billion over four years.

The increases to basic research funding in Budget 2018 made up for lost ground but there remains a shortfall of approximately 40 per cent of the levels recommended by the Advisory Panel – a gap of $300 million per year.

	2018-2019	2019-2020	2020-2021	2021-2022	Ongoing
Advisory Panel recommendation	155	310	465	485	485
Budget 2018 investment	150	200	250	300	300
Percentage of Panel recommendation funded	97%	65%	54%	62%	62%

Total amounts are expressed in millions

Following significant and welcome investments in 2018, we urge this government to return to the recommendations of the Advisory Panel on Federal Support for Fundamental Science and make stronger investments in research and fundamental science. These investments must include annual increases to the Tri-Councils granting programs until Canada reaches funding that falls proportionally in line with other G7 countries. This funding will increase the sustainability of Canada's research capacity and contribute to a healthier and more equitable quality of life for all Canadians.

Conclusion

Basic science and research drive our collective prosperity and develop solutions to existing and future challenges, such as pandemic preparedness and adapting to climate change. Yet Canada is falling behind on investments in fundamental science and research. April marks the 5-year anniversary of the Fundamental Science Review final report, and its recommendations are just as relevant and pressing: publicly funded science and research should focus more on fundamental inquiry. This government has the opportunity once again to demonstrate its leadership and commitment to key stakeholders through additional investments in basic, investigator-led research.

3 Canadian Institutes for Health Research. The long road to mRNA vaccines. (2021)

4 OECD. Gross domestic spending on R&D (indicator). (2021) doi: 10.1787/d8b068b4-en

The pandemic and our current recovery demonstrate the importance of the groundwork laid by fundamental scientific research investments. In examining the challenges and opportunities for science in Canada and developing recommendations to improve the current state of science research nationally, the Committee must advocate for the prioritization and increased funding to fundamental science.

CAUT members remain available as witnesses to the Committee to further discuss the role of federal investments in research to ensure the vitality and sustainability of our country's knowledge ecosystem.