Written Submission for the Pre-Budget Consultations in Advance of the Upcoming Federal Budget

By: U15 Canada

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Recommendations

U15 Canada makes the following recommendations to stop the hollowing out of Canada’s research ecosystem and reverse the erosion of Canada’s global reputation and transform brain drain into brain gain.

In order to develop the highly-qualified talented individuals who contribute to and tap the global pool of knowledge to drive innovation:

1. **U15 Canada recommends increasing the funding for graduate scholarships, doctoral and post-doctoral fellowships by 50% and a doubling of the number of graduate scholarships, subsequently indexed to inflation** to address the long-term decline in the value and accessibility of scholarships and fellowships and to attract and retain Canada’s best hope for meeting the challenges and seizing the opportunities of the coming years.

2. **U15 Canada recommends that the federal government increase the base budgets of the granting councils (SSHRC, NSERC, and CIHR) and CFI by at least 10% annually for five years** to meet global competition in advancing the research that underpins all efforts to make a better future including the development of highly-qualified talented individuals through research assistantships.

3. **U15 Canada recommends creating 750 new Canada Research Chair positions for early and mid-career researchers (Tier II) with five years of research operating support and funds for research infrastructure** to help Canada retain and attract highly-qualified talented individuals that can drive innovation across society.

4. **U15 Canada recommends expanding undergraduate research opportunities through existing granting council programs** to enlarge the initial pool of potential talent for Canada’s research and innovation ecosystem.

In order to bolster economic growth, increase productivity, drive innovation, and thereby accelerate Canada’s transition to a sustainable, prosperous and just future:

5. **U15 Canada recommends expanding the Canada First Research Excellence Fund (“CFREF”)** to enhance the development of hubs of excellence in emerging fields.

6. **U15 Canada recommends an investment of $200 million annually to support research in sensitive areas** to fund research projects in areas identified by Canada’s Sensitive Research Areas and Sensitive Technologies lists as requiring additional national security requirements, including the application of the National Security Guidelines for Research Partnerships.

7. **U15 Canada recommends implementation of the Liberal platform commitment of $75 million in private sector partnerships**, including those involving support by the Canada Innovation Corporation in which businesses will often rely on collaboration with universities.
Introduction: Domestic and Global Context

Since the mid-20th century, leading countries have increasingly agreed that robust scientific and research activities underpin the pursuit of prosperous, just and resilient societies in three direct ways:

1. The guaranteed return on research investments is the development of highly-qualified talented individuals who become the drivers of innovation across society.
2. Research investments enable new insights, discoveries and breakthroughs that can lead to new products, processes and policies in all sectors.
3. Research investments ensure that a country has domestic experts who can tap the global pool of knowledge and innovation both in times of crisis such as the recent pandemic and for ongoing innovation in industries as well as civil society.

In recent years, however, Canada has been losing domestic capacity just as increased global challenges face all societies. These challenges are now increasing the pressure to innovate across all sectors in Canada. Every business, institution and community must now seek to operate sustainably, be digitally enabled, and be prepared to face both the expected and unexpected challenges of the 21st century. Nonetheless, the ability of leading universities to support Canada’s research and innovation ecosystem is now at risk for three domestic and international reasons:

1. Canada’s allies and competitors are re-investing heavily in research as the foundation of their economic growth strategies. For example, the US Chips and Science Act, Japan’s $87 billion fund and the UK’s $20 billion investment threaten Canada’s sovereignty and national security.
2. High inflation in recent years has significantly weakened the entire research ecosystem.
3. The two consecutive Budgets of 2022 and 2023 did not include any new investment for Canada’s research funding agencies for the first time since the 1990s. After initial actions including the creation of a Minister of Science and a Chief Science Advisor, the government implemented the Naylor report with significant investments in Budget 2018. Since then, the federal government has steadily lost focus on science and research. The result has been increasingly noticed and reported not only in Canada but globally; a recent article repeated the now common international observation that “after a big early funding spike for basic research, there is a growing sense of drift – and mounting concern about Canada’s future.”

The impact of these domestic and global factors on Canada’s domestic capacity and international position is already becoming evident. The value of the tri-agency scholarships and fellowships has not changed in 20 years, despite 52% inflation since 2003, and is no longer globally competitive. Canada now ranks 26th in the OECD in the proportion of those with graduate-level education. Not surprisingly, a recent Statistics Canada survey indicates that there is a national shortage of highly-educated job seekers. Similarly, Canada’s global rank in the number of researchers per 1,000 plummeted from 8th in 2011 to 18th in 2019. These and other indicators emphasize that Canada must immediately renew its commitment to a robust research
and innovation ecosystem to underpin the pursuit of a prosperous, just and resilient society in the rapidly changing and turbulent 21\textsuperscript{st} century.

**Highly-Qualified Talent**

In order to increase the development of the Highly Qualified Personnel who contribute to and tap the global pool of knowledge and drive innovation, U15 Canada makes the following recommendations:

**U15 Canada recommends increasing federal funding for graduate scholarships, doctoral and post-doctoral fellowships by 50\% and a doubling of the number of graduate scholarships, subsequently indexed for inflation, which amounts to an increase of $1.987 billion over five years.** This increase would address the long-term decline in the value and accessibility of scholarships and fellowships and would help attract and retain Canada’s best hope for meeting the challenges and seizing the opportunities of the coming years. Even with supplemental funding like teaching assistantships and university scholarships, the average full annual stipend per student is $23,750 for Ph.D. students and $19,725 for Masters students. Data shows that the average stipend for graduate students should be $39,006 annually to meet the current cost of living in Canada. In contrast, the equivalent doctoral scholarship administered in the USA by the NSF is valued at $65,000, compared to $21,000 for the PGS-D and $35,000 for the CGS-D in Canada.

Post-doctoral fellowship award values have also remained static; even with the addition of the Banting Postdoctoral Fellowship in 2010, inflation-adjusted spending on fellowships across the granting councils has decreased by 20\% since 2006-07. The NSF postdoctoral fellowship is valued at $106,000 CAD, compared to the $45,000 offered through the Canadian granting councils.

**U15 Canada recommends that the federal government increase the base budgets of the granting councils (SSHRC, NSERC, and CIHR) and CFI by at least 10\% per year for five years, which amounts to an increase of approximately $4.3 billion over five years.** The Bouchard Report highlighted the need for a significant increase in funding for graduate students and postdoctoral fellows, given inflation and the importance of nurturing globally competitive research. The Bouchard report also called for an updating of Canada’s research support system. U15 Canada encourages implementation of this report including the creation of the recommended national advisory council; the development of a new governance mechanism for interdisciplinary, international, and mission-driven research; and the related recommendations to enhance efficiency including those for a road-mapping exercise for Major Research Facilities.

**U15 Canada recognizes that a 10\% increase reflects minimal ambition; data shows that the lack of an increase in funding for investigator-led research in Budgets 2022 and 2023 is equivalent to a budget cut of 18\% in research funding.**
U15 Canada recommends creating 750 new Canada Research Chair positions for early and mid-career researchers (Tier II) with $82.5 million per year for five years of research operating support and funds for research infrastructure. The 2021 Liberal Party of Canada Platform called for the addition of 1,000 Canada Research Chairs to help attract and retain top talent at Canadian universities and support graduate research, in keeping with the principles of equity and diversity. The potential return on this investment cannot be understated: those who continue in research positions benefit from their enhanced knowledge and skill, and those who leave academia play key roles in companies, communities, and the development of our societies at large.

U15 Canada recommends expanding undergraduate research opportunities through existing granting council programs. Canada’s undergraduate students represent the pool of potential talent for Canada’s research and innovation ecosystem. While only a small number will advance to graduate programs, the opportunity to participate in research projects as undergraduates can put students on the path to long-term success.

Investments that Target Innovation

In order to bolster economic growth, increase productivity, drive innovation, and accelerate Canada’s transition to a sustainable, prosperous and just future, U15 Canada makes the following recommendations:

U15 Canada recommends expanding the Canada First Research Excellence Fund (“CFREF”) by $200 million per year for five years. Ensuring Canada can match the industrial challenge of global competitors must include making specific, targeted and mission-driven investments into science and research as a core component of strategies to boost productivity, foster innovation and attract capital. If Canada is to maintain domestic capacity and national sovereignty, the federal government must act now to grow emerging sectors such as AI, quantum, EV manufacturing, critical minerals and semiconductors. Canada’s research-intensive universities are ready to partner with the federal government in key sectors to promote innovation, develop deep research partnerships with industry and ensure that Canada can lead the world in emerging high-tech sectors of the future.

Building on the success of a successful and over-subscribed program, expanding CFREF would help the federal government compete globally by developing sustained and integrated hubs of excellence in emerging fields. An additional funding envelope would allow funding competitions to be held every three to four years (rather than the current seven-year cycle) and thus keep better pace with the rapidly changing domestic and global context. In addition, universities should be invited to submit an increased number of applications in order both to tap the entire pool of promising initiatives and encourage coherent and focused proposals.

U15 Canada recommends an investment of $200 million per year for five years to support research in sensitive areas. Research security is a pressing issue in our county, and it affects how Canada’s researchers proceed with their work. While universities and the
government of Canada continue to develop robust measures to mitigate security threats to our research ecosystem as part of a shared responsibility to ensure research is as secure as necessary and as open as possible, ensuring Canada continues to lead in critical emerging fields is vital. As research security is strengthened, efforts must be made to combat the weakening of research capacity. This grant would invest in research projects in areas identified by Canada’s Sensitive Research Areas and Sensitive Technologies lists as requiring additional national security requirements, including the application of the National Security Guidelines for Research Partnerships.

**U15 Canada recommends implementation of the Liberal platform commitment of $75 million per year for five years in private sector partnerships, including those involving support by the Canada Innovation Corporation.** Canada has the building blocks for an innovation-driven economy, but further work is needed to commercialize research. This new fund could support commercialization activities and could develop entrepreneurial opportunities like helping researchers make the transition from ideas to proof-of-concept to market-ready invention, connecting technologies and spinoff companies with funding for investment opportunities, and navigating the necessary legal agreements and regulatory requirements. Canada’s research ecosystem is structured to attract investment from industry and funding for private-sector partnerships will support the Canada Innovation Corporation’s ambition to help Canadian businesses across all sectors and regions become more innovative and productive.