



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

McMaster University

Recommendation 1: The Government of Canada should focus investments in areas of national importance such as pandemic preparedness and prevention of future biological threats to position Canada as a leader in developing innovative solutions to this global challenge.

Recommendation 2: The Government of Canada should continue to address climate change by increasing investments in research and development of new technologies that will help build Canada's resilience to a changing climate and ensure it remains competitive in the global low-carbon economy.

Recommendation 3: To ensure our nation's ongoing competitiveness the Government of Canada should continue to prioritize investment in knowledge mobilization and research.

Introduction:

McMaster University thanks the House of Commons Standing Committee on Finance for its work on the Pre-Budget consultations this year. In addition to this submission, McMaster also supports the submissions of the U15 and Universities Canada, the two associations that represent our sector at the national level.

McMaster is ranked by the Times Higher Education (THE) as one of the top 70 universities in the world, one of only four universities in the country to receive this distinction. The University is also renowned for its commitment to the United Nations' Sustainable Development Goals (SDGs), ranking 14th in the world in the Impact Rankings.

However, the past 16 months have proved challenging for Canada's academic institutions. COVID-19 has posed significant financial and operational challenges for the sector. Government support will be critical in helping universities recover from the pandemic and ensure their long-term financial sustainability.

Drawing on its internationally renowned culture of collaboration and world-leading research, McMaster University is pleased to partner with the government, and the world, to fight COVID-19 and plan for the significant changes precipitated by the pandemic. Together, we can ensure that Canada is well positioned to emerge from the pandemic even stronger than before.

From the onset of the COVID-19 pandemic, our researchers have mobilized and used their expertise to conduct critical, ground-breaking research that has included isolating the virus, testing new N95 masks, undertaking the country's largest trial on convalescent plasma treatment, and developing new and innovative methods to detect the virus and treat the disease. A McMaster team of researchers discovered how the COVID-19 vaccines that use adenovirus vectors can trigger a rare, but sometimes fatal, blood clotting reaction called vaccine-induced immune thrombotic thrombocytopenia (VITT). In addition, approximately 30 principal investigators and researchers at McMaster worked to rapidly develop and test two new second-generation COVID-19 vaccine candidates. Both would be two-stage vaccines, with one component designed to be inhaled (analogous to a puffer) rather than injected.

McMaster University has sought to move beyond the traditional bounds of research and has formally partnered with numerous organizations across the country to accelerate vaccine and drug development, human and animal clinical trials, and create new diagnostic tools.

As Canada cautiously steps towards a return to normal, the pandemic has also highlighted the delicate balance between planetary health and the health of the human population. Investing in research on climate change, water, and energy will be critical to ensuring Canada plays a leading role in creating a resilient and sustainable Earth for future generations.

For these reasons McMaster puts forward the following recommendations:

- McMaster supports strategic government investments in the country’s academic and research institutions that will enable continued efforts in responding effectively to this pandemic and furthering other shared priorities, including: Pandemic preparedness, pandemic recovery, and prevention of future biological threats
- Research in planetary health – with a focus on water, climate change, and energy
- Investing strategically in Canada’s research ecosystem

McMaster also continues to fully support increased investment in Indigenous education as laid out by the Calls to Action of the Truth and Reconciliation Commission. McMaster will continue to work with Indigenous communities in attending to the distinct needs of equity deserving groups and being responsive to the ways in which interlocking inequities impact marginalization.

We thank the Committee for its work and for the opportunity to present our recommendations in advance of Budget 2022.

Recommendation 1: *The Government of Canada should focus investments in areas of national importance such as pandemic preparedness and prevention of future biological threats to position Canada as a leader in developing innovative solutions to this global challenge.*

COVID-19 caught the world off guard and has made clear that pandemics can no longer be treated as a once in a century event. As countries around the world are increasing their investments in response to this global threat, Canada cannot be left behind.

While researchers have made significant leaps forward in identifying and treating COVID-19, this experience has also exposed long-term structural deficiencies in Canada’s health systems, health sectors, and the ability of governments at all levels to respond to fast-moving pandemic threats. Those working in the infectious disease and pandemic fields know there will always be a ‘next’ biological threat.

While the Government of Canada has acted quickly to mitigate the worst effects of this pandemic, gaps remain. McMaster’s established position as a national and international leader in infectious disease research, combined with its access to world-class interdisciplinary and multi-sector teams and partnerships developed over many years, uniquely positions it to lend support. The goal is to ensure that Canada takes advantage of the narrow window of opportunity presented by the pandemic and establishes itself as a world leader in life sciences research. Other countries are already highly focused on pandemic preparedness, and related life sciences and computational technologies. Unless investments are made now, Canada risks losing access to global investment and the internationally mobile talent and economic drivers.

To fully recover from the COVID-19 crisis, significant investment in pandemic preparedness and prevention must be a top of priority for the Government of Canada.

Recommendation 2: *The Government of Canada should continue to address climate change by increasing investments in research and development of new technologies that will help build Canada's resilience to a changing climate and ensure it remains competitive in the global low-carbon economy.*

McMaster University shares the government's priority of addressing issues related to climate change and environmental sustainability. Continued investments in research related to clean water, climate change, and alternative energy sources will be critical for helping Canada transition to a strong, diverse economy, foster job creation, and provide a healthy environment for the next generation.

One of the most effective ways to address climate change is to invest in the development and implementation of new green technologies. Small Modular Reactors (SMRs) are an important element in reducing greenhouse gas emissions. The Government of Canada has introduced wide-ranging initiatives on climate change, including Canada's SMR Action Plan. The SMR Action Plan notes that Canada has all the elements required to lead in the development and deployment of SMR technology and is one of the world's most promising domestic markets for SMRs. McMaster's expertise in this field, our track record of nuclear operations, research experience and training, and our exceptional nuclear facilities, uniquely position us to support the government in the development of SMR technology.

McMaster continues to contribute to the SMR Action Plan through:

- International lab to lab collaboration,
- Training programs and education curriculum,
- Diversity of next-generation nuclear talent and,
- Dissemination of nuclear energy information to non-nuclear audiences

Federal investment is needed to ensure that Canada maintains its international leadership position as a Tier 1 nuclear nation. As a global leader in nuclear research, development, and commercialization, McMaster has played an ongoing role in Canada's SMR Action Plan. The University encourages further research and investment into this technology, which will not only help combat climate change, but increase Canada's economic competitiveness through access to a multi-billion dollar export market across Canada and the world.

Recommendation 3: *To ensure our nation's ongoing competitiveness the Government of Canada should continue to prioritize investment in knowledge mobilization and research.*

The Government of Canada should continue to invest in knowledge mobilization to support the researchers who are developing the next generation of technologies, advancing innovation, and increasing economic development across the country.

McMaster has long appreciated the support of the Federal Government for research activities through the Granting Councils, CFI, and regional economic development agencies such as

FedDev Ontario. This support is critical to our competitiveness internationally. We support the call from our national associations for further investment into research in order to remain globally competitive. We are also grateful for the Government of Canada's recent investment in scientific research focused on biomanufacturing.

To continue Canada's global leadership in research and development, investment in Granting Councils and CFIs is critical. Research and development (R&D) are the keys to ensuring the health of our citizens and protecting them from future outbreaks. They are key to driving new green technologies and curbing the effects of climate change. And they are key for Canada to compete, thrive, and succeed on a global level.

To ensure that Canada emerges from the pandemic able to compete in a world marked by an increasing race for top talent and rapidly expanding R&D intensity, government should continue to make strategic investments in R&D that drive innovation, strengthen research ecosystems, and encourage researchers to partner with industry to bring research impacts from the lab to the marketplace. These investments will be a critical part of strengthening Canada's economy and addressing the issues of tomorrow.

Conclusion

As Canada moves from the immediate effects of the pandemic and looks towards recovery, McMaster will continue making contributions to the government's efforts to build back better. Together, McMaster and the Government of Canada can make new discoveries to prepare for and prevent future biological threats, combat climate change, ensure Canada maintains its place as a tier one nuclear nation, and continue the attraction and retention of world class researchers. McMaster is keen to work with government to ensure Canada is well positioned to emerge from the pandemic even stronger than before.