Natural Sciences and Engineering Research Council of Canada

2019–20

Departmental Plan

The Honorable Kirsty Duncan, P.C., M.P.
Minister of Science and Sport

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Minister's message

It is my pleasure to present the 2019-20 Departmental Plan for the Natural Sciences and Engineering Research Council of Canada (NSERC). We are working across the Government of Canada's Innovation, Science and Economic Development Portfolio to advance our commitments to cultivate the innovation ecosystem, strengthen science and support evidence-based decision making, champion the tourism sector, and help small businesses start up and scale up.

In light of the of the Government of Canada's historic investments in fundamental science and research in Budget 2018, NSERC is well positioned to improve the international competitiveness of Canadian research in natural sciences and engineering. These investments of over $500 million over five years for discovery research, college and community innovation, and equity, diversity and inclusion

The Honourable Kirsty Duncan
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measures will contribute to the supply of highly skilled people from all walks of life, and the impact of knowledge resulting from NSERC's investments for the social and economic wellbeing of Canadians.

Ultimately, NSERC's work will provide the foundation on which Canada's natural sciences and engineering research enterprise will generate ideas, advance knowledge, and give Canadians the skills needed to fully contribute our country's future social, environmental and economic prosperity.

Together with Canadians of all backgrounds, regions and generations, we are proud to be building a strong, equitable, diverse and inclusive science culture that will position Canada as a global leader in natural sciences and engineering research and innovation.

Institutional Head's message

Since its creation 40 years ago, NSERC has played a pivotal role in the growth of natural sciences and engineering in Canada to develop talent, generate discoveries, and support innovation in pursuit of economic, environmental and social outcomes. With the historic investments in support of science and research announced in Budget 2018, NSERC is well positioned with these investments of over $500 million over five years for discovery research, college and community innovation, and equity, diversity and inclusion measures, to deliver on the Government of Canada's objectives in advancing knowledge, skills and innovation for benefit of all Canadians.

Dr. Digvir S. Jayas
Interim President

NSERC's strategic plan, NSERC 2020, highlights how NSERC will help Canada's natural sciences and engineering research internationally competitive, provide Canada with a pool of highly skilled people that will meet the future needs of an increasingly global and knowledge-based economy and ensure that the results of NSERC's investments improve our country's social and economic wellbeing.

As a member of the Canada Research Coordinating Committee (CRCC), NSERC will work in close collaboration with Canada's federal research granting agencies[1] to improve coordination and advance the CRCC's priorities of expanding equity, diversity and inclusion in all research funding activities, working with Indigenous communities to develop a common strategy to advance Indigenous research in Canada, and supporting a new generation of early career researchers, who will be the leaders, discoverers and innovators of tomorrow.

Over the coming year NSERC will continue to support Canada's natural sciences and engineering research community through discovery research, research talent development and research partnerships that will be the source of new opportunities for all of us.

It is my pleasure to present NSERC's 2019–2020 Departmental Plan.

Dr. Digvir S. Jayas (Ph.D)
Interim President

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[1] Natural Sciences and Engineering Research Council of Canada (NSERC) Social Sciences and Humanities Research Council of Canada (SSHRC), the Canadian Institutes of Health Research (CIHR) and the Canada Foundation for Innovation (CFI).

Plans at a glance and operating context

In 2019-20, NSERC will continue to support scientists, engineers and trainees at post-secondary institutions across Canada through its funding opportunities under the Discovery Research Program as well as the Research Training and Talent Development Program, the Research Partnerships Program and the College and Community Innovation Program. In 2019-20, NSERC will be implementing investments and recommendations from Budget 2018 as follows:

1. Work in collaboration with the Social Sciences and Humanities Research Council (SSHRC) and the Canadian Institutes of Health Research (CIHR) to support the Canada Research Coordinating Committee[i] (CRCC), which aims to improve collaboration, co-ordination and harmonization among the granting agencies and the Canada Foundation for Innovation[ii] (CFI) to the benefit of researchers and research trainees across Canada.

2. Provide additional support to launch early career researchers.

3. Continue the implementation of a tri-agency Action Plan on Equity Diversity and Inclusion (EDI), including the adoption of the Athena SWAN (Scientific Women's Academic Network) initiative to a Canadian context to achieve greater diversity among research funding recipients, including improved support for women and underrepresented groups.

4. Support ground-breaking, international, interdisciplinary and high-risk research through the "New Frontiers in Research Fund", a tri-agency initiative.

5. Support the development of a tri-agency interdisciplinary research strategy with Indigenous communities.

6. Launch the new NSERC Research Partnerships Program.

7. Increase support for collaborative innovation projects involving businesses, colleges and polytechnics through the College and Community Innovation[iii] (CCI) Program, a tri-agency program managed by NSERC.

Moreover, NSERC will be looking at potential refinements of its Research Training and Talent Development Program in 2019-20 following recommendations stemming from the Scholarships and Fellowships Study and the Horizontal Skills Review, undertaken by the government of Canada in order to maximize the effectiveness of training programmes related to skills development.

In addition, NSERC will continue to pursue actions to provide internationalized research and training opportunities to Canada's natural sciences and engineering research community.

Operating Context

NSERC's main stakeholders are Canada's postsecondary institutions, their faculty, their students, and Canadian business enterprises that conduct and fund R&D. Canadian universities, colleges and polytechnics are challenged by increasing enrolments, changing student demographics, aging faculty, and a lack of diversity of faculty and students in some science and engineering disciplines. Postsecondary institutions are striving to better equip their graduates with market-ready skills that employers are demanding. Canadian business investment in R&D is relatively low compared to the average of OECD countries. Canada's business expenditures on R&D as a share of the Gross Domestic Product (GDP) have been on the decline since 2001. Canadian expenditures in Higher Education R&D have not kept pace with other OECD countries over the past decade. With new investments announced in Budget 2018 in support of fundamental science and streamlining business facing programs, NSERC will be implementing new program and policy initiatives that will help increase equity, diversity and inclusion within Canada's post-secondary research enterprise, provide greater opportunities for early career researchers, and improve the effectiveness and efficiency of the agency's research partnership program delivery.

In addition to continuing to deliver its programs in the most efficient and effective manner possible, over 2019–20 NSERC will also manage its priorities in response to external influences, including the implementation of actions from the government's response to Canada's Fundamental Science Review[iv], including the review of tri-agency scholarship and fellowship programs and the direction provided in Canada's Innovation and Skills Plan[v]. NSERC will continue to work closely with its partner agencies to advance any new priorities articulated by the Canada Research Coordinating Committee[vi], mandated to achieve greater harmonization, integration and co-ordination of research-related programs and policies.

For more information on NSERC's plans, priorities and planned results, see the "Planned results" section of this report.

Planned results: what we want to achieve this year and beyond

Core Responsibilities

Name of Core Responsibility

Funding Natural Sciences and Engineering Research and Training.

Description

The Natural Sciences and Engineering Research Council of Canada (NSERC), through grants, fellowships and scholarships, promotes and supports research and research training in the natural sciences and engineering to develop talent, generate discoveries, and support innovation in pursuit of economic, environmental and social outcomes for Canadians.

Planning highlights

> **Departmental Result:** Canada's natural sciences and engineering research is internationally competitive.

This result is aligned with the Government of Canada's Innovation and Skills Plan under the Minister of Science and Sports' mandate to examine options to strengthen the recognition of, and support for, fundamental research to support new discoveries. NSERC contributes to the Innovation and Skills Plan priority of developing world-class leading discoveries through supporting research excellence. The levers to influence this result and its indicators will be primarily delivered through NSERC's funding envelopes and mechanisms.

In 2019-20, NSERC will continue to support scientists, engineers and trainees at post-secondary institutions across Canada through its funding opportunities under the Discovery Research Program as well as the Research Training and Talent Development Program and the Research Partnerships Program. The publication of research results in peer-reviewed journals provides a good measure of discovery and knowledge generated in the natural sciences and engineering (NSE) in Canada, while the citation of these publications provide a measure of knowledge flow and the influence of Canadian researchers in the NSE. The ranking of Canada among OECD nations on the average citation in the NSE illustrates Canada's international competitive strength in NSE research. Based on the most recent data available (2016), Canada ranked 22nd among the 35 OECD countries with an Average Relative Citation (ARC) score of 1.30 (Switzerland ranked first with an ARC of 1.72). It should be noted that a small change in the ARC value can lead to a large shift in the ranking of a country. The significant new investments from Budget 2018 at the level of $354.7 million over five years are expected to enable increased support for early career researchers (ECRs) as well as support for equity, diversity, and inclusion (EDI) in order to

strengthen Canada's research enterprise. For example, NSERC is working with CIHR and SSHRC to enhance training of review committee members and guidance for applicants, and to update evaluation criteria to ensure unbiased peer review of applicants' proposals.

In 2019-20, NSERC will continue its targeted investments in ECRs through the continuation of the Discovery Launch Supplements initiated in 2018-19. These supplements valued at $12,500 each, provide timely resources to support ECRs as they establish their research programs and hire students in diverse areas ranging from environmental sciences and agriculture to information and communications technologies.

NSERC programs will continue to support and promote equity, diversity and inclusion (EDI) through implementation of the NSERC's Framework on EDI in 2019-20.

In an effort to promote and maintain a diversified base of high-quality research in small universities across Canada, in 2015 NSERC launched the pilot program, Discovery Development Grants[vii], a complementary program element to the Discovery Grants program[viii]. NSERC increased the award levels for this program in 2018-19 and will continue its delivery in 2019-20.

In 2019-20, NSERC will continue to seek opportunities to participate in international funding opportunities and leverage NSERC's investments by providing opportunities for international collaboration. In 2018–19, NSERC became a member of the Belmont Forum, a partnership of funding organizations, international science councils, and regional consortia committed to the advancement of interdisciplinary science, for understanding, mitigating and adapting to global environmental change. Membership provides greater opportunities to influence the selection of topics for calls for proposals and increase alignment with Canadian research strengths. This follows a very successful participation of Canadian researchers in the Belmont Forum-BiodivERsA[ix] joint call for proposals on Scenarios of Biodiversity and Ecosystem Services. The Belmont Forum and BiodivERsA partners, together with the European Commission, have committed up to 25 million Euros for this call. NSERC has awarded $600,000 per year over three years for this initiative, doubling the planned commitments. In 2019-20, NSERC will participate in a second Belmont Forum Arctic call on Resilience in Rapidly Changing Arctic Systems and has set aside $300,000 per year over three years for this initiative.

International collaboration enables Canadian researchers to keep abreast of the latest research results and to leverage international research capacity. It is expected that, by the end of 2019–20, 57 percent of NSERC-funded research will involve international collaboration.

NSERC will also continue to engage Canadian government departments and research organizations to collaboratively support scientists and engineers as they engage in research in emerging and priority areas, such as the Arctic, antimicrobial resistance and quantum computing. In partnership with CIHR and SSHRC, NSERC made a special call on Artificial Intelligence, Health and Society through the Collaborative Health Research Projects program. NSERC also formed a number of collaborations with other government departments including the Whales Science for Tomorrow initiative with the Department of Fisheries and Oceans and the Advancing Climate Change Science in Canada initiative with Environment and Climate Change Canada. These initiatives are in addition to the ongoing joint Research Partnership grant and Discovery Research supplements with the Department of National Defence. NSERC launched the Discovery Frontiers call for proposals in Antimicrobial Resistance in the Environment to support a limited number of large international activities, opportunities or projects that are of high priority in the context of advanced research in Canada, to be awarded in 2019-20.

In 2019-20, NSERC will continue to work in collaboration with the Social Sciences and Humanities Research Council (SSHRC) and the Canadian Institutes of Health Research (CIHR) to support the Canada Research Coordinating Committee (CRCC), which aims to improve collaboration, co-ordination and harmonization among the granting agencies and the Canada Foundation for Innovation (CFI) to the benefit of researchers and research trainees across Canada. In 2019-20, NSERC will contribute to the implementation of a tri-agency Action Plan on Equity Diversity and Inclusion[x] (EDI), including the adaptation of the Athena SWAN initiative to a Canadian context. First started in the UK, Athena SWAN is a certification-focused awards program that focuses on promising practices, shared standards, evaluation and benchmarking to raise performance and increase quality. NSERC will also continue to support CRCC priorities of building Canadian capacity to identify and respond to emerging areas of research, developing a research strategy with Indigenous communities, and supporting the development of early career researchers (ECR).

> **Departmental Result:** Canada has a pool of highly skilled people in the natural sciences and engineering.

This result is aligned with the Government of Canada's Innovation and Skills Plan, as NSERC seeks to foster an entrepreneurial and highly skilled workforce.

Through its funding opportunities, NSERC supports the attraction, retention and development of highly qualified and skilled people in the NSE in Canada. These activities are essential to building the human capital required to enable a strong, globally competitive research and

innovation system in Canada. Researchers, students and young people benefit from the grant, scholarship and award funding, which supports postsecondary university research as well as some outreach activities at universities, museums, science centres, and community-based organizations. NSERC currently supports over 34,000 students and postdoctoral fellows. As a result of increased support from Budget 2018, it is anticipated that until the end of 2022-23 this number will increase by 2,500 per year. Over the course of the coming year, NSERC, in collaboration with CIHR and SSHRC, will explore new measures to contribute to the development of talent in Canada.

NSERC will continue its national leadership of science and engineering promotion in Canada. Promoting an understanding of science, technology, engineering and mathematics (STEM) to young Canadians may encourage them to study the NSE at the postsecondary level. NSERC will continue its partnerships with likeminded organizations to support Science Odyssey[xi] and Science Literacy Week[xii].

In 2019-20, NSERC will continue to deliver its PromoScience grants[xiii] in STEM fields, with a sustained focus on science teachers and on underrepresented groups such as girls and Indigenous youth. In 2018, 163 organizations received more than $11.9 million over three years through this program, a doubling of supported organizations and an increase of 95 percent in funds due to Budget 2017 investments and planned NSERC increases. It is estimated that about one million young Canadians will be reached on an annual basis. Following the evaluation of the PromoScience program, NSERC developed a new on-line Final Activity Report in September 2018 to reduce administrative burden and improve the quality and accuracy of gathered information. To increase the reach of the PromoScience program, in 2018, NSERC introduced a two-year Supplement for Collaboration pilot program that will allow non-profit science promotion organizations to partner with governmental and private sector organizations to develop future collaborations.

To further strengthen the promotion of STEM fields to Canadian youth, in 2019-20 NSERC will continue to deliver two programs launched in 2018 that utilize the micro-funding instrument promoted by Treasury Board (for payments of up to $1000). The NSERC Student Ambassadors program[xiv] addresses a gap in engaging youth to mentor other young Canadians by carrying out STEM outreach activities directed at underrepresented youth groups. The NSERC Young Innovators program[xv] addresses a gap in participation in STEM-related competitions at the regional, national and international levels, by supporting the participation of individuals in such competitions. In 2019-20, NSERC will dedicate up to $400,000 to fund up to 400 young Canadian STEM ambassadors or competition participants through these two programs. The measurement of outcomes for these grants is limited to individuals and organizations sharing the results publicly. There is a risk that sharing the results will not be done or be effective, limiting the ability to determine the impact. The evaluation of these pilot initiatives will indicate how such risks can be mitigated.

Through its scholarship, fellowship and grant funding opportunities, NSERC will continue to support the development of highly qualified people who are "marketplace-ready" in the NSE. NSERC aims for 30–35 percent of its supported research trainees to gain industrial experience in 2019–20. NSERC will continue to deliver the Collaborative Research and Training Experience[xvi] (CREATE) funding opportunity, which provides enhanced opportunities for research trainees to develop technical and professional skills, and to gain experience in enriched and varied research environments, including work integrated learning. These actions align with the government priority of helping employers create more co-op placements for students in STEM fields. CREATE will also continue to support international and multidisciplinary research through partnership with the German Research Foundation DFG, and by allowing CREATE initiatives to involve researchers from the social and health sector.

Budget 2018 announced initiatives aimed at better preparing Canadians for tomorrow's economy. The Scholarships and Fellowships Study announced in Budget 2018, with its science and research focus, endeavors to strengthen the Government's support for research scholarships and fellowships. The Horizontal Review of Skills Programming was launched in 2018 to review the effectiveness of skills development programs, particularly in the way that they offer support to workers wishing to take advantage of emerging opportunities in the marketplace in areas such as artificial intelligence and digital applications. The Horizontal Skills Review is intended to be broad, from basic literacy and numeracy support to specific skilled trades training, to financial supports and work experiences offered to students. It includes all Government of Canada programming designed to support an adaptable and inclusive workforce capable of meeting labour market demands now and in the future. Based on the recommendations stemming from both analyses, NSERC will consider potential program refinements in 2019 for its scholarships and fellowships programs.

Strengthening equity, diversity and inclusion (EDI) in research are key priorities for NSERC. The agency is committed to the implementation of its Framework on Equity, Diversity and Inclusion[xvii] to increase equity in all its programs and awards, and to enhance research excellence. NSERC's EDI Framework includes implementation of Gender-Based Analysis Plus (GBA+) across the agency; collection of self-identification data for all stakeholders engaging in NSERC funding opportunities; increasing equity, diversity and inclusion on all committees and panels and among applicants and funded researchers; training and tools on unconscious bias; and integration of EDI considerations into funded research and awards. The Framework objectives also include increasing the recognition of a more comprehensive understanding of research excellence. All the actions being implemented under the Framework contribute to achieving NSERC's Departmental Results. It is expected that, by the end of 2019–20, the proportion of female award holders will reach NSERC's target of 29 percent.

In support of a CRCC priority, NSERC will work in collaboration with CIHR and SSHRC over the coming year to implement a Tri-Agency EDI action plan that will identify more specific

targets for other underrepresented groups. Moreover, additional investments were included in Budget 2018 for the granting agencies to achieve greater diversity among research funding recipients, including implementing initiatives aimed at increasing the participation of women, underrepresented groups and early-career researchers in 2019-20. These include the creation of a Canadian version of the UK's Athena SWAN program and the implementation of an EDI Institutional capacity-building grant funding opportunity. The objective of this funding opportunity is to foster EDI in the Canadian academic research enterprise through a focus on the identification and elimination of systemic barriers that impede the career advancement of underrepresented groups in Canadian academic research.

> **Departmental Result:** Canada's natural sciences and engineering research knowledge is used.

This result is meaningful to Canadians as it demonstrates the transfer of knowledge and skills to the user sector leading to the commercialization of Canada's NSE research through new products, services, and processes for the benefit of all Canadians.

NSERC supports the Innovation and Skills Plan's goal of promoting strong and productive R&D collaborations. NSERC-funded researchers through Research Partnerships funding work with over 3,700 partners every year from industry, non-profit, government and other non-academic organizations. These collaborations build on strong discovery research to both mobilize knowledge and generate new ideas that allows Canada to address complex challenges, to generate economic benefits and to support evidence-based decision-making. In 2017-18, the Research Partnerships Program leveraged over $248 million of cash and in-kind contributions to enable R&D in industry and non-profit sectors, support academic researchers to advance scientific knowledge, and provide an enhanced experiential training environment for students and new researchers.

As proposed in Budget 2018, NSERC is finalizing the consolidation of six of its funding opportunities under the Research Partnerships Program into a single, modernized, simplified program[xviii] focused on supporting research collaborations. To ensure that NSE research results are used widely, the new program will provide opportunities for academia to collaborate with an array of non-academic partners, namely: the private sector, non-profit organizations, government, and international companies with presence in Canada. The program will incentivize research carried out in collaboration with small and medium sized enterprises, industrial value chains, and multi-sectoral partnerships, and will also recognize the necessity of supporting high-risk, early-stage research carried out in collaboration with non-academic partners. With streamlined business processes, this simplified program will offer Canadian researchers and their non-academic partners a single point of entry to develop and grow research collaborations which benefit Canada. NSERC will launch the new program in 2019-20.

In 2019-20, NSERC will invest the new funds allocated in Budget 2018 ($140 million over five years) to increase support for collaborative innovation projects involving businesses, colleges and polytechnics through the College and Community Innovation (CCI) Program, a tri-agency program managed by NSERC. NSERC will also address the recommendations emerging from the program's evaluation undertaken in 2018 in order to improve its effectiveness.

In Budget 2018, the Government of Canada called for changes to streamline and modernize programs in support of research and innovation. As a result of this announcement, NSERC has been involved in the process of transferring the management of the Centres of Excellence for Commercialization and Research[xix] (CECR) and the Business-led Networks of Centres of Excellence[xx] (BL-NCE) sub-programs to the Strategic Innovation Fund managed by Innovation, Science and Economic Development Canada (ISED). This activity will be on-going in 2019-20.

In December 2018, the Government of Canada announced that funding from the Networks of Centres of Excellence[xxi] (NCE) program will be gradually transferred to the New Frontiers in Research Fund[xxii] (NFRF). NSERC will be involved in this transition over the next few years with a complete wind-down of the NCE suite of programs by 2023-24.

Risks and Mitigation Strategies

The main risks that can have an impact on NSERC's departmental results for 2019-20 are as follows:

Resource management

There is a risk that resources (i.e. human, technological, financial) will be insufficient or inappropriately allocated to support program design and delivery. To mitigate this risk, NSERC will develop and implement a Resource Management Plan, including a workforce management plan and skills matrix to ensure effective implementation of the key activities highlighted above.

Change management

There is a risk that NSERC's change management processes will not allow the agency to effectively plan for, implement, and sustain transformations to the organization, employees, and research community. To mitigate this risk, NSERC will continue to implement the corporate initiatives including:

- People Strategy Action Plan
- Mental Health and Wellness Strategy
- Employment Equity Plan
- Ongoing engagement with staff and management
- Dedicated change management resources to major corporate initiatives

Many aspects of the Athena SWAN process are related to post-secondary institutions' faculty and research staff working conditions, which are not under the purview of the federal granting agencies. Several risks related to federal-provincial-territorial political sensitivity limit the agency's ability to effect transformational change in the post-secondary system. To mitigate these risks, NSERC will allocate resources for communicating with applicants and peer review committee members and for sustaining consultations and ongoing engagement with key stakeholders. NSERC is also ensuring that the choice and design of measures in its EDI Framework and Action Plan are appropriate and allow the agency to play an effective role in promoting transformational change in post-secondary research.

Challenges for inter-agency coordination in delivering complex EDI initiatives on tight timelines have also been identified. NSERC will mitigate these risks by devoting additional effort and resources towards inter-agency coordination, governance, and ongoing communication and coordination among systems, processes and data collection and reporting.

Planned results

Departmental Results	Departmental Result Indicators	Target	Date to achieve target	2015–16 Actual results	2016–17 Actual results	2017–18 Actual results
Canada's natural sciences and engineering research is internationally competitive	Canada's rank among OECD nations on the citation score of natural sciences and engineering research publications	22	March 31, 2020	22nd	22nd	N/A
	Percentage of funded research involving international collaboration	57	March 31, 2020	55	56	N/A
Canada has a pool of highly skilled people in the natural sciences and engineering	Proportion of award holders who are underrepresented individuals	29	March 31, 2020	28.1*	28.4*	28.5*
	Number of research trainees supported	33,000	March 31, 2020	31,900	33,400	34,400
	Percentage of research trainees supported gaining industrial experience	30	March 31, 2020	34.6	31.4	28.5

	Percentage of previously funded research trainees that go on to work in a research position	67	March 31, 2020	N/A	66	N/A
Canada's natural sciences and engineering research knowledge is used	Partner funding for research projects	$225M	March 31, 2020	$207M	$220M	$248M
	Number of partners on research projects	3,700	March 31, 2020	3,520	3,610	3,710
	Percentage of funded projects reporting socioeconomic outcomes for Canadians	55	March 31, 2020	48	47	51

* Percentage of funded researchers and research trainees who self-identify as a woman (female).

Budgetary financial resources (dollars)

2019–20 Main Estimates	2019–20 Planned spending	2020–21 Planned spending	2021–22 Planned spending
$1,332,842,006	$1,332,842,006	$1,347,479,261	$1,356,744,141

Human resources (full-time equivalents)

2019–20 Planned full-time equivalents	2020–21 Planned full-time equivalents	2021–22 Planned full-time equivalents
300	300	300

Financial, human resources and performance information for NSERC's Program Inventory is available in the GC InfoBase.[xxiii]

Internal Services

Description

Internal Services are those groups of related activities and resources that the federal government considers to be services in support of Programs and/or required to meet corporate obligations of an organization. Internal Services refers to the activities and resources of the 10 distinct services that support Program delivery in the organization, regardless of the Internal Services delivery model in a department. These services are:

- Management and Oversight Services
- Communications Services
- Legal Services
- Human Resources Management Services
- Financial Management Services
- Information Management Services
- Information Technology Services
- Real Property Management Services
- Materiel Management Services
- Acquisition Management Services
- Security Services

Budgetary financial resources (dollars)

2019–20 Main Estimates	2019–20 Planned spending	2020–21 Planned spending	2021–22 Planned spending
$23,998,403	$23,998,403	$23,505,390	$23,137,365

Human resources (full-time equivalents)

2019–20 Planned full-time equivalents	2020–21 Planned full-time equivalents	2021–22 Planned full-time equivalents
156	156	152

Planning highlights

Workplace renewal - In 2019-20, NSERC will continue the transition towards GCworkplace which is a modern workplace for the new public service aimed at creating a confident and high performance workforce, modernizing our technology, and updating our information strategy.

People management - Recognizing that achieving results depends on the organization's skilled and dedicated staff, NSERC will continue to support its four people management corporate strategies and action plans: The People Strategy, The Employment Equity and Diversity Strategy, The Official Language Strategy, and The Mental Health and Wellbeing Strategy.
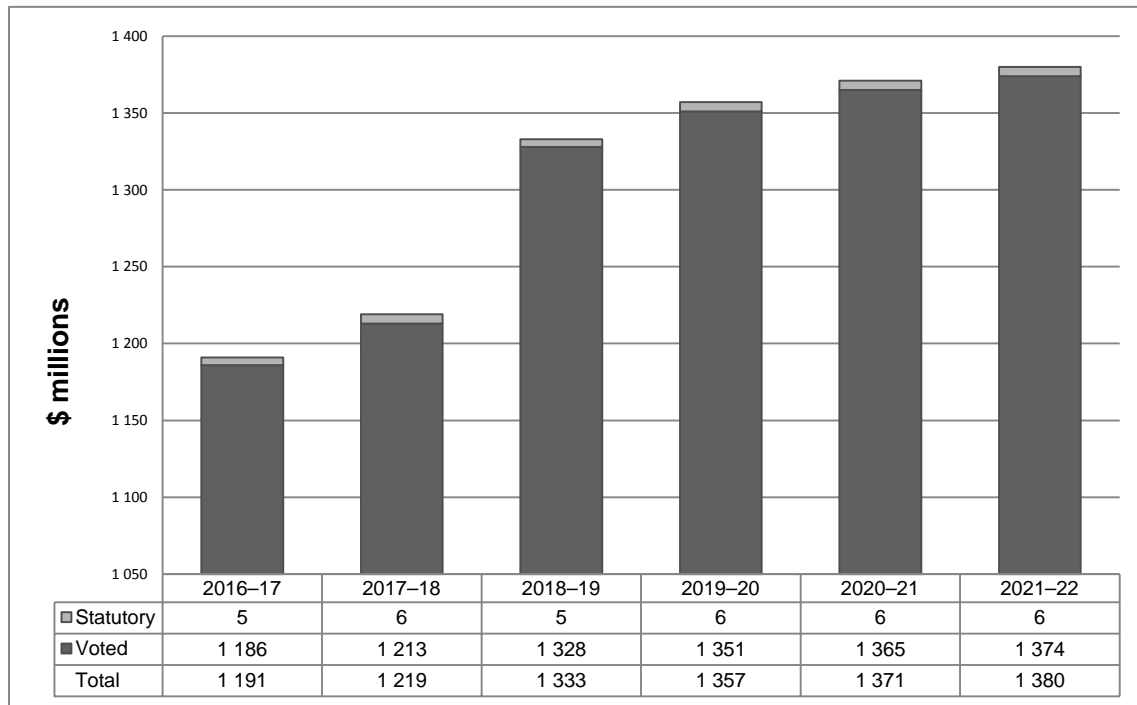
Compliance and alignment - NSERC will continue to ensure alignment and compliance with Government of Canada priorities, policy requirements and transformative initiatives. NSERC will support the modernization of its grants management systems, through a tri-agency project with CIHR and SSERC. This modernization effort will be based on external client/user centric approach and support future initiatives to make NSERC more responsive, agile and modern to support program delivery and administrative processes. Simultaneously, NSERC will continue to support and build on existing legacy systems in order to meet ongoing business needs.

Spending and human resources

Planned spending

Departmental spending trend graph

	2016–17	2017–18	2018–19	2019–20	2020–21	2021–22
Statutory	5	6	5	6	6	6
Voted	1 186	1 213	1 328	1 351	1 365	1 374
Total	1 191	1 219	1 333	1 357	1 371	1 380

Budgetary planning summary for Core Responsibilities and Internal Services (dollars)

Core Responsibilities and Internal Services	2016–17 Expenditures	2017–18 Expenditures	2018–19 Forecast spending	2019–20 Main Estimates	2019–20 Planned spending	2020–21 Planned spending	2021–22 Planned spending
Funding Natural Sciences and Engineering Research and Training	$1,171,723,852	$1,198,380,206	$1,310,994,846	$1,332,842,006	$1,332,842,006	$1,347,479,261	$1,356,744,141
Subtotal	$1,171,723,852	$1,198,380,206	$1,310,994,846	$1,332,842,006	$1,332,842,006	$1,347,479,261	$1,356,744,141
Internal Services	$19,537,041	$20,761,682	$22,302,556	$23,998,403	$23,998,403	$23,505,390	$23,137,365
Total	$1,191,260,893	$1,219,141,888	$1,333,297,402	$1,356,840,409	$1,356,840,409	$1,370,984,651	$1,379,881,506

The increase in 2019-20 and following years is mainly due to the implementation of the Budget 2018 measures for fundamental research funding ($59M in 2019-20, $71M in 2020-21, $90M in 2021-22 and ongoing); to support collaborative innovation projects involving partner organizations, colleges and polytechnics through the College and Community Innovation Program ($30M in 2019-20 and ongoing); increases to the Canada Research Chairs program[xxiv] ($13M in 2019-20, $19M in 2020-21 and ongoing); and, to fund a new pilot project to increase equity, diversity and inclusion in research in Canadian post-secondary institutions ($3M in 2019-20 and the next three subsequent years).

Planned human resources

Human resources planning summary for Core Responsibilities and Internal Services (full-time equivalents)

Core Responsibilities and Internal Services	2016–17 Actual full-time equivalents	2017–18 Actual full-time equivalents	2018–19 Forecast full-time equivalents	2019–20 Planned full-time equivalents	2020–21 Planned full-time equivalents	2021–22 Planned full-time equivalents
Funding Natural Sciences and Engineering Research and Training	275	284	282	300	300	300
Subtotal	275	284	282	300	300	300
Internal Services	137	138	132	156	156	152
Total	412	422	414	456	456	452

The variance in FTEs is explained by the implementation of Budget 2018 (fundamental research, College and Community Innovation Program, and Increasing Diversity in Science).

Estimates by vote

Information on NSERC's organizational appropriations is available in the 2019–20 Main Estimates.[xxv]

Future-Oriented Condensed Statement of Operations

The Future-Oriented Condensed Statement of Operations provides a general overview of NSERC's operations. The forecast of financial information on expenses and revenues is prepared on an accrual accounting basis to strengthen accountability and to improve transparency and financial management. The forecast and planned spending amounts presented in other sections of the Departmental Plan are prepared on an expenditure basis; as a result, amounts may differ.

A more detailed Future-Oriented Statement of Operations and associated notes, including a reconciliation of the net cost of operations to the requested authorities, are available on the Natural Sciences and Engineering Research Council of Canada's website[xxvi].

Future-Oriented Condensed Statement of Operations
for the year ending March 31, 2020 (dollars)

Financial information	2018–19 Forecast results	2019–20 Planned results	Difference (2019–20 Planned results minus 2018–19 Forecast results)
Total expenses	1,337,236,431	1,363,475,933	26,239,502
Total revenues	178,779	178,779	-
Net cost of operations before government funding and transfers	1,337,057,652	1,363,297,154	26,239,502

Total expenses are expected to increase by 2.0% ($26.2 million). This increase in funding is primarily attributable to the implementation of Federal Budget 2018 announcements to support fundamental research funding ($15.0 million) and to support collaborative innovation projects involving partner organizations, colleges and polytechnics through the College and Community Innovation Program ($10.0 million).

Revenues are expected to remain steady in the next fiscal year.

Additional information

Corporate information

Organizational profile

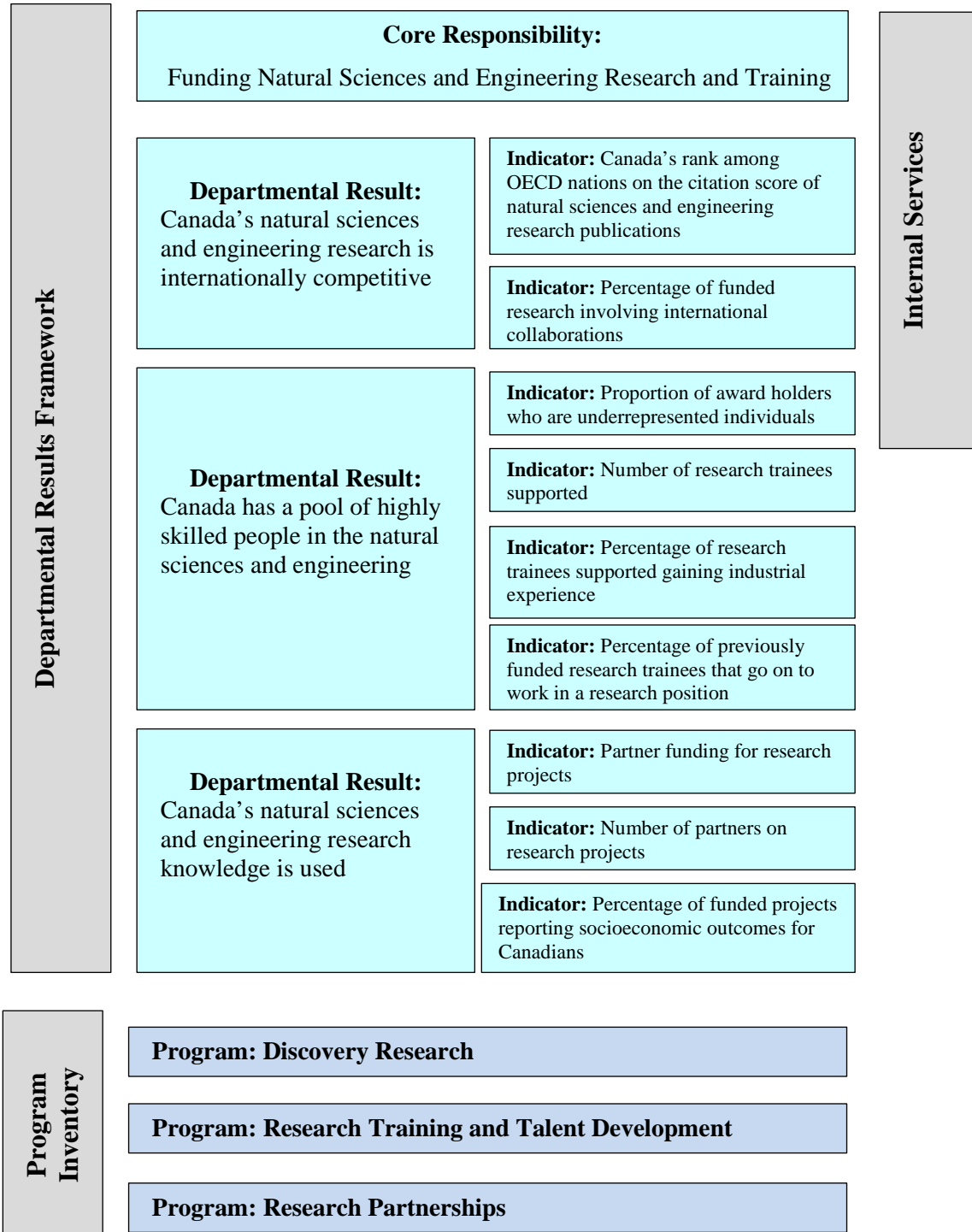**Appropriate minister:**   **Minister of Science and Sport**

    The Honourable Kirsty Duncan, P.C., M.P.

Institutional head: **Digvir S. Jayas (Interim President)**

Ministerial portfolio: **Innovation, Science and Economic Development**

Enabling instrument: **Natural Sciences and Engineering Research Council Act[xxvii]**

Year of incorporation / commencement: **May 1, 1978**

Raison d'être, mandate and role: who we are and what we do

"Raison d'être, mandate and role: who we are and what we do" is available on the Natural Sciences and Engineering Research Council of Canada's website.

Reporting framework

The Natural Sciences and Engineering Research Council of Canada's Departmental Results Framework and Program Inventory of record for 2019–20 are shown below.

Departmental Results Framework

Core Responsibility:
Funding Natural Sciences and Engineering Research and Training

Departmental Result: Canada's natural sciences and engineering research is internationally competitive

Indicator: Canada's rank among OECD nations on the citation score of natural sciences and engineering research publications

Indicator: Percentage of funded research involving international collaborations

Departmental Result: Canada has a pool of highly skilled people in the natural sciences and engineering

Indicator: Proportion of award holders who are underrepresented individuals

Indicator: Number of research trainees supported

Indicator: Percentage of research trainees supported gaining industrial experience

Indicator: Percentage of previously funded research trainees that go on to work in a research position

Departmental Result: Canada's natural sciences and engineering research knowledge is used

Indicator: Partner funding for research projects

Indicator: Number of partners on research projects

Indicator: Percentage of funded projects reporting socioeconomic outcomes for Canadians

Internal Services

Program Inventory

Program: Discovery Research

Program: Research Training and Talent Development

Program: Research Partnerships

Supporting information on the Program Inventory

Supporting information on planned expenditures, human resources, and results related to NSERC's Program Inventory is available in the GC InfoBase.[xxviii]

Supplementary information tables

The following supplementary information tables are available on NSERC's website:

‣ Departmental Sustainable Development Strategy

‣ Details on transfer payment programs of $5 million or more

‣ Gender-based analysis plus

Federal tax expenditures

The tax system can be used to achieve public policy objectives through the application of special measures such as low tax rates, exemptions, deductions, deferrals and credits. The Department of Finance Canada publishes cost estimates and projections for these measures each year in the Report on Federal Tax Expenditures[xxix]. This report also provides detailed background information on tax expenditures, including descriptions, objectives, historical information and references to related federal spending programs, as well as evaluations, research papers and gender-based analysis. The tax measures presented in this report are the responsibility of the Minister of Finance.

Organizational contact information

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Appendix: definitions

appropriation (crédit)

Any authority of Parliament to pay money out of the Consolidated Revenue Fund.

budgetary expenditures (dépenses budgétaires)

Operating and capital expenditures; transfer payments to other levels of government, organizations or individuals; and payments to Crown corporations.

Core Responsibility (responsabilité essentielle)

An enduring function or role performed by a department. The intentions of the department with respect to a Core Responsibility are reflected in one or more related Departmental Results that the department seeks to contribute to or influence.

Departmental Plan (plan ministériel)

A report on the plans and expected performance of an appropriated department over a three-year period. Departmental Plans are tabled in Parliament each spring.

Departmental Result (résultat ministériel)

Any change that the department seeks to influence. A Departmental Result is often outside departments' immediate control, but it should be influenced by Program-level outcomes.

Departmental Result Indicator (indicateur de résultat ministériel)

A factor or variable that provides a valid and reliable means to measure or describe progress on a Departmental Result.

Departmental Results Framework (cadre ministériel des résultats)

The department's Core Responsibilities, Departmental Results and Departmental Result Indicators.

Departmental Results Report (rapport sur les résultats ministériels)

A report on the actual accomplishments against the plans, priorities and expected results set out in the corresponding Departmental Plan.

evaluation (évaluation)

In the Government of Canada, the systematic and neutral collection and analysis of evidence to judge merit, worth or value. Evaluation informs decision making, improvements, innovation and accountability. Evaluations typically focus on programs, policies and priorities and examine questions related to relevance, effectiveness and efficiency. Depending on user needs, however, evaluations can also examine other units, themes and issues, including alternatives to existing interventions. Evaluations generally employ social science research methods.

experimentation (expérimentation)

Activities that seek to explore, test and compare the effects and impacts of policies, interventions and approaches, to inform evidence-based decision-making, by learning what works and what does not.

full-time equivalent (équivalent temps plein)

A measure of the extent to which an employee represents a full person-year charge against a departmental budget. Full-time equivalents are calculated as a ratio of assigned hours of work to scheduled hours of work. Scheduled hours of work are set out in collective agreements.

gender-based analysis plus (GBA+) (analyse comparative entre les sexes plus [ACS+])

An analytical process used to help identify the potential impacts of policies, Programs and services on diverse groups of women, men and gender-diverse people. The "plus" acknowledges that GBA goes beyond sex and gender differences. We all have multiple identity factors that intersect to make us who we are; GBA+ considers many other identity factors, such as race, ethnicity, religion, age, and mental or physical disability.

government-wide priorities (priorités pangouvernementales)

For the purpose of the 2019–20 Departmental Plan, government-wide priorities refers to those high-level themes outlining the government's agenda in the 2015 Speech from the Throne, namely: Growth for the Middle Class; Open and Transparent Government; A Clean Environment and a Strong Economy; Diversity is Canada's Strength; and Security and Opportunity.

horizontal initiative (initiative horizontale)

An initiative where two or more departments are given funding to pursue a shared outcome, often linked to a government priority.

non-budgetary expenditures (dépenses non budgétaires)

Net outlays and receipts related to loans, investments and advances, which change the composition of the financial assets of the Government of Canada.

performance (rendement)

What an organization did with its resources to achieve its results, how well those results compare to what the organization intended to achieve, and how well lessons learned have been identified.

performance indicator (indicateur de rendement)

A qualitative or quantitative means of measuring an output or outcome, with the intention of gauging the performance of an organization, Program, policy or initiative respecting expected results.

Performance Information Profile (profil de l'information sur le rendement)

The document that identifies the performance information for each Program from the Program Inventory.

performance reporting (production de rapports sur le rendement)

The process of communicating evidence-based performance information. Performance reporting supports decision making, accountability and transparency.

plan (plan)

The articulation of strategic choices, which provides information on how an organization intends to achieve its priorities and associated results. Generally a plan will explain the logic behind the strategies chosen and tend to focus on actions that lead up to the expected result.

planned spending (dépenses prévues)

For Departmental Plans and Departmental Results Reports, planned spending refers to those amounts presented in the Main Estimates.

A department is expected to be aware of the authorities that it has sought and received. The determination of planned spending is a departmental responsibility, and departments must be able to defend the expenditure and accrual numbers presented in their Departmental Plans and Departmental Results Reports.

priority (priorité)

A plan or project that an organization has chosen to focus and report on during the planning period. Priorities represent the things that are most important or what must be done first to support the achievement of the desired Departmental Results.

Program (programme)

Individual or groups of services, activities or combinations thereof that are managed together within the department and focus on a specific set of outputs, outcomes or service levels.

Program Inventory (répertoire des programmes)

Identifies all of the department's programs and describes how resources are organized to contribute to the department's Core Responsibilities and Results.

result (résultat)

An external consequence attributed, in part, to an organization, policy, Program or initiative. Results are not within the control of a single organization, policy, Program or initiative; instead they are within the area of the organization's influence.

statutory expenditures (dépenses législatives)

Expenditures that Parliament has approved through legislation other than appropriation acts. The legislation sets out the purpose of the expenditures and the terms and conditions under which they may be made.

sunset program (programme temporisé)

A time-limited program that does not have an ongoing funding and policy authority. When the program is set to expire, a decision must be made whether to continue the program. In the case of a renewal, the decision specifies the scope, funding level and duration.

target (cible)

A measurable performance or success level that an organization, Program or initiative plans to achieve within a specified time period. Targets can be either quantitative or qualitative.

voted expenditures (dépenses votées)

Expenditures that Parliament approves annually through an Appropriation Act. The Vote wording becomes the governing conditions under which these expenditures may be made.

Endnotes

i. Canada Research Coordinating Committee, http://www.ic.gc.ca/eic/site/127.nsf/eng/home

ii. Canada Foundation for Innovation, https://www.innovation.ca/

iii. College and Community Innovation, http://www.nserc-crsng.gc.ca/Professors-Professeurs/RPP-PP/Info-Info_eng.asp

iv. Canada's Fundamental Science Review, http://www.sciencereview.ca/eic/site/059.nsf/eng/home

v. Canada's Innovation and Skills Plan, https://www.ic.gc.ca/eic/site/062.nsf/eng/home

vi. Canada Research Coordinating Committee, http://www.ic.gc.ca/eic/site/icgc.nsf/eng/07620.html

vii. Discovery Development Grants, http://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/DiscoveryPilot-DecouvertePilote_eng.asp

viii. Discovery Grants program, http://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/DGIGP-PSIGP_eng.asp

ix. Belmont Forum-BiodivERsA, http://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/Belmont-Belmont_eng.asp

x. Equity Diversity and Inclusion, http://www.nserc-crsng.gc.ca/NSERC-CRSNG/EDI-EDI/index_eng.asp

xi. Science Odyssey, http://www.sciod.ca/

xii. Science Literacy Week, http://www.scienceliteracy.ca/

xiii. PromoScience grants, http://www.nserc-crsng.gc.ca/Promoter-Promotion/PromoScience-PromoScience/About-Apropos_eng.asp

xiv. Student Ambassadors program, http://www.nserc-crsng.gc.ca/Students-Etudiants/UG-PC/Ambassadors-Ambassadeurs_eng.asp

xv. NSERC Young Innovators program, http://www.nserc-crsng.gc.ca/Promoter-Promotion/YI-JI_eng.asp

xvi. Collaborative Research and Training Experience, http://www.nserc-crsng.gc.ca/Professors-Professeurs/Grants-Subs/CREATE-FONCER_eng.asp

xvii NSERC's Framework on Equity, Diversity and Inclusion, http://www.nserc-crsng.gc.ca/NSERC-CRSNG/EDI-EDI/framework_cadre-de-reference_eng.asp

xviii NSERC's New Research Partnerships Program, http://www.nserc-crsng.gc.ca/NSERC-CRSNG/RPR-RPR/index_eng.asp

xix. Centres of Excellence for Commercialization and Research, http://www.nce-rce.gc.ca/programs-programmes/cecr-cecr/index_eng.asp

xx. Business-led Networks of Centres of Excellence, http://www.nce-rce.gc.ca/Programs-Programmes/BLNCE-RCEE/Index_eng.asp

xxi. Networks of Centres of Excellence, http://www.nce-rce.gc.ca/Index_eng.asp

xxii. New Frontiers in Research Fund, http://www.sshrc-crsh.gc.ca/funding-financement/nfrf-fnfr/index-eng.aspx

xxiii. GC InfoBase, https://www.tbs-sct.gc.ca/ems-sgd/edb-bdd/index-eng.html#start

xxiv. Canada Research Chairs program, http://www.chairs-chaires.gc.ca/home-accueil-eng.aspx

xxv. 2019-20 Main Estimates, https://www.canada.ca/en/treasury-board-secretariat/services/planned-government-spending/government-expenditure-plan-main-estimates.html

xxvi. Natural Sciences and Engineering Research Council of Canada's website, http://www.nserc-crsng.gc.ca/NSERC-CRSNG/Reports-Rapports/plans-plans_eng.asp

xxvii. Natural Sciences and Engineering Research Council Act, http://laws.justice.gc.ca/eng/acts/N-21/

xxviii. GC InfoBase, https://www.tbs-sct.gc.ca/ems-sgd/edb-bdd/index-eng.html#start

xxix. Report on Federal Tax Expenditures, http://www.fin.gc.ca/purl/taxexp-eng.asp