National Research Council Canada

2018–19

Departmental Results Report

Supplementary Information Tables

Table of contents

Departmental Sustainable Development Strategy

1. Context for the Departmental Sustainable Development Strategy

The 2016–2019 Federal Sustainable Development Strategy (FSDS):

- sets out the Government of Canada's sustainable development priorities
- establishes goals and targets
- identifies actions to achieve them, as required by the *Federal Sustainable Development Act*

In keeping with the objectives of the Act to make environmental decision-making more transparent and accountable to Parliament, the NRC supports reporting on its FSDS efforts through the activities described in this supplementary information table.

2. Sustainable Development in the NRC

The Policy on Green Procurement supports the Government of Canada's effort to promote environmental stewardship and sustainability. In keeping with the objectives of the policy, the NRC continued to support sustainable development by integrating on-going best-practices in its green procurement. Over this last year, the NRC:

- Ensured that the annual performance evaluations of all procurement personnel included a commitment to actively manage daily procurement/materiel activities in accordance with the NRC, Treasury Board, Public Services and Procurement Canada, and Shared Services Canada policies and regulations;
- Strengthened its efforts to consistently use green consolidated procurement instruments issued by Public Services and Procurement Canada and Shared Services Canada, including Standing Offer Agreements and Supply Arrangement Agreements, where available and feasible;
- Ensured all procurement officers completed the Canada School of Public Service Green Procurement course by 31 March 2019 and all new procurement employees completed "green procurement considerations" online course provided by the Canada School of Public Service;
- Reinforced the importance of green procurement by having functional managers and procurement officers complete a checklist that includes green considerations as part of the tender/contract review process; and
- Incorporated a Green procurement clause(s) in all janitorial contracts agreements to emphasize the use of products, equipment and processes that minimize environmental impacts.

The supplementary information table below presents available results for the NRC's actions in support of achieving the FSDS goal of low-carbon government. Last year's supplementary information table is posted on the [NRC's website](#).

In addition to Green Procurement, the NRC has shared energy and emission data with the Treasury Board Secretariat Centre for Greening Government, and the NRC has developed a strategy to meet and sustain the target of 40% reduction in emissions.

3. Departmental performance by FSDS goal

The following table provides performance information on departmental actions in support of the FSDS goal listed in section 2.

FSDS goal: low-carbon government

FSDS target	FSDS contributing action	Corresponding departmental actions	Support for UN Sustainable Development Goal target	Starting points, targets and performance indicators for departmental actions	Results achieved
Reduce greenhouse gas emissions from federal government buildings and fleets by 40% below 2005 levels by 2030, with an aspiration to achieve it by 2025	Support the transition to a low-carbon economy through green procurement	As part of NRC's Low-Carbon Initiative, which was launched in 2017, the NRC will reduce emissions through awareness, energy management, space rationalization and energy retrofit projects.	• 13.2: Integrate climate change measures into national policies, strategies and planning	• Awareness program launched by May 2018. • Energy retrofit of NRC's Saskatoon facility launched by May 2018. • Energy retrofit feasibility studies completed at three NRC sites by May 2018. • Carbon reduction roadmap developed by August 2018. • NRC energy data submitted to Centre for Greening Government by September 2018.	• Various MyZone and Echo articles published. • Energy retrofit of NRC's Saskatoon facility completed in March 2019. • Energy retrofit feasibility studies completed for Ketch Harbour, M36 and M50. • Low Carbon Strategy developed in November 2018. • NRC energy data (29% reduction) submitted in October 2018.

4. Report on integrating sustainable development

During the 2018–19 reporting cycle, the NRC had no proposals that required a Strategic Environmental Assessment and no public statements were produced.

Details on transfer payment programs of $5 million or more

General information

Name of transfer payment program	International Astronomical Observatories Program
Start date	1978
End date	Ongoing
Type of transfer payment	Contribution
Type of appropriation	Estimates
Fiscal year for terms and conditions	2015-16
Link to the NRC's Program Inventory	Core Responsibility: Science and Innovation Program: Herzberg Astronomy & Astrophysics
Description	Astronomy is a global science. The increasing cost of leading-edge observatories and the scarcity of ideal observation sites have led to a greater focus on international collaboration for large-scale astronomy projects which lead to advances in our knowledge and understanding of the universe. The NRC, in collaboration with other international bodies, provides financial contributions to support the management and operations of offshore ground-based observatories and their related facilities, including the Canada-France-Hawaii Telescope (CFHT), the twin telescopes of the Gemini Observatory and the Atacama Large Millimeter Array (ALMA). The NRC participates in the oversight and direction of these facilities and their research capabilities. The NRC also represents Canada in the Square Kilometre Array (SKA) consortium for the pre-construction phase of the telescope. In 2015, Canada joined the international partnership to participate in the Thirty Meter Telescope (TMT). The NRC, on behalf of Canada, provides both financial and in-kind contributions. International agreements governing these observatories are long-term commitments that specify contributions to support preconstruction design and development, construction, operation and maintenance, capital improvements (e.g., development of new astronomical instruments and other facility upgrades) and decommissioning of the international ground-based observatories and their related facilities. In addition, they include commitments to support the university-based user communities to ensure a fair and progressive use of these observatories. The NRC participates in the governance of these international facilities on behalf of the Canadian astronomy research community and provides appropriate support, including sophisticated data management services and instrumentation. Through the NRC's financial and in-kind contributions, the Canadian astronomy community is assured merit-based access to these facilities with appropriate support. Recipients are not required to repay funds obtained under this transfer payment program.

Results achieved	• Demand by astronomers for international telescope access continued to exceed the time available by a factor ranging from 2.08 to 5.9, depending on the telescope. This is a reliable indicator of the relevance of the observatory and of its instrumentation. 416 scientific papers were published by users based on data obtained using the Canada-France-Hawaii Telescope (CFHT) and the Gemini Observatory. 398 scientific papers were published based on data obtained using ALMA.
	• The NRC, in collaboration with various national and international partners, supported the development and deployment of a new Near-infrared spectropolarimeter for the CFHT - Spectropolarimètre Infrarouge – SPIRou. SPIRou collected the first calibration images with its science-grade array, passed formal Final Acceptance Review and began full science operations.
	• The NRC continued to support the highly successful CHIME telescope, which was featured in the Nature International Journal of Science, for detecting the second known repeating Fast Radio Burst (FRB).
	• The joint, multi-year HAA/CPFC Microwave Monolithic Integrated Circuit (MMIC) development project passed a key milestone in February reaching performance objectives at room and cryogenic temperatures. MMIC technology is the overall moniker for the integration and miniaturization of high-frequency electronic systems that can be fabricated onto a single computer chip and supports mass-production.
	• NRC-Herzberg Astronomers & Astrophysicists published 151 refereed journal articles, 129 non-refereed publications and made 58 presentations at national & international institutes, conferences and workshops. This included presentations at the prestigious SPIE Astronomical Telescopes and Ground-based Instrumentation conference.
	• The NRC supported the NASA New Horizons space probe that reached and photographed Kuiper Belt object 2014 MU69, also known as Ultima Thule. NRC scientists used images from the CFHT to create a map of the stars whose positions were known to extreme precision which enabled the New Horizons space probe to re-direct and fly to Ultima Thule.
	• The Canadian Astronomy Data Centre (CADC) houses over 1250 terabytes (TB) of the world's astronomical data. From these collections, the CADC delivered over 239 million files comprising 2178 TB (18 TB from the space-based observatories) to the world-wide astronomical research community.
	• Canadian researchers at the Dominion Radio Astrophysical Observatory supported the US National Radio Astronomy Observatory (NRAO) in preparation for the next generation Very Large Array (ngVLA) project. Canada provided the reference design for new 15m single-piece composite antennas that will be used in the ~$1.9B USD ngVLA project to build a new radio telescope comprised of an array of 244 antennas each 18m in diameter. The ngVLA will directly image the formation of Star Systems and earth-like planets.
	• NFIRAOS, the first-light TMT Adaptive Optics system, passed its Final Design Review (19-21 June 2018). The review panel found that the team had performed "impressive state of the art work" and that NFIRAOS had an "excellent project team with high levels of expertise."
	• The NRC participated in the pre-construction phase of the next generation radio telescope, the SKA. NRC's contributions were significant, having led the SKA Central Signal Processing (CSP) consortium to a very successful "unconditional pass" Critical Design Review, and supplied technology for the sub-reflectors and receiver

	Low Noise Amplifiers for the precursor telescope – MeerKAT – in South Africa. The CSP converts digitised astronomical signals detected by SKA receivers into the vital information needed to make detailed images of deep space astronomical observations. • 2018 marked the 100th anniversary of the Dominion Astrophysical Observatory in Victoria, B.C., whose Plaskett Telescope was Canada's first publicly funded major science project. The telescope has contributed significantly to astronomical research, including exploring the structure of the Milky Way, binary stars, stellar X-ray sources and stellar-mass black holes. The Plaskett telescope continues to provide observations and data for important projects such as the tracking of moving objects in the vicinity of the Earth and the mapping of complex magnetic fields at the surface of very active stars.
Findings of audits completed in 2018-19	Not applicable
Findings of evaluations completed in 2018-19	Evaluation completed in 2016-17. (Evaluation of NRC Herzberg Astronomy and Astrophysics (HAA) Portfolio). The next evaluation is scheduled for completion in 2021-22.
Engagement of applicants and recipients in 2018-19	The NRC manages observatories established or maintained by the Government of Canada for the benefit of the Canadian astronomy research community, aligning its contributions to the priorities of the community's Long Range Plan for Astronomy and Astrophysics. The NRC participates on the Boards which oversee the observatories to ensure that the science directions and programs of the facilities reflect Canadian strengths and interests. In addition, the NRC ensures that these activities increase opportunities for Canadian researchers and firms to develop relevant instrumentation for the observatories. To carry out its roles effectively, the NRC provides current information about each observatory to research community-based committees of scientists which provide expert advice on observatory operations and development. The NRC provides extensive support to the user community through numerous services extending from administering the time allocation process for Canadian researchers through to delivery of science-ready data (through its Canadian Astronomy Data Centre).

Performance information (dollars)

Type of Transfer Payment	2016-17 Actual spending	2017–18 Actual spending	2018-19 Planned spending	2018-19 Total authorities available for use	2018-19 Actual spending (authorities used)	Variance (2018-19 actual minus 2018-19 planned)
Total grants	-	-	-	-	-	-
Total contributions	20,991,704	21,903,992	134,588,229	139,357,114	27,723,107	(106,865,122)
Total program	20,991,704	21,903,992	134,588,229	139,357,114	27,723,107	(106,865,122)
Explanation of variances	The significant variance of ($106,865,122) between the planned spending and actual spending is primarily due to project delays associated with Canada's participation in the construction of the Thirty Meter Telescope (TMT) that are outside NRC's control. As a result, the NRC has re-profiled $111,634,007 of its 2018-19 funding related with Canada's contribution to the TMT to future years.					

General information

Name of transfer payment program	TRIUMF(voted)
Start date	April 1, 1977
End date	Ongoing
Type of transfer payment	Contribution
Type of appropriation	Estimates
Fiscal year for terms and conditions	2015-16
Link to the NRC's Program Inventory	Core Responsibility: Science and Innovation Program: TRIUMF
Description	TRIUMF is Canada's particle accelerator centre. The laboratory is one of Canada's key investments in large-scale research infrastructure. It provides world-class facilities for research in sub-atomic physics, accelerator science, life sciences, and materials science. A consortium of 20 Canadian universities (14 full members and 6 associate members) owns and operates TRIUMF. TRIUMF receives its federal operational funding through the NRC in five year allocations via a contribution agreement. The NRC plays an important oversight and stewardship role for TRIUMF on behalf of the Government of Canada. Recipients are not required to repay funds obtained under this transfer payment program.
Results achieved	• TRIUMF contributed to the publication of 324 manuscripts in scientific journals. • TRIUMF researchers made significant contributions to the first observation by ATLAS of the Lyman-alpha transition in antihydrogen, a key step in understanding fundamental concepts in physics, astronomy and our universe. ATLAS is a collaborative project involving over 3,000 physicists from over 175 institutions in 38 countries. • TRIUMF's theory group played a key role in addressing a long-standing puzzle in the β (beta)-decay probability of atomic nuclei (https://www.triumf.ca/research-highlights/triumf-theory-group-contributes-solution-long-standing-beta-decay-puzzle). The results may serve to improve how physicists characterize heavy element synthesis in neutron star mergers and to improve predictions for the predicted neutrino-less double-β-decay. • TRIUMF made significant progress on completing the ARIEL facility, which will produce rare isotopes for science, business and medicine. This included advancing the commissioning of the electron linear accelerator, the CANREB EBIS charge breeder system, and the RIB beamlines connecting ARIEL and ISAC, as well as continuing the design of ARIEL's unique target stations and hot cells. Further work on critical components of the facility will allow for the simultaneous operation of multiple experiments. • In support of research collaborations and partnerships, TRIUMF hosted 1002 scientific visitors, students and users, 606 of which came from international institutions. • To promote the availability of global talent, TRIUMF trained 254 highly qualified personnel, including undergraduate and graduate students, as well as post-doctoral researchers.

	- The Institute for Advanced Medical Isotopes (IAMI) – a project supported by the Government of Canada, Province of British Columbia, BC Cancer, University of British Columbia, and TRIUMF was formally announced in November 2018 during a visit by Prime Minister Justin Trudeau. Valued at over $50M, this state-of-the-art facility will significantly strengthen TRIUMF's capabilities for research and development in life sciences, and has attracted more than $18M in philanthropic donations to the BC Cancer Foundation to support the development of next-generation treatments. - TRIUMF and TRIUMF Innovations announced a strategic partnership with Canadian Nuclear Laboratories (CNL) to produce Ac-225, a new isotope that could enable new treatment options for patients with currently untreatable cancers. - TRIUMF and TRIUMF Innovations are also partnering with adMare (formerly known as the Centre for Drug Research and Development) to work on developing new therapeutic drugs to treat cancer. - TRIUMF launched an ambitious slate of programming in support of TRIUMF's 50th Anniversary. Among these events was a historical symposium that attracted 210 registrants from around the world. Other important occasions that took place during this period included a number of high-profile public lectures and events, such as visits from the Governor General and the Prime Minister of Canada. - After extensive community consultation, TRIUMF released a Five-Year Plan 2020-2025 which outlines goals and objectives for the laboratory around three dimensions: Science and Technology; People and Skills; and Innovation and Collaboration. TRIUMF's organizational structure was updated to better align research and operational responsibilities under the two deputy directors. - A new HR Director was recruited to advance and modernize human resource practices with a focus on Equity, Diversity, and Inclusion, elements now built into TRIUMF's core values and which have been bolstered by improvements stemming from data captured during a recent survey exercise that will help guide future initiatives. - Adding additional rigor into the management of research and commercial partnerships, TRIUMF has established a new Research Services Office to help manage agreements, as well as hired a Compliance Officer to ensure alignment with export control regulations.
Findings of audits completed in 2018-19	Not applicable
Findings of evaluations completed in 2018-19	Evaluation completed in 2018-19. The next evaluation is scheduled for 2022-23. TRIUMF addresses the needs of a growing research community, in particular by providing necessary equipment and facilities, which are not available elsewhere in Canada. TRIUMF has been important to Canada's position on the global stage in TRIUMF-related fields. This is in part due to the facilities it provides to researchers, which enables their research, as well as the international collaborations TRIUMF has facilitated. TRIUMF has also contributed to Canada's positive reputation through its own scientific achievements, including its contributions to important work such as the discovery of the Higgs Boson at CERN and elucidation of neutrino properties by the T2K experiment in Japan. TRIUMF also contributes to the scientific community by fostering the training of HQP and attracting HQP to Canada. TRIUMF has made a number of changes to increase efficiencies and are

	planning many others. They have addressed the issues identified in the previous evaluation and introduced a number of new mechanism to increase efficiencies. They are also currently undergoing a transformation of their governance structure which will streamline their Board of Management and broaden its scope. Lastly, TRIUMF's strategic plan for 2020-2025 demonstrates its vision for the next phase of the laboratory and was found by the IPRC to be ambitious, yet achievable.
Engagement of applicants and recipients in 2018-19	The NRC chairs the Agency Committee on TRIUMF (ACT), which includes the federal agencies that fund and oversee activities at TRIUMF, providing TRIUMF management the opportunity to present progress and discuss future directions for the facility.
	The NRC also manages the Advisory Committee on TRIUMF (ACOT), composed of international experts within disciplines that span the research and technology activities of TRIUMF. ACOT reports its findings to NRC and TRIUMF senior management twice annually, making recommendations on programs and management as well as reporting on the scientific and technological achievements of TRIUMF programs and facilities. Observer representatives from the National Sciences and Engineering Research Council of Canada (NSERC), the Canadian Institute of Nuclear Physics, and the Canadian Institute of Particle Physics ensure that TRIUMF's directions are well aligned with the research community's needs and that TRIUMF is working with all constituencies across the Canadian subatomic physics community. The Committee considers all aspects of the TRIUMF program, with a particular emphasis on science and technological issues to ensure the relevance, impact, and world-class standing of TRIUMF's activities.
	The NRC also maintains an ex officio presence on TRIUMF's Board of Management and on TRIUMF's Audit Committee.
	Dialogue is maintained between the NRC and the recipient to ensure that Government of Canada investments are optimal, and that the NRC provides a vehicle for feedback on the transfer payment management process.
	TRIUMF has numerous programs aimed at young people, students, teachers, and the general public to ensure that as many as possible share the wonder of discovery and experience the excitement generated by one of Canada's premier laboratories. In addition, TRIUMF offers a suite of programs to aide in the growth and development of professional skills for its graduate students and postdocs.

Performance information (dollars)

Type of Transfer Payment	2016-17 Actual spending	2017–18 Actual spending	2018-19 Planned spending	2018-19 Total authorities available for use	2018-19 Actual spending (authorities used)	Variance (2018-19 actual minus 2018-19 planned)
Total grants	-	-	-	-	-	-
Total contributions	53,672,000	54,572,800	55,262,800	57,280,490	57,280,490	2,017,690
Total program	53,672,000	54,572,800	55,262,800	57,280,490	57,280,490	2,017,690
Explanation of variances	The variance of $2,017,690 between the planned spending and actual spending is within accepted tolerances.					

General information

Name of transfer payment program	Industrial Research Assistance Program (IRAP)
Start date	April 1, 2013 (T&Cs renewal date; original start date: April 1, 1965)
End date	Ongoing
Type of transfer payment	Contribution
Type of appropriation	Estimates
Fiscal year for terms and conditions	2018-19
Link to the NRC's Program Inventory	Core Responsibility: Science and Innovation

Program: Industrial Research Assistance Program (IRAP) |
| Description | The Program contributes to the growth and prosperity of Canadian small and-medium sized enterprises (SMEs) by stimulating innovation, adoption and/or commercialization of technology-based products, services, or processes in Canada. This is done through: 1) technical and related business advice and networking facilitated by a cross-Canada network of field professional staff; 2) cost-shared merit-based contributions; and 3) contributions supporting employment of post-secondary graduates. [This Program has the following streams: Contributions to Firms; Contributions to Organizations; and Youth Employment Program (YEP)].

NRC IRAP supports the placement of graduates in SMEs through its participation in the delivery of YEP sponsored by Employment and Social Development Canada's Youth Employment Strategy (YES).

Recipients are not required to repay funds obtained under this transfer payment program. |
| Results achieved | Results are described in detail in NRC's 2018-19 Departmental Results Report; see main document. |
| Findings of audits completed in 2018-19 | Audit completed in 2018-19. Audit of IRAP Recipient Audit Framework.

Audit Objective
The objective of the audit was to provide assurance that IRAP has developed and implemented an adequate recipient audit framework to support the delivery of the IRAP program and that the framework is working as intended.

Strengths
Governance structures have been established to ensure that IRAP's formally documented recipient audit framework is approved by Management and disseminated to all key individuals. The framework applies a risk-based approach through sampling and audit procedures, which are performed by an independent audit agent that has been selected based on the criteria recommended in the Treasury Board Secretariat Guideline on Recipient Audits. Recipient audit results are shared with key stakeholders, including IRAP |

	management, Finance and NRC's Departmental Audit Committee and Management action plans are developed for findings requiring attention.
	Areas for Improvement Opportunities were identified to improve the recipient audit framework, specifically by clarifying the intent and expected conclusions to be reached from the recipient audit and fully documenting all sampling procedures. This will ensure that the sampling approach is properly applied to support the conclusion and potential management decisions to be drawn. Further, the framework should define the expected timeline for each phase of the audit, as well as the frequency and ways in which audit progress, results and management action plans should be presented and monitored. Finally, internal resource availability and associated responsibilities should be reviewed and responsibilities adjusted, if required, to ensure all recipient audit responsibilities are fulfilled in a timely manner.

	Recommendations
	1. The Vice-President of IRAP (VP, IRAP) should coordinate with the Vice President, Corporate Services and Chief Financial Officer (VP, CS & CFO) to update the framework to include:
	   a. The timeline for each phase of the recipient audit, and
	   b. The frequency and ways in which audit progress, results and subsequent management action plans are presented and monitored.
	[Priority: Moderate]
	2. The VP, IRAP should:
	   a. Clarify the intent and expected conclusions to be reached from the recipient audit, and
	   b. Ensure the sampling practice is fully documented and aligned with the intent to support the conclusion and potential management decision to be drawn.
	   [Priority: High]
	3. The VP, IRAP, in consultation with the VP, CS & CFO, should:
	   a. Review resource availability and the associated responsibilities, and
	   b. Adjust the responsibilities if required, to ensure all recipient audit responsibilities are fulfilled in a timely manner.
	[Priority: Moderate]

	Audit Conclusion The majority of key elements of IRAP's recipient audit framework have been established to support the delivery of recipient auditing activities. While the conduct of the recipient audit activities is in compliance with the Treasury Board Policy on Transfer Payments, improvements are needed, as set out in the audit report.
Findings of evaluations completed in 2018-19	An evaluation of IRAP was completed in 2017-18. The next evaluation is planned to be completed in 2021-22.

Engagement of applicants and recipients in 2018-19	NRC IRAP is a national program managed on a regional basis with 255 Industrial Technology Advisors (ITAs) located in approximately 120 offices across the country, who provide customized advice to technologically innovative small and medium-sized enterprises (SMEs). ITAs are engaged with client SMEs throughout the entire contribution management process, from building project proposals through to project completion.
	At the end of their funded project, recipients are required to complete an online Post-Project Report. This assessment captures information on the recipient's experience with NRC IRAP and, along with published service standards, is used by the program to develop continuous program improvements.
	NRC IRAP has an Advisory Board composed of 10 to 12 members from the industry sector and industry associations. This Board provides advice to NRC IRAP management and brings an external perspective on the strategic directions and management of the program.
	NRC IRAP is actively engaged with Treasury Board Secretariat Grants and Contributions Reform. Participation in workshops and constant alignment with recent Treasury Board Secretariat policy and guidelines has enabled the program to steadily move toward principles such as a Recipient Engagement Strategy.

Performance information (dollars)

Type of Transfer Payment	2016-17 Actual spending	2017–18 Actual spending	2018-19 Planned spending	2018-19 Total authorities available for use	2018-19 Actual spending (authorities used)	Variance (2018-19 actual minus 2018-19 planned)
Total grants	-	-	-	-	-	-
Total contributions	242,922,833	192,314,017	187,014,000	281,031,520	275,470,812	88,456,812
Total program	242,922,833	192,314,017	187,014,000	281,031,520	275,470,812	88,456,812
Explanation of variances	The significant variance of $88,456,812 between the actuals and the planned is the result of the Budget 2018 announcement for the Industrial Research Assistance Program to support business research and development for projects. The funding was accessed through the 2018 Budget Implementation Vote which was not included in the 2018-19 Planned Spending.					

General information

Name of transfer payment program	Canada Accelerator and Incubator Program (CAIP)
Start date	October 1, 2013
End date	March 31, 2019
Type of transfer payment	Contribution
Type of appropriation	Estimates
Fiscal year for terms and conditions	2013-14
Link to the NRC's Program Inventory	Core Responsibility: Science and Innovation Program: Industrial Research Assistance Program (IRAP)
Description	The CAIP is a 5-year non-repayable contribution program, aimed at establishing a critical mass of outstanding business incubators and accelerators that can develop innovative, high-growth firms, which themselves represent superior early-stage investment opportunities. The program was structured by Finance Canada and has been delivered by the NRC through IRAP.
Results achieved	CAIP funding contributed to • Early-stage firms' increased access to innovation support services • The improvement of early-stage firms' readiness for investment; and • Wealth creation in Canada In November 2018 a summative evaluation, which assessed the extent to which the CAIP program achieved expected results was conducted. Client firms who received CAIP funding and services reported significant growth in revenue, equity, and number of staff. Overall, evaluation findings suggest CAIP services and funding contributed to the growth of Canadian small and medium sized-businesses and, by extension, job creation and the Canadian economy.
Findings of audits completed in 2018-19	Not applicable
Findings of evaluations completed in 2018-19	A Summative evaluation of CAIP was completed in 2018-19. CAIP continues to align with evolving government priorities related to support for innovative SMEs. CAIP is also aligned with recent priorities such as providing a broader range of support to SMEs and strengthening Canada's network of accelerators and incubators. Available data suggests that CAIP-funded A/Is have increased their numbers of client firms, which in many cases have evolved from small, early-stage firms to more mature firms. CAIP-funded A/Is have delivered new or expanded services which surveyed client-firms have valued. In fact, CAIP allowed funded A/Is to provide a wide range of new or expanded services to their clients that

| | would not have been possible without the program. Overall, client-firms have found the services useful and they have incurred numerous benefits as a result.

Available data suggests that CAIP funding and the resulting assistance provided to A/I client-firms have contributed to wealth creation in Canada. Client firms, as a group, have grown significantly in revenue and equity investment.

The delivery of CAIP was challenging and resulted in some valuable lessons learned. For instance, the cost to deliver CAIP is more than double the amount planned at the onset of the program. This is in part due to the complexity of the program which led to unforeseen challenges (e.g., longer process of due-diligence and negotiation when setting up the CAs, complex and time-consuming claim review process, and difficulty in collecting performance data from CAIP recipients.). Also, there was insufficient time to understand the program and develop efficient delivery mechanisms at the onset of the program. It took some time for IRAP to adapt their processes to align with the parameters required by CAIP. Finally, overcoming delivery challenges has required a considerable level of effort. As a result, there are many learnings that should be considered for any future similar program. |
|---|---|
| **Engagement of applicants and recipients in 2018-19** | CAIP supports SMEs' access to best-in-class business accelerators and incubators with the goal of helping these organizations expand their overall service offerings. Organizations were selected based on CAIP specific eligibility criteria and selection guidelines. CAIP is a direct result of extensive consultations, undertaken by Finance Canada in 2012, which revealed that, in addition to the availability of venture capital, entrepreneurs also require access to specialized innovation resources to succeed. |

Performance information (dollars)

Type of Transfer Payment	2016-17 Actual spending	2017–18 Actual spending	2018-19 Planned spending	2018-19 Total authorities available for use	2018-19 Actual spending (authorities used)	Variance (2018-19 actual minus 2018-19 planned)
Total grants	-	-	-	-	-	-
Total contributions	24,341,747	23,967,946	17,095,791	17,966,193	17,966,193	870,402
Total program	24,341,747	23,967,946	17,095,791	17,966,193	17,966,193	870,402
Explanation of variances	The variance of $870,402 between the planned spending and actual spending is within accepted tolerances.					

General information

Name of transfer payment program	Collaborative Science, Technology and Innovation Program
Start date	April 1, 2018
End date	Ongoing
Type of transfer payment	Grants & Contributions
Type of appropriation	Estimates
Fiscal year for terms and conditions	2018-19
Link to the NRC's Program Inventory	Core Responsibility: Science and Innovation Program: Collaborative Science, Technology and Innovation Program (CSTI)
Description	Provides grant and contribution funding for external collaborators with complementary capabilities (e.g. SMEs, post-secondary institutions and non-profit research organizations). The program is comprised of 1) NRC Collaborative Research & Development (R&D) initiatives – funding external collaborators working with NRC researchers on projects that make up a series of large-scale collaborative R&D programs in priority areas; 2) the Ideation Fund – funding external collaborators working with NRC personnel to encourage, test and validate transformative self-directed, exploratory research ideas; and 3) the Outreach Initiative – funding to support conferences, workshops, symposia or other outreach initiatives, in order to promote engagement of Canadians, particularly those in under-represented groups, interested in Science, Technology, Engineering and Mathematics (STEM).
Results achieved	In 2018-19, the NRC: • Launched the inaugural round of the Ideation Fund's New Beginnings Initiative (52 approved projects and 44 concluded grant agreements cumulatively totalling $917K). • Launched the inaugural round of the Ideation Fund's Small Teams Initiative (results to be finalized in 2019-20). • Began to design and engage stakeholders on four large-scale collaborative R&D programs focused on solving challenge missions in key areas such as, high-throughput and secure networks, disruptive technology solutions for cell and gene therapy, materials for clean fuels and artificial intelligence for design, in addition to five collaborative R&D initiatives aligned with the superclusters funded through the Innovation Superclusters Initiative. • Concluded six contribution agreements, cumulatively totaling $14.5M over three years, to support investments by collaborators in foundational infrastructure deemed essential to the future success of collaborative R&D initiatives. • Concluded four grant agreements, cumulatively totaling $93K, to support science or innovation based conferences, symposia and workshops.
Findings of audits completed in 2018-19	Not applicable
Findings of evaluations completed in 2018-19	The first evaluation of CSTI will be completed in 2022-23.

| Engagement of applicants and recipients in 2018-19 | For NRC Collaborative Research & Development Initiatives, potential collaborators and stakeholders are consulted by the NRC to inform the design of each initiative. As funding opportunities arise during the implementation of the initiatives, the NRC will either hold open calls to award transfer payment funding to eligible recipients or invite top researchers to participate to provide the necessary research expertise that does not reside within the NRC. Proposals will be selected against criteria, including excellence, potential impact, collaborations and feasibility.

Ideation Fund projects are launched through calls within the NRC for individuals or small teams to conduct exploratory research with collaborators. Projects are selected against criteria that examine originality and transformative nature of the proposed research, sound scientific approach and strength of the collaborators proposed. Eligible recipients are provided with Grant and Contribution funding to execute their portion of each collaborative project. |

Performance information (dollars)

Type of Transfer Payment	2016-17 Actual spending	2017–18 Actual spending	2018-19 Planned spending	2018-19 Total authorities available for use	2018-19 Actual spending (authorities used)	Variance (2018-19 actual minus 2018-19 planned)
Total grants	-	-	-	3,000,000	1,011,870	1,011,870
Total contributions	-	-	-	17,213,425	8,090,335	8,090,335
Total program	-	-	-	20,213,425	9,102,205	9,102,205
Explanation of variances	The significant variance of $9,102,205 between the actuals and the planned in Grants and Contributions was due to the time required from award of Budget 2018 to select and perform due diligence of project proponents for each of the initiatives associated with the Collaborative Science, Technology and Innovation Program. The funding was accessed through the 2018 Budget Implementation Vote which was not included in the 2018-19 Planned Spending.					

Gender-based analysis plus

General information

Governance structures	The NRC began formalizing its GBA+ framework, accountability and reporting mechanisms. While the NRC does not have a specific GBA+ policy or statement of intent, GBA+ is part of the NRC's Equity, Diversity and Inclusion (EDI) Strategy. • The NRC is integrating GBA+ into annual operational plans at the research centre and program level to help in applying GBA+ to program design, as well as monitoring and evaluation. • GBA+ commitments have been included in areas such as existing and new T&D initiatives and capacity building. • Tracking and reporting mechanisms for GBA+ initiatives by NRC programs continue to be developed for implementation, such as reporting to senior management. • The Responsibility Centre for GBA+ was established in the Secretary General's division and the Secretary General fills the role of GBA+ champion for the NRC.
Human resources	1.5 full-time equivalents
Major initiatives: results achieved	• In alignment with the Gender Results Framework, the NRC conducts GBA+ analysis on Cabinet documents (e.g. MCs, TB submissions and budget two-pagers) and in the evaluation of initiatives. • GBA+ commitments are included in the NRC's operational plans with a move toward implementation in NRC programs during the planning and design process. To begin this process, presentations for the research centres are planned for 2019. • The NRC's Equity, Diversity and Inclusion Strategy serves as a tool to increase diversity and inclusiveness in the NRC workforce and NRC's engagements as a partner/collaborator. As part of this strategy, the NRC has developed two mandatory online courses for all staff in areas related to Equity, Diversity and Inclusion, including a fundamentals course and unconscious bias training. A mandatory course on managing bias in hiring was created for all supervisors and moving forward plans are in development for training in targeted areas of the organization. • The NRC implements and intends to implement programs and initiatives with a specific focus on women researchers, indigenous peoples and students from EE designated groups, such as an initiative targeted to increase the percentage of women in STEM careers through the hiring of more women in post-doctoral positions. Statistics on women in STEM are monitored and tracked by the Human Resources division. The NRC also developed and is implementing a new strategy for the recruitment and retention of women. • NRC programs, such as the Industrial Research Assistance Program (IRAP) and new Collaborative Science, Technology and Innovation Program are planning integration of GBA+ into their program delivery. • The NRC is building capacity and awareness of GBA+ across the organization. This includes considerations in the development of the 5-year Strategic Plan, training sessions for R&D programs and Superclusters Program Directors, as well as work in support of annual operational planning.
Reporting capacity and data	Not applicable

Horizontal initiatives: Genomics R&D Initiative Close-Out Report

General information

Name of horizontal initiative	Genomics R&D Initiative (GRDI)
Lead departments	National Research Council Canada (NRC)
Federal partner departments	Agriculture and Agri-Food Canada (AAFC), Canadian Food Inspection Agency (CFIA), Fisheries and Oceans Canada (DFO), Environment and Climate Change Canada (ECCC), Health Canada (HC), National Research Council Canada (NRC), Natural Resources Canada (NRCan), Public Health Agency of Canada (PHAC). Canadian Institutes for Health Research (CIHR) received a onetime allocation in 1999-2000.
Non-federal and non-governmental partners	Not applicable
Start date of the horizontal initiative	April 1999, renewed in 2002-03, 2005-06, 2011-12, and 2014-15.
End date of the horizontal initiative	March 2019
Description of the horizontal initiative	The Genomics R&D Initiative (GRDI) supports genomics research inside federal government laboratories. It focuses on mandates and priorities of participating departments and agencies. Research supported by the GRDI covers areas such as health care, food safety and global food security, sound management of natural resources, a sustainable and competitive agriculture sector, and environmental protection, with collaboration with university and private sectors. Three independent evaluations (2006, 2011, and 2016) have confirmed that the GRDI has successfully delivered on its stated objectives. Additional information may be found on the [GRDI web site](#).
Governance structures	An interdepartmental Assistant Deputy Minister (ADM) Coordinating Committee (CC) has been established to oversee collective management and coordination of the federal GRDI. It is chaired by the lead agency (NRC) with membership at the ADM-level from each of the organizations receiving funding and guest representatives from Innovation, Science and Economic Development and Genome Canada. It is responsible for the overall strategic direction for the GRDI and approval of investment priorities. It ensures that effective priority setting mechanisms are established within departments and agencies, and that government objectives and priorities are addressed. The Committee also ensures that common management principles are implemented and collaborations between organizations are pursued wherever relevant and possible. It typically meets three times a year at the call of the Chair, more often when warranted by specific needs for decision-making.
	An Interdepartmental Working Group (WG) supports the work of the committee. It is chaired by the lead agency (NRC) with membership at the Director level from all participating departments/agencies, and Innovation, Science and Economic Development. The mandate of the WG is to provide

	recommendations and strategic advice to the ADM CC regarding strategic priority setting and overall management of the GRDI. The WG is responsible for providing direction to GRDI program activities related to operational delivery, implementation planning and investment priority setting. The WG also supports evaluation and reporting requirements related to the Initiative. It meets about every two months, more often when warranted by specific needs for recommendations and advice, as well as to develop and approve the GRDI Annual Performance Report.
	A Coordination Function, housed at the NRC, provides GRDI-wide program coordination, communication, networking and outreach support. This includes support to the ADM CC and the GRDI WG, transparent and effective communication to departments of the planning cycle, process requirements, financial administration and other project management requirements, and support for interdepartmental shared project planning and implementation. This function is also responsible for conducting studies and analyses to serve as input to determination of GRDI-wide research priorities, and providing management and administration support, as well as support for performance management, reporting, evaluation, and communications.
Total federal funding allocated (start to end date) (dollars)	393,300,000 to March 2019
Total federal planned spending to date (dollars)	393,300,000 to March 2019
Total federal actual spending to date (dollars)	391,892,030
Date of last renewal of the horizontal initiative	April 3, 2014
Total federal funding allocated at the last renewal, and source of funding (dollars)	99,500,000 for 2014-2019 from the fiscal framework
Additional federal funding received after the last renewal (dollars)	Not applicable
Funding contributed by non-federal and non-governmental partners	Not applicable
Fiscal year of planned completion of next evaluation	2020-21
Shared outcome of federal partners	The GRDI Horizontal Performance Measurement Strategy was updated for Phase VI. The updated version covers fiscal years 2014-15 to 2018-19 and formalizes the roles and responsibilities of the eight departments and agencies involved in the Initiative to support effective monitoring and evaluation activities. It presents three intermediate outcomes:
	1) Federal science departments and agencies are positioned as genomics research leaders;

	2) Research results are used to inform government regulatory, policy, and/or resource management decisions; and
	3) Research results are used by stakeholders to support innovation in Canada; contributing to the Government of Canada Outcomes: Healthy Canadians; Strong economic growth; An innovative and knowledge-based economy; and A clean and healthy environment
Performance indicators	GDRI is managed using a comprehensive performance measurement framework to gauge progress towards the above 3 shared outcomes. Examples of performance indicators include:
	1) Scientific production and impact in genomics
	2) Case analysis of examples where risk assessment, regulatory, policy, and resource management decisions have been informed by GRDI research (federal, provincial, municipal)
	3) Case analysis of examples where innovative tools and processes have been adopted in Canada based upon GRDI research
Targets	Targets for the above examples are:
	1) On par or better than other genomics researchers in Canada
	2) Positive impact based on qualitative case study analysis
	3) Positive impact based on qualitative case study analysis
Data source and frequency of monitoring and reporting	The data for the above examples is derived from program Evaluation every 5 years
Results	See results, below.
Expected outcome or result of non-federal and non-governmental partners	Not applicable
Name of theme	Not applicable
Performance highlights	Fiscal year 2018-19 is the fifth year of GRDI Phase VI. Phase VI seeks to: 1) address shared priorities through horizontal integration and effective collaborations around interdepartmental projects; and 2) support the priorities, policies and mandates of government through concerted high calibre genomics research in areas where federal laboratories have distinct roles and competencies. The development of interdepartmental projects, while continuing to invest in mandated research, was initiated under Phase V and proved to be an effective mechanism to ensure continued relevance and impact of the GRDI for Canadians. The overall risk related to the funding and delivery of the GRDI program was evaluated during the planning stages of the 2010 GRDI evaluation, and was found to be medium-low.
Outcomes achieved	• Three independent evaluations were conducted to assess the performance and relevance of the GRDI with regard to its targeted outcomes. The first evaluation completed in 2006 found the initiative both successful and relevant in delivering well-managed credible research for policy, regulation and other government decisions. The evaluation completed in

2011 recognized the considerable contributions of the GRDI to the development and application of new research methods, techniques, standard operating protocols and overall approaches; it confirmed that research met the needs of main stakeholders, both internal and external to participating departments and agencies. The evaluation completed in 2016 confirmed that the initiative was successful in developing innovative knowledge and technologies and influencing evidence-based public policy, and exceeded productivity targets. It also confirmed that GRDI projects had successfully transferred knowledge and technologies to end users, and concluded that GRDI-funded projects are expected to have real and lasting impacts leading to billions of dollars in benefits over the longer-term.

- GRDI established a new way of doing research in 2011 for addressing issues of importance to Canadians through Shared Priority Projects. These projects enable scientists in different departments to combine their expertise to address issues beyond the mandates of single departments. They also enable the development of common practices and platforms across federal departments and agencies to facilitate government-wide data development and sharing. The first two large-scale shared priority research projects (2011-2016), the Quarantine and Invasive Species (QIS) project and the Food and Water Safety (FWS) project, performed beyond expectations. They received the 2016 Public Service Award of Excellence for scientific contribution in recognition of their outstanding work. They successfully demonstrated the ability of federal science-based departments and agencies to work together: fostering common approaches by sharing best practices for project planning and management; enabling structured research collaborations on shared priority issues through a unique model of integrated interdepartmental research projects; and facilitating government-wide data development and sharing through common platforms (e.g. sequencing, DNA libraries) and protocols (e.g. sampling, DNA extraction, metadata). Building on this success, two more shared priority research projects were launched for 2016-2021, the Antimicrobial Resistance project (AMR) and the Metagenomic-Based Ecosystem Biomonitoring project (EcoBiomics).

- GRDI has informed government decisions and the implementation of federal programs and regulations, such as the resolution of trade disputes related to crop pathogens; identifying strategic areas to advance Canada's economic and social objectives; ensuring better collaboration between government and university science (e.g. the many collaborative projects between GRDI scientists and academic scientists funded by Genome Canada); and producing a more modern, nimble, and well-resourced federal science ecosystem that supports evidence-based decision-making and greater collaboration. The research also benefits multiple regions across Canada, including remote communities (e.g. water filtration devices for collecting environmental DNA samples in extreme remote areas).

	• GRDI has advanced research and solutions in sectors that contribute to the foundation of the Canadian economy, such as: Agriculture and Agri-Food - GRDI provided evidence that a costly pest (i.e. Nematode) identified in Canadian exports has in fact been misidentified, leading to the removal of restrictions on Canadian yellow pea exports to India (a $400 million/year market) and a similar scenario with another costly pest, the Potato Wart, leading to the reopening of the United States border to Prince Edward Island potatoes in 2001; Forestry - Enabled the development of a new genetic test in 2015 that allows researchers to predict the value of a tree (e.g. spruce) at the seedling stage rather than having to wait for a field study that could take up to 30 years. This means higher quality trees are being planted sooner, which translates to a potential added value of close to $300 million/year for the Canadian forest sector; Fisheries and Aquaculture - Improved the conservation of at-risk populations, the management of aquaculture, and the management of domestic and international mixed stock fisheries in 2018 by using genome-wide genetic markers (>200,000) for Atlantic Salmon in the Northwest Atlantic to trace migratory salmon to their river and region of origin; Health - Built the world's first public health open source genomics platform in 2012 to standardize infectious disease outbreak investigations (e.g. tuberculosis, gonorrhea). It is now deployed in Federal and Provincial public health laboratories, as well as in several countries internationally (e.g. United States, Switzerland, Singapore, South Africa, Italy); Environment - Developed molecular screening methods (e.g. Avian EcoTox Chip PCR tool) in 2015 to determine and predict the effects of industrial chemicals and complex mixtures on wild avian species. This work is contributing to the efforts of the Organization for Economic Cooperation and Development (OECD) to advance novel molecular techniques for regulatory applications.
Lessons learned	GRDI was renewed in February 2019 with ongoing funding of $19,900,000 beginning April 2019. Due to a TBS reclassification of GRDI as a "non-horizontal initiative", the NRC will no longer report on individual research activities and outcomes by participating departments and will only report on shared indicators and outcomes, as outlined in the 2019-20 Departmental Plan. Due to its relevance, historic integration and horizontal reporting, and the number of federal partners involved, GRDI will be integrated into the NRC's Program Inventory and reported on as a separate program, beginning in 2020-21.
Contact information	Roman Szumski Vice-President, Life Sciences National Research Council Canada (613) 993-9244

Performance information

Federal departments	Link to the department's Program Inventory	Horizontal initiative activities	Total federal allocation (from start to end date) (dollars)	2018–19 Planned spending (dollars)	2018–19 Actual spending (dollars)	2018–19 Expected results	2018–19 Performance indicators	2018–19 Targets*	Date to achieve target	2018–19 Actual results
AAFC	Science, Innovation, Adoption and Sustainability	Canadian Crop Genomics Initiative (CCGI)	108,500,000	4,440,000	4,440,000	ER1	PI1	T1	03/2019	AR1
CFIA	Food Safety Program, Animal Health and Zoonotics Program, Plant Resources Program	GRDI	3,600,000	720,000	720,000	ER2	PI2.1 PI2.2	T2.1 T2.2	03/2019	AR2.1 AR2.2
DFO	Biotechnology and Genomics	National Aquatic Biotechnology and Genomics R&D Strategy	16,495,000	720,000	720,000	ER3	PI3	T3	03/2019	AR3
ECCC	Climate Change and Clean Air	Strategic Technology Applications of Genomics in the Environment (STAGE)	18,550,000	800,000	800,000	ER4	PI4	T4	03/2019	AR4
HC	Canadian Health System Policy / Health System Priorities	GRDI	53,123,617	105,905	122,312	ER5	PI5	T5	03/2019	AR5
	Health Products / Biologics & Radiopharmaceuticals	GRDI	2,136,042	776,930	752,416					
	Food Safety and Nutrition / Food Safety	GRDI	930,461	122,619	120,185					
	Environmental Risks to Health / Health Impacts of Chemicals	GRDI	2,909,880	594,546	583,027					
NRC	Aquatic and Crop Resource Development / Human Health Therapeutics	GRDI	108,500,000	4,440,000	4,440,000	ER6 ER7	PI6 PI7.1 PI7.2	T6 T7.1 T7.2	03/2019	AR6 AR7.1 AR7.2
		Shared Priorities	28,855,000	3,980,000	3,980,000	ER8	PI8	T8		AR8

						ER	PI	T		AR
NRCan	Innovation for New Products and Processes	GRDI	36,100,000	1,600,000	1,600,000	ER9	PI9	T9	03/2019	AR9
PHAC	Public Health Infrastructure	GRDI	13,100,000	1,600,000	1,600,000	ER10	PI0.1 PI0.2	T10.1 T10.2	03/2019	AR10.1 AR10.2
CIHR	Not applicable	Not applicable	500,000	0	0	N/A	N/A	N/A	N/A	
Total	Not applicable	Not applicable	393,300,000	19,900,000	19,877,940					

Variance explanation: $22,060 lapsing at HC due to cancelled travel, overcommitted expenditures and inability to contract work.

AAFC

ER1: Using genomics to improve the value of Canadian crops and agri-products

PI1: Number of scientific outputs generated in the form of scientific papers

T1: 30

AR1: 51

CFIA

ER2: Using genomics for food safety, animal health and plant protection

PI2.1: Number of standard operating procedures/tools developed and/or transferred to end users to support risk management strategies

PI2.2: Number of scientific outputs generated in the form of publications, presentations and contributions to databases to support evidence-based regulatory, policy or resource management decisions

T2.1: More standard operating procedures/tools developed and/or transferred to end-users than reported in 2017-18.

T2.2: More scientific outputs generated than in 2017-18

AR2.1: 56

AR2.2: 115

DFO

ER3: Genomics knowledge and advice for the management of fisheries and oceans

PI3: Percentage of GRDI projects that provided genomics knowledge and advice to decision makers

T3: 80%

AR3: 100%

ECCC

ER4: Genomics-based tools and technologies for responsible decision-making

PI4: The percentage of GRDI projects that demonstrate knowledge transfer of genomics-based tools and technologies to end users or decision-makers

T4: 70%

AR4: 85%

HC

ER5: Genomic knowledge for the Canadian health regulatory system

PI5: Percentage of targeted knowledge transfer activities accomplished related to genomic research (e.g., client meetings, poster/conference presentations, and peer-reviewed publications)

T5: 100%

AR5: 100%

NRC

ER6: Using genomics to significantly increase Canada's share of global wheat production

PI6: Number of scientific outputs generated in the form of scientific papers

T6: 17

AR6: 19

ER7: Commercially-relevant advances in genomics R&D related to human health

PI7.1: New Intellectual Property assets: number of invention reports

PI7.2: Enabling technologies transferred to industry: number of new licences

T7.1: 5

T7.2: 10

AR7.1: 15

AR7.2: 16

ER8: Concerted interdepartmental research along shared priorities and common goals on issues that are beyond the mandates of single departments

PI8: Percentage of projects disseminating results to identified end users

T8: 100%

AR8: 100%

NRCan

ER9: Genomic knowledge for forest generation and protection

PI9: Number of new products and processes resulting from NRCan information

T9: 5

AR9: 13

PHAC

ER10: Genomics knowledge to strengthen public health programs and activities related to infectious and chronic disease

PI10.1: Percent of clients indicating overall satisfaction with laboratory reference services as "satisfied" or "very satisfied"

PI10.2: Number of citations to agency laboratory research publication to demonstrate knowledge transfer uptake

T10.1: 90%

T10.2: 1800

AR10.1: 98%

AR10.2: 568

Response to parliamentary committees and external audits

Response to parliamentary committees

Appearances before Standing Senate and House of Commons Committees in 2018-19:

- Standing Senate Committee on Banking, Trade and Commerce (BANC) – November 21, 2018, Bill C-86 Budget Implementation Act #2 (Amendments to the *National Research Council Act*).
- Standing Committee on Finance (FINA), November 5 & 20, 2018, Bill C-86 Budget Implementation Act #2 (Amendments to the *National Research Council Act*).
- Standing Committee on Natural Resources (RNNR) – October 30, 2018, Economic Opportunities for Energy Efficiencies in Canada.
- Standing Senate Committee on National Finance (NFFN)– October 17, 2018 - Main Estimates 2017-18
- Standing Committee on Government Operations and Estimates (OGGO)– June 11, 2018 - Main Estimates 2017-18
- Standing Committee on Natural Resources (RNNR) – March 20, 2018, Bill C-354 - An Act to amend the *Department of Public Works and Government Services Act* (use of wood in buildings).
- Standing Committee on Natural Resources (RNNR) – February 6, 2018, Secondary Supply Chain Products in the Forestry Sector in Canada.
- Standing Committee on Environment and Sustainable Development (ENVI) – February 6, 2018, Low Carbon Economy and Reduced Greenhouse Gas Emissions.

Responses to Parliamentary Committee Reports:

Report of the Standing Committee on Environment and Sustainable Development (ENVI):

Better Buildings for a Low-Carbon Future. The Committee conducted its study of the built environment to determine how the federal government can help to further accelerate the transition to more energy-efficient buildings that emit fewer greenhouse gases. Tabled in the House of Commons on October 15, 2018.

The NRC was requested to provide input related to National Building Codes and our work with the Canadian Commission on Building and Fire Codes in response to nine of the twenty-one recommendations in the report.

https://www.ourcommons.ca/DocumentViewer/en/42-1/ENVI/report-17/response-8512-421-429

Report of the Standing Committee on Human Resources, Skills and Social Development and the Status of Persons with Disabilities (HUMA): *Advancing Inclusion and Quality of Life for Seniors* tabled in the House of Commons on March 29, 2018.

This report will inform future government policy, programs, and service delivery decisions so that they help advance the social and economic inclusion of seniors.

https://www.ourcommons.ca/DocumentViewer/en/42-1/HUMA/report-8/response-8512-421-370

The NRC was requested to provide input related to National Building Codes and our work with the Canadian Commission on Building and Fire Codes in response to two specific recommendations in the report.

Response to audits conducted by the Auditor General (including to the Commissioner of the Environment and Sustainable Development)

There were no audits in 2018–19 requiring a response.

Response to audits conducted by the Public Service Commission of Canada or the Office of the Commissioner of Official Languages

There were no audits in 2018–19 requiring a response.