National Research Council Canada

2016–17

Departmental Results Report

Supplementary Information Tables

This supporting document will be published only on NRC's website in HTML format.

Departmental Sustainable Development Strategy

1. Overview of the federal government's approach to sustainable development

The 2013–16 Federal Sustainable Development Strategy (FSDS) presents the Government of Canada's sustainable development activities, 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, NRC supports the implementation of the FSDS through the activities described in this supplementary information table.

2. Our Departmental Sustainable Development Strategy

This Departmental Sustainable Development Strategy describes NRC's actions in support of Theme IV: shrinking the environmental footprint, beginning with government. The report for 2016–17 presents a high level overview of results and is the final report under the 2013–16 FSDS. Last year's report is available on NRC's website <hyperlink>.

3. Departmental performance highlights

Theme IV: shrinking the environmental footprint, beginning with government

Under this Theme, NRC contributed to the 2013–16 FSDS through an implementation strategy for Goal 7 that addresses waste and asset management.

FSDS goal	FSDS target	FSDS performance indicator	FSDS performance results
Goal 7: waste and asset management Reduce waste generated, and minimize the environmental impacts of assets throughout their life cycle.	Target 7.2: green procurement As of April 1, 2014, the Government of Canada will continue to take action to embed environmental considerations into public procurement, in	Departmental approach to further the implementation of the Policy on Green Procurement in place	Yes. This is a continuous process that evolves based on new strategies and product changes that have environmental considerations. For example, maintenance and janitorial contracts call for suppliers to use materials having high recyclable content, and that produce fewer pollutants and consume less resources during fabrication and use.

	accordance with the federal Policy on Green Procurement.	Number and percentage of specialists in procurement and/or material management who have completed the Canada School of Public Service Procurement course (CSPC) or equivalent, in the given fiscal year.	(100%). Twenty-two procurement officers have completed the CSPC course C-215, and NRC is committed to ensuring that future new hires do so as well.
		Number and percentage of managers and functional heads of procurement and materiel whose performance evaluation includes support and contribution toward green procurement, in the given fiscal year	(100%). Each of six manager/supervisor performance evaluations contains a commitment to "manage daily procurement/materiel management activity in accordance with NRC, TB and PSPC Policies and Regulations in effect." Included in this suite of information is the TB policy on Green Procurement.

Implementation strategies: performance summary

NRC remains on-track and fully committed to its strategies for green procurement, now fully entrenched in NRC's procurement process. This includes making full use of Public Works and Government Services Canada (PWGSC) procurement tools that support provision of energy efficient criteria, maintaining an efficient fleet of "right-sized" vehicles, and giving priority to environmentally-responsible products, equipment and processes.

4. Report on Strategic Environmental Assessment

During the 2016–17 reporting cycle, NRC considered the environmental effects of initiatives subject to the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals, as part of its decision-making processes. Through the Strategic Environmental Assessment process, NRC proposals were found to have positive effects on progress toward the 2013–16 FSDS goals and targets in Theme I: addressing climate change and air quality.

Additional information on the results of the Strategic Environmental Assessments is available from http://www.ic.gc.ca/eic/site/sea-ees.nsf/eng/ey00016.html.

Details on transfer payment programs of $5 million or more

International Astronomical Observatories Program

General information

Name of transfer payment program	International Astronomical Observatories Program (voted)
Start date	1978
End date	Ongoing
Type of transfer payment	Contribution
Type of appropriation	Estimates
Fiscal year for terms and conditions	2014-15
Strategic Outcome	SO 2. R&D Infrastructure for an innovative and knowledge-based economy
Link to department's Program Alignment Architecture	Sub-Program 2.1.1: National Science Infrastructure

Description	Astronomy has become 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. 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). NRC participates in the oversight and direction of these facilities and their research capabilities. 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 Metre Telescope (TMT). 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. 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 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	• In 2016, the Canadian Astronomy Data Centre (CADC) delivered 99.8 million individual files, comprising 1,470 Terabytes of data to roughly 9000 professional astronomers. The number of registered users (not all of whom downloaded data) increased to 7600 in 2016. • 282 users accessed Canada's share of three international optical telescopes. Gemini and CFHT both either implemented or extended a large program initiative which awards large amounts of time to a small number of users. These changes resulted in a decrease in the number of distinct users of these facilities from past year. • 29% of astronomers requesting time from CFHT and Gemini were student researchers, highlighting the continuing demand for access to these telescopes by qualified student researchers. • 380 scientific papers were published by users based on data obtained using CFHT and Gemini. 231scientific papers were published based on data obtained using ALMA. • Demand by astronomers for telescope access continued to be high as demonstrated by high subscription rates for Canada's international telescopes (CFHT: 2.40; Gemini: 1.90, and Alma: 5.9). The subscription rate measures the demand for merit-based access to a telescope and is viewed by the astronomy community as a reliable indicator of the relevance of the observatory and of its instrumentation. A subscription rate greater than one indicates that there is more demand for telescope access than time available. • $3.9M in service contracts with industry partners in support of astronomy technology R&D activities.
Comments on variances	The significant variance of $47,988,693 between the planned spending of $68,980,397 and actual spending of $20,991,704 is primarily due to project delays associated with Canada’s participation in the Thirty Meter Telescope that are outside of NRC’s control. As a result, NRC has reprofiled $46,580,291 of its 2016-17 funding related with Canada’s contribution to the Thirty Meter Telescope to 2017-18.
Audits completed or planned	Based on level of risk, no audits were planned. Audit activity will be assessed again as part of the next fiscal year risk-based audit plan.
Evaluations completed or planned	An evaluation was completed as part of the National Science Infrastructure sub-program evaluation in November 2016.
Engagement of applicants and recipients	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. NRC participates on the Boards that oversee the observatories to ensure that the science directions and programs of the facilities reflect Canadian strengths and interests. In addition, 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, NRC provides current information about each observatory to research community-based committees of scientists, which provide expert advice on observatory operations and development. 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	2014–15 Actual spending	2015–16 Actual spending	2016–17 Planned spending	2016–17 Total authorities available for use	2016–17 Actual spending (authorities used)	Variance (2016–17 actual minus 2016–17 planned)
Total grants	0	0	0	0	0	0
Total contributions	12,154,179	15,406,533	68,980,397	71,844,579	20,991,704	-47,988,693
Total other types of transfer payments	0	0	0	0	0	0
Total program	12,154,179	15,406,533	68,980,397	71,844,579	20,991,704	-47,988,693

TRIUMF

General information

Name of transfer payment program	TRIUMF(voted)
Start date	1977
End date	Ongoing
Type of transfer payment	Contribution
Type of appropriation	Estimates
Fiscal year for terms and conditions	2014-15
Strategic Outcome	SO 2: R&D Infrastructure for an innovative and knowledge-based economy
Link to department's Program Alignment Architecture	Sub-Program 2.1: Science Infrastructure and Measurement
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 19 Canadian universities (12 full members and 7 associate members) owns and operates TRIUMF. TRIUMF receives its federal funding through NRC in five-year allocations via a Contribution Agreement. 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	**Expected Result: Produce world-class science across TRIUMF's core programs and advance the Advanced Rare IsotopE Laboratory (ARIEL) facility.** • ARIEL, TRIUMF's flagship multidisciplinary research facility, received confirmation of funding for its second phase of construction with support from the Canada Foundation for Innovation, 19 TRIUMF member universities, and a total of five provincial governments. Once complete, ARIEL will allow for multiple experiments with potential applications for science, medicine and business. • The ATLAS experiment at CERN (the European Organization for Nuclear Research) attempts to answer questions on the basic building blocks and forces of nature. In 2016, ATLAS data volume increased significantly (more than all previous years combined). This has given researchers unprecedented ability to perform precise measurements on known particles, while also enabling new research. TRIUMF's Tier-1 data centre – the only one of its type in Canada – is home to approximately one-tenth of all global ATLAS data accessed by researchers worldwide. • In 2016, TRIUMF contributed to the publication of 329 manuscripts in scientific journals, providing new knowledge for the understanding of the universe. • At TRIUMF's Isotope Separator and Accelerator (ISAC) facility, the powerful TIGRESS detector system was used towards further understanding the forces that bind atoms together and their role in our universe. The world-leading result of this work was published in Physical Review Letters. • The Tokai to Kamioka (T2K) experiment, an international collaboration involving 400 physicists from 59 institutions in 11 countries, continued to produce excellent results leading to three publications in Physical Review Letters which provide new insights beyond the Standard Model of physics; i.e., the theory that explains what the world is made of and what holds it together • Working with CERN, TRIUMF participated in two studies to understand fundamental properties of calcium. These studies, with implications for our understanding of neutron stars, were published in the prestigious journal Nature Physics.
	Expected Result: Continue to attract and retain global talent, expand international research collaborations, and maintain Canadian access to international research facilities. • TRIUMF led an international team in making the very first laser spectroscopy measurements of Hydrogen anti-matter. Published in a leading journal "Nature", this ground-breaking research represents a major step towards understanding the origins of the universe. • TRIUMF hosted 645 scientific visitors, students, and users (of which 440 came from international institutions). • TRIUMF trained 219 highly qualified personnel, including undergraduate and graduate students, and post-doctoral researchers.

	Expected Result: Grow TRIUMF's industry and community linkages with the objective of increasing the economic and societal benefit delivered to Canada. • A TRIUMF-led research team successfully completed a clinical trial of cyclotron-produced technetium-99m, the world's most highly-used medical isotope – used in over 76,000 imaging procedures per day. Based on these results, TRIUMF began preparing a New Drug Submission application to secure full regulatory approval for this technology in Canada. • The TRIUMF Proton Therapy Facility, a collaboration with the BC Cancer Agency and Canada's only such centre, successfully treated 11 patients with cancer of the eye in 2016. This treatment provided an alternative to common surgical options, allowing vision to be preserved in most cases. • Advanced Applied Physics Solutions (AAPS), TRIUMF's commercialization arm, hired a new President and CEO and was relaunched as TRIUMF Innovations (https://www.triumfinnovations.ca/) to enhance the ultimate economic impact of TRIUMF research and discoveries.
	Expected Result: Strengthen operational efficiency by updating project management procedures, refreshing safety processes, and revising staffing requirements as required to strengthen the laboratory's core programs. • TRIUMF embarked on a cycle of continuous improvement in the area of safety for operations, and received positive evaluations from CNSC (Canadian Nuclear Safety Commission) concerning safety culture. • TRIUMF enhanced its recruitment efforts to restore technical staffing levels, with some success in promoting diversity (36% female candidates among the most recent 44 staff hires).
Comments on variances	No variances
Audits completed or planned	Based on level of risk, no audits were planned. Audit activity will be assessed again as part of the next fiscal year risk-based audit plan.
Evaluations completed or planned	An evaluation of NRC's contribution to TRIUMF was completed in 2013-14. The next evaluation is scheduled for 2017-18.

Engagement of applicants and recipients	NRC provides stewardship to TRIUMF, administering operational funding to the facility and monitoring all matters pertaining to the contribution agreement with the facility. Oversight of TRIUMF operations is provided by the Advisory Committee on TRIUMF (ACOT) which reports to NRC and the Agency Committee on TRIUMF (ACT), comprised of the federal funders of TRIUMF. The Advisory Committee on TRIUMF (ACOT) is composed of international experts within disciplines that cover the research and technology activities of TRIUMF. ACOT reports its findings to NRC twice annually, making recommendations on management issues as well as reporting on the scientific and technological achievements of TRIUMF. Representatives of the National Sciences and Engineering Research Council of Canada (NSERC), the Canadian Institute of Nuclear Physics and the Canadian Institute of Particle Physics are observer members who ensure that TRIUMF's directions are aligned with the research community's needs and that TRIUMF is working with all constituencies of the Canadian sub-atomic physics community. NRC maintains an ex officio presence on TRIUMF's Board of Management and on TRIUMF's Audit Committee. Dialogue is maintained between NRC and the recipient to ensure that investments made by the Government of Canada are optimal, and that NRC meets the needs of its recipient as well as providing a vehicle for feedback on the transfer payment management process. As a magnet for young minds, TRIUMF has designed numerous programs aimed at young people, students, teachers and the general public, to ensure that as many as possible benefit from the scientific program and the excitement that exists within one of Canada's premier laboratories.

Further information is available from the TRIUMF website at www.TRIUMF.ca .

Performance information (dollars)

Type of transfer payment	2014–15 Actual spending	2015–16 Actual spending	2016–17 Planned spending	2016–17 Total authorities available for use	2016–17 Actual spending (authorities used)	Variance (2016–17 actual minus 2016–17 planned)
Total grants	0	0	0	0	0	0
Total contributions	45,000,000	50,832,000	53,672,000	53,672,000	53,672,000	0
Total other types of transfer payments	0	0	0	0	0	0
Total program	45,000,000	50,832,000	53,672,000	53,672,000	53,672,000	0

Industrial Research Assistance Program (IRAP)

General information

Name of transfer payment program	Industrial Research Assistance Program (voted)
Start date	1965
End date	Ongoing
Type of transfer payment	Contribution
Type of appropriation	Estimates
Fiscal year for terms and conditions	2012-13
Strategic Outcome	SO1: Canadian businesses prosper from innovative technologies
Link to department's Program Alignment Architecture	Program 1.2: Industrial Research Assistance Program
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 uses funding from the following transfer payments: Contributions to Firms; Contributions to Organizations; Youth Employment Program (YEP); and Canadian HIV Technology Development Program (CHTD). Through its CHTD component, NRC IRAP supports SMEs that participate in the development of an HIV vaccine and other technologies related to the prevention, treatment and diagnosis of HIV. As well, NRC IRAP supports the placement of graduates in SMEs through its participation in the delivery of YEP and YEP Green sponsored by Employment and Social Development Canada's Youth Employment Strategy (YES). NRC IRAP's Concierge Service provides a single access point where Canadian SMEs, seeking to innovate, can find information on funding, expertise, facilities and equipment to help grow through innovation. This initiative is delivered by NRC IRAP and supported by partner organizations across the country. The program does not currently administer repayable contributions.

Results achieved	In 2016 17, IRAP served 2,555 unique SMEs through direct financial contributions, with 12,216 jobs supported including 1,357 youth jobs. The Concierge Service continued to grow and assisted 4,700 clients through in-person services. For more information, see Program 1.2 Industrial Research Assistance Program in NRC's 2016 17 Departmental Results Report.
Comments on variances	The variance between the Planned Spending and the Actual Spending of $65,908,833 is a result of increases by $50,000,000 for IRAP contributions and $10,000,000 for Youth Green contributions announced in Budget 2016-17, a $10,000,000 transfer from Ops to G&C, a decrease by $1,370,000 to transfer funding from IRAP to Canada Accelerator and Incubator Program (CAIP).
Audits completed or planned	An audit of Sonar – IRAP's client relationship management system was commenced in 2016-17, with results expected in 2017-18.
Evaluations completed or planned	An evaluation of IRAP was commenced in 2016-17, with results expected in 2017-18.
Engagement of applicants and recipients	NRC IRAP is a national program managed on a regional basis with over 240 Industrial Technology Advisors (ITAs) located in approximately 100 communities 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	2014–15 Actual spending	2015–16 Actual spending	2016–17 Planned spending	2016–17 Total authorities available for use	2016–17 Actual spending (authorities used)	Variance (2016–17 actual minus 2016–17 planned)
Total grants	0	0	0	0	0	0
Total contributions	191,099,937	205,299,766	177,014,000	245,644,000	242,922,833	65,908,833
Total other types of transfer payments	0	0	0	0	0	0
Total program	191,099,937	205,299,766	177,014,000	245,644,000	242,922,833	65,908,833

Canada Accelerator and Incubator Program (CAIP)

General information

Name of transfer payment program	Canada Accelerator and Incubator Program (CAIP)
Start date	2013-10-01
End date	2019-03-31
Type of transfer payment	Contribution
Type of appropriation	Estimates
Fiscal year for terms and conditions	2013-14
Strategic Outcome	SO1: Canadian businesses prosper from innovative technologies
Link to department's Program Alignment Architecture	Program 1.2: Industrial Research Assistance Program
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.
Results achieved	In 2016 17 the CAIP continued to provide funding to 16 organizations. Continued development of collaborative linkages, among the supported organization and other key players of the incubator/accelerator ecosystem. By virtue of the program, early stage firms are being provided with increased access to innovation support services, including services aimed at improving their investment readiness. For more information, see Program 1.2 Industrial Research Assistance Program in NRC's 2016 17 Departmental Results Report.
Comments on variances	The variance between the Planned Spending and the Actual Spending is a $104,138 lapsed funds.
Audits completed or planned	Five CAIP Contribution Agreements were audited in 2016-17 as part of the financial audit of recipients. The balance will be audited in 2017-18.
Evaluations completed or planned	A mid-term evaluation of the program was completed in 2016-17 and a final evaluation is scheduled to be completed in 2018 19.

Engagement of applicants and recipients	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	2014–15 Actual spending	2015–16 Actual spending	2016–17 Planned spending	2016–17 Total authorities available for use	2016–17 Actual spending (authorities used)	Variance (2016–17 actual minus 2016–17 planned)
Total grants	0	0	0	0	0	0
Total contributions	10,623,035	18,198,272	24,445,885	25,815,885	24,341,747	(104,138)
Total other types of transfer payments	0	0	0	0	0	0
Total program	10,623,035	18,198,272	24,445,885	25,815,885	24,341,747	(104,138)

Horizontal initiatives

General information

Name of horizontal initiative	Genomics R&D Initiative (GRDI)
Lead departments	National Research Council Canada (NRC)
Federal partner organizations	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
Total federal funding allocated (start to end date) (dollars)	393,300,000
Total federal planned spending to date (dollars)	354,000,000
Total federal actual spending to date (dollars)	352,106,267
Funding contributed by non-federal and non-governmental partners	Not applicable
Governance structures	An interdepartmental Assistant Deputy Minister (ADM) Coordinating Committee (CC) oversees collective management and coordination of GRDI. It is responsible for the overall strategic direction for the GRDI and approval of investment priorities. 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 Industry Canada. The WG provides recommendations and strategic advice to the ADM CC regarding strategic priority setting and overall management of the GRDI. A Coordination Function, housed at NRC, provides GRDI-wide program coordination, communication, networking and outreach support.
Contact information	Roman Szumski Vice-President, Life Sciences National Research Council Canada (613) 993-9244

Results information

Description of the horizontal initiative	GRDI supports genomics research inside federal government laboratories. It focuses on mandates and priorities of participating departments and agencies. Research 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. Since the implementation of the GRDI in 1999, participating departments and agencies have built a solid genomics research capacity and have gone a long way to deliver on the Initiative's stated objectives, as confirmed by three independent evaluations (2006, 2011, and 2016) and an audit by the Office of the Comptroller General (2012). Additional information may be found on the GRDI website.
Fiscal year of planned completion of next evaluation	2021-22
Shared outcome of federal partners	The GRDI Horizontal Performance Measurement Strategy was updated for Phase VI. The updated version covers fiscal years 2014-2015 to 2018-2019 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

Further information is available from the GRDI website at http://grdi-irdg.collaboration.gc.ca/eng/index.html

Planning information

Planning summary

All monetary values are expressed in dollars.

Federal organizations	Link to departmental Program Inventory	Contributing programs and activities	Link to department's Strategic Outcomes	Link to government priorities	Total allocation (from start to end date)	2016–17 Planned spending	2016–17 Actual spending	2016-17 Expected results	2016-17 Performance indicators	2016-17 Targets	2016–17 Actual results
AAFC	Science, Innovation, Adoption and Sustainability	Canadian Crop Genomics Initiative (CCGI)	An innovative and sustainable agriculture, agri-food and agri-based products sector	A Clean Environment and a Strong Economy	108,500,000	4,440,000	4,440,000	ER1	PI1	T1	AR1
								ER2		T2	AR2
CFIA	Food Safety Program, Animal Health and Zoonotics Program, Plant Resources Program	GRDI	A Safe and Accessible Food Supply and Plant and Animal Resource Base	As above	3,600,000	720,000	720,000	ER3	PI3.1 PI3.2	T3	AR3
DFO	Biotechnology and Genomics	National Aquatic Biotechnology and Genomics R&D Strategy	Economically Prosperous Maritime Sectors and Fisheries	As above	16,495,000	720,000	720,000	ER4	PI4	T4	AR4
ECCC	Climate Change and Clean Air	Strategic Technology Applications of Genomics in the Environment (STAGE)	Threats to Canadians and their environment from pollution are minimized	As above	18,550,000	800,000	740,107	ER5	PI5	T5	AR5
HC	Canadian Health System Policy Health System Priorities	GRDI	A health system responsive to the needs of Canadians	As above	53,123,617	105,904	149,755	ER6	PI6	T6	AR6
	Health Products Biologics & Radiopharmaceuticals	GRDI	Health risks and benefits associated with food, products, substances, and environmental factors are appropriately managed and communicated to Canadians	As above	2,136,042	437,925	416,456				
	Food Safety and Nutrition Food Safety	GRDI		As above	930,461	241,116	228,744				
	Environmental Risks to Health Health Impacts of Chemicals	GRDI		As above	2,909,880	815,055	815,132				
NRC	Technology Development and Advancement	GRDI	Canadian businesses prosper from innovative technologies	As above	108,500,000	4,440,000	4,440,000	ER1	PI1	T1	AR1
								ER7	PI7.1 PI7.2	T7	AR7
		Shared Priorities	Multiple Strategic Outcomes across departments	As above	28,855,000	3,980,000	3,980,000	ER8	PI7.1 PI7.2	T8	AR8
NRCan	Innovation for New Products and Processes	GRDI	Canada's Natural Resource Sectors are Globally Competitive	As above	36,100,000	1,600,000	1,600,000	ER9	PI9.1 PI9.2	T9	AR9
PHAC	Public Health Infrastructure	GRDI	Protecting Canadians and empowering them to improve their health	As above	13,100,000	1,600,000	1,600,000	ER10	PI10.1	T10.1	AR10
									PI10.2	T10.2	
CIHR	N/A	N/A	N/A	N/A	500,000	0	0	N/A	N/A	N/A	N/A
Total for all federal organizations					393,300,000	19,900,000	19,850,194				

AAFC and NRC

ER1: Using genomics to significantly increase Canada's share of global wheat production.

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

T1: 45 scientific papers through NRC support of the Canadian Wheat Improvement Program in the areas of tolerance to disease and abiotic stress, genomics-assisted breeding, and seed development.

AR1: 46 key scientific contributions were produced. This program has developed strong expertise in genomics and developmental aspects relevant to performance and yield in wheat. Highlights of 2016-2017 scientific outputs include resources for genomics assisted breeding such as genomic sequences and annotation, large collections of genetic markers, high-throughput genotyping and new populations; 45 genetic markers of resistance and 35 new lines of wheat showing increased fusarium head blight or rust resistance; hundreds of novel gene and metabolite targets for future marker development; a framework map of markers associated with physiological traits impacting drought tolerance, including root traits, photosynthesis and a number of yield-contributing traits; a standardized whole phenology platform to identify superior lines with better root system and greater photosynthetic efficiency; a comprehensive gene expression atlas for grain development; and new wheat lines with more tillers, high vegetative biomass, upright leaf architecture, high photosynthetic efficiency and several desirable spike traits that provide a unique resource for wheat improvement breeding programs.

AAFC

ER2: Using genomics to improve the value of Canadian crops and agri-products.

T2: GRDI investments at AAFC will focus on the priorities outlined in the Canadian Crop Genomics Initiative, and will be leveraged to enable industry to take advantage of new innovative opportunities. Activities will fall under three broad themes: 1) Biodiversity, gene mining and functional analysis: to develop value-added traits (e.g. seed quality) for the highly competitive marketplace, enhancing the resiliency of Canada's crop production in the face of potentially catastrophic abiotic and biotic stresses and to maximize profitability for the sector. 2) Bioinformatics and physical tools: ensuring that scientists can maximize the opportunities presented by genomics-based research (e.g. identification and characterization of genes coding for desirable traits related to seed quality or disease resistance). 3) Improved access to biological materials and data sets: to enhance the efficiency of plant breeding to lay the scientific foundation for major advances in the development and delivery of priority traits identified by industry (e.g. disease resistance).

AR2: Scientists at AAFC used the latest genomic tools and worked at increasing Canadian crops productivity with activities such as developing value-added traits, maximizing opportunities offered by genomics research, and enhancing the efficiency of plant breeding. For example, AAFC's research team and collaborators have developed new genomics technologies for use in oat that will allow more rapid discovery of useful genetic resources and application of these resources in the genetic improvement of oat. To increase Canadian crops resiliency to biotic stresses, AAFC's scientists have done genome-wide mining and mapping of disease resistance genes which will lead to novel strategies to enhance wheat disease resistance breeding.

CFIA

ER3: Using genomics for food safety, animal health and plant protection

PI3.1: Number of standard operating procedures/tools developed and/or transferred to end users to support risk management strategies

T3: GRDI funds applied to increase the genomics capability within CFIA to support on-site diagnostic tools and surveillance capabilities.

PI3.2: 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.

AR3: During 2016-17, the CFIA developed 11 new research tools and processes and transferred 13 Standard Operating Procedures to end users. During the same period, CFIA developed 78 scientific outputs in the form of publications, presentations and contributions to databases.

Genomics research funded by the GRDI has increased the genomics capability and capacity within the CFIA to support on-site diagnostic tools development and surveillance capabilities. Research projects resulted in the new tools and knowledge to support risk management of zoonotic disease and reportable and emerging animal diseases; formation of whole genome sequencing databases for food-borne pathogens, detection and identification of plant pests. The ongoing development of infrastructure and bioinformatics networks, tools and capacity at CFIA have supported the use of genomics evidence in CFIA's Food, Plant and Animal Business Lines.

DFO

ER4: Genomics knowledge and advice for the management of fisheries and oceans

PI4: Percentage of GRDI projects that provided genomics knowledge and advice to decision makers

T4: Genomics-enabled research within DFO will continue to be aligned within the following themes: 1) Protecting fish species and enabling sustainable harvesting: to develop and apply leading-edge genomics tools to accurately identify species, farmed/wild interactions, populations and stocks for fisheries management and the conservation of vulnerable stocks, species at risk and aquatic biodiversity. 2) Safeguarding Canadian fish and seafood products: to develop innovative genomics techniques to detect, monitor and minimize the impact of pathogens (e.g. Infectious Salmon Anemia virus) in order to safeguard the health of Canada's aquatic resources and our export markets for fish and seafood products. 3) Maintaining healthy and productive aquatic ecosystems: to develop and apply new genomics tools to monitor, mitigate and restore aquatic ecosystems.

AR4: 89%. In 2016-2017 nine projects at DFO were either funded by GRDI or continued to produce advice from previous funding. Of these, 8 (i.e., 89%) delivered genomics knowledge or advice in the 2016-2017 fiscal year in the form of published scientific papers, invited conference presentations, science advice to management or stakeholders. The final project is currently in protocol development and validation, and is expected to deliver genomics knowledge and advice in the coming fiscal year(s). Genomics research supported fisheries management and the protection of fish and seafood products through the development and application of tools and techniques. These instruments enabled Fisheries and Oceans to study the genetic population structure of aquatic species, and the functional genomics underlying interactions between those aquatic species and their environment; to better understand fisheries stock structure and health, and inform fisheries management; to detect, monitor and minimize the impact of pathogens and stressors of aquatic animals, and apply this information to assess and improve the health of aquatic animals; to develop and apply genomics tools that enable assessment, mitigation and restoration of aquatic ecosystems.

ECCC

ER5: Genomics-based tools and technologies for responsible decision-making

PI5: Increased awareness and understanding of the five Strategic Technology Applications of Genomics in the Environment (STAGE) research priorities.

T5: ECCC will continue to deliver its GRDI funding under the STAGE program, in the following areas: 1) Chemical and biological risk assessment: to establish toxicology end points for microorganisms, chemicals of concern, and emerging stressor; and to predict the mode of action of chemicals of concern and their effects on organisms; 2) Wildlife conservation: to understand how genes are interacting in flora and fauna in response to environmental conditions and to track disease in wildlife; 3) Environmental monitoring: to develop indicators (e.g., gene expression profiles for key species) of ecosystem health in priority ecosystems (e.g., Great Lakes and St. Lawrence) and to track pathogen sources; and 4) Compliance and Enforcement: to analyze flora and fauna for individual species identification, parentage determination and ascertaining geographic origin. This work will enable the delivery of EC's obligation under the Fisheries Act and the Canadian Environmental Protection Act, and programs including the Chemicals Management Plan.

AR5: Genomics research increased ECCC's awareness related to the following three priorities:

1) Risk assessment of chemicals: determine and predict the effects of industrial chemicals of high priority for environmental risk assessments;

2) Management of wildlife and migratory birds: monitor populations of wildlife exposed to stressors in areas of concern such as the Hamilton Harbour and St. Lawrence River;

3) Monitoring of Canada's ecosystems: predict cumulative impacts on ecosystem health from multiple stressors interacting over time. Research also focused on developing DNA fingerprints for key species of wildlife in Canada in support of conservation management and the Species at Risk Act.

HC

ER6: Genomic knowledge for the Canadian health regulatory system

PI6: Percentage of targeted knowledge transfer activities accomplished related to genomic research (e.g., client meetings, poster/conference presentations, and peer-reviewed publications)

T6: During the course of 2016-17, HC set its target at 100% and that genomics research would continue to focus on four priority investment areas to strengthen HC's regulatory role: 1) Supporting regulatory knowledge on therapeutics and biologics: to inform and support regulatory decisions throughout the biotherapeutic product life-cycle. Specifically, HC will continue with research projects on vaccines and emerging stem cell based projects. During the 2016-17 fiscal year, HC stem cell research will identify molecules that can be used to monitor the safety and effectiveness of mesenchymal stem cell based products. In addition, vaccine research projects will be developing a list of immune cell markers that can be used to improve current methods for monitoring the efficacy of Respiratory Syncytial Virus vaccines. 2) Supporting regulatory knowledge on food safety and nutrition: enabling detection and characterization of food-borne micro-organisms; characterization of health effects of food contaminants, allergens, nutrients, novel foods/food ingredients, and pre- and pro-biotics; and development of markers of health status and disease (e.g. cancer, diabetes, obesity, allergies and cardiovascular disease) in the context of nutrition, micro-organisms, allergens and food contaminant exposure. 3) Protecting human health from potential adverse effects of environmental contaminants, radiation, consumer products and pesticides. 4) Research on socio-ethical impacts of genomics technologies, outputs and products: approaches for responsible integration of genomics for societal benefit, taking into account ethical, legal and socio-economic considerations.

AR6: HC met its new 100% target in terms of accomplishing knowledge transfer activities relating to genomics research. Out of a total of 7 research projects, a total of 21 presentations, 5 publications, and 3 peer reviewed papers were produced nationally and internationally in terms of the regulation of emerging stem cell-based projects, vaccines, and food pathogens and nutrition. Genomics research supported knowledge development for the assessment and regulation of therapeutics and biologics, food safety and nutrition, environmental contaminants and consumer products. HC stem cell research identified molecules that can be used to monitor the safety and effectiveness of mesenchymal stem cell based products. Vaccine research developed a list of immune cell markers that can be used to improve current methods for monitoring the efficacy of Respiratory Syncytial Virus vaccines. Food nutrition research continued to analyze the association between physiological outcomes and bacterial community changes in animal studies using supplementation with fructooligosaccharides and galactooligosaccharides, and will assist in determining the impacts of fermentable carbohydrates on developing infants. For environmental contaminants, further biological characterization was carried out to better understand the health impact of carbon nanotubes. Whole genomes of mice demonstrated an increase in mutations in the offspring of males exposed to the environmental contaminant benzo(a)pyrene. HC continued to collaborate with the Health and Environmental Sciences Institute's Genomics Technical Committee to validate and qualify a genomic biomarker that identifies genome-damaging agents, and to demonstrate regulatory application.

Deficit of $10,087 is due to the IT services required to support and sustain High Performance Computing and Wide Area Network services for the GRDI's shared project and efficiencies achieved in lab supply purchases and staffing.

NRC

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

PI7.1: Technology deployment (client commitments to exploit NRC innovations)

T7: GRDI investments in NRC will be made in program areas that require genomics to help industry and government tackle strategic national priorities (e.g. strong economic growth, healthy Canadians, innovative and knowledge-based economy)

AR7: NRC built an extensive target discovery and antibody development pipeline, primarily for oncology indications, that are now widely used for internal research and for work with NRC clients and collaborators. Promising targets were identified based on their cancer-associated profiles. Hundreds of antibodies were then made against these targets and screened for specificity and function. NRC scientists adapted this pipeline to produce antibody-drug conjugates used in immunotherapy. The antibody components of these conjugates are being manufactured at NRC, creating a full development pipeline for therapeutic candidates.

PI7.2: Client/stakeholder feedback on benefits: jobs, sales, R&D

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

T8: Two new shared priority projects launched in 2016-2017.

AR8: Two new shared-priority projects were launched. 1) The Antimicrobial Resistance project is a collaborative effort by five departments and agencies (AAFC, CFIA, HC, NRC, and PHAC). A description of strain collections has been compiled and distributed to project participants. The project management systems are largely in place to coordinate the research and development activities of the extended bioinformatics team. Various aspects of the dynamics of AMR transmission from the food chain and into the human population were studied, setting the stage for significant work to be completed in later project stages. Over 1,500 human and non-human isolates have been sequenced to date. Isolates were isolated and sequenced from beef, poultry, and swine and their associated environment as part of a "One Health" approach to study the role of these species in antimicrobial resistance. 2) The shared priority project Metagenomics-Based Ecosystem Biomonitoring project is a collaborative effort by seven Federal departments and agencies (AAFC, CFIA, DFO, ECCC, NRC, NRCan and PHAC). A significant milestone was reached with the establishment of the Bioinformatics Platform that enables the coordination of metagenomics analyses across seven federal departments and agencies. Common methods were selected for collecting soil, water and invertebrate samples, and for nucleic acid extraction. A standardized approach was established for soil, water, and invertebrate metadata. Over 1500 soil, water, and invertebrate samples were collected across Canada for DNA sequencing and candidate genomic observatories were identified in collaboration with end-user groups. A centralized approach was also established for DNA sequencing. Bioinformatics training was provided to 70 project participants, including for the SeqDB genomic management system and other software tools.

NRCan

ER9: Genomic knowledge for forest generation and protection Genomic knowledge for forest generation and protection

PI9.1: Number of new products and processes resulting from NRCan information.

T9: The Canadian Forest Service of NRCan will focus on accelerating the translation of accumulated genomics knowledge into applications in support of Canada's forest sector competitiveness, including: 1) Forest generation: the development of innovative genomic applications will result in accelerated production of higher quality fibre, translating into economic and environmental benefits for Canada. 2) Forest protection: the development of innovative genomic diagnostic tools will enable rapid detection and management of invasive insects and diseases which threaten the health and ecological integrity of Canadian forests, the forest sector and forest communities.

PI9.2: R&D expenditures in natural resource sectors, specifically total intramural R&D expenditures in energy, mining and forest sectors

AR9: In 2016-17, through the GRDI, NRCan produced 31 research tools and processes based on genomic knowledge. Intramural R&D expenditures in natural resource sectors in support of GRDI projects totaled $5.5 million. Genomics research at NRCan focused on developing applications in support of Canada's forest sector competitiveness. The work helped identify genes controlling desirable attributes in economically important tree species. In 2016-17, researchers provided end-users with genomic selection models for productivity traits in Norway spruce. GRDI projects also led to increased knowledge of genomics-based pest diagnostics and mitigation. Researchers studied the factors influencing Emerald Ash Borer larval performance in various ash species to help identify stress responses and resistance mechanisms that can lead to mitigation solutions. The fungus-like pathogens known as Phytophthora are a phytosanitary concern for both Canada and our trading partners. Current diagnostic methods that detect Phytophthora species cannot differentiate whether a positive result comes from living or dead organisms. Building on the work started last year, a method was developed to detect living Phytophthora in both pure cultures and infected wood. An industrial-scale pilot project using genomics tools to better understand tree-soil microbiome interactions is on-going at oil sands reclamation sites in Fort McMurray. The work provides a picture of the above- and below-ground genetic diversity observed in sites under reclamation. Researchers at NRCan progressed in developing metagenomics tools that assess ecosystem integrity and the sustainability of forest management practices. In 2016-17, sequencing for a gene library of boreal forest soil invertebrates was completed.

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

T10.1: 90%

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

T10.2: 1800

AR10: Not available, however Genomics knowledge did strengthen public health programs and activities related to the prevention and control of infectious disease. To address the need for rapid identification and characterisation of infectious pathogens, PHAC continued to develop, validate and apply modern technologies (e.g., genomics, and mass spectroscopy) in combination with the advanced scientific computing tools required for their analysis. This work supported the need to advance the modernization and innovation of Canada's public health capacity through genomic scientific evidence and methodologies, and enabled more effective and timely response to disease outbreaks. GRDI supported the development of genomic-based technologies and methods to detect and track antimicrobial resistance, and promote appropriate antibiotic usage and effective infection control procedures. Together, these activities were designed to reduce the risk posed by antibiotic-resistant infections while supporting the management and treatment of infectious diseases, such as drug resistant human immunodeficiency virus (HIV), Clostridium difficile, Carbapenem resistant enteric bacteria, Neisseria gonorrhoeae, and Mycobacterium tuberculosis. Genomic epidemiology approaches also enhanced food safety by improving the definition of risk factors and transmission dynamics of food-borne pathogens.

Internal audits and evaluations

Internal audits completed in 2016–17

Title of internal audit	Internal audit type	Completion date
Audit of NRC Operational Security: Controlled Goods and International Traffic in Arms Regulations (ITAR)	Corporate Administrative Practices	June 2016
Audit of Occupational Safety and Health	Corporate Governance	March 2017 Publication of the audit report is in progress

Two additional audits are in progress with expected completion dates in 2017-18.

Evaluations in progress or completed in 2016–17

Title of evaluation	Status	Deputy head approval date	Link to department's programs
Evaluation of NRC Aquatic and Crop Resource Development	Complete	June 2016	Aquatic and Crop Resource Development Sub-program
Evaluation of NRC Ocean, Coastal and River Engineering	Complete	September 2016	Ocean, Coastal and River Engineering Sub-program
Midterm Evaluation of the Canadian Accelerator Incubator Program (CAIP)	Complete	October 2016	Canadian Accelerator Incubator Program (an IRAP initiative)
Evaluation of NRC's Initiative under the Roadmap for Canada's Official Languages	Complete	October 2016	Internal Services
Evaluation of NRC Herzberg Astronomy and Astrophysics	Complete	November 2016	National Science Infrastructure Sub-program
Evaluation of the Genomics R&D Initiative	Complete	March 2017	Genomics R&D Initiative (Horizontal Initiative)

Two additional audits are in progress with expected completion dates in 2017-18.

Response to parliamentary committees and external audits

Response to parliamentary committees

Response to parliamentary committees
NRC made five appearances before Parliamentary Committees in 2016-17: • June 1, 2016 House of Commons Standing Committee on Official Languages (LANG); Translation Bureau; Witnesses: François Cordeau and Joel David Martin. • June 2, 2016 House of Commons Standing Committee on Environment and Sustainable Development (ENVI); Reports of the Commissioner of the Environment and Sustainable Development - Spring 2016; Witness: Philip Rizcallah. • May 5, 2016 House of Commons Standing Committee on Industry, Science and Technology (INDU); Overview of the organizations under ISED; Witnesses: Maria Aubrey, Bogdan Ciobanu and Roman Szumski. • February 1, 2017 Senate Standing Committee on Social Affairs, Science and Technology (SOCI); Study on the role of robotics, 3D printing and artificial intelligence in the healthcare system; Witnesses: Roman Szumski and Robert Diraddo. • February 16, 2017 House of Commons Standing Committee on International Trade (CIIT); Briefing Session on the CanExport Program and Other Measures Being Pursued to Educate and Support Small and Medium Canadian Businesses Seeking to Take Advantage of Trade Agreements; Witness: David Lisk. Minutes and transcripts of these meetings are available at https://www.ourcommons.ca and from https://sencanada.ca .

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

Response to the Auditor General (including to the Commissioner of the Environment and Sustainable Development)
A performance audit by the Auditor General commenced in 2016-17 for completion in 2017-18.

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

Response to external audits conducted by the Public Service Commission of Canada or the Office of the Commissioner of Official Languages
NRC participated in the Office of the Commissioner of Official Languages (OL) Report Card Exercise covering the summer and fall of 2015. NRC received results from the OL Report Card Exercise in May 2016. Improvements since the previous OL Report card in 2010-2011 were acknowledged. The NRC OL Action Plan will be revised according to the recommendations in the 2016 report, which is available at http://www.clo-ocol.gc.ca/en/publications/report-cards/2014-2016 .

User fees, regulatory charges and external fees

Reporting on the User Fees Act

General and financial information by fee

General information

Fee name	Access to Information and Privacy (ATIP)
Fee type	Other products and services
Fee-setting authority	Access to Information Act
Year introduced	1983
Year last amended	2016
Performance standard	Response provided within 30 days following receipt of request; the response time may be extended pursuant to Section 9 of the Access to Information Act. Notice of extension to be sent within 30 days after receipt of request. NRC's web site provides additional information on the Access to Information Act requirements and NRC's ATIP services, in addition to NRC's Annual Reports to Parliament
Performance results	NRC received 45 access to information requests and 63 consultations from other government departments. NRC responded within 30 days in 63% of cases. The remaining requests were completed in 31 days or more due to extensions related to volume, consultations with other government departments or third party consultations (Section 9 of the Access to Information Act – Extension of time limits.)
Other information	None

Financial information, 2016–17 (dollars)

Forecast revenue	Actual revenue	Full cost
100	175	229,538

Financial information, 2017–18, 2018–19 and 2019–20 (dollars)

Planning year	Forecast revenue	Estimated full cost
2017–18	150	275,000
2018–19	150	275,000
2019–20	150	275,000

[Example of a completed Part A]

Reporting on the Policy on Service Standards for External Fees

General information by fee

General information

Fee name	Certified Reference Materials (CRM)
Service standard	Orders are processed and shipped within five business days of receiving all the required information from purchaser – temperature sensitive products may require longer processing time due to carrier shipping schedules.
Performance results	• 702 of 704 orders (99.7%) of Biotoxin CRMs were shipped within five business days of receiving all required information from the client. • 654 of 665 orders (98.3%) of Inorganic/Organic CRMs were shipped within five business days of receiving all required information from the client.
Stakeholder consultation in 2016–17 or prior fiscal years	Physical comment forms for feedback were provided to all North American customers with shipments as per quality system protocol, and links to the online comment form were provided to all clients outside of North America. No major issues were identified.
Other information	None

Fee name	Sale of National Code Documents and related documents
Service standard	Orders processed (shipped) 1-14 days after receipt of all required information
Performance results	87% of orders were shipped within the target of 14 days despite a 26% increase in the total number of orders received compared to 2015-16. A total of 9,243 orders were received in 2016-17: 2,873 downloadable electronic format products plus 6,370 for paper copies needing manual attention and shipping. It should be noted that the performance result applies only to orders for paper copies, as a technical problem prevents reporting on the performance of electronic delivery at the present time. Given the higher efficiency of electronic delivery, it is expected that the overall performance result (paper plus electronic) would be superior to that reported presently for paper products alone.
Stakeholder consultation in 2016-17 or prior fiscal years	Internal stakeholders consulted annually (March-April of each year) and benchmarked against delivery standards for similar products.
Other information	April 2018 is planned as the next date for consultation and revision of the delivery standard, to account for delivery times associated with on-line sales and the growing predominance of electronic products.