

Table 1: Departmental Sustainable Development Strategy

The *Policy on Green Procurement* supports the Government of Canada's effort to promote environmental stewardship. In keeping with the objectives of the policy, the National Research Council of Canada (NRC) supports sustainable development by integrating environmental performance considerations into the procurement decision-making process through the activities in this supplementary information table.

Although the NRC is not bound by the *Federal Sustainable Development Act* and is not required to develop a departmental sustainable development strategy, the NRC adheres to the principles of the Federal Sustainable Development Strategy (FSDS) by implementing the *Policy on Green Procurement*.

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 accordance with the federal *Policy on Green Procurement*.

Performance Measurement

Expected result

Environmentally responsible acquisition, use and disposal of goods and services.

Performance indicator	Targeted performance level
Departmental approach to further the implementation of the <i>Policy on Green Procurement</i> in place as of April 1, 2014.	March 2017 NRC's approach to further the implementation of the <i>Policy on Green Procurement</i> began in April 2014. It is an ongoing and continuous process that has and will continue to evolve based on new strategies and product changes and improvements that embed environmental considerations.
Percentage of procurement and/or material management specialists who have completed the Canada School of Public Service Green Procurement course (C215) or equivalent, in the given fiscal year.	100% NRC is committed to ensuring that all new procurement and materiel management specialists have completed the Canada School of Public Service Green Procurement course (C215) or equivalent.
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%. Although not necessarily articulated in writing in performance evaluations, this subject is discussed amongst staff. In 2016-17, NRC will ensure that it is written into the performance evaluations.

Departmental green procurement target

By March 2017, NRC will ensure that all new and or leased multifunctional devices and copiers incorporate energy saving criteria.

Performance indicator	Targeted performance level
Use of PWGSC procurement tools that support provision of energy efficient criteria.	100%

Departmental green procurement target

In 2016-17, and on an ongoing basis where feasible, NRC will ensure that all vehicles purchased are “right sized” for specific use, and are the most fuel efficient vehicles in their class, based on directives of the Treasury Board.

Performance indicator	Targeted performance level
Reports that indicate efficient fleet management based on best use, fuel considerations and effective procurement.	100%

Departmental green procurement target

By March 2017, 90% of janitorial service contracts will include the use of environmentally preferable products, equipment and processes that minimize the environmental impact.

Performance indicator	Targeted performance level
Contracts that are awarded meet the target criteria, issued by NRC, or by Public Works and Government Services Canada (PWGSC).	90%

Implementation strategy element or best practice	Targeted performance level
Leverage common use procurement instruments where available and feasible.	Achieved. Going forward, NRC will continue to use procurement instruments that include Standing Offer Agreements issued by PWGSC if available and feasible. Examples of these include office supplies, computers, copiers and vehicles.
Train acquisition cardholders on green procurement.	Ongoing. NRC's internal agreement with acquisition card holders, articulated in NRC's Financial Management Manual, states “acquire environmentally friendly products when possible.”
Increase awareness of the <i>Policy on Green Procurement</i> among managers.	Achieved. Going forward, NRC will continue to work with existing and new procurement staff to ensure they are mindful of environmental considerations.

Strategic Environmental Assessment

The NRC organizational and reporting structure ensures compliance with the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals. The Environmental Operations Office is a centre of expertise that undertakes a preliminary evaluation to identify the potential for important environmental effects of a proposal, prior to its submission to an individual minister or Cabinet for approval. Should the potential for significant environmental impacts be identified, whether positive or negative, a Strategic Environmental Assessment (SEA) is carried out.

NRC will continue to ensure that its decision-making process includes consideration of FSDS goals and targets through the Strategic Environmental Assessment (SEA) process. An SEA for policy, plan or program proposals includes an analysis of the impacts of the given proposal on the environment, including on FSDS goals and targets.

Public statements on the results of NRC's detailed assessment will be made public when an initiative is announced. The purpose of the public statement is to demonstrate that the environmental effects, including the impacts on achieving the FSDS goals and targets, of the approved policy, plan or program have been considered during proposal development and decision making.

Table 2: Details of Transfer Payment Programs (TPPs)

[Transfer payment program 1: International Astronomical Observatories](#)

[Transfer payment program 2: TRIUMF](#)

[Transfer payment program 3: Industrial Research Assistance Program \(IRAP\)](#)

[Transfer payment program 4: Canada Accelerator and Incubator Program \(CAIP\)](#)

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
Strategic Outcome	R&D infrastructure for an innovative and knowledge-based economy
Link to department's Program Alignment Architecture	Science Infrastructure and Measurement / National Science Infrastructure
Description	<p>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.</p> <p>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.</p> <p>International agreements governing these observatories are</p>

	<p>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.</p> <p>Recipients are not required to repay funds obtained under this transfer payment program</p>
Expected results	<ul style="list-style-type: none"> • Canadian astronomers have access to leading-edge facilities and technology. • Qualified students and post-doctoral researchers have access to facilities to advance their training. • Canada plays a prominent role in international scientific endeavours. • Scientific benefit of telescopes to the Canadian and the global community is maximized through progressive science programs using leading-edge instrumentation. • Canadian industry has opportunities to participate in advanced scientific projects and opportunities to benefit from contracts and technology development.
Fiscal year of last completed evaluation	2011-12
Decision following the results of last evaluation	Continuation
Fiscal year of planned completion of next evaluation	2016-17
General targeted recipient groups	Foreign States, intergovernmental organizations or corporations that operate international observatories that have entered into agreements with Canada (NRC) to support costs related to ground-based astronomical observatories. In the case of intergovernmental organizations, Canada and one or more foreign states are members. An eligible recipient can be a Canadian Crown Corporation or other delivery partner.
Initiatives to engage applicants and	NRC manages observatories established or maintained by

recipients	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 which 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).
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Details of Transfer Payment Programs (\$ millions)

Type of transfer payment	Forecast Spending	Planned Spending		
	2015-16 ¹	2016-17 ²	2017-18 ³	2018-19 ³
Total Contributions	16.7	69.0	54.1	58.5
Total Transfer Payments	16.7	69.0	54.1	58.5

¹ Forecast Spending amount for 2015-16 reflects \$10.0M of existing funding, \$6.7 M of new funding and the re-profiled amount of \$14.9M from 2015-16 to 2016-17.

² Planned Spending amounts for 2016-17 reflects existing and new funding as well as it includes the re-profiled amount from 2015-16

³ Planned Spending amounts for 2017-18 and 2018-19 reflects existing and new funding

General information

Name of transfer payment program	TRIUMF
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
Strategic Outcome	R&D infrastructure for an innovative and knowledge-based economy
Link to department's Program Alignment Architecture	Science Infrastructure and Measurement
Description	<p>TRIUMF is Canada's national laboratory for nuclear and particle physics, and accelerator-based science. 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. TRIUMF was allocated \$267.3M in Budget 2014 and 2015 for base operations over the 2015 – 2020 period.</p> <p>Recipients are not required to repay funds obtained under this transfer payment program.</p>
Expected results	<p>TRIUMF will continue to support the Canadian and international particle and nuclear physics community in alignment with the subatomic physics Long Range Plan. Key priorities include:</p> <ul style="list-style-type: none"> • Advancing the construction of TRIUMF's flagship Advanced Rare Isotope Laboratory (ARIEL), following the successful completion of ARIEL-I in 2014 and the Canada Foundation for Innovation's 2015 approval of the ARIEL-II project. Once completed, ARIEL's new accelerator and target facilities – together with the main cyclotron and ISAC facility at TRIUMF – will solidify Canada's place as a global leader in the production and study of rare isotopes for science, medicine, and business. • Supporting extraction and analysis of data from the T2K experiment in Japan. • Canadian participation in the ATLAS and ALPHA

	<p>experiments at the European Laboratory for Particle Physics (CERN)</p> <ul style="list-style-type: none"> • Construction of the Canada-Japan Ultra-Cold Neutron project at TRIUMF. • Furthering Canada's leadership in nuclear medicine and molecular imaging through the production and delivery of medical isotopes for the British Columbia Cancer Agency and the University of British Columbia's Djavad Mowafaghian Centre for Brain Health. <p>Expected Results will include:</p> <ul style="list-style-type: none"> • Produce world-class science across TRIUMF's core programs and advance the ARIEL facility. • Continue to attract and retain global talent, expand international research collaborations, and maintain Canadian access to international research facilities. • Grow TRIUMF's industry and community linkages with the objective of increasing the economic and societal benefit delivered to Canada. • Strengthen operational efficiency by updating project management procedures, refreshing safety processes, and revising staffing requirements as required to strengthen the laboratory's core programs.
Fiscal year of last completed evaluation	2013-14
Decision following the results of last evaluation	Continuation
Fiscal year of planned completion of next evaluation	2018-19
General targeted recipient groups	Non-profit organizations (TRIUMF)
Initiatives to engage applicants and recipients	<p>NRC chairs the Agency Committee on TRIUMF (ACT), which includes the key federal agencies that fund activities at TRIUMF, providing TRIUMF management the opportunity to update the Committee on progress and discuss future directions for the facility.</p> <p>NRC also manages the Advisory Committee on TRIUMF (ACOT), 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 programs and management as well as reporting on the scientific and technological achievements of TRIUMF programs and facilities. 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</p>

	<p>members who ensure that TRIUMF's directions are well aligned with the research community's needs and that TRIUMF is working with all constituencies of the Canadian sub-atomic 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&T programs. Both ACT and ACOT engage in extended discussions with TRIUMF's management, ensuring that investments made on behalf of the research community are optimal.</p> <p>Through NRC activities in ACT and ACOT, NRC maintains a close relationship with TRIUMF. 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.</p> <p>TRIUMF has about 390 staff and students supported through the NRC contribution agreement. An additional 138 positions are supported through other sources for specific designated purposes including temporary funds to operate new capital infrastructure. In total, TRIUMF provides training for some 150 undergraduate, graduate students, and postdocs per year. 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. In addition, TRIUMF has initiated a program of professional skills development for graduate students and postdocs.</p>
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Details of Transfer Payment Programs (millions)

Type of transfer payment	Forecast Spending	Planned Spending		
	2015-16 ¹	2016-17 ¹	2017-18 ¹	2018-19 ¹
Total Contributions	50.8	53.7	54.6	55.3
Total Transfer Payments	50.8	53.7	54.6	55.3

¹ Forecast Spending for 2015-16 and Planned Spending for 2016-17 to 2018-19 reflects NRC's permanent reference level of \$19.3M and the new funding announced in Budget 2014 and 2015 as well as a transfer from the NSERC of \$442,800/per fiscal year

General information

Name of transfer payment program	Industrial Research Assistance Program (IRAP)
Start date	April 1, 2013
End date	Ongoing
Type of transfer payment	Contribution
Type of appropriation	Estimates
Fiscal year for terms and conditions	2012-13
Strategic Outcome	Canadian businesses prosper from innovative technologies
Link to department's Program Alignment Architecture	Industrial Research Assistance Program (IRAP)
Description	<p>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; and Youth Employment Program (YEP).</p> <p>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).</p> <p>Recipients are not required to repay funds obtained under this transfer payment program.</p>
Expected results	<ul style="list-style-type: none"> • Stimulation of innovation in small and medium-sized enterprises (SMEs) in Canada. • Increased growth of innovative SMEs and creation of wealth for Canada
Fiscal year of last completed evaluation	2012-13
Decision following the results of last evaluation	Continuation
Fiscal year of planned completion of next evaluation	2017-18
General targeted recipient groups	Industry-related — For-profit businesses (SMEs) and Non-

	profit Organizations
Initiatives to engage applicants and recipients	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>

Details of Transfer Payment Programs (\$ millions)

Type of transfer payment	Forecast Spending	Planned Spending		
	2015-16 ¹	2016-17	2017-18	2018-19
Total Contributions	204.8	177.0	177.0	177.0
Total Transfer Payments	204.8	177.0	177.0	177.0

¹ Forecast Spending in 2015-16 reflects amounts announced in Budget 2014 for contributions to Youth Employment Strategy Program \$15.0M, a \$10.0M conversion of Operations to Grants and Contributions, a transfer of \$2.248M for Youth Employment Strategy Program from Employment and Social Development Canada (ESDC) and a transfer of \$1.8M to IRAP's Business Innovation Access Program (BIAP).

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
Strategic Outcome	Canadian businesses prosper from innovative technologies
Link to department's Program Alignment Architecture	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.
Expected results	<ul style="list-style-type: none"> • Early-stage firms have access to innovation support services. • Early-stage firms improve investment readiness. • Wealth creation in Canada.
Fiscal year of last completed evaluation	N/A
Decision following the results of last evaluation	N/A
Fiscal year of planned completion of next evaluation	2016-17 (mid-term evaluation) and 2018-19 (Impact Evaluation).
General targeted recipient groups	Non-profit Organizations
Initiatives to engage applicants and recipients	CAIP will support SMEs' access to best-in-class business accelerators and incubators with the goal of helping these organizations expand their overall service offerings. Organizations will be 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.

Details of Transfer Payment Programs (\$ millions)

Type of transfer payment	Forecast Spending	Planned Spending		
	2015-16	2016-17 ¹	2017-18 ¹	2018-19 ¹
Total Contributions	20.6	24.4	24.2	17.1
Total Transfer Payments	20.6	24.4	24.2	17.1

¹ Planned Spending in 2016-17 to 2018-19 reflect the existing funding and the amount re-profiled from 2014-15

Table 3: Disclosure of TPPs under \$5 million

Name of transfer payment program	International Affiliations Program
End date	N/A
Type of transfer payment	Grant
Type of appropriation	Estimates
Link to department's Program Alignment Architecture	Internal Services
Main objective	Canada's membership in international S&T organizations promotes international market-oriented research and innovation, networking, advocacy, leadership and benchmarking opportunities as well as access to research and benchmarking possibilities, enabling Canadian science, technology, and industry to remain competitive.
Planned spending for 2016–17 (\$ thousand)	560
Fiscal year of last completed evaluation	2015-16
General targeted recipient groups	International organizations and foreign countries. (Foreign recipients which are international scientific and technological (S&T) organizations having two or more states as members. As well, non-foreign recipients are non-governmental Canadian delegates who attend related meetings hosted by these foreign recipients).

Name of transfer payment program	Assessed Contribution to the Bureau International des Poids et Mesures (BIPM)
End date	N/A
Type of transfer payment	Contribution
Type of appropriation	Estimates
Link to department's Program Alignment Architecture	Science Infrastructure and Measurement, Measurement Science and Standards
Main objective	By representing Canada on the international metrology stage through its affiliation with the BIPM, NRC is able to more effectively and efficiently respond to NRC's mandated responsibility for maintenance of national measurement standards, as articulated in the NRC Act and the Weights and Measures Act.
Planned spending for 2016–17 (\$ thousand)	659
Fiscal year of last completed evaluation	2015-16
General targeted recipient groups	International organizations and foreign countries. (Bureau international des poids et mesures (BIPM) is an annual assessed contribution reflecting Canada's status as a State Party to the Metre Convention Treaty since 1907).

Table 4: Horizontal Initiatives

General information

Name of horizontal initiative	Genomics R&D Initiative (GRDI)
Lead department(s)	National Research Council Canada (NRC)
Federal partner organization(s)	Agriculture and Agri-Food Canada (AAFC), Canadian Food Inspection Agency (CFIA), Fisheries and Oceans Canada (DFO), Environment Canada (EC), 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 partner(s)	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)	\$393,30M
Funding contributed by non-federal and non-governmental partners	Not applicable
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. 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 two independent evaluations (2006 and 2011) and an audit by the Office of the Comptroller General (2012). Additional information may be found on the GRDI web site .
Shared outcome(s)	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

	<p>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.</p>
Governance structures	<p>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 Industry Canada 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.</p> <p>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 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.</p> <p>A Coordination Function, housed at 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,</p>

	as well as support for performance management, reporting, evaluation, and communications.
Planning highlights	Fiscal year 2016-17 is the third 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.
Results to be achieved by non-federal and non-governmental partners	Not applicable
Contact information	Roman Szumski Vice-President, Life Sciences National Research Council Canada (613) 993-9244 Roman.Szumski@nrc-cnrc.gc.ca

Planning Information

Federal organizations	Link to departmental Program Alignment Architectures	Contributing programs and activities	Total allocation (from start to end date) (\$ millions)	2016–17 Planned spending (\$ millions)	2016-17 Expected results	2016–17 Performance indicators	2016-17 Targets
AAFC	Science, Innovation, Adoption and Sustainability	Canadian Crop Genomics Initiative (CCGI)	108.50	4.44	ER1 ER2	PI1	T1 T2
CFIA	Food Safety Program, Animal Health and Zoonotics Program, Plant Resources Program	GRDI	3.60	0.72	ER3	PI3.1 PI3.2	T3

Federal organization s	Link to departmental Program Alignment Architecture s	Contributing programs and activities	Total allocation (from start to end date) (\$ millions)	2016–17 Planned spending (\$ millions)	2016-17 Expected results	2016–17 Performance indicators	2016-17 Targets
DFO	Biotechnology and Genomics	National Aquatic Biotechnology and Genomics R&D Strategy	16.50	0.72	ER4	PI4	T4
EC	Climate Change and Clean Air	Strategic Technology Applications of Genomics in the Environment (STAGE)	18.55	0.80	ER5	PI5	T5
HC ¹	Canadian Health System Policy Health System Priorities	GRDI	53.12	0.11	ER6	PI6	T6
	Health Products Biologics & Radiopharmaceuticals	GRDI	2.14	0.44	ER6	PI6	T6
	Food Safety and Nutrition Food Safety	GRDI	0.93	0.24	ER6	PI6	T6
	Environmental Risks to Health Health Impacts of Chemicals	GRDI	2.91	0.82	ER6	PI6	T6
	Total for all Program	GRDI	59.10	1.60	ER6	PI6	T6

Federal organizations	Link to departmental Program Alignment Architectures	Contributing programs and activities	Total allocation (from start to end date) (\$ millions)	2016–17 Planned spending (\$ millions)	2016-17 Expected results	2016–17 Performance indicators	2016-17 Targets
	Alignment Architecture						
NRC	Technology Development and Advancement	GRDI	108.50	4.44	ER1 ER7	PI7.1 PI7.2	T1 T7
		Shared Priorities	28.86	3.98	ER8	PI7.1 PI7.2	T8
NRCan	Innovation for New Products and Processes	GRDI	36.10	1.60	ER9	PI9.1 PI9.2	T9
PHAC	Public Health Infrastructure	GRDI	13.10	1.60	ER10	PI10.1 PI10.2	T10
CIHR	N/A	N/A	0.50	0	N/A	N/A	N/A
Total for all federal organizations			393.30	19.90	Not applicable		

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

NRC will continue to support the Canadian Wheat Improvement Program in the areas of tolerance to disease and abiotic stress, genomics-assisted breeding, and seed development. This program is NRC's contribution to the Canadian Wheat Alliance, a large-scale research alliance to improve the yield, sustainability, and profitability of Canadian wheat for the benefit of Canadian farmers and the economy. AAFC supports the objectives of the Alliance through its Canadian Crop Genomics Initiative. The Alliance also includes major contributions by the University of Saskatchewan, and the Province of Saskatchewan. The target for the number of scientific outputs generated in the form of scientific papers is set at 45.

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).

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

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

T3

Funds from GRDI will be targeted to increase the genomics capability within CFIA to support on-site diagnostic tools and surveillance capabilities. Specifically, GRDI activities will focus on three areas: 1) Food Safety: to better support CFIA in the areas of compliance testing, source attribution and risk profiling, enabling enforcement of Health Canada standards. 2) Plant Resources: to enable early detection and rapid response, and inform regulatory decision-making for regulated plant pests and plant commodities within the agricultural and forestry sectors. 3) Animal Health: to support management of public health risks associated with the transmission of zoonotic diseases and reportable and emerging animal diseases.

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.

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

EC 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.

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

Genomics research will 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.

ER7

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

PI7.1

Technology deployment (client commitments to exploit NRC innovations)

PI7.2

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

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) through mission-oriented research and technology deployment. GRDI's human health-related focus will support NRC's Biologics and Subsequent Entry Biologics program. This program was approved for implementation by NRC's Senior Executive Committee after undergoing a rigorous program approval and implementation process.

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 will be launched in 2016-2017. The Antimicrobial Resistance project will develop a greater understanding of the critical activities that contribute to the development of antimicrobial resistance and critical exposure pathways by which antimicrobial bacteria reach humans, which could then be used to help validate economically sustainable technologies, practices, and policies to mitigate the development of antimicrobial resistance; it is a key component of the Federal Action Plan for Antimicrobial Resistance and Use in Canada. The Metagenomic-Based Ecosystem Biomonitoring (EcoBiomics) project will develop advanced genomics tools to monitor drinking and recreational water quality, assess the biodiversity of freshwater invertebrates and microorganisms, evaluate the health of soil essential to the productivity of agricultural and forestry systems across Canada, and investigate land remediation for the oil and mining sectors. The main impact of this project will be to support environmental responsibility, secure market access for resource products and improve social license for economic development in Canada.

ER9

Genomic knowledge for forest generation and protection

PI9.1

Number of new products and processes resulting from NRCan information

PI9.2

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

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.

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

The genomic study of pathogens and their traits associated with infectious diseases generate rapid and cost effective new approaches to disease surveillance, prevention, and control (e.g. molecular tools to better identify organisms associated with disease outbreaks). GRDI research activities at PHAC apply “-omics” technologies to generate new knowledge to support public health decision making, and to create new tools to enhance disease prevention and control. These technologies are providing methods to enhance: 1) the prevention and control of priority pathogens; 2) the response to antimicrobial resistant pathogens; 3) infectious disease surveillance; and 4) public health security measures. The knowledge generated from genomic approaches is supporting more detailed risk analyses, as well as the identification and development of new intervention points for the control and prevention of infectious diseases. The targets for PI10.1 and 10.2 are set at 90% and 1800 respectively.

Table 5: Upcoming Internal Audits and Evaluations over the next three fiscal years

A. Internal Audits

Title of Internal Audit	Internal Audit Type	Status	Expected Completion Date
Audit of IRAP	Transfer Payment Program	Planned	2016-17
Audit of Talent Management	Corporate Administrative Practices	Ongoing	2016-17
Audit of Occupational Health and Safety Management	Corporate Governance	Planned	2016-17
Audit of Intellectual Property	Corporate Administrative Practices	Planned	2016-17
Audit of the Investment Plan Implementation	Financial Management and Controls	Planned	2016-17
Audit of Operational Security – Management Control Framework	Corporate Administrative Practices	Planned	2017-18
Audit of Client Relationship Management	Corporate Administrative Practices	Planned	2017-18
Audit of Costing	Financial Management and Controls	Planned	2017-18
Audit of Official Languages	Corporate Administrative Practices	Planned	2017-18

B. Evaluations

Link to department's Program Alignment Architecture	Title of Evaluation	Planned Evaluation Start Date	Expected Completion Date
Genomics R&D Initiative	Evaluation of the Genomics R&D Initiative	2015-16	2016-17
Ocean, Coastal and River Engineering	Evaluation of NRC Ocean, Coastal and River Engineering	2015-16	2016-17
Canadian Accelerator Incubator Program (CAIP)	Midterm Evaluation of the Canadian Accelerator Incubator Program (CAIP)	2015-16	2016-17
Herzberg Astronomy and Astrophysics (National Science Infrastructure)	Evaluation of NRC Herzberg Astronomy and Astrophysics	2015-16	2016-17
Energy, Mining and Environment	Evaluation of NRC Energy, Mining and Environment	2016-17	2016-17
Security and Disruptive Technologies	Evaluation of NRC Security and Disruptive Technologies	2016-17	2016-17
Industrial Research Assistance Program (IRAP)	Evaluation of the Industrial Research Assistance Program (IRAP)	2016-17	2017-18
Aerospace	Evaluation of NRC Aerospace	2016-17	2017-18
Medical Devices	Evaluation of NRC Medical Devices	2016-17	2017-18
Information and Communication Technologies	Evaluation of NRC Information and Communication Technologies	2017-18	2017-18
Canadian Accelerator Incubator Program (CAIP)	Evaluation of the Canadian Accelerator Incubator Program (CAIP)	2017-18	2018-19
Automotive and Surface Transportation	Evaluation of NRC Automotive and Surface Transportation	2017-18	2018-19
Construction	Evaluation of NRC Construction	2017-18	2018-19

TRIUMF	Evaluation of NRC's Contribution to TRIUMF	2018-19	2018-19
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