Natural Sciences and Engineering Research Council of Canada

2008-2009
Estimates

Report on Plans and Priorities

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Minister of Industry

Canada

Table of Contents

Section I – Overview of the Agency

Minister's Message

The Government of Canada is committed to creating an environment where all Canadians have every opportunity for continued prosperity.

We laid out our long-term economic plan in *Advantage Canada.* It identified five Canadian objectives, related to tax reduction, debt reduction, entrepreneurship, knowledge in the workforce and infrastructure, which will help us improve our quality of life and succeed on the world stage. I'm pleased to note the commonality between these advantages and Industry Canada's mission of fostering a growing, competitive, knowledge-based economy.

Clearly, our government is making strides towards achieving our long-term goals. For example, we have provided $190 billion in broad-based tax relief over this and the next five years, including cuts to corporate, small business and personal taxes. Our debt repayment goals have been accelerated by three years. We're setting the right conditions for entrepreneurs to thrive, for research and development to flourish, for additional competition and growth in the wireless sector and for our workforce to build on its expertise. Finally, we continue to invest heavily in our physical infrastructure to build the networks needed to carry our people, goods and services across Canada and beyond.

In May 2007 Prime Minister Harper unveiled our Science and Technology Strategy, *Mobilizing Science and Technology to Canada's Advantage*. It is a policy framework that has received wide acclaim, both in Canada and internationally. Our government believes that science and technology, and research and development, are more critical than ever to pushing forward the frontiers of knowledge and transforming that knowledge into new products, services and technologies.

Our hard work is paying off. The economic fundamentals are in place to help us realize our goals. We boast strong public finances, an economy that is as healthy as it has been for a generation and low unemployment.

As Minister of Industry, I look forward to implementing our government's agenda for providing effective economic leadership — an agenda that provides concrete, realistic solutions to the economic challenges our country is facing.

As always, we must build on our success as a nation. In this regard, Industry Canada and its portfolio partners continue to strive towards a fair, efficient and competitive marketplace, an innovative economy, competitive industries and sustainable communities — in short, outcomes that will help Canadians continue to enjoy a quality of life that is second to none.

It gives me great pleasure to present the annual *Report on Plans and Priorities* for the Natural Sciences and Engineering Research Council of Canada, outlining in greater detail the agency's main initiatives, priorities and expected outcomes for the upcoming year.

Jim Prentice
Minister of Industry

Management Representation Statement

I submit for tabling in Parliament, the 2008-2009 *Report on Plans and Priorities* (RPP) for the Natural Sciences and Engineering Research Council (NSERC).

This document has been prepared based on the reporting principles contained in the *Guide for the Preparation of Part III of the 2008–09 Estimates: Reports on Plans and Priorities and Departmental Performance Reports*:

- It adheres to the specific reporting requirements outlined in the Treasury Board of Canada Secretariat guidance;
- It is based on the agency's strategic outcomes and Program Activity Architecture that were approved by the Treasury Board;
- It presents consistent, comprehensive, balanced and reliable information;
- It provides a basis of accountability for the results achieved with the resources and authorities entrusted to NSERC; and
- It reports finances based on approved planned spending numbers from the Treasury Board of Canada Secretariat.

Suzanne Fortier
President, NSERC

Raison d'être

The Natural Sciences and Engineering Research Council of Canada (NSERC) works to make Canada a country of discoverers and innovators for the benefit of all Canadians. NSERC aims to maximize the value of public investments in R&D and to advance prosperity and quality of life in Canada by supporting the creation and transfer of knowledge in the natural sciences and engineering (NSE) and by ensuring that people are trained to discover, develop and use that knowledge.

Organizational Information

NSERC is a departmental corporation of the Government of Canada and is the primary federal agency investing in post-secondary research and training in the NSE. It is funded directly by Parliament and reports to it through the Minister of Industry. NSERC's Council is composed of the President and 21 other distinguished members selected from the private and public sectors, and post-secondary institutions. Members serve part-time and receive no remuneration for their participation. The Council is advised on policy matters by various standing committees. The President of NSERC is the Chief Executive Officer. Funding decisions are approved by the President on the basis of recommendations made by numerous peer review selection committees and panels.

NSERC Quick Facts: 2008-09

President: Dr. Suzanne Fortier

Budget: $999 million

Offices:

- Head Office: Ottawa, ON
- Regional Offices*:
  - Moncton, NB
  - Winnipeg, MB
  - Vancouver, BC
  - Montreal, QC

Employees: 349 Full-time Equivalents

Reach:

- 25,000 students and postdoctoral fellows
- 11,500 university professors
- 1,400 Canadian partner companies
- over 100 universities and colleges

* NSERC plans to open a fifth regional office in Ontario.

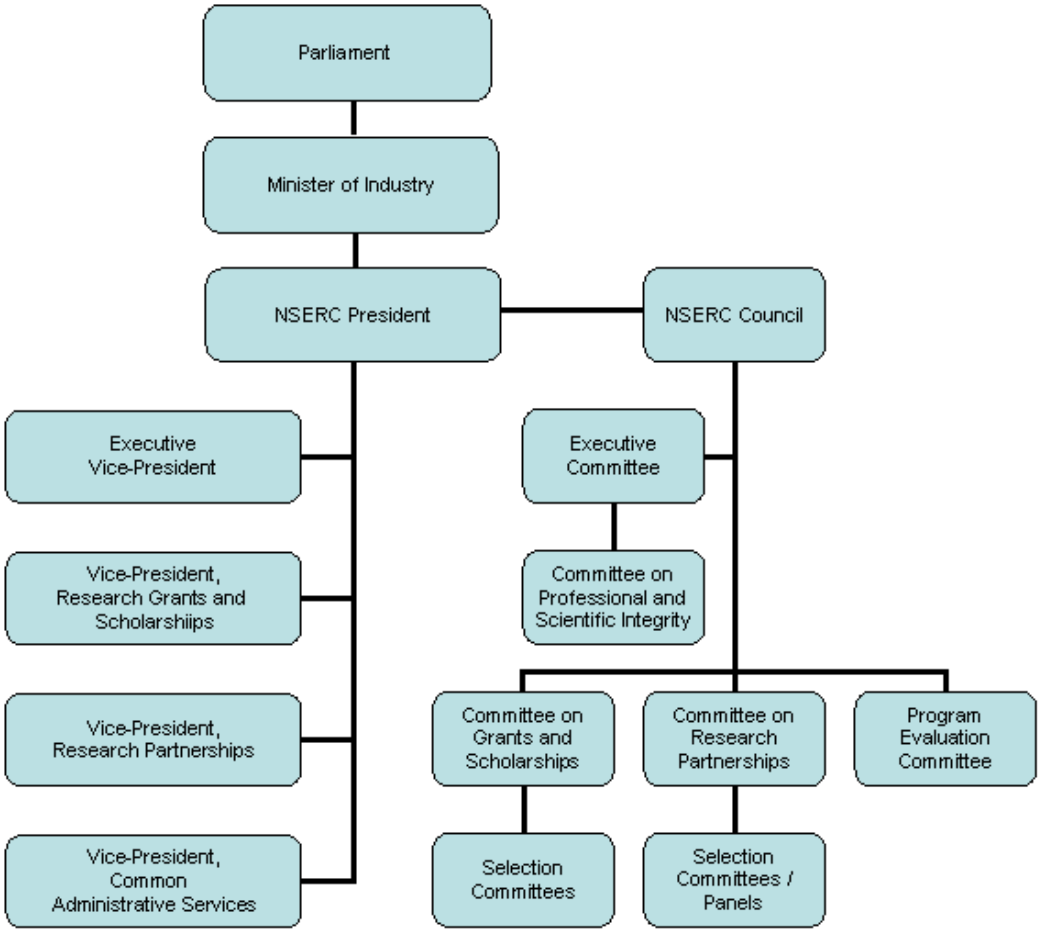
In 2008-09, NSERC will invest nearly $1 billion in post-secondary research and training in the NSE. NSERC's budget represents 10 per cent of the federal government's expenditures on science and technology, and 16 per cent of all university research and development (R&D) funding in the NSE.

Mandate

The functions of NSERC, based on the authority and responsibility assigned to it under the *Natural Sciences and Engineering Research Council Act* (1976-77, c.24), are to:

- Promote and assist research in the natural sciences and engineering, other than the health sciences; and
- Advise the Minister in respect of such matters relating to such research as the Minister may refer to the Council for its consideration.

NSERC's Organizational and Governance Structure



Program Activity Architecture Crosswalk

Modifications to NSERC's Program Activity Architecture (PAA) were approved by Treasury Board in May 2007. Changes to the PAA were made to ensure programs' classification reflect their primary objective, as well as to harmonize the PAA with recent program changes and evolution. The updated PAA is consistent with the way NSERC manages its programs and related activities and allocates resources to achieve expected results.

Summary of changes:

1. PA 2.1 (Fund Basic Research) has been divided into two PAs. A new PA has been created, namely PA 2.2 (Support for Research Equipment and Major Resources), under the Discovery Strategic Outcome. The programs listed at the sub-activity level, formerly under "Fund Basic Research," can be grouped into two activities: programs that support research as such (PA 2.1) and programs that support the equipment and major resources necessary to do research or to build capacity for research (new PA 2.2).
2. Program Activity 2.2 (Fund Research in Strategic Areas) was moved from Strategic Outcome (SO) 2.0 to SO 3.0. This Program Activity (PA) will now appear as PA 3.1 (Fund Research in Strategic Areas). This amendment better represents the expected results of this PA, which are: "Research and training in targeted and emerging areas of national importance is accelerated." These results link best with SO 3.0 "Innovation: Productive use of new knowledge in the natural sciences and engineering," which involves alignment of research to national and industrial needs, as well as research partnerships involving industry, government and universities.

Table 1. Redistribution of financial resources following modification of PAA

		New Program Activity 2008-09			
	($ millions)	**PA 2.1 Fund Basic Research**	**PA 2.2 Support for Research Equipment and Major Resources**	**PA 3.1 Fund Research in Strategic Areas**	**Total**
Old Program Activity	**PA 2.1 Fund Basic Research**	379.4	41.5	N/A	420.9
	PA 2.2 Fund Research in Strategic Areas	N/A	N/A	104.5	104.5

Voted and Statutory Items Displayed in the Main Estimates

Table 2. Voted and Statutory Items Displayed in the Main Estimates ($ millions)

Vote or Statutory Item	Truncated Vote or Statutory Wording	**2008–09 Main Estimates**	2007–08 Main Estimates
70	Operating expenditures	**40.7**	36.5
75	Grants	**913.4**	858.9
(S)	Contributions to employee benefit plans	**4.1**	4.1
	Total for Agency	**958.2**	**899.6**

Note: Totals may not add due to rounding.

Planned Spending and Full-time Equivalents

Table 3. Planned Spending and Full-time Equivalents

($ millions)	Forecast Spending 2007–08	**Planned Spending 2008–09**	Planned Spending 2009–10	Planned Spending 2010–11
Program Activity:				
1.1 – Promote Science and Engineering	4.1	**6.3**	6.3	6.3
1.2 – Support Students and Fellows	136.4	**146.2**	146.7	146.7
1.3 – Attract and Retain Faculty	167.8	**167.7**	167.7	167.7
2.1 – Fund Basic Research	403.4	**379.4**	379.0	376.6
2.2 – Support for Research Equipment and Major Resources	N/A[1]	**41.5**	29.7	29.7
3.1 – Fund Research in Strategic Areas	57.7	**104.5**	103.3	102.5
3.2 – Fund University-Industry-Government Partnerships	115.0	**101.1**	101.2	101.2
3.3 – Support Commercialization	15.2	**11.5**	11.5	11.5
Total Main Estimates	**899.6**	**958.2**	**945.4**	**942.2**
Adjustments				
Supplementary Estimates:				
- Budget 2007—NSERC	37.0			
- Budget 2007—Alexander Graham Bell Canada Graduate Scholarships	6.0			
- Budget 2007—College and Community Innovation		**2.5**	15.0	15.0
- Budget 2007—Centres of Excellence for Commercialization and Research	58.0	**24.4**	27.5	28.5
- Budget 2007—Business-led Networks of Centres of Excellence	0.4	**9.7**	10.1	11.1
- Budget 2007—Industrial R&D Internship Program	0.1	**4.3**	4.4	5.9
- International Polar Year Funds	12.0			
- *Federal Accountability Act* Funds	0.3			
- Transfer from Health Canada for the International Polar Year	0.1			
- Transfer to Department of National Defence for Canada Research Chairs at Royal Military College (RMC)	(0.4)			
Other:				
- Compensation for Salary Adjustments	0.1			
- Treasury Board Policy on Internal Audit Funds	0.2			
- Operating Carry-forward from 2006-07	1.8			
Total Adjustments	115.6	**40.9**	57.0	60.5
Total Planned Spending	**1,015.2**	**999.1**	**1,002.4**	**1,002.7**
Less: Non-respendable revenue	(1.3)	(1.3)	(1.3)	(1.3)
Plus: Cost of services received without charge	5.7	5.7	5.7	5.7
Total Agency Spending	1,019.6	**1,003.5**	1,006.8	1,007.1
Full-time Equivalents	336	**349**	349	349

[1] See Program Activity Architecture Crosswalk, page 6.

NSERC's administration costs are approximately five per cent of its total budget, which is low compared to similar agencies in Canada and around the world. NSERC is able to maintain this low level of overhead expenses by extensively using volunteer committee members and reviewers, obtaining agreement from Canadian universities that receive NSERC funds to participate in their administration, and sharing the costs of common administrative services through a successful partnership with the Social Sciences and Humanities Research Council (SSHRC).

Summary Information

Table 4. Financial Resources ($ millions) and Human Resources

2008–09	2009–10	2010–11
$999.1	$1,002.4	$1,002.7
349	349	349

Table 5. Agency Priorities

Name	Type
1. Foster a People Advantage	Ongoing
2. Foster a Knowledge Advantage	Ongoing
3. Foster an Entrepreneurial Advantage	Ongoing
4. Enhance performance measurement, accountability and value for money	New
5. Increase the visibility of Canadian NSE research	New

Table 6. Program Activities by Strategic Outcome

	Expected Results	Planned Spending[2] ($ millions)			Supports priority #
		2008–09	2009–10	2010–11	
Strategic Outcome #1 – People: Highly skilled science and engineering professionals in Canada					
1.1 Promote Science and Engineering	Student interest in research in the sciences, math and engineering is encouraged.	6.3	6.3	6.3	1, 5
1.2 Support Students and Fellows	A supply of highly qualified people with leading-edge scientific and research skills for Canadian industry, government and universities.	146.2	146.7	146.7	1
1.3 Attract and Retain Faculty	Enhanced research capacity in science and engineering.	167.7	167.7	167.7	1, 2, 3

[2] Includes costs for administration of NSERC programs totalling $44.8 million in 2008-09.

Table 6. Program Activities by Strategic Outcome (*continued*)

	Expected Results	Planned Spending[3] ($ millions)			Supports priority #
		2008–09	2009–10	2010–11	
Strategic Outcome #2 – Discovery: **High quality Canadian-based competitive research in the natural sciences and engineering**					
2.1 Fund Basic Research	The discovery, innovation and training capability of university researchers in the natural sciences and engineering (NSE) is enhanced.	379.4	379.0	376.6	1, 2, 3
2.2 Support for Research Equipment and Major Resources	The discovery, innovation and training capability of university researchers in the NSE is supported by the access to research equipment and major regional or national research facilities.	41.5	29.7	29.7	1, 2, 3
Strategic Outcome #3 – Innovation: **Productive use of new knowledge in the natural sciences and engineering**					
3.1 Fund Research in Strategic Areas	Research and training in targeted and emerging areas of national importance is accelerated.	104.5	103.3	102.5	1, 2, 3
3.2 Fund University-Industry-Government Partnerships	Mutually beneficial collaborations between the private sector and researchers in universities, resulting in industrial or economic benefits to Canada.	139.5	143.2	146.7	1, 3
3.3 Support Commercialization	The transfer of knowledge and technology residing in Canadian universities and colleges to the user sector is facilitated.	14.0	26.5	26.5	3
TOTAL		**999.1**	**1,002.4**	**1,002.7**	

[3] Includes costs for administration of NSERC programs totalling $44.8 million in 2008-09.

Plans and Priorities

The Research and Innovation Environment

All aspects of modern Canadian social and economic life and society are affected by advances in the natural sciences and engineering (NSE). Research, training and innovation are the foundation on which to build national prosperity, adding value to goods and services as well as producing the highly qualified people that are able to conduct research, generate new knowledge, access knowledge created elsewhere, and adopt and adapt new technologies for industry.

In the global, knowledge-based economy, Canada faces growing competition from both established and emerging economies with excellent educational systems and large, skilled workforces. Research activities are expanding rapidly in emerging economies such as China, India and Brazil. Beyond our traditional competitors among the G8, smaller economies such as Finland, Denmark, Israel and Sweden have surpassed Canada in research intensity.[4] These smaller economies are largely knowledge-based and focused on maintaining global leadership in key economic sectors.

Canada ranks at or near the top among member countries of the Organization for Economic Co-operation and Development (OECD) in terms of the proportion of investment in R&D spent in the higher education sector, including the proportion that is provided to this sector by business. These trends reflect the importance of a strong academic sector to the country; without it, our companies would lose a critical supply of knowledge and skilled workers.

Talented science and engineering graduates represent the most important mode of transfer of scientific and technical knowledge from academia to the user sector. However, a relatively small percentage of Canadian university students are enrolled in the NSE, and fewer young Canadians hold PhDs, compared to the OECD average. The growing needs of the labour market for scientists and engineers require sustained investments in scientific and technical training.

These realities are reflected in the new Federal Science and Technology (S&T) Strategy, *Mobilizing Science and Technology to Canada's Advantage*. Through the S&T Strategy, the federal government has committed to maintaining Canada's G-7 leadership in public sector R&D performance. The Strategy builds on existing strengths, focusing efforts in areas where Canada can achieve global excellence, to make a real impact on the lives of Canadians and in the marketplace.

Since the S&T Strategy was released in May 2007, NSERC has embraced its vision and worked proactively to carry out its agenda. NSERC is working closely with the other federal funding agencies on projects and initiatives that address 18 of the 35 policy commitments in the S&T Strategy. NSERC's focus on **people**, **discovery** and **innovation**

[4] OECD, Main Science and Technology Indicators, October 2007

maps directly onto the strategy's emphasis of building a **People Advantage**, a **Knowledge Advantage** and an **Entrepreneurial Advantage**. In broad terms, virtually all of NSERC's funding relates to these advantages.

The strategy's principles have been incorporated into NSERC's planning and decision-making functions. These principles are also solidly embedded in NSERC's way of doing business, which includes: a competitive, peer reviewed evaluation system to ensure world class levels of ***excellence*** and value for money; a blend of targeted and broad-based programs to ensure that ***priority*** research topics are addressed as well as a broad spectrum of science, from discovery to applied research and commercialization; a suite of collaborative research programs that foster ***partnerships*** between industry and post-secondary institutions and that encourage commercialization; and appropriate and effective controls that are proven and recognized to ensure ***accountability***[5].

Canada's research landscape has changed substantially over the past decade. Public investment in higher-education R&D has increased dramatically over this period. In many areas of research, Canada is truly a world-class player, as demonstrated by its increased ability to attract and retain top talent. The national science and innovation system offers Canadian researchers the tools they need to be knowledge trailblazers, seize opportunities to innovate and address global challenges such as adaptation to climate change and sustainable energy. NSERC is committed to advancing the goals of the S&T Strategy and to helping the research community make the most of the opportunities it offers them.

NSERC's senior management has identified the following priorities for the three-year planning period (2008-2009 to 2010-2011):

Program priorities

1. Foster a People Advantage
2. Foster a Knowledge Advantage
3. Foster an Entrepreneurial Advantage

Management priorities

4. Enhance performance measurement, accountability and value for money
5. Increase the visibility of Canadian NSE research

It is important to note that all of NSERC's priorities and planned initiatives are being carried out in a context of increasing cooperation and collaboration among all the major federal research funding agencies, including the Canadian Institutes of Health Research (CIHR), the Social Sciences and Humanities Research Council (SSHRC) and the Canada

[5] In its report, the Blue Ribbon Panel on Grants and Contributions stated, "The record of performance by the federal research granting agencies, including CFI, has been deemed to be high by international standards. The two councils and CIHR have successfully managed their own research portfolios, using a rigorous system of oversight, including a detailed memorandum of understanding signed by all recipient institutions and regular financial monitoring visits of recipient universities."

Foundation for Innovation (CFI). Examples of inter-agency alignment and harmonization are found throughout this document. The Presidents of the four agencies meet regularly to discuss strategic opportunities and challenges and staff members at various levels of the organizations have opened fruitful channels of communications leading to cooperative policies and programming.

Priority 1: Foster a People Advantage

The S&T Strategy challenges us to create the right conditions to attract, retain and develop the talent and ingenuity Canada needs to compete in the worldwide knowledge economy. Science and engineering graduates represent the most important mode of transfer of scientific and technical knowledge from academia to the user sector.

Talented people, including research trainees, new investigators and emerging leaders, and established researchers with high-profile international reputations, are NSERC's most important output. Through research and research training, NSERC fosters the development of skilled workers who will become leaders across the private and public sectors.

Stimulating young Canadians' interest in science and engineering is critical to helping develop tomorrow's discoverers and innovators. NSERC's contributions in science promotion are primarily achieved through the encouragement and support, through competitive grants, of non-governmental organizations (NGOs) and other organizations that are dedicated to stimulating young people's interest and improving school performance in science and mathematics. Also vital is the support NSERC provides to students, from the undergraduate to the postdoctoral levels, to encourage them to consider and pursue studies and careers in the NSE and develop not only skills in their area of expertise but also the professional skills that will make them effective in the marketplace.

NSERC's plans and actions under Priority 1 will contribute to fostering a People Advantage for Canada and will directly support the agency's Strategic Objective 1.0: "Highly skilled science and engineering professionals in Canada". In 2008-09 and beyond, NSERC will focus its efforts in the following areas:

- **Innovative training environments.** In order to meet the challenge of developing tomorrow's discoverers and innovators across Canada, NSERC is considering a new program to encourage greater numbers of Canadian institutions to provide innovative and internationally competitive research and training environments for outstanding students and postdoctoral fellows. The new program will embrace collaborative approaches to resolving scientific challenges requiring NSE expertise, promote the acquisition and development of important professional skills among students and postdoctoral fellows to complement their qualifications and technical skills, and encourage student mobility either nationally or internationally to develop the talent and ingenuity Canada needs for the modern global economy.

- **Private sector experience.** Over the next three years, NSERC intends to double the number of scholarships for students working with industry, aiming to award 2,500 industrial scholarships by 2010-2011. This objective will be achieved by further promoting industrial scholarships to students, faculty and industry. NSERC will also actively pursue opportunities to partner with provincial agencies to implement joint initiatives in their jurisdictions similar to the Industrial Innovation Scholarships program launched in October 2006 in partnership with the Fonds québécois de la recherche sur la nature et les technologies (FQRNT). In addition to NSERC's industrial scholarships, the expanding Research Partnership Programs will indirectly support thousands of students, postdoctoral fellows and research associates who are training in an industrial setting. NSERC is also working with the other granting agencies, through the Networks of Centres of Excellence Secretariat, to implement the new Industrial R&D Internships program that exposes more students to R&D in the private sector and that encourages firms to hire S&T graduates.
- **International experience.** The three granting agencies are working jointly to identify means to enhance the internationalisation of research training to foster highly qualified graduates that are globally connected and competitive. Examples of early successes in this area include NSERC's Strategic Network Enhancement Initiative (discussed further in Section II) and the Networks of Centres of Excellence (NCE) International Partnership Initiative (IPI). The evaluation of the Alexander Graham Bell Canada Graduate Scholarships and the NSERC Postgraduate scholarships programs, that is currently underway, will also be used to identify factors that influence international mobility and potential incentives that could be used to enhance the internationalization of training.

Priority 2: Foster a Knowledge Advantage

NSERC is committed to creating a strong foundation for research and research training in Canada. This is embodied in NSERC's Discovery Grants Program, which provides a base from which researchers can establish and build their research programs, and gives them the opportunity to unleash their creative power. This program is also the foundation for training the next generation: virtually every science and engineering student trained in Canada learns from NSERC-funded professors.

Science and discovery have no boundaries. Increasingly, researchers, both as individuals and teams, need to forge partnerships locally, internationally, and across disciplines and sectors to be at the leading edge of knowledge in their areas of inquiry.

Canada must position itself within this environment, to be able to generate the important developments that lead to environmental, societal, health, and economic benefits. The S&T Strategy calls on the federal funding agencies to coordinate efforts in priority areas of Canadian R&D strength and opportunity, where Canada can build global research and commercial leadership. These include environmental science and technologies; natural resources and energy; health and related life sciences and technologies; and information and communications technologies. An estimated 57 per cent of NSERC's funding is

currently allocated to these four priority areas. This proportion is expected to increase given the efforts NSERC is making to mobilize the research community to address significant opportunities and challenges in these strategic areas.

NSERC's plans and actions under Priority 2 will contribute to fostering a Knowledge Advantage for Canada and will directly support the agency's Strategic Outcome 2.0: "High quality Canadian-based competitive research in the natural sciences and engineering". In 2008-09 and beyond, NSERC will focus its efforts in the following areas:

- **Directing resources to priority areas.** Beginning in 2007-08, NSERC has been enhancing programs and launching new initiatives to mobilize the research community and increase the level of activity in the four priority research areas of the S&T Strategy.
    - The number of Discovery Accelerator Supplements has been doubled to provide a boost to future research stars working in the priority areas.
    - NSERC has re-scoped and repositioned the descriptions for three of the target areas for the Strategic Partnerships Programs (Advanced Communications and Management of Information; Healthy Environment and Ecosystems; and Sustainable Energy Systems) in order to align more directly with the S&T Strategy priority areas.
    - NSERC has launched new targeted initiatives in partnership with other government departments, including a nanotechnology initiative with the National Research Council (NRC) and the Business Development Bank of Cananda (BDC) to collaborate on large technology development-driven research projects, and a 4th Generation Nuclear Technology Initiative with Natural Resources Canada (NRCan) and Atomic Energy Canada Ltd (AECL).

  In 2008-09 and beyond, NSERC will continue to implement and build on these recent initiatives, exploring ways to further focus resources in the priority areas. For example, NSERC's Special Research Opportunities (SRO) program can be used to launch calls for proposals in specific areas of importance to Canada.
- **Review of Discovery Grants.** In 2007, NSERC launched a review of the Discovery Grants Program by an international committee of high profile experts, to ensure that the program assists Canadian researchers to perform at world-class levels of scientific excellence and supports the best ideas. The committee's mandate is to determine whether the current funding approach is appropriate and consistent with international standards of excellence. In parallel, NSERC has also launched a review of the structure of the peer review selection committees (GSCs) for the Discovery Grants program to ensure that it keeps pace with the evolving research environment and maximizes impact. NSERC Council will carefully consider the findings from these two major reviews. Recommendations that are accepted will be implemented starting with the 2009 Discovery Grants competition.

- **Strategic Plan for Research Grants and Scholarships.** NSERC will develop an overall Strategic Plan for the Research Grants and Scholarships programs, in consultation with its stakeholders, to increase the excellence and impact of the research supported. This priority initiative is linked to reviews described above and, with the advice and guidance of the Committee on Grants and Scholarships (COGS) and the Council, will incorporate their conclusions.
- **Balance in funding.** In recent years, there have been significant investments in creating and maintaining a competitive post-secondary research environment. The federal research funding agencies are contributing to the development of a more comprehensive approach to the management of the overall envelope of support for higher-education R&D, as called for in the S&T Strategy. To support this work, an inter-agency working group is documenting trends in federal investments to date for expenditures supporting direct, indirect, infrastructure and people costs. Recognizing that the Canadian research system is complex and involves many other funders, the granting agencies have begun consulting with stakeholder groups and plan to continue this over the first half of 2008. These consultations will help guide the development of a feasible and appropriate approach in addressing this very complex issue.

Priority 3: Foster an Entrepreneurial Advantage

Canada's future prosperity depends upon our ability to be strong performers in innovation, creating products and processes that are attractive in world markets. To do this, Canada must establish research and business leadership in key areas. This leadership is built on, and contributes to, the strength of the research base. NSERC will continue to work to increase the impact of research and training on Canadian industry's competitiveness and to accelerate the translation of research results into commercially successful innovations.

The S&T Strategy recognizes that partnerships between universities and industry can bring research strengths to bear on market-driven challenges and opportunities. The Strategy's Entrepreneurial Advantage focuses on supporting productivity growth through science and technology by putting in place the conditions that encourage private sector investment and innovation. NSERC and the other research granting agencies are responding to this challenge by introducing new ways to promote knowledge and technology transfer between post-secondary institutions and the private and public sectors through partnerships. The agencies are also working to increase the effectiveness of existing mechanisms for commercialization and contributing to a better understanding of the innovation system itself.

NSERC's plans and actions under this priority will contribute to fostering an Entrepreneurial Advantage for Canada and will directly support the agency's Strategic Objective 3.0: "Productive use of new knowledge in the natural sciences and engineering in Canada". In 2008-09 and beyond, NSERC will focus its efforts in the following areas:

- **Strengthen public-private research and commercialization partnerships.** NSERC has a suite of programs designed to promote partnerships between industry and post-secondary institutions. By establishing a new division dedicated to knowledge and technology transfer, NSERC will enhance its capacity to not only build stronger links between the academic and the private sectors, but also accelerate the flow of knowledge and technologies between them. In the coming year, NSERC plans to review and renew its Innovation Strategic Plan for Partnership Programs to ensure the plan is aligned with the S&T Strategy and includes mechanisms to implement the recommendations of NSERC's International Strategy and the growing cooperation between the three granting agencies and the Canada Foundation for Innovation (CFI). This plan will guide NSERC's partnership and commercialization programs for the coming five years.

  In 2008-09, the three granting agencies will seek Treasury Board approval to renew the Terms and Conditions for the Networks of Centres of Excellence (NCE) Program, incorporating appropriate changes based on a recently completed program evaluation as well as the report of an International Advisory Committee which was mandated to conduct a high-level review of the program's future goals, expectations, and niche. In addition to the NCE program, the NCE Secretariat will continue the implementation of new initiatives and investments announced in Budget 2007, which are described in more detail in Section II.

- **College and Community Innovation Program.** Canada has a national network of colleges that are closely connected to local business and industry, in particular small- and medium-sized enterprises (SMEs) in their community. In 2004, NSERC launched a pilot program enabling community colleges to help businesses address practical technology-based challenges and opportunities, while exposing college students to business work environments. Budget 2007 made NSERC's College and Community Innovation program permanent and allocated funds for its expansion. In consultations with the provinces and with groups of colleges across the country, NSERC has ensured alignment of this initiative with the goals of the participants and of other levels of government. Launched in January 2008, the program will increase the capacity of colleges to work with firms in their local communities, and will support all areas of applied research including social and health sciences as well as NSE disciplines. In addition, discussions are underway with the CFI which is interested in developing a joint call for proposals with NSERC to fund major R&D infrastructure support for colleges in the coming years.

- **Partnerships for commercialization.** A new collaborative relationship has been developed with the NRC and the BDC to increase the flow of research results to the market using the programs of all three organizations in a more seamless way. As part of this partnership, NSERC has directed $6M to accelerate the commercialization of publicly funded research in nanotechnology. In 2008-09, the agencies will continue to develop relationships and joint initiatives, and will hold consultations with the Provinces to align strategies.

- **Intellectual property policy.** NSERC will develop a better understanding of the intellectual property (IP) environment and will work with partners to identify best practices as well as factors that might be inhibiting collaboration between industry and the higher education sector. Responding to commitments in the S&T Strategy, an inter-agency working group is examining these IP issues and will develop new approaches to knowledge and technology transfer. These efforts are linked to work that NSERC initiated in 2007-08, including the evaluation of the Intellectual Property Mobilization (IPM) program and a review of NSERC's IP policy. The review was delayed at an early stage as human resources were diverted to deliver new priorities arising from Budget 2007 and the S&T Strategy. Progress is ongoing and this project will carry over to 2008-09.

Priority 4: Enhance Performance Measurement, Accountability and Value for Money

The S&T Strategy includes several explicit commitments related to the granting agencies' governance, value for money and performance reporting. NSERC is working closely with SSHRC, CIHR, CFI and Industry Canada to coordinate and align programs, policies and processes. Over the last few years, NSERC has added capacity and is making concrete advances in the areas of evaluation, impact analysis and reporting.

NSERC's management practices were reviewed in 2006-07 by both the Independent Blue Ribbon Panel on Grant and Contribution Programs and the government-wide Management Accountability Framework (MAF) assessment. In both cases, observations were generally positive and recognized the agency's strengths in financial management and control, and in responding to citizen and client needs and expectations. NSERC is taking steps to address those areas identified for improvement in the MAF assessment, including aspects related to performance measurement, public reporting documents, risk management, and the internal audit function.

In 2008-09, NSERC will place a strong emphasis on measuring and demonstrating results to Canadians, and will continue to assure high standards of accountability and client service, by focusing its efforts in the following areas:

- **Measuring and reporting on the impact of federally-funded S&T.** In partnership with the other granting agencies, a working group has been established to improve the agencies' ability to measure and report on the impact of their S&T expenditures. The group is developing a common framework and a set of common core indicators that will enable the collection and reporting of standardized data on the results and impact of investments by the federal research granting agencies and the CFI. With new resources allocated to NSERC under the *Federal Accountability Act*, NSERC will increase staff resources to build its capacity in program evaluation and performance measurement. These efforts also respond to recommendations made in NSERC's 2006 Management Accountability Framework (MAF) assessment.

NSERC will revamp the suite of communications products used to report results and impacts to various stakeholders and the public. A reporting structure is being developed based on a set of products and modules devoted to People, Discovery and Innovation. Several modules will be produced in 2008-09.

- **Internal Audit.** In 2007, NSERC and SSHRC entered into an interim agreement for a shared services arrangement for the provision of internal audit services. A shared approach results in greater economies of scale and enhances the opportunities for career progression and retention of staff. The completion of the merger and the hiring of a Chief Audit Executive are planned for 2008-09. The Internal Audit team will continue with its efforts to put in place all the measures and changes needed to ensure that NSERC is fully compliant with the new federal Policy on Internal Audit by April 2009. These measures include the comprehensive assessment of NSERC's management practices and the documentation and evaluation of related internal controls. These efforts also address recommendations made in NSERC's 2006 Management Accountability Framework (MAF) assessment.
- **Coordination of federal programs and processes.** The three granting agencies are examining opportunities to harmonize and align programs, policies and processes where appropriate. The three immediate objectives are to facilitate research and research-related activities that cross agency mandates; to improve coordination of diverse support programs that are managed individually or collectively; and, to enhance client service and reduce unnecessary workload on the research community. Examples of opportunities for enhanced collaboration that are currently under consideration include:
    - an effective mechanism for cross-agency research funding;
    - a better approach for directing applications to the most appropriate agency;
    - an examination of programs to identify those which may be operated on a multi-agency basis;
    - harmonization of policies governing eligibility of institutions and individual researchers as well as post-award administration;
    - a sharing of peer review best practices; and
    - the common use of technology to improve the electronic submission of applications and other electronic services.

Priority 5: Increase the Visibility of Canadian NSE Research

The accomplishments of outstanding Canadian researchers, institutions and students are a cause for celebration. NSERC has numerous vehicles to call attention to the excellence of Canadian research and researchers, working through the media, with other agencies and in extensive outreach endeavours. NSERC has established several prestigious national prizes to recognize outstanding Canadian researchers, research teams and students. These prizes enhance the career development of highly promising scientists and engineers and celebrate the sustained excellence of Canadian research. They publicly recognize successful R&D collaborations between industry and post-secondary institutions, and celebrate young Canadian entrepreneurs.

NSERC is working to increase the visibility of these prizes and more generally of Canadian scientists and discoveries, both nationally and internationally. NSERC's prizes, communications and outreach activities aim to stimulate Canadians' interest in science and engineering, to inspire youth to pursue studies and careers in NSE, and to help make Canada a destination of choice for talent from around the world.

In 2008-09 and beyond, NSERC will focus its efforts in the following areas:

- **Regional presence.** NSERC has strengthened and expanded the outreach capacity of its network of regional offices with the addition of a Communications and Promotion specialist. These positions are staffed in NSERC-Atlantic, NSERC-Prairies and NSERC-Pacific, and the process of staffing has begun for NSERC-Quebec. Each regional office operates a Regional Opportunity Fund to facilitate the initiatives of others in science and research celebration and promotion.

  The regional offices are also helping to increase awareness of NSERC programs in the business community. NSERC will launch new initiatives with the NRC Industrial Research Assistance Program (NRC-IRAP) and the BDC to increase the understanding of venture capital within the research community and provide facilitated links to SMEs. Regional offices are also planning outreach programs targeting specific industrial sectors, as a means to reach new firms, expand participation in NSERC programs, and promote increased R&D investments in the private sector.
- **Corporate identity and external relations.** A variety of recent studies have concluded that NSERC is extremely well-known in the academic community, but its profile in other sectors and in the general public is modest. NSERC is creating a new Directorate to be led by a Vice-President, External Relations and Communications, in order to equip itself with the expertise and leadership needed to enhance its reach and to engage all critical stakeholders and audiences. This new Directorate will also contribute to increasing the effectiveness of science promotion efforts. Actions are planned in the following areas:
  - Revitalization of NSERC's prizes and promotional initiatives;
  - Redevelopment of NSERC's Web site with the objective of enhancing both content and navigability for clients and the general public;
  - Development of a comprehensive corporate information package, with common design elements emphasizing unity and corporate identity, that can be adapted to meet the needs of NSERC's diverse stakeholder groups.

Section II – Analysis of Program Activities by Strategic Outcome

NSERC's Program Activity Architecture

Section II of this report follows the structure of NSERC's Program Activity Architecture (PAA) in terms of its three strategic outcomes (SO), related program activities and program sub-activities, as presented below:

Program Activity	Program Sub-Activity
SO 1.0: People – Highly skilled science and engineering professionals in Canada	
1.1 Promote Science and Engineering	1.1.1 PromoScience
	1.1.2 Centres for Research in Youth, Science Teaching and Learning
	1.1.3 Prizes
1.2 Support Students and Fellows	1.2.1 Undergraduate Student Research Awards
	1.2.2 NSERC Postgraduate Scholarships
	1.2.3 Alexander Graham Bell Canada Graduate Scholarships *
	1.2.4 Postdoctoral Fellowships
	1.2.5 Industrial Research and Development Fellowships
1.3 Attract and Retain Faculty	1.3.1 Canada Research Chairs *
	1.3.2 Industrial Research Chairs
	1.3.3 Chairs in Targeted Areas of Research
	1.3.4 University Faculty Awards
SO 2.0: Discovery – High quality Canadian-based competitive research in the natural sciences and engineering	
2.1 Fund Basic Research	2.1.1 Discovery Grants
	2.1.2 Special Research Opportunity Grants
	2.1.3 General Support
2.2 Support for Research Equipment and Major Resources	2.2.1 Research Tools and Instruments
	2.2.2 Major Resources Support Grants
	2.2.3 Research Capacity Development in Small Universities
SO 3.0: Innovation – Productive use of new knowledge in the natural sciences and engineering	
3.1 Fund Research in Strategic Areas	3.1.1 Strategic Partnerships
	3.1.2 Collaborative Health Research Projects *
3.2 Fund University-Industry-Government Partnerships	3.2.1 Collaborative Research and Development Grants
	3.2.2 Research Partnership Agreements
	3.2.3 Networks of Centres of Excellence * +
3.3 Support Commercialization	3.3.1 Intellectual Property Mobilization *
	3.3.2 Idea to Innovation Program
	3.3.3 College and Community Innovation Program *

* Programs involving two or more Agencies.
+ The new Business-Led NCEs, Centres of Excellence for Commercialization and Research, and Industrial R&D Internships will be included in this activity.

Strategic Outcome 1.0 – People: Highly skilled science and engineering professionals in Canada

NSERC will help ensure a reliable supply of highly qualified people for Canadian industry, government and universities by promoting science and engineering to Canadian youth, supporting students and fellows training in Canadian universities and abroad, and providing support to university faculty.

Program Activities

1.1 Promote Science and Engineering

<table>
<tr><th></th><th>2008–09</th><th>2009–10</th><th>2010–11</th></tr>
<tr><td>Financial Resources</td><td>$6.3 million</td><td>$6.3 million</td><td>$6.3 million</td></tr>
<tr><td>Human Resources</td><td>3</td><td>3</td><td>3</td></tr>
<tr><td colspan="4">Description
This program activity encourages popular interest in science, math and engineering and aims to develop science, math and engineering abilities in Canadian youth.</td></tr>
<tr><td colspan="2">Expected Results
Student interest in research in the sciences, math and engineering is encouraged.</td><td colspan="2">Indicators
• Number of organizations supported through PromoScience
• Impact on teaching practices (K–12)</td></tr>
<tr><td colspan="4">Outputs
In 2008-09, NSERC will:
• Support 125 non-profit organizations, museums, science centres and post-secondary institutions who promote science and engineering to youth, through the PromoScience grant program;
• Support five centres conducting research aimed at improving K–12 science teaching, through the Centres for Research in Youth, Science Teaching and Learning program;
• Celebrate the accomplishments of outstanding researchers, research teams and students through the following prizes:
o E.W.R. Steacie Memorial Fellowships
o Gerhard Herzberg Canada Gold Medal for Science and Engineering
o Howard Alper Postdoctoral Prize
o Innovation Challenge Awards
o Michael Smith Awards for Science Promotion
o NSERC André Hamer Postgraduate Prizes
o NSERC Doctoral Prizes
o NSERC John C. Polanyi Award
o Synergy Awards for Innovation</td></tr>
<tr><td colspan="4">Link to Priorities
Priority 1: Foster a People Advantage
Priority 5: Increase the visibility of Canadian NSE research</td></tr>
</table>

Selected key programs, services and initiatives within this Program Activity that will support NSERC's priorities from 2008-09 to 2010-11 include the following:

- **CRYSTAL Evaluation.** A program evaluation of the Centres for Research in Youth, Science Teaching and Learning (CRYSTAL) is underway and will be completed in 2008. Results of this evaluation will inform decisions on the future of the program.
- **Aboriginal Ambassadors in the NSE.** NSERC continues to work with the university community and other stakeholders to implement strategies to better address the under-representation of Aboriginals in the NSE. NSERC is ready to announce a new initiative that will encourage Aboriginal scholarship and fellowship holders to conduct outreach in Aboriginal communities. Many science centres and science promotion organizations are ready to assist them (e.g., helping the Ambassadors prepare their material).
- **Major NSERC Prizes.** NSERC will seek out high profile locations and develop high quality presentation packages to call wide attention to its prestigious medals and prizes. In addition, NSERC will increase the monetary value of the Synergy Awards for Innovation in order to increase the prestige and profile associated with these tributes to industry-university partnerships.

1.2 Support Students and Fellows

<table>
<tr><th></th><th>2008–09</th><th>2009–10</th><th>2010–11</th></tr>
<tr><td>Financial Resources</td><td>$146.2 million</td><td>$146.7 million</td><td>$146.7 million</td></tr>
<tr><td>Human Resources</td><td>59</td><td>58</td><td>58</td></tr>
<tr><td colspan="4">Description
This program activity supports the training of highly qualified personnel through scholarship and fellowship programs.</td></tr>
<tr><td colspan="2">Expected Results
A supply of highly qualified people with leading-edge scientific and research skills for Canadian industry, government, and universities.</td><td colspan="2">Indicators
• Percentage of students supported staying in Canada after their studies
• Average salary of scholarship recipients vs. general population after completion of studies
• Average completion rates among recipients vs. general NSE student population</td></tr>
<tr><td colspan="4">Outputs
In 2008-09, NSERC will support more than 4,000 undergraduate students, more than 4,000 master’s and doctoral students and nearly 700 postdoctoral fellows conducting research in the natural sciences and engineering, through the following Scholarship and Fellowship programs:
o Undergraduate Student Research Awards;
o Postgraduate Scholarships for masters and doctoral students;
o Alexander Graham Bell Canada Graduate Scholarships for masters and doctoral students;
o Postdoctoral Fellowships;
o Industrial Research and Development Fellowships.
In addition to NSERC’s Scholarship and Fellowship programs, NSERC indirectly supports (i.e., through grants provided to professors) almost 5,000 undergraduate students, more than 4,900 graduate students and approximately 1,400 postdoctoral fellows.</td></tr>
</table>

Link to Priority Priority 1: Foster a People Advantage

Selected key programs, services and initiatives within this Program Activity that will support NSERC's priorities from 2008-09 to 2010-11 include the following:

- **Alexander Graham Bell Canada Graduate Scholarships.** As announced in Budget 2007, the Canada Graduate Scholarships (CGS) program is being expanded to support an additional 1,000 students per year across all disciplines. The total number of scholarships awarded by the three federal research granting agencies will stand at 5,000 by 2009. Furthermore, the scholarships have been renamed in honour of renowned Canadian innovators and researchers. Students in the natural sciences and engineering will now receive the Alexander Graham Bell Canada Graduate Scholarship. Consequently, NSERC will increase the number of Alexander Graham Bell CGS awards offered in the natural sciences and engineering, from 1,200 awards in 2006-07 to 1,600 awards by 2009-10. These awards will greatly contribute to improving Canada's production of graduates with advanced degrees, to meet the demand for highly qualified personnel in the private, academic and private sectors.
- **Foreign talent.** NSERC has reserved funds to offer scholarships and fellowships to attract excellent foreign graduate students and postdoctoral fellows to Canada to work in the S&T Strategy's priority areas of research with top national research centres and networks.

1.3 Attract and Retain Faculty

	2008–09	**2009–10**	**2010–11**
Financial Resources	$167.7 million	$167.7 million	$167.7 million
Human Resources	25	25	25

Description
This program activity aims to attract and retain faculty.

Expected Results	**Indicators**
Enhanced research capacity in science and engineering.	• New professors coming to Canada: number of foreign educated new applicants to NSERC's Discovery Grants program • Attrition rates: percentage of NSERC funded professors retained in Canada • Number of new applications for Industrial Research Chairs to be created in Canadian universities

Outputs
In 2008-09, NSERC will:
- Attract and retain some of the world's most accomplished and promising researchers in the NSE by supporting 900 Canada Research Chairs;
- Build research capacity in areas of priority to industry by supporting 200 professors who hold Industrial Research Chairs.

Link to Priorities
Priority 1: Foster a People Advantage
Priority 2: Foster a Knowledge Advantage
Priority 3: Foster an Entrepreneurial Advantage

A key initiative under Program Activity 1.3 that will support NSERC's priorities from 2008-09 to 2010-11 is the following:

- **Industrial Research Chairs.** Industrial Research Chairs (IRC) are prestigious appointments, intended to assist universities in building on existing strengths to achieve the critical mass required for a major research endeavour in science and engineering of interest to industry. By its nature, the IRC program is focused on priority areas of need or opportunity identified by industrial partners. NSERC will continue to be responsive to a growing desire from the private sector to enter into partnerships with the university research community and will implement the recommendations of a recent program evaluation, the results of which were positive, including increasing the program's visibility and enhancing performance measurement.

Strategic Outcome 2.0 – Discovery: High quality Canadian-based competitive research in the natural sciences and engineering

Support for ongoing programs of research provides the foundation for scientific and technological advances, ensuring Canada's participation in the generation of new knowledge and ability to draw on such knowledge generated around the world. Support for research equipment and major resources ensures that Canadian post-secondary institutions are able to train the next generation of scientists and engineers in a world-class research environment, with access to state-of-the-art instruments and equipment and to major regional or national research facilities.

Program Activities

2.1 Fund Basic Research

	2008–09	2009–10	2010–11
Financial Resources	$379.4 million	$379.0 million	$376.6 million
Human Resources	122	126	126
Description This program activity invests in discovery through grants focusing on basic research activities.			

Expected Results The discovery, innovation and training capability of university researchers in the natural sciences and engineering is enhanced by the provision of support for on-going programs of basic research.	**Indicators** • Number of publications and percentage share of world production • Average relative impact factor of Canadian publications in the NSE (comparison with other countries) • Higher education R&D spending as a percentage of GDP, compared to G8 countries
Outputs In 2008-09, NSERC will: • Support the ongoing programs of research of 11,500 researchers through the Discovery Grants program; • Accelerate the progress and maximize the impact of more than 175 outstanding research programs through the Discovery Accelerator Supplements; • Support 300 researchers through Special Research Opportunity Grants, enabling them to pursue new and emerging research opportunities and develop potential new collaborations, nationally or internationally.	
Link to Priorities Priority 1: Foster a People Advantage Priority 2: Foster a Knowledge Advantage Priority 3: Foster an Entrepreneurial Advantage	

Selected key programs, services and initiatives within this Program Activity that will support NSERC's priorities from 2008-09 to 2010-11 include the following:

- **Discovery Accelerator Supplements.** These awards provide substantial and timely additional resources to accelerate the progress of outstanding researchers each year, helping them to compete with the best in the world. The supplements may be used to expand the recipient's research group (i.e., students, postdoctoral fellows, technicians), to purchase or to have access to specialized equipment, or for other initiatives or resources that would maximize the impact of their research program. The program was launched in 2007-08 with an initial objective to award 50 Accelerator Supplements per year. With additional funds provided in Budget 2007, NSERC will award 50 additional supplements per year to outstanding Discovery Grant recipients working in the priority areas of energy and natural resources, environment, and information and communications technologies.

- **International Polar Year.** The International Council for Science (ICSU) and the World Meteorological Organization (WMO) declared 2007-08 as the International Polar Year (IPY). The "year" started on March 1, 2007 and will end on March 1, 2009, covering 24 months. NSERC enabled the participation of Canadians in the IPY, a major international initiative of particular national importance, investing $6 million over three years in the research activities of 11 groups of Canadian researchers through the Special Research Opportunity Program. NSERC also administers more than $30 million of the federal government's $98 million in IPY research funding. These investments will help Canada maintain its leadership in the important area of Arctic research.

2.2 Support for Research Equipment and Major Resources

	2008–09	2009–10	2010–11
Financial Resources	$41.5 million	$29.7 million	$29.7 million
Human Resources	23	17	17

Description
This program activity helps to support the establishment, maintenance and operation of the research equipment, major research resources and research capacity necessary to carry out high quality research in the natural sciences and engineering.

Expected Results	**Indicators**
The discovery, innovation and training capability of university researchers in the natural sciences and engineering is supported by the access to research equipment and major regional or national research facilities.	• Adequacy and impact of national and regional research facilities in Canada and level of access • Extent to which research equipment is up to date and sufficient to meet the needs of research programs

Outputs
In 2008-09, NSERC will:

- Facilitate access of Canadian researchers to more than 75 major national or international experimental facilities or research resources;
- Enhance research capacity in Canadian universities by providing $36 million to support the purchase of research equipment and access to installations;
- Build research capacity at seven smaller universities through the Research Capacity Development in Small Universities Program.

Link to Priorities
Priority 1: Foster a People Advantage
Priority 2: Foster a Knowledge Advantage
Priority 3: Foster an Entrepreneurial Advantage

A key initiative under Program Activity 2.2 that will support NSERC's priorities from 2008-09 to 2010-11 is the following:

- **Major science initiatives.** Several major science initiatives and infrastructure projects, put in place with CFI funding, face challenges in securing ongoing operating funds. These include the North-East Pacific Time-series Undersea Network Experiments (NEPTUNE) project, the Sudbury Neutrino Observatory Laboratory (SNOLAB), the Amundsen research vessel, and the Canadian Light Source (CLS). NSERC has worked with the CFI, the provinces and the proponents to put in place shared emergency funding to ensure that two of these—NEPTUNE and SNOLAB—are able to start their operation. NSERC is also working with CFI and the other funding agencies to document trends in federal investments to date by nature of investments (e.g., direct, indirect, infrastructure and people costs).

Strategic Outcome 3.0 – Innovation: Productive use of new knowledge in the natural sciences and engineering

Wealth is created when Canadians add value in producing goods and services that are sold in world markets. Knowledge is the modern basis for adding value. NSERC aims to maximize the value of public investments in research for the benefit of all Canadians by promoting research-based innovation, university-industry partnerships, technology transfer activities and the training of people with the required scientific and business skill sets to create wealth from discoveries in the NSE.

Program Activities

3.1 Fund Research in Strategic Areas

<table>
<tr><th></th><th>2008–09</th><th>2009–10</th><th>2010–11</th></tr>
<tr><td>Financial Resources</td><td>$104.5 million</td><td>$103.3 million</td><td>$102.5 million</td></tr>
<tr><td>Human Resources</td><td>36</td><td>39</td><td>39</td></tr>
<tr><td colspan="4">Description
This program activity funds research in areas of national importance and in emerging areas that are of potential significance to Canada.</td></tr>
<tr><td colspan="2">Expected Results
Research and training in targeted and emerging areas of national importance is accelerated.</td><td colspan="2">Indicators
• Trends in funding for research in the Federal S&T Strategy priority areas
• Trends in number of organizations participating in Strategic Partnerships Programs
• Partner satisfaction with project outcomes in targeted areas</td></tr>
<tr><td colspan="4">Outputs
In 2008-09, NSERC will:
• Support 500 early-stage research projects in targeted areas that could strongly enhance Canada’s economy, society and/or environment within the next ten years, through the Strategic Project Grants program;
• Support 20 large-scale, collaborative networks in targeted areas that could strongly enhance Canada's economy, society and/or environment within the next ten years, through the Strategic Network Grants program;
• Support 75 Collaborative Health Research Projects for research projects in the NSE which, if successful, will lead to health benefits for Canadians, more effective health services, and economic development in health-related areas.</td></tr>
<tr><td colspan="4">Link to Priorities
Priority 1: Foster a People Advantage
Priority 2: Foster a Knowledge Advantage
Priority 3: Foster an Entrepreneurial Advantage</td></tr>
</table>

Selected key programs, services and initiatives within this Program Activity that will support NSERC’s priorities from 2008-09 to 2010-11 include the following:

- **Growth in Strategic Partnership programs.** With funding provided in Budget 2007, incremental investments have been made to several programs under the Strategic Partnerships sub-activity. The incremental funding will support additional Strategic Network Grants, Strategic Project Grants and Strategic Workshop Grants under the three target areas – Healthy Environment and Ecosystems, Sustainable Energy Systems, and Advanced Communications and Management of Information – each of which has been re-scoped and repositioned to align more directly with the S&T Strategy priority areas. These programs accelerate research and training in targeted and emerging areas of national importance that could strongly enhance Canada's economy, society and/or environmental stewardship within the next ten years. To promote an integrated, multidisciplinary approach to addressing the priority research areas, calls for proposals are designed to include co-applicants from disciplines outside the NSE.

- **Strategic Network Enhancement Initiative.** In 2007-08, NSERC provided new funding to existing Strategic Networks to build on their strengths and support enriched training, develop and improve international linkages, and increase the impact of the network through intensified knowledge and technology transfer. These new linkages respond to the S&T Strategy commitment to strengthen Canada's ties to the global supply of ideas, talent and technology through support for multinational collaborative research projects. This initiative has become a permanent enhancement to the program along with the doubling of its budget.

- **Collaborative Health Research Projects.** Together, NSERC and CIHR have expanded their Collaborative Health Research Projects Program, more than doubling the program budget from $6M per annum in 2006-07 to a total of $13.8M, to increase interaction between the health science and natural science and engineering communities so as to address important health challenges that require expertise from the two sets of disciplines.

3.2 Fund University-Industry-Government Partnerships

<table>
<tr><th></th><th>2008–09</th><th>2009–10</th><th>2010–11</th></tr>
<tr><td>Financial Resources</td><td>$139.5 million</td><td>$143.2 million</td><td>$146.7 million</td></tr>
<tr><td>Human Resources</td><td>77</td><td>77</td><td>77</td></tr>
<tr><td colspan="4">Description
This program activity fosters collaborations between university researchers and other sectors, including government and industry, in order to develop new knowledge and expertise, and to transfer this knowledge and expertise to Canadian-based organizations.</td></tr>
<tr><td colspan="2">Expected Results
Mutually beneficial collaborations between the private sector and researchers in universities, resulting in industrial or economic benefits to Canada.</td><td colspan="2">Indicators
• Ratio of partner contributions to NSERC funding
• Partner satisfaction with research results
• Trend in number of companies involved in university-industry partnerships</td></tr>
</table>

Outputs
In 2008-09, NSERC will:

- Support more than 1,000 university researchers working in partnership with industry through the Collaborative Research and Development Grants;
- Support 16 Networks of Centres of Excellence (in the natural sciences and engineering) and up to five Business-led Networks of Centres of Excellence, bringing together researchers and partners from the academic, private, public and non profit sectors in areas of strategic importance for Canada;
- Support internationally recognized centres of commercialization and research expertise in four priority areas of strategic importance for Canada, through the Centres of Excellence for Commercialization and Research program;
- Encourage Canadian industry to invest over $50 million in leveraged funds through programs fostering private-public sector research and commercialization partnerships;
- Provide indirect support, through grants for industry-university partnerships, for an estimated 500 undergraduate students, nearly 1,200 graduate students and approximately 200 postdoctoral fellows;
- Create opportunities for an estimated 500 science and technology graduates to apply their expertise in industry through the new Industrial R&D Internship Program.

Link to Priorities
Priority 1: Foster a People Advantage
Priority 3: Foster an Entrepreneurial Advantage

Selected key programs, services and initiatives within this Program Activity that will support NSERC's priorities from 2008-09 to 2010-11 include the following:

- **Implementation of new programs.** The implementation of new initiatives and investments announced in Budget 2007 is well underway and will continue into 2008-09 and beyond. These include:
    - The Business-led Networks of Centres of Excellence (BL-NCE) will fund large-scale collaborative networks to support private sector innovation in order to deliver potential economic, social and/or environmental benefits to Canadians.
    - The Centres of Excellence for Commercialization and Research (CECR) will create internationally recognized centres of commercialization and research expertise in four priority areas in order to deliver economic, health, social and environmental benefits to Canadians.
    - The Industrial Research and Development Internship (IRDI) Program will create internships in industry, introducing students to practical business problems while allowing them to apply their expertise to help meet the research needs of Canada's private sector. The program is modelled after a successful initiative developed by the Mathematics of Information Technology and Complex Systems (MITACS) NCE.

- **Pre-CRDs.** The Collaborative Research and Development (CRD) Grants program enables companies to access the unique knowledge, expertise, and educational resources available at Canadian post-secondary institutions, and offers opportunities for mutually beneficial collaborations, jointly funded by NSERC and the industrial partner(s). In order to increase the number of university-industry interactions and partnerships, and to build receptor capacity in Canadian industry, NSERC plans to

launch a pilot Pre-CRD Initiative. Incentives will be provided for researchers to actively seek out companies with whom to partner. A one-year "Pre-CRD" grant would be available for researchers and companies who have not previously participated in NSERC's Partnerships Programs. To encourage industry to participate, the Pre-CRD grant would not require industry cash or tangible in-kind contributions. NSERC's experience has shown that successful long-term collaborations often begin first as a small joint CRD project, progressing to larger CRDs and, in some cases, to an Industrial Research Chair, a major time and financial commitment for both the company and the university researcher.

3.3 Support Commercialization

<table>
<tr><th></th><th>2008–09</th><th>2009–10</th><th>2010–11</th></tr>
<tr><td>Financial Resources</td><td>$14.0 million</td><td>$26.5 million</td><td>$26.5 million</td></tr>
<tr><td>Human Resources</td><td>4</td><td>4</td><td>4</td></tr>
<tr><td colspan="4">Description
This program activity supports innovation and promotes the transfer of knowledge and technology to Canadian companies.</td></tr>
<tr><td colspan="2">Expected Results
The transfer of knowledge and technology residing in Canadian universities and colleges to the user sector is facilitated.</td><td colspan="2">Indicators
• Trends in technology and knowledge transfer activity</td></tr>
<tr><td colspan="4">Outputs
In 2008-09, NSERC will:
- Support approximately eight new collaborations to encourage research and technology transfer between colleges and industry through the College and Community Innovation Program;
- Provide $3.5 million in funding to accelerate the transfer of knowledge and technology residing in Canadian universities, hospitals, and colleges, through the Intellectual Property Mobilization Program;
- Support 75 projects to accelerate the pre-competitive development of promising technology and promote its transfer to Canadian companies, through the Idea to Innovation (I2I) Program.</td></tr>
<tr><td colspan="4">Link to Priority
Priority 3: Foster an Entrepreneurial Advantage</td></tr>
</table>

A key initiative under Program Activity 3.3 that will support NSERC's priorities from 2008-09 to 2010-11 is the following:

- **College and Community Innovation (CCI) Program.** As discussed under Priority 3 in Section I above, the permanent CCI program, announced in Budget 2007, was launched in January 2008. Funding will flow to recipients in 2008-09 and beyond.

Section III – Supplementary Information

Agency Links to the Government of Canada Outcomes

All of NSERC's program activities contribute to the achievement of the Government of Canada's "Innovative and Knowledge-based Economy" outcome area (within the Economic Affairs cluster).

Table 7. Agency Links to the Government of Canada Outcomes

	Expected Results	Planned Spending[6] ($ millions)			Alignment to Government of Canada Outcome Area
		2008–09	2009–10	2010–11	
Strategic Outcome #1: People: Highly skilled science and engineering professionals in Canada					
1.1 Promote Science and Engineering	Student interest in research in the sciences, math and engineering is encouraged.	6.3	6.3	6.3	Innovative and Knowledge-based Economy
1.2 Support Students and Fellows	A supply of highly qualified people with leading-edge scientific and research skills for Canadian industry, government and universities.	146.2	146.7	146.7	Innovative and Knowledge-based Economy
1.3 Attract and Retain Faculty	Enhanced research capacity in science and engineering.	167.7	167.7	167.7	Innovative and Knowledge-based Economy
Strategic Outcome #2: Discovery: High quality Canadian-based competitive research in the natural sciences and engineering					
2.1 Fund Basic Research	The discovery, innovation and training capability of university researchers in the NSE is enhanced.	379.4	379.0	376.6	Innovative and Knowledge-based Economy

[6] Includes costs for administration of NSERC programs totalling $44.8 million in 2008-09.

	Expected Results	Planned Spending[6] ($ millions)			Alignment to Government of Canada Outcome Area
		2008–09	2009–10	2010–11	
2.2 Support for Research Equipment and Major Resources	The discovery, innovation and training capability of university researchers in the natural sciences and engineering is supported by the access to research equipment and major regional or national research facilities.	41.5	29.7	29.7	Innovative and Knowledge-based Economy
Strategic Outcome #3: Innovation: Productive use of new knowledge in the natural sciences and engineering					
3.1 Fund Research in Strategic Areas	Research and training in targeted and emerging areas of national importance is accelerated.	104.5	103.3	102.5	Innovative and Knowledge-based Economy
3.2 Fund University-Industry-Government Partnerships	Mutually beneficial collaborations between the private sector and researchers in universities, resulting in industrial or economic benefits to Canada.	139.5	143.2	146.7	Innovative and Knowledge-based Economy
3.3 Support Commercialization	The transfer of knowledge and technology residing in Canadian universities and colleges to the user sector is facilitated.	14.0	26.5	26.5	Innovative and Knowledge-based Economy
TOTAL		**999.1**	**1,002.4**	**1,002.7**	

The tables listed below are available on the Treasury Board Secretariat's Web site at http://www.tbs-sct.gc.ca/est-pre/20082009/p3a_e.asp:

- Details on Transfer Payment Programs (TPPs)
- Recently Completed and Upcoming Evaluations
- Upcoming Internal Audits
- Services Received Without Charge
- Sources of Non-respendable Revenue