ESTIMATES

Natural Sciences and Engineering Research Council of Canada

2002-2003
Estimates

Part III – Report on Plans and Priorities

Canada

The Estimates Documents

Each year, the government prepares Estimates in support of its request to Parliament for authority to spend public monies. This request is formalized through the tabling of appropriation bills in Parliament. The Estimates, which are tabled in the House of Commons by the President of the Treasury Board, consist of three parts:

Part I – The Government Expenditure Plan provides an overview of federal spending and summarizes both the relationship of the key elements of the Main Estimates to the Expenditure Plan (as set out in the Budget).

Part II – The Main Estimates directly support the *Appropriation Act*. The Main Estimates identify the spending authorities (votes) and amounts to be included in subsequent appropriation bills. Parliament will be asked to approve these votes to enable the government to proceed with its spending plans. Parts I and II of the Estimates are tabled concurrently on or before 1 March.

Part III – Departmental Expenditure Plans which is divided into two components:

(1) **Reports on Plans and Priorities (RPPs)** are individual expenditure plans for each department and agency (excluding Crown corporations). These reports provide increased levels of detail on a business line basis and contain information on objectives, initiatives and planned results, including links to related resource requirements over a three-year period. The RPPs also provide details on human resource requirements, major capital projects, grants and contributions, and net program costs. They are tabled in Parliament by the President of the Treasury Board on behalf of the ministers who preside over the departments and agencies identified in Schedules I, I.1 and II of the *Financial Administration Act*. These documents are tabled in the spring and referred to committees, which then report back to the House of Commons pursuant to Standing Order 81(4).

(2) **Departmental Performance Reports (DPRs)** are individual department and agency accounts of accomplishments achieved against planned performance expectations as set out in respective RPPs. These Performance Reports, which cover the most recently completed fiscal year, are tabled in Parliament in the fall by the President of the Treasury Board on behalf of the ministers who preside over the departments and agencies identified in Schedules I, I.1 and II of the *Financial Administration Act*.

The Estimates, along with the Minister of Finance's Budget, reflect the government's annual budget planning and resource allocation priorities. In combination with the subsequent reporting of financial results in the Public Accounts and of accomplishments achieved in Departmental Performance Reports, this material helps Parliament hold the government to account for the allocation and management of public funds.

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Natural Sciences and Engineering Research Council of Canada

Conseil de recherches en sciences naturelles et en génie du Canada

Investing in people, discovery and innovation

Report on Plans and Priorities

2002-2003
Estimates

Allan Rock
Minister of Industry

Canada

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List of Abbreviations

AP	Action Plan
CA	Capacity Assessment
CFI	Canadian Foundation for Innovation
CPI	Consumer Price Index
CIHR	Canadian Institutes of Health Research
FTE	Full-Time Equivalent
HQP	Highly Qualified People
ICT	Information and Communication Technology
IRC	Industrial Research Chairs
NanoIP	NSERC Nanoscience and Nanotechnology Innovation Platform
NSE	Natural Sciences and Engineering
NSERC	Natural Sciences and Engineering Research Council of Canada
OECD	Organization for Economic Co-operation and Development
PRAS	Planning, Reporting and Accountability Structure
PWGSC	Public Works and Government Services Canada
R&D	Research and Development
RPP	Report on Plans and Priorities
SPARK	Students Promoting Awareness of Research Knowledge
S&T	Science and Technology
SSHRC	Social Sciences and Humanities Research Council of Canada
TBS	Treasury Board Secretariat

1. Messages

1.1 Minister's Portfolio Message

Today, our people, our universities and our industries are successfully competing around the globe. At the same time, we have a democratic society and way of life that continues to be judged one of the best in the world. To continue our economic growth and social development, indeed, to continue our success as a nation, we must strive to be among the best in creating and commercializing new knowledge. We are committed to building a world-leading, knowledge-based economy and we need to be more innovative to stay competitive.

To support a nation of innovators, we are investing in the skills and abilities of all Canadians so that they can actively contribute to and participate in today's knowledge-based economy. By harnessing our human potential and talent, we can continue our economic success.

The Government of Canada is investing in research and development to improve the capability of our universities and private sector firms to compete internationally. To foster a culture of innovation, we are creating an environment that is favourable to innovation, an environment of trust and confidence, where the public and private interests are protected and there are marketplace incentives for innovation.

The Industry Portfolio organizations are:

Atlantic Canada Opportunities Agency
Business Development Bank of Canada*
Canadian Space Agency
Competition Tribunal
Copyright Board Canada
Canada Economic Development for Quebec Regions
Canadian Tourism Commission*
Enterprise Cape Breton Corporation*
Industry Canada
National Research Council Canada
Natural Sciences and Engineering Research Council of Canada
Social Sciences and Humanities Research Council of Canada
Standards Council of Canada*
Statistics Canada
Western Economic Diversification Canada

** Not required to submit Reports on Plans and Priorities*

Whether stimulating the creation and use of knowledge, supporting the creation and development of businesses and industries, promoting inclusive economic growth, or ensuring a fair and equitable marketplace, each of the fifteen member organizations of the Industry Portfolio is contributing to Canada's innovation strategy. Their work with public and private sector partners across the country is key to Canada's success.

I am pleased to present the Report on Plans and Priorities for the Natural Sciences and Engineering Research Council of Canada (NSERC), which describes their expected achievements and results over the next three years. NSERC invests in Canada's capability in science and technology to provide Canadians with a highly qualified workforce, new knowledge, and the creative and productive use of that knowledge to fuel innovation in our knowledge-based economy.

NSERC supports both basic university research through *Discovery Grants* and project research through partnerships among universities, colleges, governments and the private sector, as well as the advanced training of highly qualified people. NSERC investments in the training of highly qualified people are key to helping Canada move to 5th place in R&D investment per capita among OECD countries by 2010.

To secure Canada's continued success in the 21st century, we are committed to nurturing and developing the potential of all our citizens in every community across our nation. By investing in organizations like NSERC, we will continue building an innovative economy and society for the benefit of all Canadians.

The Honourable Allan Rock

1.2 Message from the Secretary of State (Science, Research and Development)

The citizens of our nation represent a virtually limitless talent pool; we can and will develop and use their ideas and skills to continue building a world-class science, research and development community. With strategic investments and targeted programming, this community can propel Canada to become one of the top-ranked countries in the world in terms of investment in research and development. Advancing such an ambitious goal is a major challenge. As a start, the government is committed to doubling its own investment in research and development by 2010.

Government efforts alone, however, will not suffice. That is why we are also investing to increase and strengthen the research capacity of our industrial and academic sectors. And to make sure that these sectors can advance, we are also working to develop the requisite highly skilled people they need to do the research and, through the commercialization of this research, to bring Canadian innovation to market.

We are committed to improving our overall level of innovation and to this end we have launched a number of initiatives to invigorate the development of our knowledge infrastructure, our commercial environment, our universities, and our human capital. Within the Industry Portfolio, the Natural Sciences and Engineering Research Council of Canada (NSERC), the Social Sciences and Humanities Research Council of Canada (SSHRC) and the National Research Council Canada (NRC) play a major role in advancing these objectives.

This report illustrates how NSERC initiatives are making and will continue to make a strategic contribution to the advancement of our scientific, research and development community. These are the types of initiatives that are needed to help turn the promise of Canadian know-how and ingenuity into reality.

_____

The Honourable Maurizio Bevilacqua

1.3 Management Representation Statement

MANAGEMENT REPRESENTATION STATEMENT

Report on Plans and Priorities 2002-2003

I submit, for tabling in Parliament, the *2002-2003 Report on Plans and Priorities* (RPP) for NSERC (the Natural Sciences and Engineering Research Council of Canada).

To the best of my knowledge the information in this document:

- Accurately portrays the organization's plans and priorities.
- Is consistent with the reporting principles contained in the *Guide to the Preparation of the 2002-2003 Report on Plans and Priorities*.
- Is comprehensive and accurate.
- Is based on sound underlying departmental information and management systems.

I am satisfied as to the quality assurance processes and procedures used for the RPP's production.

The *Planning, Reporting and Accountability Structure* (PRAS) on which this document is based has been approved by Treasury Board Ministers and is the basis for accountability for the results achieved with the resources and authorities provided.

_____

T.A. Brzustowski, President

_____

Date

2. Raison d'être

NSERC invests in people, discovery, and innovation to build a strong Canadian economy and to improve the quality of life of all Canadians.

See Figure 13 on page 27 for a graphic representation of NSERC's vision and mission.

3. Plans and Priorities

3.1 Strategic Outcome

All NSERC plans and priorities relate to one strategic outcome:

> To provide Canadians with economic and social benefits arising from the provision of a highly skilled workforce and knowledge transfer of Canadian discoveries in the natural sciences and engineering from universities and colleges to other sectors.

NSERC achieves this long-term outcome by awarding scholarships and research grants through peer-reviewed competition, and by building research partnerships among universities, colleges, governments and the private sector.

3.2 NSERC Priorities

NSERC is Canada's national instrument for making strategic investments in training and research in the natural sciences and engineering (NSE). These investments support university-based basic and project research, they support the education of young people in that research and they encourage and facilitate links between the universities, colleges, governments and the private sector. Through its investments, NSERC builds Canada's capabilities in science and technology and supports innovation that drives the economy and improves the quality of life of all Canadians. Annually, NSERC invests over $600 million in three core priorities – *people, discovery and innovation* – at Canadian universities and colleges.

Investing in People

Canadians, equipped with the skills and knowledge required to create value, will enable Canada to be competitive in the global knowledge economy. Students and fellows trained with the help of NSERC acquire the skills needed to pursue rewarding careers in all sectors of the economy and to become tomorrow’s scientists, engineers and leaders in society. (See Figure 1 on page 8 for planned results, activities and resources.)

Fueling the Discovery Process

With NSERC funding, Canadian professors strengthen their capability in all areas of the natural sciences and engineering and gain access to leading-edge knowledge from around the world. Armed with this knowledge, and working increasingly in partnership with industry, they help fuel Canada's innovation system. Canadian scientists and engineers are respected throughout the world for the high calibre of their research and their leading-edge discoveries. (See Figure 2 on page 9 for planned results, activities and resources.)

Helping Canada Innovate

NSERC investments in Canada's knowledge base lead to innovations in industry. In order to thrive, our industries need to take full advantage of the nation's capacity for science-based innovation. NSERC's research partnership programs, involving universities, colleges, and the public and private sectors, expand research expertise and facilitate the exchange of knowledge, technology and people across all sectors. With funding from NSERC, university researchers connect with those who can use new knowledge productively and enhance Canada's capacity for innovation: this in turn contributes to wealth creation. (See Figure 3 on page 10 for planned results, activities and resources.)

Moving to 5th

The government has set a new goal for Canada, moving to 5th place in R&D investment per capita among OECD countries by 2010. To reach its goal, Canada will require many more highly qualified people trained at Canadian universities and colleges. In order for Canada to move to 5th place, NSERC estimates that between 107,000 and 139,000 new researchers will be required across all disciplines. NSERC investments in the training of highly qualified people are key to meeting this challenge and unlocking Canada's R&D potential. The 7% increase to NSERC's annual budget announced in the 2001 Federal Budget helps to address this challenge.

Each of NSERC's priorities – *people, discovery and innovation* – makes a distinct contribution to help satisfy Canada's demand for highly skilled people. For example, on the average, almost 40% of the grant money awarded to professors through *Discovery Grants* is spent on the training of future researchers. Furthermore, through its university-industry research partnership programs, NSERC exposes students to the opportunities available in Canadian industry and helps them to acquire the skill sets that match the present and future needs of our economy. These programs help retain talented youth in the science and technology fields in Canada, beyond their graduation.

NSERC is an important part of the federal government's innovation strategy through its contributions to economic growth, improved quality of life, and the advancement of knowledge. As a result of NSERC investments, Canada has access to leading-edge science and technology from around the world and highly qualified people who are expert in it.

The following three figures describe NSERC's major planned results, key activities and resources for the next three years. Information is grouped according to NSERC's three core priorities: *people* (Figure 1), *discovery* (Figure 2) *and innovation* (Figure 3).

Figure 1 – Investing in People

Planned Results	Key Related Activities	Resources[1] (millions of dollars)		
		2002-03	2003-04	2004-05
Highly qualified people (HQP), expert in research in the natural sciences and engineering, able to pursue various knowledge-intensive careers within industry, government and other sectors of the economy.	Provide research training support to undergraduate, master's and doctoral students, and postdoctoral fellows. This is done by:			
	• Providing direct support: awarding scholarships and fellowships, some in partnership with industry, to selected individuals through national competitions;	89.9	89.9	89.9
	• Providing indirect support: a professor may hire a student or postdoctoral fellow using an NSERC grant.	*(Indirect support resources found in figures 2 & 3.)*		
Enhanced ability to recruit the next generation of scientists and engineers among today's youth.	Provide targeted support to address the under-representation of women and Aboriginal peoples in faculty positions in the NSE.	2.8	3.8	5.0
	Create research chairs and provide supplements to graduate students and postdoctoral fellows doing research in the North to enhance Canada's capacity to carry out research in the North.	1.3	1.3	1.3
	Recognize significant work in encouraging Canadians to learn more about science and engineering and promote these disciplines as career choices through three programs: the *Michael Smith Awards for Science Promotion; PromoScience;* and *the NSERC SPARK Program* (Students Promoting Awareness of Research Knowledge).	2.1	2.1	2.1
Canadian universities achieve high levels of research excellence and become world-class research centres in the knowledge-based economy.	Manage the investments of the *Canada Research Chairs Program* along with the other federal granting agencies (Social Sciences and Humanities Research Council and Canadian Institutes of Health Research)[2]	81.0[3]	108.0[3]	135.0[3]

1. Other resources include approximately $33 million per year for the administration of the organization as a whole, across NSERC's three priorities.
2. Detailed information on the Canada Research Chairs Program is found in the Social Sciences and Humanities Research Council Report on Plans and Priorities.
3. Funding to the Canada Research Chairs Program that flows through NSERC.

Figure 2 – Fueling the Discovery Process

Planned Results	Key Related Activities	Resources[1] (millions of dollars)		
		2002-03	2003-04	2004-05
High-quality research capability maintained across all areas of the natural sciences and engineering.	Invest in research activities of individuals and groups working in leading-edge science and engineering, as well as in the tools, instruments and facilities necessary for this work.	300.8	298.7	298.7
		(Approximately 36% is used to pay salaries for students and research fellows.)		
New knowledge that is the source of new ideas for innovation.	Provide additional funding needed to fund new applicants to NSERC's *Discovery Grants Program*.	*(Additional resources from within existing budget envelope and new investment in 2001 Federal Budget.)*		
Enhanced ability to access leading-edge knowledge from around the world.	Manage programs that enhance Canadian researchers' access to international knowledge networks.[2]	7.7	7.5	7.5
	Honour excellence with prestigious prizes including a $1 million research prize, *The Gerhard Herzberg Canada Gold Medal for Science and Engineering*.	1.8	1.9	2.1
	By 2002, complete the Reallocations Exercise to help set research priorities within the *Discovery Grants Program*.	*(Resources within the administration budget.[1])*		

1. Other resources include approximately $33 million per year for the administration of the organization as a whole, across NSERC's three priorities.
2. For more information, visit NSERC's Web site at www.nserc.ca/intnew.htm.

Figure 3 – Helping Canada Innovate

Planned Results	Key Related Activities	Resources[1] (millions of dollars)		
		2002-03	2003-04	2004-05
Productive use of knowledge in support of new products, processes, and services, leading to new jobs and businesses.	Lever investments by forging research partnerships with the private sector, as well as with other sectors, including government departments and agencies.	81.5	82.3	81.3
	Provide funding for university-based project research in target areas of national importance and in emerging areas that are of potential significance to Canada.	36.0	36.0	35.5
Knowledge base for developing policies, standards and regulations, and making decisions, for government and industry.		*(Approximately 31% of above is used to pay salaries for students and research fellows.)*		
	Continue to implement a communications strategy specifically aimed at industrial clients to enhance the private sector's awareness of NSERC programs that foster university-industry research collaboration and training.	*(Resources within the administration budget.[1])*		
	Partner with other organizations through flexible mechanisms that provide leadership, planning and focus to accelerate research in areas that present a high potential for Canada to become a leader in science and technology.	2.0	2.0	2.0
	Manage and administer the *Networks of Centres of Excellence Program* (along with other federal granting agencies and Industry Canada).	38. 2[2]	32.1[2]	30.1[2]

1. Other resources include approximately $33 million per year for the administration of the organization as a whole, across NSERC's three priorities.
2. Funding to the Networks of Centres of Excellence that flows through NSERC.

3.3 What's New at NSERC

This next century will see the global, knowledge-based economy offer tremendous opportunities for greater prosperity and improved quality of life for all Canadians. We must seize these opportunities and build on our strengths.

To maximize the added value of investments Canadians make through NSERC, the Council will be flexible, dynamic, innovative, and forward-looking. The new investments described below reflect this approach.

> *Canada must have one of the most innovative economies in the world. A key element in getting there is to ensure that our research and development effort per capita is amongst the top five countries in the world.*
>
> Prime Minister Jean Chrétien, Response to the Speech from the Throne, January 31, 2001.

Budget 2001

The 2001 Federal Budget continues the effort launched in 1998 to increase university research activity across all disciplines. Toward that end, the Government has increased the annual budget of NSERC by 7 per cent, resulting in an increase of $36.5 million a year. This increase will translate into additional research opportunities across Canada and more fellowships and scholarships for undergraduate and graduate students.

In recognition of the priority identified by universities and provincial governments for further funding targeted to the indirect costs of research, the 2001 Federal Budget provided a one-time investment of $200 million, through the federal granting agencies, to help alleviate financial pressures that are associated with federally supported research activity at universities and research hospitals. This investment will help support world-class research facilities and respond to the needs of Canada's smaller universities in their efforts to become more research-oriented.

Northern Research

Three NSERC programs are targeted to support research in the Canadian North: *the Northern Research Chairs Program*; the *Northern Research Postgraduate Scholarship Supplements*; and the *Northern Research Postdoctoral Fellowship Supplements*. These programs, in part, respond to the recommendations of the *NSERC and SSHRC Task Force on Northern Researc*h.

Innovation Platforms

Innovation Platforms allow NSERC to partner with other organizations that share similar goals and objectives. They are designed to support Canadian research in areas that present a high potential for Canada to become a leader in science and technology. NSERC's Innovation Platforms make it possible to quickly intensify research in an important area; accelerate research that cuts across disciplines; translate research results for a greater variety of user sectors and partners; offer higher support to students in very competitive fields; involve government laboratories and scientists; and help Canadian researchers join international projects.

Innovation Platforms are new, flexible mechanisms that provide leadership, planning and focus for such research. The first Innovation Platform is the NSERC Nanoscience and Nanotechnology Innovation Platform (NanoIP) launched in November 2001. A month later, the second innovation platform became a reality with the signing of a Memorandum of Understanding for an NSERC-eMPOWR Canada[1] Innovation Platform.

Intellectual Property Management

NSERC has taken the initiative to expand its five-year-old *Intellectual Property Management Program* through a partnership with the Canadian Institutes of Health Research (CIHR) and the Social Sciences and Humanities Research Council of Canada (SSHRC). The expanded program, which now includes all universities and affiliated hospitals, helps these institutions learn how to protect and market their intellectual property, to transfer their knowledge and technology to potential users and to promote the professional development of intellectual property specialists. This concerted effort will accelerate the transfer of knowledge and technology residing in Canadian universities and hospitals to other sectors, for the benefit of Canada.

NSERC Representatives

NSERC is developing a local presence across Canada. Volunteers working with NSERC and universities are: mentoring applicants to NSERC programs to improve the quality of their applications; and communicating the achievements and needs of the Canadian natural sciences and engineering research community to government, business, media, and the public at large. So far, 50 universities have nominated representatives to this initiative.

New Media

NSERC recognizes the need to foster effective collaborations between those advancing science and technology and those who can extend the application of such advances in new and creative ways. Increasingly, the work of artists requires the development and application of new knowledge or technology. To further this synergy between artists, scientists and engineers, NSERC and the Canada Council for the Arts are joining forces to encourage and jointly fund projects in New Media involving an artistic component and a related science and engineering research project.

Climate Change Action Plan

The need for novel greenhouse gas mitigation technologies and new concepts in energy research have led to a new partnership between NSERC and the Energy Sector of Natural Resources Canada, under the *Climate Change Action Plan 2000*. This joint initiative will stimulate basic research in energy, energy products and end use efficiency that could lead to novel greenhouse gas mitigation concepts and technologies. The first applications are due February 1, 2002.

[1] The eMPOWR Canada initiative is a private/public sector partnership aimed at aggressively accelerating the growth of Canada's skilled labour force in Microelectronics, Photonics, Optoelectronics, Wireless and Radio engineering (eMPOWR for short).

3.4 Challenges

NSERC will be addressing the following four major challenges over the next three years.

Flood of bright young professors into Canada's universities

NSERC is seeing many bright young new applicants who are seeking research support to establish their research careers. The largest increase is in the information and communication technology (ICT) sector. Based on a recent survey of faculty hiring plans conducted by NSERC, this growth trend is expected to continue. These new professors are critical to Canada's future capabilities in S&T; they generate new knowledge and innovations and they train highly skilled people.

NSERC's Council is committed to providing the research funds needed by new applicants for *Discovery Grants* and has provided a portion of the additional funding required from existing resources. These people are being attracted to our universities and if Canada is to prosper in the knowledge-based economy, we need them to succeed in research.

The new investment of $36.5 million a year to NSERC, announced in the 2001 Federal Budget, will help to ease the pressure in the upcoming competition.

The rising cost of research

The cost of performing leading-edge, world-class research is rising, creating greater dependence on NSERC funding. This is due to: (1) the relative value of the Canadian dollar which makes it expensive to import scientific instruments; (2) the prices for tools like scientific monographs and journals which are going up much faster than the Consumer Price Index (CPI); (3) the need for Canadian researchers to adopt new and expensive research methods to conduct world-class research; and (4) the need to pay user fees out of NSERC grants for many university research services that used to be free.

Loss of leaders

Though universities continue to hire many new professors, they are losing experienced senior faculty who tend to be leaders in research and training. "Loss of leaders," rather than "brain drain," should perhaps be our greatest concern. As senior professors retire, and some relocate, often outside Canada and often taking their research teams with them, there is a loss of research leadership and training capability at our universities. In the long term, their replacements may reach their stature and level of activity, but in the short term the country suffers a loss.

The *Canada Research Chairs Program* is a significant part of the solution to this problem. However, *Discovery Grants*, at internationally competitive levels, must also be provided to the *Canada Research Chairs* recipients, and to professors collaborating with them in their research endeavours, if we are to successfully attract and retain the best researchers and create a stimulating research environment in which they can work.

NSERC is adapting its *Industrial Research Chairs (IRC) Program* to make it more flexible and to help universities address the shortfall in senior faculty in areas of important industrial need. One new element is “Executive Industrial Research Chairs.” These chairs encourage highly qualified candidates from non-academic backgrounds to assume positions in the universities for terms up to five years – conducting research, mentoring new faculty, training students, and broadening the universities' understanding of the needs of the industrial sector.

Regional Capacity

In today’s economy, a healthy and diversified national innovation system is key and Canada’s universities play a central role. Universities have become conscious of their potential to assist regional economic development, particularly by increasing the local capacity for innovation. They understand the connections between university teaching, research, innovation, and value-added economic activity. They are willing to work with industry and other partners to help them expand knowledge-based economic activity in all sectors.

However, the capacity for universities to seize these opportunities varies widely across the country. Reasons for this situation include differences in provincial university funding, as well as regional differences in both the levels of involvement in graduate studies and the levels of value-added industrial activity.

A one-time investment of $200 million was announced in the 2001 Federal Budget to help alleviate financial pressures that are associated with the indirect costs of federally supported research activity at universities and research hospitals. This investment will help support world-class research facilities and respond to the needs of Canada’s smaller universities in their efforts to become more research-oriented.

3.5 Clients and Partners

NSERC does not conduct any research in-house, nor does it have any training facilities. Thus, the universities, colleges, companies, government agencies, and other institutions with which NSERC collaborates are all key co-delivery partners. Figure 4 presents the details of NSERC funding to its clients and partners. Also included are estimates of the share of the population funded or participating, for eligible individuals and organizations.

Figure 4: NSERC's Clients and Partners, 2000-2001

	Number Funded or Participating	Share of the Population[1]
Clients:		
University Professors	9,735	65% – 70%
Undergraduate Students	6,568	6%
Master's/Doctoral Students	7,495	35% – 40%
Postdoctoral Fellows	1,639	40% – 50%
University Technicians and Research Professionals	3,111	30% – 40%
Partner Organizations:		
Universities and Colleges	65	75%
Companies Performing R&D[2]	691	10%
Federal Science Departments/Agencies[2]	10	65%
Provincial Science Departments/Agencies[2]	13	25% – 40%

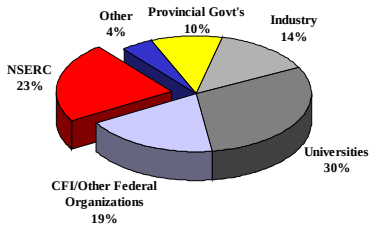
Source: NSERC

1. The percentage that NSERC supports of all individuals and organizations eligible for NSERC funding.
2. Organizations in partnership with NSERC (across all NSERC programs).

A brief summary of NSERC's partners is presented below.

Universities and Colleges

Figure 5: University R&D Funding in the Natural Sciences and Engineering, 2000



Total: $1.9 Billion

Source: Statistics Canada

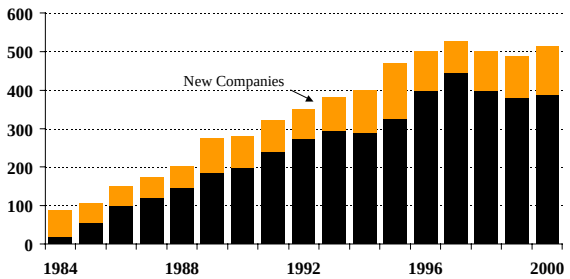
NSERC is the single most important funder of research and development (R&D) in the natural sciences and engineering in Canadian universities. In 2000, $1.9 billion in R&D was carried out by Canadian universities in the natural sciences and engineering. NSERC directly provided almost one-quarter of the total funding. Since much of the other funding from universities, industries and governments is contingent upon NSERC funding, a reasonable estimate makes the Council directly and indirectly responsible for slightly less than half of the funding. Figure 5 gives a breakdown of the total funding by direct source.

More than 9,700 university professors and more than 15,700 university students and postdoctoral fellows are supported by NSERC. The Council also supports a considerable number of university technicians and research associates.

NSERC has expanded its eligibility guidelines to include colleges. Researchers from colleges that are declared eligible by NSERC can participate in a number of NSERC project research programs as co-applicants with university professors. As of January 2002, four colleges in Canada have been declared eligible.

Companies

Figure 6: Number of Companies Contributing to NSERC's University-Industry Programs



Source: NSERC

The number of companies that have contributed to NSERC's collaborative university-industry research programs has experienced strong growth (see Figure 6). Since the inception of the university-industry research programs, more than 1,400 firms have participated, rising from less than 50 companies in 1983 to more than 500 businesses in 2000. On average, 100 new firms are working with NSERC every year. NSERC is well known to companies heavily involved in R&D.

Government Departments/Agencies

NSERC is also well known to most federal and provincial science-based departments and agencies. A list of federal and provincial departments and agencies that have collaborated with NSERC in 2000-2001 is presented in Figure 7.

Figure 7: NSERC's Federal/Provincial Partners, 2000-2001

Federal Departments/Agencies	*Provincial Departments/Agencies*
Agriculture and Agri-Food Canada	Alberta Advanced Education
Canada Council for the Arts	Alberta Energy
Canadian Institutes of Health Research	Alberta Environmental Protection
Canadian Space Agency	Alberta Oil Sands Technology and Research Authority
Environment Canada	Alberta Science and Research Authority
Fisheries and Oceans Canada	Fonds québécois de la recherche sur la nature et les technologies
National Defence	Forest Renewal BC
National Research Council Canada	Manitoba Energy and Mines
Natural Resources Canada	Ministry of the Environment (Quebec)
Public Works and Government Services Canada	Ministry of Natural Resources (Quebec)
Social Sciences and Humanities Research Council of Canada	Ontario Ministry of Agriculture
	Saskatchewan Energy and Mines

3.6 Monitoring

NSERC measures its performance by evaluating its programs of research and training support, their impact, cost effectiveness and continuing relevance. When reviewing the performance of support for research and scholarship programs, it is important to remember that these investments take longer to bear fruit than most other government investments. Concrete data can be provided on advanced degrees granted, theses published, patents applied for and granted, papers published, etc., but the long-term socio-economic benefits of research emerge much more slowly.

The impact of NSERC investments is detailed in the *2000-2001 Departmental Performance Report* through a suite of indicators that range from bibliometrics, to patents and licences, to "spin-off" companies, to new products and processes, as well as the career progression of NSERC-funded students and fellows.

Performance and Evaluation

NSERC is developing a multi-faceted performance measurement strategy that includes the collection of both qualitative and quantitative information on an ongoing basis, as well as periodic reviews and evaluations of major programs, policies or new initiatives.

In order to measure and report on the results of its programs, NSERC will integrate appropriate performance measurement systems into the operational cycle of its activities. NSERC has prepared a Results-based Management and Accountability Framework that includes: key results to be achieved; indicators; a performance measurement strategy; a schedule for major evaluation work; and reporting provisions, including parliamentary reporting, on the use of funds allocated to recipients of NSERC grants and scholarships.

Ongoing commitments to performance measurement and evaluation over the next three years include: data collection on a number of indicators, special studies and evaluations of programs, policies or new initiatives, and a number of management and monitoring initiatives to ensure the constant quality and relevance of NSERC activities.

Audit

NSERC is also addressing performance issues in its administration activity, including quality service initiatives. The goal of NSERC's administration activity is to support and underpin the Council's sole business line; performance issues therefore revolve around efficient and quality service to both Council's staff and clients (i.e., the research community).

NSERC has a formal internal audit function relative to its programs and administration. With respect to the auditing function at institutions receiving NSERC funding, the need for internal audit and periodic monitoring is established as a function of risk.

NSERC has developed a schedule for internal audit activities over the next three years. Flexibility will be maintained in these activities to enable NSERC to respond to any situation requiring immediate attention or to additional requirements as defined by central agencies or the Office of the Auditor General.

4. Organization

4.1 Strategic Outcome and Business Line

NSERC's sole business line is:

Support of research and scholarship in the natural sciences and engineering.

The strategic outcome of this business line is:

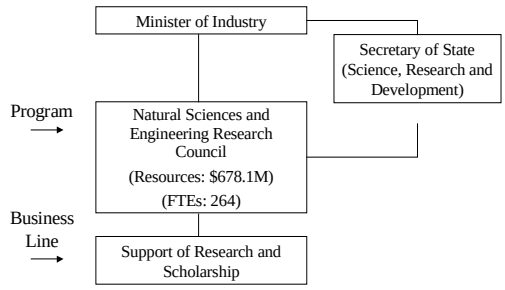
To provide Canadians with economic and social benefits arising from the provision of a highly skilled workforce and knowledge transfer of Canadian discoveries in the natural sciences and engineering from universities and colleges to other sectors.

All of NSERC's net planned spending of $678.1 million for 2002-2003 is dedicated to NSERC's sole business line and its strategic outcome. This includes approximately $33 million for administration (5% of budget).

4.2 Roles and Responsibilities

NSERC, which functions at arm's length from the federal government, reports to Parliament through the Minister of Industry. Figure 8 presents NSERC's organization structure.

Figure 8: Organization Structure



NSERC is governed by a Council (a Board of Directors) whose members (up to 21) are drawn from universities as well as from the private and public sectors, and appointed by the Governor-in-Council. Members serve part-time, and receive no remuneration for their participation. The President serves full-time, and functions as the Chair of the Board and the Chief Executive Officer of the Council. Council is advised on policy and programming matters by several committees.

4.3 NSERC Planned Spending

Table 1: NSERC Planned Spending

($ millions)	Forecast Spending 2001-2002[1]	**Planned Spending 2002-2003**	Planned Spending 2003-2004	Planned Spending 2004-2005
Budgetary Main Estimates	606.9	**641.6**	662.9	687.8
Non-Budgetary Main Estimates	—	—	—	—
Less: Respendable revenue	—	—	—	—
Total Main Estimates	606.9	**641.6**	662.9	687.8
Adjustments[2]	8.8	**36.5**	36.5	36.5
Net Planned Spending	615.7	**678.1**	699.4	724.3
Less: Non-respendable revenue	0.9	**0.6**	0.6	0.6
Plus: Cost of services received without charge	2.7	**2.7**	2.7	2.7
Net cost of Program	617.5	**680.2**	701.5	726.4
Full-Time Equivalents	264.0	**270.0**	242.0	242.0

1. Reflects the best forecast of total net planned spending to the end of the fiscal year.
2. Adjustments are to accommodate approvals obtained since the Main Estimates and include Budget initiatives, Supplementary Estimates, etc.

Annex A - Financial Information

Tables 2, 3, and 4 present the required financial information for NSERC.

Table 2: Summary of Transfer Payments

($ millions)	Forecast Spending 2001-2002	**Planned Spending 2002-2003**	Planned Spending 2003-2004	Planned Spending 2004-2005
Grants				
Support of Research and Scholarship	582.5	**644.6**	675.6	700.5
Total grants	582.5	**644.6**	675.6	700.5
Contributions	—	**—**	—	—
Other Transfer Payments	—	**—**	—	—
Total Grants, Contributions and Other Transfer Payments	582.5	**644.6**	675.6	700.5

Table 3: Source of Non-Respendable Revenue

($ millions)	Forecast Revenue 2001-2002	**Planned Revenue 2002-2003**	Planned Revenue 2003-2004	Planned Revenue 2004-2005
Support of Research and Scholarship	0.9	**0.6**	0.6	0.6
Total Non-Respendable Revenue	0.9	**0.6**	0.6	0.6

Table 4: Net Cost of Program for 2002–2003

($ millions)	**Total**
Planned Spending (Budgetary and Non-Budgetary Main Estimates plus adjustments)	**678.1**
Plus: Services Received Without Charge	
- Accommodation provided by Public Works and Government Services Canada (PWGSC)	**1.6**
- Contributions covering employer's share of employees' insurance premiums and expenditures paid by Treasury Board Secretariat	**1.1**
- Workmen's compensation coverage provided by Human Resources Development Canada	—
- Salary and associated expenditures of legal services provided by Justice Canada	—
	2.7
Less: Non-Respendable Revenue	**0.6**
2002-2003 Net Cost of Program	**680.2**

Annex B - Government-Wide and Horizontal/Collective Initiatives

Government-Wide Initiatives

Figures 9, 10 and 11 describe three government-wide initiatives, the results NSERC expects to achieve and how NSERC plans to achieve them.

Figure 9 – Government On-Line	
Planned Results	**Key Related Activities**
Provide Canadians with the ability to interact with NSERC, to receive information and services, and to do business electronically. A robust internet portal that allows NSERC and its clients and partners to share information, collaborate, process applications and administer awards electronically.	Implement a project plan to migrate toward a portal-based approach to service delivery in relation to the *Government On-Line* initiative. Activities will include: • Development of a web-based, user-friendly, client-centric, electronic application process to facilitate on-line collaboration[1], university approval, peer review and data transfer to NSERC corporate databases; • Development of web-based bi-directional information-sharing tools and electronic services for peer reviewers and university administrators; • Facilitation of electronic document management; • Development of web-based tools for awards management and progress monitoring. Collaborate with the other federal granting agencies as well as various organizations involved in funding research to identify areas of mutual interest and opportunities to share products and services and to develop common service standards. Over the coming year, implement the *Common Look and Feel Standards and Guidelines* for Government of Canada Internet sites set out by the Treasury Board Secretariat.

1. Bi-directional information exchange between grant applicants and their university and collaborating partners.

Government-wide Initiatives (continued)

Figure 10 – Service Improvement	
Planned Results	**Key Related Activities**
Achieve a significant, quantifiable improvement in client satisfaction with NSERC services.	Establish a Service Improvement Plan, identify and report on service standards for key services, and establish client satisfaction baseline measures and targets. Determine ways to reduce the workload on researchers both in terms of applying for grants and peer reviewing the applications of others (focus of the *Government On-Line* initiative described in Figure 9). Investigate the feasibility and potential benefit of program consolidation. Existing service improvement initiatives include: • Continuing to develop service standards and service-level agreements (e.g., service-level agreement for the Information Systems Division support centre); • Continuing to harmonize policies and procedures with the other federal granting agencies; • Continuing to clarify and codify the respective roles and responsibilities of the federal granting agencies and of institutions administering grants; • Preparing an inventory of existing client satisfaction measurement tools and opportunities; • Developing a mechanism to integrate various sources of feedback on client satisfaction; • Assessing the extent to which existing client satisfaction measurement tools and opportunities satisfy the requirements of the *Policy Framework for Service Improvement in the Government of Canada*.

Government-wide Initiatives (continued)

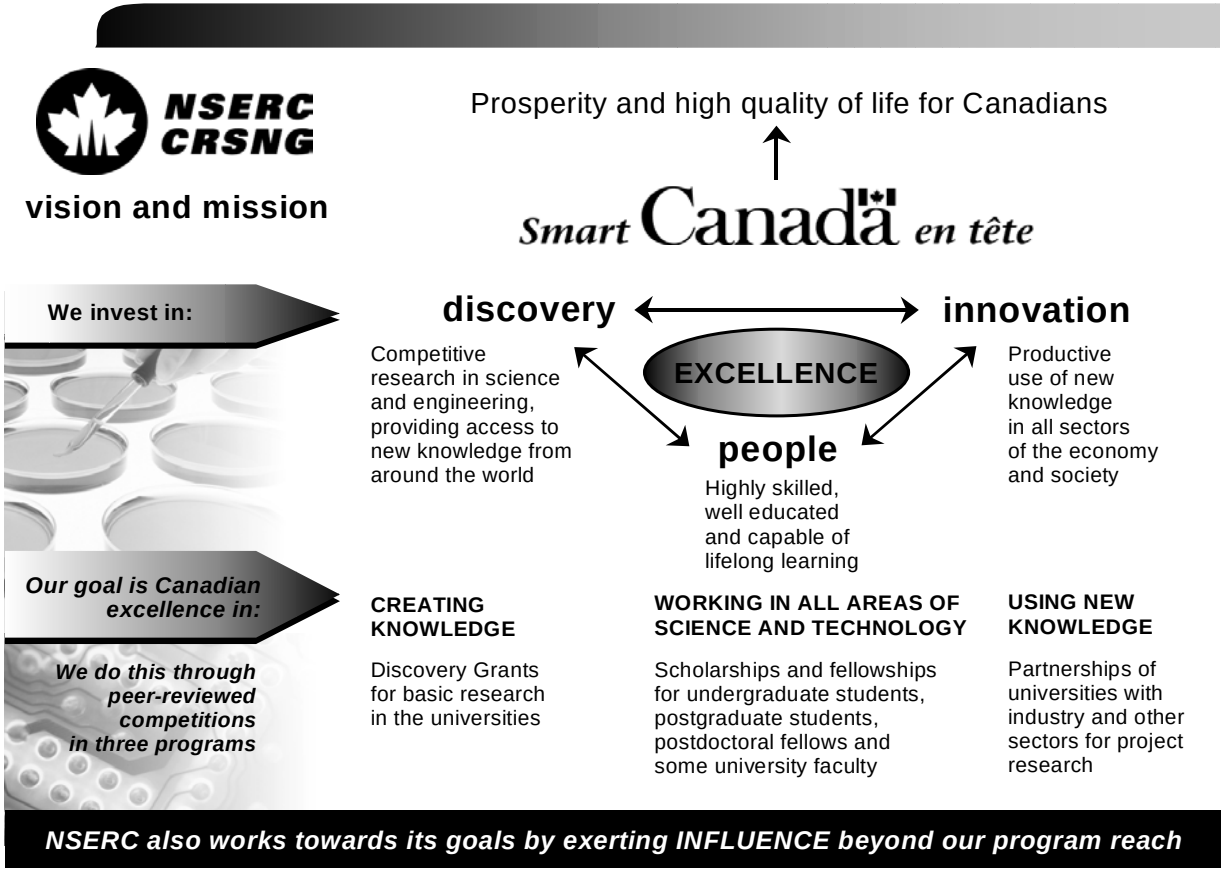
Figure 11 – Modern Comptrollership	
Planned Results	**Key Related Activities**
A management framework that is integrative, assures sound management of resources and effective decision making and involves a shift in emphasis from controls and compliance to results and values. NSERC will operate under the banner of "Integrated Management Practices."	Create a Project Management Office, dedicated to the initiative, to develop a mandate, terms of reference and work plans and to oversee the following initiatives: • Develop a Modern Comptrollership/Integrated Management Practices awareness-building presentation. • Initiate a Capacity Assessment (CA), with a final report approved by the Senior Management team within 12 months after start-up (proposed for April 1, 2002). • Develop and have approved an Action Plan (AP) to address areas for improvement identified in the CA, 3 months after the CA has been finalized. • Implement substantial components of the AP and reach a minimum acceptable level as determined in consultation with Treasury Board Secretariat (TBS), one year after approval of the AP. • Continue to progress toward an advanced and fully integrated state of modern comptrollership as determined in consultation with TBS, two years after approval of the AP. • Report quarterly on the Modern Comptrollership initiative to the Management Committee and bi-annually to the Executive Committee of the NSERC Administrative Council. NSERC will report annually to TBS on progress made in embedding modern comptrollership within the Council. NSERC will report on the state of its modern comptrollership in Departmental Performance Reports, starting in fall 2002. The Project Management Office will also communicate regularly with the Comptrollership Modernization Office of the Treasury Board Secretariat.

Horizontal/Collective Initiatives

Figure 12 below presents a collective initiative in which NSERC plays a significant role in support of its strategic outcome: *to provide Canadians with economic and social benefits arising from the provision of a highly skilled workforce and knowledge transfer of Canadian discoveries in the natural sciences and engineering from universities and colleges to other sectors.*

Figure 12 – Inter-Agency Panel and Secretariat on Research Ethics			
Goal	**List of Partner(s)**	**Money Allocated by Partners ($ millions / year)**	**Planned Results**
To manage the development, interpretation, promotion and implementation of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*. Launched in May, 2001. Results to be reported in 2006.	Natural Sciences and Engineering Research Council (NSERC) Social Sciences and Humanities Research Council (SSHRC) Canadian Institutes of Health Research (CIHR)	$0.24 $0.27 $0.65	The promotion of high ethical standards in Canadian research involving humans in order to ensure the protection of human participants. Better protection of human participants in research, and, thereby, enhanced public trust in Canadian research, nationally and internationally. An extension of the base of research ethics knowledge and ability in Canada. Collaborative relationships among the three federal granting agencies, research institutions, research ethics boards, researchers, government and other organizations, and the public, in the pursuit of high ethical principles for research involving humans in Canada.

Annex C - NSERC on a Page (Figure 13)



Annex D - Contact Information

Figure 14: Contacts for Further Information and Web Site

Our Web site is located at: www.nserc.ca.

A searchable Web database of grants and scholarships awarded by NSERC since 1991 is located at www.nserc.ca/programs/result/database.htm.

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