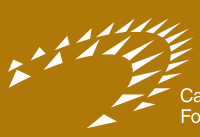
Canada Foundation for Innovation
Fondation canadienne pour l'innovation

Annual Report 1999-2000

Canada Foundation for Innovation



Canada Foundation for Innovation
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Table of Contents

A Message from the Chair

Funding research is more than an act of faith. It is rooted in the belief that investing in the most capable and promising people is the best route to advance knowledge and its application. Since its inception in 1997, the Canada Foundation for Innovation (CFI) has committed $464.5 million of investment in 683 projects involving thousands of researchers at 77 different institutions across the country. During the most recent year of operation, 260 projects were approved representing $267 million in CFI funds. In each case, the CFI amount represented 40 per cent of project cost with the balance being obtained from funding partners such as provincial agencies, private corporations, or not-for-profit agencies. The partnerships that have been forged by the institutions for their projects have been crucial not only in mobilizing the matching funds, but also in helping researchers and institutions to develop higher quality, more innovative proposals.

John R. Evans

The CFI's Board of Directors expresses its appreciation to the federal government for the vote of confidence in the Foundation's purpose—reflected by the additional allocation of $900 million of funding and extension of its mandate to 2005. The federal government's $1.9 billion contribution over the past three years, together

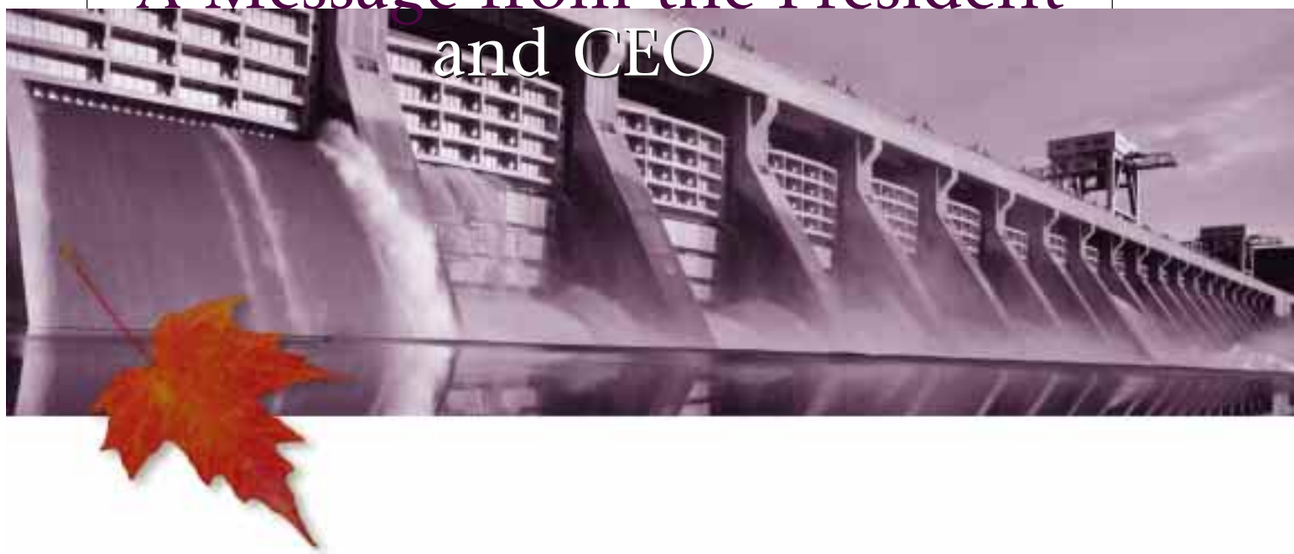
with interest, will provide the funding leverage for $5.5 billion of investment in research infrastructure at institutions across Canada. This massive investment has resulted in heightened expectations among the research community as well as the Canadian public.

The renewal of federal support is a tribute to the extraordinary work being carried out by the CFI's small staff who shepherd the increasing number of proposals through the rigorous assessment process of CFI competitions. The effectiveness and credibility of that process are made possible by an army of independent and impartial volunteers who are motivated by a belief in the fundamental importance of research to the future well-being of Canada. Staff and volunteers take very seriously their responsibility to ensure the fairness, transparency, and efficiency of the assessment process. On behalf of the Board, I thank them all for their remarkable efforts during the past year.

Additional CFI resources and the changing circumstances of a revitalized research community in Canada present an ongoing challenge. In this context, the CFI must continue to evolve as an increasingly effective agency to promote research innovation in Canada during the balance of its extended mandate.

John R. Evans

A Message from the President and CEO



It is a genuine pleasure for me to report that the CFI has now awarded half of its original budget allocation to institutions and researchers across the country. At the end of the 1999 - 2000 fiscal year, $464.5 million had been invested by the Foundation, an amount that reflects the dedicated efforts of many people, especially the researchers and institutions who have demonstrated imagination, creativity, and enterprise in rising to the challenge the CFI set before them.

David W. Strangway

The challenge is one of helping to build a more innovative Canada, a nation whose economic foundation increasingly depends on the knowledge-based economy that already characterizes the 21st century. This is much more than a matter of assembling the equipment or facilities that provide the physical basis for this new activity—above all, it is a matter of supporting people. The CFI's plainly stated purpose is one of helping to create the conditions in which these people can thrive and succeed. Although the CFI mandate is directed to health, environment, science, and engineering, the research it supports engages the full range of academic disciplines, including the social sciences and the humanities.

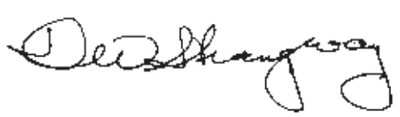
Our message has been well received within Canada's research community, which is working with the CFI to build one of the world's most exciting environments for research and development activities. That environment is now being nurtured in all parts of the country in colleges, universities, and hospitals regardless of their size and location. New talent is being cultivated and retained, ensuring that the next generation of researchers will be able to build on the success of their mentors.

Provincial governments and private-sector organizations have also joined in providing support to the institutions, thus helping them to make their projects happen. In this way, the CFI complements the work of the Natural Sciences and Engineering Research Council (NSERC), the Medical Research Council, and the Social Sciences and Humanities Research Council, all of which support research activities.

In December 1999, members of the research community had a unique opportunity to mingle and share ideas at *Innovation Canada: Alliances for the New Millennium*, a three-day event in Ottawa hosted by the CFI in partnership with the three granting councils. Designed to showcase the broad spectrum of Canadian talent and entrepreneurship, *Innovation Canada* focused many people's thinking on the nuts and bolts of innovation as a force to be reckoned with everywhere—whether in the boardroom or the marketplace.

With more than 600 participants from across Canada, the event revealed the importance that Canadians place on public accountability for innovation, whose impact and importance must be weighed with respect to the priorities of the country as a whole. When it comes to telling the story of research, participants voiced a need to ensure that the process is open and publicly understood. This approach comes naturally once researchers appreciate the long-term social and economic relevance of their work.

Over the past year, the commitment of researchers to excellence was reflected in the steady stream of high-calibre applications and reports that continue to arrive at the offices of the CFI. Each application represents a great deal of effort on the part of these applicants, and the number of proposals has grown to about three times what the CFI has been able to support. This, in itself, is a fair reflection of the significant need for infrastructure and the enthusiasm with which the concept of innovation has been embraced. I must add my thanks to those volunteers and staff members who have been so instrumental in making progress possible.



David W. Strangway

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The year in review

Building a strong and lasting base for Canadian innovation

During the second year of its mandate, the CFI continued to play a key role in helping Canadian researchers obtain the infrastructure necessary to compete on a global stage. More than $225 million was invested in 46 projects at universities, colleges, hospitals, and not-for-profit research organizations through the **Innovation Fund*.** Moreover, contributions totalling $24.3 million were made to 330 new faculty members at 32 Canadian universities through the **New Opportunities Fund**, launching the careers of these promising researchers and ensuring a more rewarding place for

"...the CFI continued to play a key role in helping Canadian researchers..."

them within the Canadian research community. Universities that receive less than one per cent of the total sponsored research funding available to Canadian institutions were given a chance to enhance their infrastructure through the **University Research Development Fund** grants totalling $10.3 million. Finally, the research capacity of Canada's community colleges was enhanced by $7.3 million invested through the **College Research Development Fund**. This brings the cumulative total to $464.5 million as shown in the accompanying tables and charts.

The infrastructure boost provided by the CFI represents 40 per cent of the total investment that was actually made. The rest came from partners such as provincial organizations and the institutions themselves, as well as from the private and volunteer sectors, all of which support the innovative work of Canadian researchers. Those partners have a long-term interest in this work, much of which is now being enabled by the CFI since its mandate has been extended to 2005.

That momentum is currently derived from four main funds within the CFI:

Innovation Fund * – The CFI investment of $349 million ($124 million in 1998 - 99, and $225 million in 1999 - 2000) has enabled individual institutions and consortia to put forth ideas for strengthening their research infrastructure in areas identified in their institutional research plans. This investment amount went to 105 projects at more than two dozen institutions across Canada, including a single $56.4 million contribution for the establishment of the Canadian Light Source at the University of Saskatchewan. Other projects included in this round of funding were: the Centre for Growth and Development at the B.C. Research Institute for Children's and Women's Health; a unique distance education database at the University of Alberta; an ecosystem facility at the University of Manitoba; new equipment for Québec's Mount Mégantic Observatory that enables researchers to obtain high-resolution images comparable to those from outer space telescopes; pressure chambers to study extra-terrestrial plant growth at the University of Guelph; and a marine aquaculture research and development facility at Memorial University of Newfoundland.

New Opportunities Fund – This fund provides research infrastructure to new faculty members, to help them reach their full potential. It also helps institutions to recruit academic staff of exceptional quality in their own priority areas for research and training. New Opportunities researchers work in a vast spectrum of research areas and are involved in a wide variety of projects that include: maintaining a laboratory to use sedimentary records for investigating environmental change over centuries; studying sleep cycles in the elderly; and analysing learning and developmental disorders such as dyslexia, autism, and attention deficit disorder. To date, the CFI has supported 868 researchers in 378 projects, for a total of $61.9 million.

University Research Development Fund – To support the excellence found at smaller institutions, a $40-million fund was set aside in 1997 for those universities that receive less than one per cent of the total sponsored research funding awarded to Canadian universities. Once the CFI allocation has been fully used, the institution becomes eligible to apply for further support through the Innovation Fund and the New Opportunities Fund. Under the

The CFI investment by province

Cumulative to March 31, 2000

Province	No. of projects	Total $ awarded (M)
British Columbia	81	32.1
Alberta	58	38.7
Saskatchewan	12	10.1
Manitoba	25	7.1
Ontario	239	171.5
Quebec	205	111.0
New Brunswick	21	4.6
Nova Scotia	32	9.2
Prince Edward Island	1	0.2
Newfoundland	7	3.6
National Projects *	2	76.4
Total	**683**	**464.5**

* Canadian Light Source and National Site Licensing Project

Distribution by area of CFI mandate

Cumulative to March 31, 2000

	% of funds awarded	% of projects
Engineering	14.2	21.7
Environment	4.2	9.8
Health	41.1	41.7
Science	24.1	26.5
National Projects*	16.4	0.3

* Canadian Light Source and National Site Licensing Project

The CFI investment

Cumulative to March 31, 2000

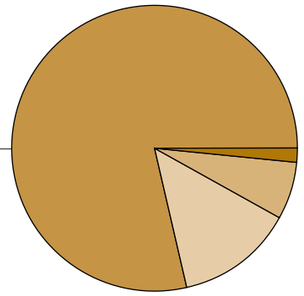
Fund	No. of proposals received	No. of projects awarded	Success rate (%)	Funds requested ($M)	Funds awarded ($M)	Funding rate (%)
Innovation Fund	419	188	45	1,023.8	365.1	36
New Opportunities Fund	489	378	77	76.4	61.9	81
University Research Development Fund	150	98	65	43.8	30.2	69
College Research Development Fund	32	19	59	15.7	7.3	46
Total	**1090**	**683**		**1159.7**	**464.5**	

University Research Development Fund, the CFI last year approved an investment of $10.3 million for 39 projects, which included such infrastructure as a biomedical engineering laboratory to design more sophisticated artificial limbs, and advanced computer equipment to develop a finance and insurance computing facility. To date, the CFI has supported 98 projects for a total of $30.2 million.

College Research Development Fund – This fund is intended to help Canadian colleges, institutes, and their affiliated research centres enhance their research infrastructure in key areas they have identified in their institutional research plan. The fund will support up to $800,000 towards the eligible costs of a project. In 1999 - 2000, the CFI invested $7.3 million to support 19 projects at 15 colleges, including an Internet Engineering Laboratory at the British Columbia Institute of Technology; the Northern Centre for Sustainable Resource Management at Sault College; an advanced research facility to study geosynthetics and geotextiles for the protection of the environment and individuals at Cegep Ste-Hyacinthe; and the Atlantic Coastal Geomatics Research facility at the Nova Scotia Community College.

Distribution of CFI support by fund

Cumulative to March 31, 2000



Legend

Innovation Fund – 78.6%

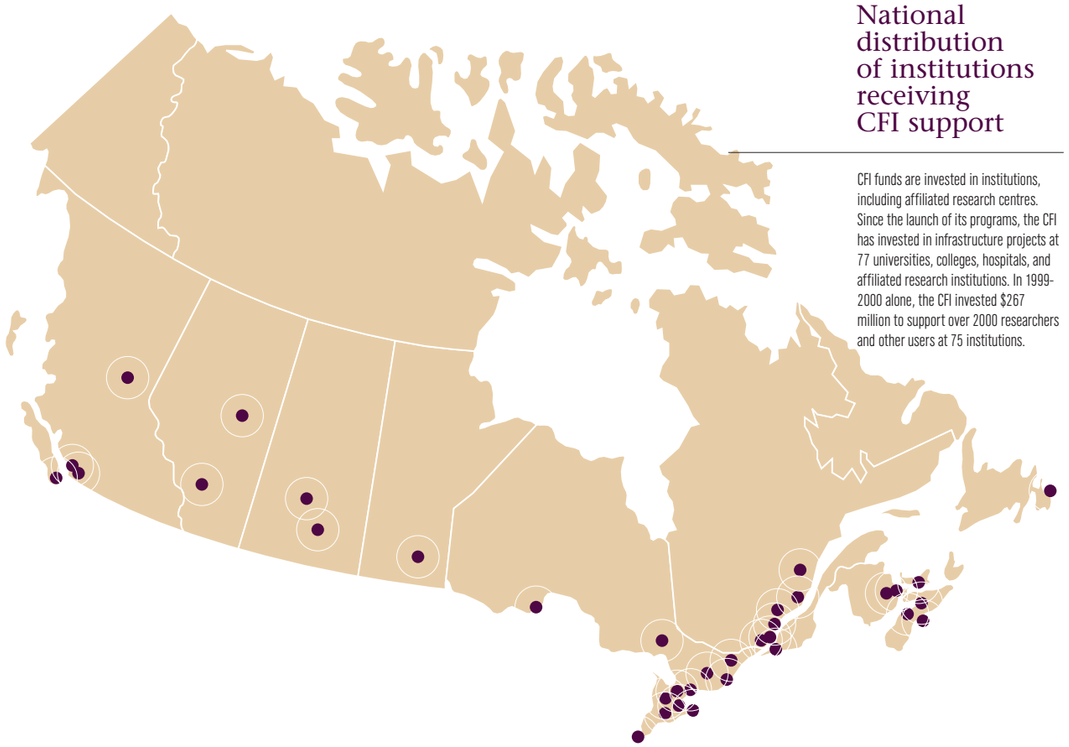
New Opportunities Fund – 13.3%

University Research Development Fund – 6.5%

College Research Development Fund – 1.6%

National distribution of institutions receiving CFI support

CFI funds are invested in institutions, including affiliated research centres. Since the launch of its programs, the CFI has invested in infrastructure projects at 77 universities, colleges, hospitals, and affiliated research institutions. In 1999-2000 alone, the CFI invested $267 million to support over 2000 researchers and other users at 75 institutions.



Innovation Fund – Distribution by project

Cumulative to March 31, 2000

CFI contribution	No. of projects	Contributions* ($M)	% Projects	% Contributions
<200k	69	8.1	36.7	2.2
200k to 1M	42	21.2	22.3	5.8
1 to 2M	28	40.8	14.9	11.2
2 to 5M	31	93.7	16.5	25.7
5 to 10M	14	88.5	7.5	24.2
>10M	4	112.8	2.1	30.9
Total	**188**	**365.1**	**100**	**100**

* Maximum CFI contribution

Distribution by fund and by area of CFI mandate

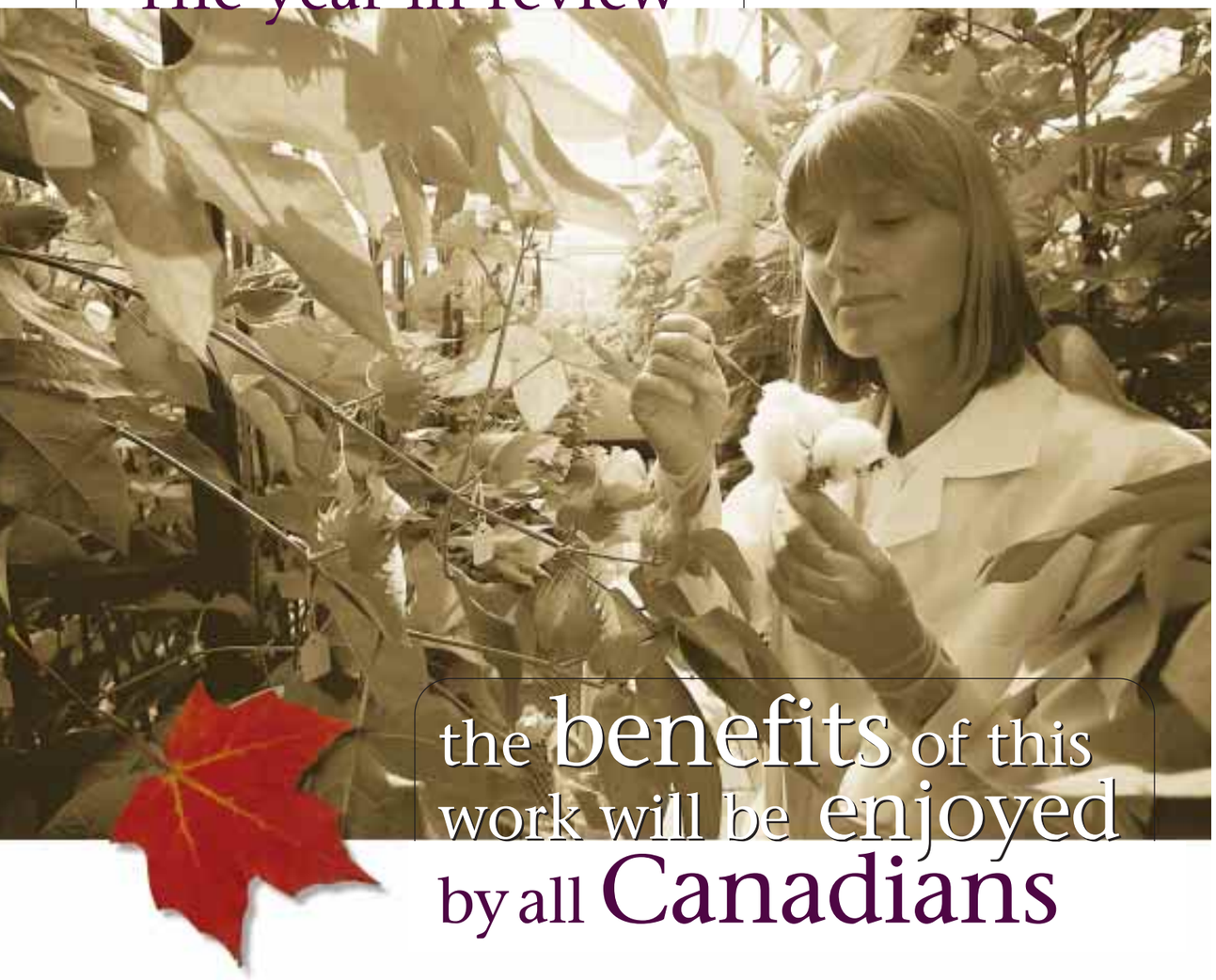
Cumulative to March 31, 2000

	Area	% ($)	% projects	Total contribution ($M)	No. of projects
Innovation Fund				**365.1**	**188**
	Engineering	11.6	19.7		
	Environment	1.7	6.4		
	Health	43.0	46.3		
	Science	22.8	26.5		
	National Projects*	20.9	1.1		
University New Opportunities Fund				**61.9**	**378**
	Engineering	21.4	21.0		
	Environment	8.5	9.0		
	Health	48.9	49.0		
	Science	21.2	21.0		
University Research Development Fund				**30.2**	**98**
	Engineering	29.9	27.6		
	Environment	16.8	16.3		
	Health	9.5	9.2		
	Science	43.8	46.9		
College Research Development Fund				**7.3**	**19**
	Engineering	18.3	26.3		
	Environment	37.5	26.3		
	Health	11.8	15.8		
	Science	32.4	31.6		
Total				**464.5**	**683**

This distribution is based on the selection of areas of application made by the project leader.

* Canadian Light Source and National Site Licensing Project

The year in review



Responding to the needs of the research community

The CFI helps Canadian researchers to undertake new and ambitious projects that would not otherwise be possible. This suggests that many people's careers are being shaped by the activities of the CFI and the funding partners.

The early impact of CFI investments on institutions and researchers was revealed in the fall of 1999 in an analysis of early institutional reports and individual project reports from CFI contribution recipients. The findings, which were assembled in December 1999 by an independent consultant, confirmed that institutions undertook a review of their research development goals as part of the process of applying for CFI funding. Successful applicants indicated that this process yielded several early results:

- Institutions obtained major support from other organizations, in particular provincial government agencies. Even in cases where these organizations were already supporting institutions, the advent of the CFI resulted in increased financial support.

- The CFI has had a positive role in boosting morale within the Canadian research community.

- Institutions especially cited the New Opportunities Fund as one of the most significant factors in this change. The Fund places a renewed emphasis on cultivating the next generation of Canadian researchers.

- The process of conceiving research projects—and the way in which funding is sought for those projects—has been transformed as a result of the new collaborations established through the CFI. These changes have implications that extend far beyond the confines of laboratories, classrooms, and conference suites. In many cases, the work initiated with the help of the CFI represents new fields of inquiry in information technology, health science, and engineering. It carries with it the potential of making significant progress in areas such as electronic commerce, medical diagnostic methods, or new building techniques. Ultimately, the benefits of this work will be enjoyed by all Canadians.

Getting it right

The CFI continues to review how well it is serving the needs of Canada's research community, and where there might be room for improvement. With an eye toward basing its conclusions on hard information, an independent consulting firm was retained to obtain specific feedback from participants in CFI programs. During August 1999, members of the consulting firm conducted 161 in-depth telephone interviews with a sample of institutions that had successfully or unsuccessfully taken part in the first CFI competitions. The people

interviewed included presidents, vice-presidents, research, liaison officers in universities, project leaders, and Multidisciplinary Assessment Committee members.

The interviews covered nine major themes addressing the CFI's administration. They included such areas as how CFI staff deal with award recipients, satisfaction with the project application, assessment and notification processes, as well as award administration. Most respondents expressed their satisfaction with the CFI's performance, which they ranked very highly. As a result of this feedback, the CFI has made several changes to fine-tune its administrative procedures, including the redesign and simplification of its application form.

Internal Audit Report
Contribution Disbursement Process

The Canada Foundation for Innovation is accountable for ensuring that it maintains an effective process and adequate controls for disbursing funds awarded to recipient organizations. To gain objective assurance on the adequacy and effectiveness of such process and related controls, the CFI engaged during the year Ernst & Young LLP to perform an internal audit of its contribution disbursement process. Such internal audit involved review of supporting documentation, interviews with key employees and the sampling, selection and review of contribution files. This internal audit confirmed that the CFI has implemented and follows a process that is well administered and controlled, with due care being exercised prior to the disbursement of funds. The auditors made one recommendation on how to further strengthen certain elements of the process. The recommendation was acted upon by the CFI management.

Ernst & Young LLP
March 2000

Enlisting expertise

Again this year, the CFI is relying on the contributions of some 600 volunteers who serve on Multidisciplinary Assessment Committees and expert panels, and who act as reviewers. These volunteers include researchers, research administrators, and those who use research results, all selected because of their expertise and reputation in given fields. The CFI has made every effort to maintain a balance of several critical factors in the makeup of these bodies, drawing volunteers from every part of the country and from abroad, as well as ensuring an appropriate mix of linguistic, gender, and academic background. The fact that many of these individuals come from outside Canada strengthens the review process by ensuring that the selected projects are globally competitive.

Multidisciplinary Assessment Committee members are not permitted to represent or advocate on behalf of any particular discipline or organization. This stipulation is enforced by the CFI's Statement on Ethics, to which all committee members must adhere. Members must also sign a Confidentiality and Non-disclosure Declaration.

Ensuring a critical evaluation and accountability

Projects submitted to the CFI for funding are reviewed using three criteria:

- the quality of the proposed research and the need for the requested infrastructure;
- the expected contribution to strengthening Canada's capacity for innovation; and
- the potential benefits of the research to Canada.

Each application is reviewed according to its nature and complexity by a Multidisciplinary Assessment Committee, and decisions are made by the CFI Board of Directors. The budget proposed for each project is thoroughly reviewed before any funds are released. When CFI funding exceeds $4 million, the project is automatically audited. A sample of other projects are audited as well. Contribution audits are conducted on total project costs to ensure that the CFI and matching funds are spent as intended.

All institutions that receive CFI funding must submit summary reports, progress reports, and an annual financial report outlining actual and projected expenditures and the corresponding matching funds.

To ensure that funds are used for the intended purpose, the CFI holds back 10 per cent of its contribution toward the total expenditures for the year. This policy avoids overpayment in cases where a project can be completed for less than the original budget estimate.

Celebrating Canadian innovation

Among the most prominent activities of the CFI in 1999 - 2000 was *Innovation Canada: Alliances for the New Millennium*, a three-day event held in Ottawa from November 30 to December 2, 1999, and hosted by the CFI in partnership with NSERC, the Medical Research Council, and the Social Sciences and Humanities Research Council. Under the central theme "Alliances for the New Millennium," the event was attended by some 600 people from all over Canada, representing universities, hospitals, colleges, and other research institutions, as well as the public, private, and voluntary sectors, and the media. Roughly 50 per cent of those participants represented research institutions, 25 per cent came from various levels of government, and 25 per cent were from the private sector. Among the participants was a group of Canada's young innovators, who were celebrated for their accomplishments and promise.

The Innovation Canada Co-hosts

- Natural Sciences and Engineering Research Council (NSERC)
- Medical Research Council
- Social Sciences and Humanities Research Council

Innovation Canada benefited from the early support and assistance of numerous national organizations, which helped promote it with their constituencies and provided valuable input during the planning process. In addition, a sponsorship program produced significant financial support from a number of other leading Canadian organizations.

Innovation Canada Supporting Organizations

- Association of Universities and Colleges of Canada
- Royal Society of Canada
- Collegium of Work and Learning
- Canadian Academy of Engineering
- Corporate Higher Education Forum
- Conference Board of Canada
- Public Policy Forum
- Information Technology Association of Canada
- Canadian Advanced Technology Alliance
- Business Council on National Issues
- Canadian Chamber of Commerce
- Rx&D
- Association of Community Colleges of Canada
- Aerospace Industries Association of Canada

Innovation Canada Sponsors

- Royal Bank Financial Group
- Sun Microsystems
- Discovery Channel
- Ernst & Young
- Pratt & Whitney
- Industry Canada
- Networks of Centres of Excellence
- National Research Council
- National Museum of Science and Technology
- Discovery Channel
- BCE Media
- The Bay
- Laurentian University

As part of the agenda, more than two dozen workshops explored the vast topic of innovation in a practical and informative manner. The workshops addressed several major themes, including:

Managing for Results – a review of how research should be run to obtain the best outcome.

Winning Formulas – descriptions of successful research ventures, and what made them so.

Preparing for Tomorrow – a bold look ahead to the future of innovative research in Canada.

The detailed proceedings of *Innovation Canada* can be obtained through the CFI.

Some of the key events included:

A special sitting in the House of Commons, with welcoming speeches by Speaker Gilbert Parent and Senate Speaker Gildas Molgat.

The proclamation of December 1 as Innovation Day in the Nation's Capital by Ottawa Mayor Jim Watson.

The announcement of the 1999 inductees into the Canadian Science and Engineering Hall of Fame.

Announcement of the new $1 million Michael Smith Award by the Honourable Gilbert Normand, Secretary of State for Research, Science and Technology.

A keynote speech by the Honourable John Manley, Minister of Industry, at the Values of Innovation dinner.

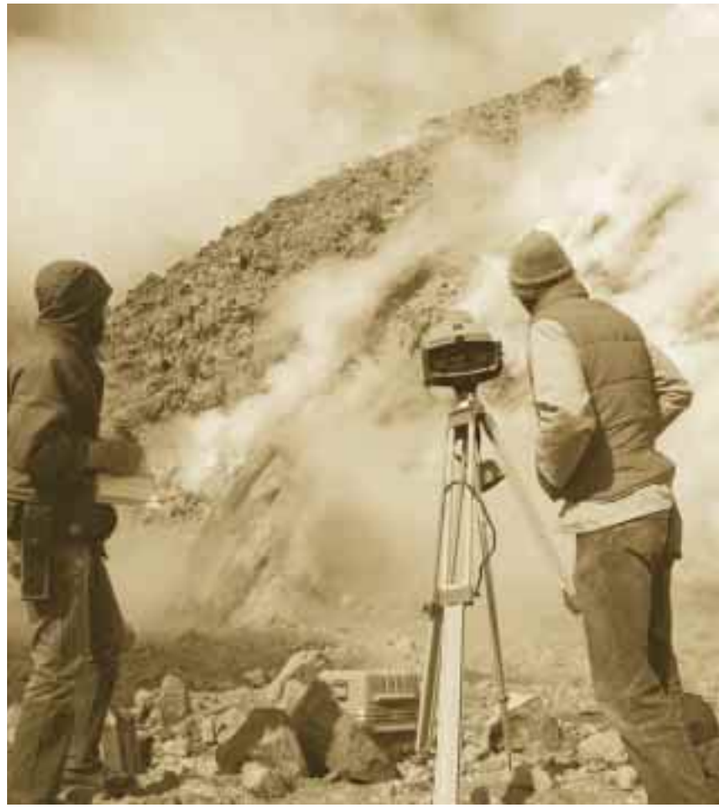
Perspectives on the evolving nature of innovation, a panel discussion hosted by the Honourable Ralph Goodale, featuring speakers ages 15 to 80 who shared their views on innovation through time—past, present, and future.

Assessments by leading Canadian experts and prominent journalists on how research and innovation yield tangible benefits for Canadian society, communities, and individuals.

Live satellite links with research teams and their partners from Newfoundland, Quebec, Ontario, Manitoba, and British Columbia, who described the international impact of community-based research.

The event also included winners of the Canada-Wide Science Fairs, with a special parallel program designed for these young innovators, in co-operation with the National Museum of Science and Technology. Many of these participants were asked to exhibit their winning projects, which were attended by the visiting dignitaries.

In their closing statements, the presidents of the four host organizations highlighted the changes that are contributing to Canada's successful transition to a knowledge-based economy. From the increasing demand for graduates in the social sciences and humanities, and the use of a collective approach, to research structured around problems rather than disciplines, innovation is a dynamic process that takes new ideas and concepts and puts them into implementation and use. Governments contribute to this process by putting conditions and tools in place that promote innovation in a wide spectrum of research activities from basic to applied.



Looking ahead

The latest federal budget in February 2000 provided the CFI with an additional $900 million and extended its mandate until 2005. Few actions could testify so forcefully to the success that the Foundation has had over the last two years, and the confidence that is being placed in it over the next five. Moreover, the CFI will also be applying its resources toward meeting the infrastructure needs of no fewer than 2,000 new research chairs, which will be created in Canadian universities by 2004 - 05. These new positions will be deployed in accordance with the priorities of the universities, as outlined in their strategic research plans. Chairs will support both established world-class researchers and emerging researchers who have demonstrated the potential to achieve the highest standing in their respective fields. These chairs will help build a critical mass of researchers and the CFI will ensure that they are fully equipped to heighten their contributions to the advancement and application of knowledge.

The CFI is also extending its current funding program with $100 million earmarked to develop international joint ventures with research institutions in other countries.

Several competition deadlines occurred during the course of the 1999 - 2000 year, and the announcement of the competition results will come during the 2000 calendar year:

Innovation Fund – Researchers across Canada continue to respond enthusiastically to the CFI's call for new projects, which was signalled by the announcement of a new competition for funding in September 1999. By the

"Few actions could testify so forcefully to the success that the Foundation has had over the last two years..."

deadline in February 2000, the CFI had received 414 full project proposals requesting a total of $900 million (the competition's budget was set at a maximum of $350 million). These proposals required a great deal of planning and hard work on the part of the many individuals involved in the development of projects. The results of this competition are being announced in July 2000, and the guidelines for the next round of funding are available in the fall of 2000.

New Opportunities Fund – There have been three submission dates since July 1999 and the results of the competitions have been announced. A further round of submissions closed at the beginning of March 2000, with decisions to be announced at the end of May 2000.

University Research Development Fund – Funding decisions were made in June, October, and November 1999, as well as February 2000. Results of the November round of submissions were announced in February 2000, while the results of the February competition were announced at the end of May 2000.

College Research Development Fund – By March 2000, the CFI had received 46 applications for a total of $19 million. Decisions are being made by the CFI Board of Directors in July 2000.

Strengthening Canada's research leadership

ensuring this country's role in a scientific and technological revolution

The CFI's mission is to provide researchers in Canadian institutions with the equipment and facilities they need to conduct leading-edge research and to undertake research programs that are internationally competitive. As part of the CFI's first competition for funding, institutions and researchers have put forward many exciting proposals in a wide range of disciplines and areas. By providing researchers with the equipment and facilities they need, the CFI is not only strengthening the capacity to train future researchers, it is also reinforcing Canada's science and technology leadership and ensuring this country's role in a scientific and technological revolution.

Investing in healthcare for children and youth will earn big returns in lower costs for treating problems related to tobacco use, sun exposure, and accidents. Smoking is rising at an alarming rate in adolescents: there was a six-per cent increase in the early 1990s. Tobacco use accounts for about 23 percent of all Canadian deaths, and it costs—at a conservative estimate—more than $10 billion to treat all the tobacco-related illnesses. Skin cancer (melanoma) is another largely preventable disease, but despite sunscreen promotions and warnings about the hazards of suntanning, malignant skin cancer is the fourth most common cause of cancer deaths among people aged 19 to 45; it takes the lives of two Canadians a day. Another source of preventable illness is childhood accidents. In 1986 alone, accidental injuries represented almost 14 per cent—about $11 billion—of health care costs. But about 90 per cent of these injuries could be prevented with simple measures such as wearing bicycle helmets or seatbelts. With funding from the CFI, researchers at the **University of British Columbia** are establishing a program to research health promotion in children and youth. They expect their findings will be used in government policy-making in Canada, and internationally.

"Investing in healthcare for children and youth will earn big returns..."

Developing methods for improving water quality in farm ponds is of major importance in rural communities where ponds may be the primary source of clean water for both livestock and humans. Chemicals to combat algae growth, if an option at all, are only a temporary solution. Which is one of the reasons **Lethbridge Community College** is studying the possibility of using grass carp and silver carp for biological control of aquatic weeds—such as water hyacinth—in irrigation systems, farm ponds, and small reservoirs. The CFI is supporting the project through funds for a state-of-the-art aquaculture research facility: the Aquaculture Centre of Excellence. In addition to farming fish for weed control, researchers also recognize the increased consumer demand for fish. With that in mind, they will also be studying the potential for introducing a strain of rainbow trout into lakes that have, historically, been too alkaline to support trout.

Canada may have the largest proven reserve of heavy oil and tar sand in the world, but what the country needs now is cost-effective, environmentally-friendly technology for exploiting this resource. Engineers at the **University of Regina** have turned their attention to this challenge with the Sustainable Heavy Oil Research Facility (SHORF), funded by the CFI. The goal is to establish Canada as the world's "smartest"—meaning most productive and socially responsible—producer of heavy oil through innovative, interdisciplinary research that emphasizes "green" technology. (All the Facility's research activities will be guided by "environmental impact assessments.") Researchers expect that SHORF findings will have a major impact on Canada's economic future, since the petroleum industry can only maintain its share of the international market by producing "green" energy at competitive prices.

Canada produces an average of 56 million tonnes of grains (including legumes and oilseeds) worth about $6 billion. Preventing the crops from spoiling while in storage is crucial to both the economy and human health. **University of Manitoba** researchers are exploring better ways of storing grains in their Stored-grain Ecosystem Facility, funded partly by the CFI. Counteracting moisture, a major problem in grain storage, will be done with heated-air drying modules that include sensors that control temperature and humidity and strike a balance between overdrying of grain and spoiling it through over-heating. Since some insects are becoming pesticide-resistant, researchers are experimenting with techniques for physically controlling insects, including airtight bins and high-temperature grain-treating units. In addition to preserving more grain, these techniques are designed to prevent diseases to people and farm animals that are caused by either mouldy grains, or grains that contain traces of pesticides.

For more than four decades, **McMaster University's** Faculties of Science and Engineering have retained a commitment to work in new materials. In 1967, McMaster created the Institute for Materials Research, with interdisciplinary materials research facilities. Focusing on areas such as semiconductors, polymers, pulp and paper, metals processing, adhesives, and the use of laser technology, the university is now improving five shared laboratories that will address these various research fields. The goal is to promote multidisciplinary work, share equipment, and co-ordinate with provincial and national research networks. The CFI is supporting these co-operative efforts through the purchase of key pieces of equipment that will be used for the creation, processing, and analysis of novel materials.

Environmental change is one of the most important challenges facing society. The thinning ozone layer, global warming, and urban pollution all have an impact on the health and wealth of Canadians. Understanding the causes of environmental change is crucial to establishing policies that will minimize the damage. With the help of a grant from the CFI, the **University of Toronto** Physics Department is creating a state-of-the-art Atmospheric Observatory. The new facility will allow a wide variety of research

"Understanding the causes of environmental change is crucial to establishing policies that will minimize the damage."

"The search for a vaccine for HIV-1, the virus that causes AIDS, has become all the more urgent now..."

projects. Currently, researchers are focused on finding the causes of stratospheric ozone depletion, and establishing the links between mid-latitude and polar ozone loss. They are also investigating whether the Montreal Protocol, which controls the global production and release of ozone-depleting substances, has been effective in restoring the natural concentration of ozone in the upper atmosphere. In addition, the Atmospheric Observatory will be used to help identify and quantify the sources, sinks, and interactions between tropospheric trace gases, focusing on the chemistry and physics of urban pollution and on the impact of the rising concentrations of greenhouse gases.

At **York University**, psychologists are studying how the human visual system infers 3D surfaces from the 2D images formed by the eyes. With a grant from the CFI to fund a stereoscopic projection system and powerful graphics computers, the team is studying the inference of 3D shape from texture and from stereopsis. While the project addresses fundamental scientific questions, the research has immediate applications in several domains. The work on texture is being used by the CAE to optimize the graphical rendering of 3D terrains in a virtual-reality system that will allow search-and-rescue helicopter pilots to fly in bad weather. The work on stereopsis is being used by the IMAX corporation to improve the quality of their 3D films. The addition of eye- and head-tracking capabilities, also made possible by CFI funding, will allow the team to better understand observers' gaze strategies in exploring 3D environments.

The search for a vaccine for HIV-1, the virus that causes AIDS, has become all the more urgent now that it is apparent that HIV is the prototype of a growing number of infections. At the **Université de Montréal's** Hôpital Sainte-Justine, immunobiologists will be investigating ways of reinforcing the human immune system against HIV, and other viruses such as the human herpesvirus. With funds from the CFI, the university is building a new lab with a 'biosafety level 3' confinement rating, which is essential in studying infectious diseases. Researchers also expect that their studies will be important in understanding the resistance that bugs have to anti-viral drugs, and in developing new medicines. They are also screening exotic herbal extracts for anti-HIV activities, which may have immediate value for infected patients.

Cancer poses a greater problem for society than any other disease. In fact, it strikes one in three people. And with the aging population, the incidence of cancer is constantly increasing.

Support from the CFI will enable **Université Laval** to bring together—at Hôtel-Dieu de Québec—the key partners in the fight against cancer in the Quebec City region. The Centre de recherche en cancérologie (CRC, a cancer research centre) at Université Laval is already well known for its expertise in basic and clinical research. With the CFI's support, Université Laval will be able to create the Centre de recherche clinique et évaluative

en oncologie (CRCEO, a centre for clinical and evaluative cancer research). An interface environment devoted to cancer research, the CRCEO will become a unique research and care facility in Quebec. It will allow for direct communication between patients and the hospital's scientific, medical, and paramedical staff. It will also generalize the multidisciplinary approach to cancer, and enable the epidemiology physicians already in place to develop new research projects in two specific fields: nutrition and chemo prevention of cancer. These inexpensive alternative approaches could considerably improve the quality of life for patients, as well as prolong their life and allow for savings in the health system.

Mechanical engineers and physicists at Fredericton's **University of New Brunswick (UNB)** are developing "smart structures" by embedding distributed fibre-optic sensing within aircraft composite materials. With a grant from the CFI for electronic and manufacturing equipment, researchers are applying a powerful dual-function fibre-optic sensing capability that simultaneously monitors both strain and temperature during the curing process. In the finished composite structure, the embedded sensor can also perform health monitoring by detecting signs of damage due to mechanical loading. As the smart structures are targeted for the aerospace industry, UNB is collaborating with scientists from the NRC's Institute of Aerospace Research in Ottawa. The developed technology is also expected to find its way into electronics and the health-care sector, as well as civil infrastructure. For example, the fibre-optic sensor could be used to monitor gallstones during the microwave therapy used to destroy them, or to detect hazards such as a deteriorating natural gas pipeline, which could be sensed before it cracked. The research will develop new knowledge and tools to advance the current understanding of fibre embedment, optimization of composite materials manufacturing, and the relationship between process-induced residual stresses and failure.

Mention "lasers" and visions of light-sabre wielding Jedi come to mind. But the Ti: Sapphire Femtosecond Laser System that **Dalhousie University** scientists have added to their chemistry lab, with the help of the CFI, is designed for sizing-up substances not warriors. The Laser System is designed to measure ultrafast chemical reactions using incredibly short, intense bursts of light. The vital information about chemical reactions obtained with this state-of-the-art laser system is important in developing drugs and new artificial photosynthetic materials, in addition to reducing toxic industrial emissions, particularly in the pulp and paper industry. When producing paper, the goal is to get the whitest paper, for the lowest cost—with the least environmental impact. Dalhousie's researchers are hoping their work will accomplish a number of things including: uncovering new ways of producing high-quality pulp that won't yellow when exposed to light; and finding ways to get a higher pulp yield from Canada's shrinking forests.

"The research will develop new knowledge and tools to advance the current understanding"

Responsibility for Financial Reporting

The financial statements of the Canada Foundation for Innovation (CFI) were prepared by the CFI's management, which is responsible for the integrity and fairness of the data presented. In certain cases, this data may include amounts that are based on best estimates and judgment. The financial statements were prepared in accordance with generally accepted accounting principles, including the accounting recommendations for not-for-profit organizations in Canada. Financial information appearing throughout this annual report is consistent with the financial statements.

In discharging its responsibility for the integrity and fairness of the financial statements, and for the accounting systems from which they are derived, management maintains the necessary system of internal controls. This system is designed to provide assurance that transactions are authorized, assets are safeguarded, and proper records are maintained. The system is further validated by our external auditors who periodically review and evaluate the accounting records and related internal controls, and who report any findings to management. The external auditors' findings and recommendations are reported to the CFI's Audit and Finance Committee and the Board of Directors.

The Board of Directors oversees management's responsibilities for financial reporting through the Audit and Finance Committee. The committee reviews the financial statements and recommends them to the Board for approval and submission to the Members. The Committee's other key responsibilities include reviewing the budgets, internal control procedures, investments, and advising the Directors on auditing matters and financial reporting issues.

Ernst & Young LLP, independent auditors appointed by CFI Members on the recommendation of the Audit and Finance Committee, have examined the financial statements and their report follows. The independent auditors have full and unrestricted access to both the Audit and Finance Committee and the Board of Directors to discuss their audit and related findings as to the integrity of the financial reporting and the adequacy of the system of internal controls.

Lorne A. Babiuk
Chair,
Audit and Finance Committee

Manon Harvey, CA
Vice-President,
Finance

Auditors' Report

To the Members of the Canada Foundation for Innovation

We have audited the balance sheet of the **Canada Foundation for Innovation** as at March 31, 2000 and the statements of operations and cash flows for the year then ended. These financial statements are the responsibility of the Foundation's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in Canada. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Foundation as at March 31, 2000 and the results of its operations and its cash flows for the year then ended in accordance with accounting principles generally accepted in Canada.

Ernst & Young LLP

Ottawa, Canada,
May 5, 2000.

Chartered Accountants

Balance Sheet
As at March 31

	2000 $	1999 $
Assets		
Cash	**902,955,464**	2,522,548
Interest and other receivables	**20,459,613**	15,162,412
Investments *[note 2]*	**952,266,875**	821,828,698
Prepaid expenses	**23,557**	28,691
Capital assets *[note 3]*	**125,227**	167,097
	1,875,830,736	839,709,446
Liabilities and Net Assets		
Accounts payable and accrued charges	**2,925,509**	200,191
Deferred contributions *[note 4]*		
Expenses of future periods	**1,872,780,000**	839,342,158
Capital assets	**125,227**	167,097
	1,872,905,227	839,509,255
Commitments *[note 6]*		
Net assets	**–**	–
	1,875,830,736	839,709,446

See accompanying notes

Statement of Operations
Year ended March 31

	2000 $	1999 $
Revenues		
Recognition of deferred contributions relating to amounts granted to eligible recipients	**114,173,727**	27,304,113
Recognition of deferred contributions relating to current year operations	**4,041,827**	3,382,849
Amortization of deferred contributions relating to capital assets	**54,030**	57,005
	118,269,584	30,743,967
Expenses		
Grants to eligible recipients	**114,173,727**	27,304,113
General and administration	**4,041,827**	3,382,849
Amortization of capital assets	**54,030**	57,005
	118,269,584	30,743,967
Excess of revenues over expenses	**–**	–

See accompanying notes

Statement of Cash Flows
Year ended March 31

	2000 $	1999 $
Operating Activities		
Excess of revenues over expenses	**–**	–
Items not involving cash:		
Amortization of capital assets	**54,030**	57,005
Amortization of deferred contributions related to capital assets	**(54,030)**	(57,005)
Net increase in deferred contributions related to expenses of future periods	**1,033,437,842**	11,932,870
Change in non-cash operating working capital	**(2,566,749)**	(481,965)
Cash provided by operating activities	**1,030,871,093**	11,450,905
Financing And Investing Activities		
Purchase of capital assets	**(12,160)**	(34,353)
Increase in deferred contributions related to capital assets	**12,160**	34,353
Net purchase of investments	**(130,438,177)**	(9,282,370)
Cash used in financing and investing activities	**(130,438,177)**	(9,282,370)
Net increase in cash	**900,432,916**	2,168,535
Cash, beginning of year	**2,522,548**	354,013
Cash, end of year	**902,955,464**	2,522,548

See accompanying notes

March 31, 2000

Notes to Financial Statements

General

The Canada Foundation for Innovation [“the Foundation”] was incorporated under Part 1 of the Budget Implementation Act, 1997 on April 25, 1997 for the purpose of providing financial support for the modernization of research infrastructure at Canadian post-secondary educational institutions and research hospitals in the areas of science, engineering, health and the environment.

March 31, 2000

1. Significant Accounting Policies

The financial statements have been prepared by management in accordance with generally accepted accounting principles.

(a) Revenue recognition

The Foundation follows the deferral method of accounting for contributions which include government grants and, potentially, donations from other sources.

Under the Budget Implementation Act, 1997 [“the Act”], the Foundation received a grant from the Government of Canada in the amount of $800 million plus accrued interest of $964,384 to be held, invested, administered and disbursed in accordance with the Act and the related funding agreement between the Foundation and the Government of Canada. An additional grant of $200 million was committed to the Foundation in the 1999 federal budget and a grant of $900 million was committed in the 2000 federal budget. Both amounts were received in the current fiscal year. Grants received, together with future investment revenue, are directed to the granting of amounts to eligible recipients and the payment of the Foundation’s operating expenses and acquisition of capital assets in accordance with the requirements of the Act and the terms of the funding agreement. Grants received and future restricted interest earned on the invested amounts will be deferred and recognized as income as expenditures are incurred by the Foundation.

Contributions applied toward the purchase of capital assets are deferred and amortized to revenue on a straight-line basis, at a rate corresponding with the amortization rate for the related capital assets.

(b) Grants to eligible recipients

Grants to eligible recipients are recognized as expenses as the awarded funds are disbursed.

(c) Investments

Investments are recorded at cost. Premiums or discounts are amortized over the remaining term of the investments. If the market value of investments becomes lower than cost and this decline in value is considered to be other than temporary, the investments are written down to market value.

March 31, 2000

(d) Capital assets

Purchased capital assets are recorded at cost. Contributed capital assets, if any, are recorded at fair value at the date of contribution. Repairs and maintenance costs are charged to expense. When a capital asset no longer contributes to the Foundation's ability to provide services, its carrying amount is written down to its residual value.

Capital assets are amortized on a straight-line basis using the following annual rates:

Leasehold improvements	Over the 5 year lease period
Furniture and other equipment	20%

2. Investments

Investments comprise the following financial instruments:

	March 31, 2000		March 31, 1999	
	Cost $	Market Value $	Cost $	Market Value $
Money-market funds	**61,721,415**	**61,785,147**	96,900,138	96,936,715
Bonds	**890,545,460**	**880,462,980**	724,928,560	730,614,071
	952,266,875	**942,248,127**	821,828,698	827,550,786

3. Capital Assets

Capital assets consist of the following:

	March 31, 2000		March 31, 1999	
	Cost $	Accumulated Amortization $	Cost $	Accumulated Amortization $
Leasehold improvements	**31,809**	**17,233**	31,809	10,792
Furniture and other equipment	**251,890**	**141,239**	239,730	93,650
	283,699	**158,472**	271,539	104,442
Accumulated amortization	**(158,472)**		(104,442)	
Net book value	**125,227**		167,097	

March 31, 2000

4. Deferred Contributions

(a) Expenses of future periods

Deferred contributions related to expenses of future periods represent unspent externally restricted grants, together with investment revenue earned, for the purpose of providing grants to eligible recipients and the payment of operating and capital expenditures in future periods.

	2000 $	1999 $
Balance, beginning of year	**839,342,158**	827,409,288
Add grants received	**1,100,000,000**	–
Add restricted investment revenue earned	**51,665,556**	42,654,185
Less amount recognized as revenue	**(118,215,554)**	(30,686,962)
Less amount applied toward capital assets acquired	**(12,160)**	(34,353)
Balance, end of year	**1,872,780,000**	839,342,158

(b) Capital assets

Deferred contributions related to capital assets represent the unamortized amount of restricted grants received and applied toward the purchase of capital assets. The amortization of capital contributions is recorded as revenue in the statement of operations on the same basis as the amortization of the related capital assets.

	2000 $	1999 $
Balance, beginning of year	**167,097**	189,749
Restricted grants applied toward the purchase of capital assets	**12,160**	34,353
Less amount amortized to revenue	**(54,030)**	(57,005)
Balance, end of year	**125,227**	167,097

March 31, 2000

5. Restricted Contributions and Net Assets

All of the net assets of the Foundation are subject to externally imposed restrictions as per the requirements of the Budget Implementation Act, 1997 which governs the Foundation and the terms of the related funding agreement between the Foundation and the Government of Canada. Investment revenue to be earned on the grants received from the Government of Canada is also restricted. Accordingly, the entire net assets of the Foundation are deferred and taken into revenue as expenditures are made with no net asset balance outstanding at any time. A statement of changes in net assets has therefore not been prepared since it would not provide additional useful information.

6. Commitments

During the year, the Foundation awarded grants for a maximum amount of $266.7 million [1999 - $197.8 million]. Total disbursements to eligible recipients during the fiscal year were $114.2 million [1999 - $27.3 million]. To date, the Foundation has awarded grants for a maximum amount of $464.5 million of which $141.5 million has been disbursed as of the end of the fiscal year. The balance will be recorded as expenses in subsequent years as funds are disbursed.

The Foundation entered into a lease agreement during its 1998 fiscal year for its premises on 350 Albert Street, Ottawa for a five year term. The Foundation also has operating leases relating to computer equipment. The minimum annual lease payments are approximately $342,000.

7. Pension Plan

The employees of the Foundation may elect to become members of the Association of Universities and Colleges of Canada [AUCC] Pension Plan, a defined contribution plan administered by Integra Capital Management. The employer contributions made to the Plan during the year ended March 31, 2000 amounted to $23,876 [1999 - $24,149].

8. Fair Value of Financial Instruments

The carrying value of amounts receivable and payable approximate their fair value given the relatively short period to maturity of the instruments. The fair values of the investments, which are based on the year-end quoted market prices, are disclosed in note 2.

9. Tax Status

The Foundation is a non-taxable entity under paragraph 149(1)(1) of the Income Tax Act.