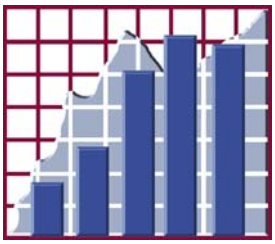

Malatest & Associates Ltd.

Fifth-Year Evaluation of the Canada Research Chairs Program

Final Evaluation Report

A report prepared by:
R.A. MALATEST & ASSOCIATES LTD.

For:
The Canada Research Chairs Evaluation Steering Committee

December 2, 2004

Executive Summary

The Canada Research Chairs Program (CRCP) is a key component in Canada's strategy to become a world leader in the knowledge-based economy. In 2000, the Government of Canada allocated $900 million to create 2,000 university Chairs in addition to $250 million in infrastructure funding from the Canada Foundation for Innovation. The 2000 Chairs were allocated between 2000/01 and 2004/05. Once a university has been allocated a Chair, it has up to three years to fill the Chair position. Therefore, it is expected that the 2000 Chairs will be filled by 2007/08.

Chairs are allocated by Tier level and by discipline group, with Chairs being split equally between tier levels, and with natural sciences/engineering, health, and social sciences/humanities accounting for 45%, 35%, and 20% of Chairs respectively. There is some level of flexibility accorded to universities in allocating Chairs; the "corridor of flexibility", introduced after the Third Year Review, allows universities to use a specified number of unused Chairs for any combination of tier that respects the budget, and in any discipline group.

The CRCP Evaluation Steering Committee contracted with R.A. Malatest & Associates Ltd. in partnership with Circum Network Inc. to conduct the fifth-year evaluation. As part of this evaluation, the Consultant completed the following activities:

- Review of statistical reports using CRCP administrative data, 51 university annual reports, CFI project report forms (244) and other documentation;
- Interviews with 20 key stakeholders, 28 universities, and 5 researchers who declined Chair positions;
- Surveys with 606 Chairholders (82.8% response rate), 1,119 other researchers (47.6% response rate) and 39 nominees not funded (43.8% response rate). It should be noted that due to the number of responses as well as the response rates that the results can be viewed with considerable confidence;
- Review of comparable international research funding programs;
- Case studies with nine Chairholders; and
- Analysis of 42 data requests completed by universities.

A limitation of this evaluation study is that the short-term results of the Chairs program related to research productivity were measured using self-reported data from Chairholders and other researchers. Survey data is less reliable than other sources of data such as administrative data or curriculum vitae due to errors associated with recall, and the potential for misunderstanding survey questions. Where possible, additional sources of data such as administrative data have been used in assessing CRCP results.

The following pages summarize the findings of the fifth year evaluation.

Findings and Conclusions

Program Relevance

The objectives of the CRCP were seen to be still relevant five years into the program and 20 out of 26 (76.9%) universities described the Chairs Program as an effective vehicle to achieve the objectives. Universities did feel, however, that the objective of collaboration among universities and between sectors was misplaced, as the primary purpose of the Chairs program was to recruit and to retain researchers, not to encourage collaboration. Continued CFI funding was seen by universities as critical to the long-term success of the program, particularly to sustain a productive university environment including modern research facilities, and to ensure that top researchers can continue to be attracted in part on the strength of the CFI component of the recruitment package.

Overall Results

Attraction and Retention of Top Researchers

Competition internationally for the best researchers is fierce. According to the international review, numerous other countries have programs designed to compete for the same pool of top researchers that the CRCP is designed to attract. As of August 2004, 359 Chairholders have been attracted[1] from outside Canada, and 84% of Chairholders surveyed (attracted from outside Canada) viewed the Chair award as important in their decision to accept a position in Canada. Even though the program was effective in recruiting foreign and expatriate researchers, universities reported difficulties in recruiting internationally, such as difficulties with making a contingent offer to researchers while waiting to hear about the results of the CRC application, time required to approve CRCs, and bureaucracy and security issues in recruiting international candidates.

Results of this evaluation were mixed with respect to retention. While a substantial percentage of Chairholders reported that they would have relocated outside of Canada if they had not received a Chair in the next five years (23.2%), only one unsuccessful nominee actually relocated. It should be noted that as most Chairholders surveyed had been in place for less than three years, the time frames for Chairholders and nominees not funded were not equivalent. However, the evaluation results indicate that the decision to remain in Canada is complex and related to multiple considerations including personal factors as well as career ones.

The CFI funding was seen as critical in attracting top researchers from outside Canada. Most universities stated that without the CFI component of the Chairs Program, it would not have been possible to recruit some of their top researchers (66.7%). Most Chairholders also reported that the CFI component was important in their decision to accept a Chair position (63.1%). Universities were positive about the ability to pool CFI funds, but a number of universities felt

[1] these figures are based on an expanded definition of external recruits adopted by the Canada Research Chairs secretariat in 2003. This definition includes researchers from abroad who had been in a Canadian institution for less than one year at the time of nomination and was applied retroactively to Chairs awarded since the launch of the program (2000 to date). It should be noted that the evaluation team did not examine the appropriateness of the definition adopted by the Chairs' Secretariat.

that the amount of infrastructure funding per researcher was borderline or insufficient, particularly relative to other CFI funding programs available.

Enhancement of Universities' Roles as Centres of Research Excellence/ Creation and Application of New Knowledge

Research centres associated with Chairholders surveyed have grown dramatically since the establishment of the Chairholders. In total, research centres associated with the Chairholders surveyed grew by 2,816 researchers since the time the Chairs were awarded, a 59.9% increase. Further, according to the survey of chairholders and other researchers, Chairholders reported a significantly greater increase in research productivity/publications relative to other researchers between 1999/2000 and 2002/2003. Chairholders reported a range of research impacts on industry such as patents (112), patent applications (224), and inventions (83), as well as significant health benefits (108 treatments or potential new treatments for diseases, injuries or illnesses), and policy and environmental benefits. It should be noted that such impacts were likely the culmination of many years of research, supported by multiple sources of funding. Therefore, these impacts can only be partly attributed to the Chairs program. While the majority of Chairholders surveyed were originally from Canada, those that were recruited from outside Canada reported 59 books, 714 peer-reviewed publications, 451 technical and presentation papers, 19 grant applications and 14 patents since the award of their Chair. Further, external recruits cited 6 inventions, 17 treatments or potential treatments, 8 improvements to diagnosis and community health, and 4 health care system improvements.

Universities reported that the infrastructure funded as part of the CFI component of the Chairs program rated amongst the best in Canada (41%) or in the world (34%).[2] In addition, universities reported that on average, 3.6 researchers at their institution and 3.4 researchers outside their institution substantively advanced their research (e.g., more productive, more multidisciplinary, more risky, more competitive internationally) per project[3] because of the availability of infrastructure.

Unintended Effects

The Chairs program produced a mix of positive and negative unintended impacts. Negative effects of the Chairs Program were reported by a sizable percentage of researchers, including a negative impact on faculty due to greater concentration of university resources with Chairs (34.7%) and decreased morale among faculty due to greater segmentation of the faculty corps (31.1%). However, unintended effects reported by other researchers were mainly positive, such as reinforcement of existing research teams (66.1%) and benefits to faculties due to greater awareness of programs with Chairs (51.4%).

Training of Highly Qualified Personnel

Enhancing the number and quality of trainees, particularly at the graduate and post-graduate level, is an important mechanism for increasing the pool of highly qualified people and of researchers in Canada. Chairholders cited a substantial increase in the number of students and other HQP supervised since their Chair awards. Since the Chair award, Chairholders reported

[2] CFI project reports forms (2003)
[3] CFI project reports forms (2003)

that they supervised 779 more doctoral students and 490 more post-doctoral fellows in 2002/2003 than in 1999/2000, a significantly greater increase than other researchers over the same time period. With respect to CFI funding, universities reported that the CFI component of the CRCP was important in attracting an average of 1.6 post-doctoral fellows, 4.3 graduate students, and 2.1 other trainees per project to their institution. According to universities, 10.8 trainees enhanced their training on average per project due to the infrastructure.

Effects on Smaller Universities

Despite additional challenges associated with fewer financial resources, smaller universities were positive about the impact of the CRCP on their institution. Most smaller universities felt that the Chairs Program had assisted their institution in establishing a "critical mass" needed in order to create centres of research excellence (80%) and 88.9% of smaller universities felt that the CRCP had a *more* significant impact in smaller or medium sized universities (relative) than in larger universities. This perception is supported to some extent by the greater expansion of Chair-affiliated research centres at smaller universities compared to centres at medium and larger universities, though this result was not statistically significant.

Inter-Institutional and Inter-Sectoral Collaboration

Universities and key stakeholders were equivocal about the effect of the Chairs program on efficient use of resources through collaboration among universities and between sectors. Only 8 of 26 universities (30.8%) agreed that the program had helped them make the best use of research resources through collaboration among universities and between sectors, and 3 of 15 key stakeholders (20.0%) felt that the Program had achieved this objective.

In contrast, the CFI component of the CRCP had a strong effect on developing multi-disciplinary research networks within universities, as well as across universities and across sectors. Seventy percent of universities reported a significant impact of the CFI funding on both intra-institutional and inter-institutional collaboration and 42% reported a significant impact on inter-sectoral collaboration.[4]

Results at the Institution Level

University Support for Chairs

Funding provided by the CRCP is not intended as stand-alone funding; universities are expected to provide supplementary financial support to Chairs. This support appears to be occurring in most cases and in varying amounts, based on surveys with Chairholders. According to the survey of Chairholders, universities provided an average of $68,988 in research funding to Chairs between April 1, 2002 and March 31 2003. Of Chairs that were originally from the nominating university (retainees), the amount of university-provided research funding reported more than doubled on average since the Chair award. In addition, universities reported spending $91 million on all Chairs in 2003.[5] University research funding support reported by Chairholders was highest for CIHR Tier 2 Chairholders ($94,923), perhaps consistent with university statements that CRCP funding for this group was insufficient and required substantial incremental funding from universities. It should be noted that support differed by university, with university research

[4] CFI project reports forms (2003)
[5] University annual reports.

funding support (as reported by Chairholders) *decreasing* since the Chair award for 23.5% of universities.

University Progress Relative to Strategic Plans

Universities have been successful in fostering research related to their strategic plans, and enhancing innovative, interdisciplinary research. Annual reports analyzed indicate that universities have reported significant gains in hiring researchers related to their strategic plans (both Chairs and other researchers), disseminating research findings, and recruiting graduate students in research fields related to their strategic plans.

Additional Funds Leveraged as a Result of the Chairs Program

The Chairs program generally succeeded in leveraging a substantial level of additional research funding from the original CRCP investment. Funding (all sources) reported by Tier 1 Chairholders doubled on average since the implementation of the Chair, and funding reported by Tier 2 Chairholders increased by 159.8% compared to a 49.9% increase among other researchers surveyed.[6] Administrative data provided by the three funding agencies showed that CIHR Chairholders and SSHRC Tier 2 Chairholders experienced a larger increase (SSHRC – 52.9%; CIHR – 50%) in funding in 2002/2003 over 1999/2000 compared to other funded researchers, while NSERC Chairholders and SSHRC Tier 1 Chairholders did not show a substantial increase compared to other funded researchers. In addition to the effect of the Chairs program, the CFI component of the program leveraged $21.8 million in funding from institutions, trusts, foundations, corporations, and voluntary organizations and $34.2 million from provincial governments.

Potential Risks for Universities

The most common risk that universities identified involved potential non-renewal of Chairholders or Tier 2 Chairholders no longer eligible for renewal (after two terms), with 15 of 27 (55.5%) universities mentioning this risk. Particularly with respect to potential non-renewal, universities expressed a concern that universities would be left to cover salary costs of the non-renewed Chairholder (12 of 27 or 44.4%). However, only one-third of universities reported planning mechanisms to deal with the financial risks of the Chairs program, with the most common mechanism to deal with potential non-renewal of Chairholders being bridging Chairholders to future retirements[7] or folding these faculty positions into university funding.

Universities expressed uncertainty about how the program will operate after the 2,000 Chairs have been filled. They expressed concern that there would not be sufficient levers to attract the greatest talents after the 2,000 Chairs were awarded. A number of universities also requested greater clarity about what would happen to their allocation of Chairs if and when the tri-agency funding received by university changes in the future.

[6] Values over $10M were removed from the analysis in order to reduce the possibility that researchers were reporting the total value of funded research projects where they were co-investigators.
[7] For example folding Chair positions into positions vacated through retirement.

Design Issues

Effort to Distribute Chairs Equitably Between Men and Women

According to an assessment of the potential for attaining gender balance in the CRCP during the initial phase of the program,[8] to ensure a representative set of Chairs, approximately 161 CIHR Tier 1 Chairs would need to be awarded to women between 2003 and 2006. For Tier 2 Chairs, in order to achieve gender parity (based on the distribution of associate and assistant professors), SSHRC and NSERC Tier 2 female nominations would have to double, and CIHR Tier 2 female nominations would have to quadruple.

An analysis of the 2003 annual reports showed that 14 of 26 universities (53.8%) providing data expected to show a 200% or more increase in the number of Chairs awarded to women between 2003 to 2005 compared to the historical number of Chairs awarded to women at the university. The information provided as part of the annual reports does not specify the expected number of female Chairs *by discipline*, and as a result, makes comparison against the targets specified in the gender-based analysis impossible. However, the evaluation team conducted a preliminary comparison of the expected percentage of Chair positions to be held by women between 2003 and 2005 (based on 2003 university annual reports) with the historical number of Chairs awarded to women by university (2003 and first cycle of 2004). Four of 12 universities (30%) expecting to show a 200% increase or more in the number of female Chairs met their target.

In addition, an analysis of CRCP administrative data indicates that the percentage of Chairs awarded to women has shown a steady increase between 2000 and 2004(first cycle only), with the percentage of female Tier 1 Chairs increasing to 23.3% from 10.6% and the percentage of female Tier 2 Chairs increasing to 38.3% from 20.4%.

Corridor of Flexibility

Nearly all universities reported that the corridor of flexibility had improved their ability to create Chairs, and a majority of universities requested that program flexibility be expanded, particularly in two areas:

- Increased ability to allocate Tier 1 versus Tier 2 Chairs; and
- Greater flexibility in the use of CRCP funds to create differently valued awards.

Effects of the Chair Allocation Formula

Universities expressed frustration with the lower allocation of Chairs in SSHRC disciplines, and a majority reported that the current allocation impacted their research and hiring plans (16 of 27 or 59%). Most universities felt that the number of SSHRC Chairs should be increased (21 of 27 or 77.8%); however, universities did not speak to the issue of whether the additional SSHRC Chairs would result from a reallocation of Chairs or creation of new Chairs.

[8] Nicole Bégin-Heick. *An Assessment of the Potential for Attaining Gender Balance in the Canada Research Chairs during the Initial Phase of the Program (2000-2006)*, May 2003.

Level of Funding

While the amount of CRCP funding was thought adequate for Tier 1 Chairs, a substantial number of Chairholders and universities felt that the amount of funding for Tier 2 Chairs should be increased. Specifically, only 46.7% of Tier 2 Chairholders felt that the amount of funding provided by the CRCP to universities at this level was adequate, and 70.6% of universities interviewed stated that the amount of money provided for Tier 2 Chairs was less than similar international programs. This finding is substantiated by the international study, which found that the funding amounts for prestigious research awards internationally were generally comparable to, or higher than, the amounts awarded by the CRCP.

Conclusions and Recommendations

Based on the evaluation results, we can conclude that the Canada Research Chairs program has helped to create a research environment that is conducive to the long-term retention and attraction of top researchers. Based on the survey of Chairholders and other researchers, Chairholders reported significant increases in research productivity and number of highly qualified personnel being trained at the graduate level since their Chair awards compared to other researchers over the same time period. Also, Chairholders reported research impacts such as patents, inventions and potential health treatments. However, these impacts can only be partly attributable to the Chairs program due to the short time since the award of most Chairs. The CFI component of the Chairs' program was seen as key to the success of the program and as critical to the attraction of top researchers (particularly for CIHR and NSERC disciplines) from outside Canada.

In addition, Universities and Chairholders reported that the Chairs program had leveraged between $218M and $343M in additional research funding. Not all of the increase in funding generated by the Chairholders may be attributed to the Chairs program, as there are multiple factors that influence the level of research funding generated; however, Chairholders did report a significantly larger increase in research funding since the Chair award compared to other researchers over the same period. Based on CFI administrative data, the CFI component has also resulted in $21.8M in matched funding from private sector and not-for-profit organizations (total of $56.4M in leveraged funding from all sources).

While the evaluation results demonstrated that the program is on the right track, the following issues need to be addressed in order to ensure the continued success of the program:

1. The CFI component was only committed for the first 2000 Chairs and is not a permanent component of the program. Continued CFI funding was seen as essential by universities and key stakeholders in recruiting (especially NSERC and CIHR Chairs) and retaining Chairs and developing leading-edge research centres established as part of the CFI component of the Canada Research Chairs.

2. Universities identified a number of risks associated with participating in the Chairs program, such as the associated cost of covering salaries for non-renewed chair positions (in particular Tier 2 Chairs). Universities asked for greater clarity as to what would happen once Chairs have been allocated if and when the tri-agency funding received by universities changes.

3. The results from this evaluation indicate that competition for top researchers exists in the form of other international research funding programs targeted at the same pool of leading researchers as the CRCP. As a result, attraction and retention of top researchers might become more difficult as competition for top talent increases.

4. Universities reported that the corridor of flexibility, introduced as a result of the third-year review, was effective and should be maintained and requested additional flexibility.

5. Universities interviewed reported that the current allocation formula by discipline was inconsistent with their hiring and research plans.

6. Analysis of Chair survey data indicated that university support for Chairholders (including both funding support and teaching relief) varied considerably by university.

7. Progress is being made towards the targets identified in the gender-based analysis. However, the information provided in the annual reports does not specify the number of expected female Chair nominations by discipline. This makes comparison against the targets identified in the gender-based analysis impossible.

8. The objectives of the Chairs program were seen as continuing to be relevant five years after the establishment of the program, with one exception: the objective of collaboration was not seen as closely related to the design of the program.

The following eight recommendations are proposed based on the findings and conclusions of the evaluation:

1: Continue the CFI component of the Canada Research Chairs, with some modifications in order to ensure continued access to infrastructure funding for newly recruited Chairs as the program progresses, and for infrastructure upgrades.

2: Universities and senior management should address strategic issues and risks associated with the future operation of the program including, for example how the Chairs program will be managed on an on-going basis and planning for when Tier 2 Chair terms expire, etc.

3: Identify mechanisms to ensure the future recruitment of top researchers – options include: 1)ensure that funding packages offered to top researchers are competitive; and 2)explore mechanisms to ease administrative requirements to facilitate recruitment of international researchers.

4: Further add to the corridor of flexibility by allowing a greater number of "free" Chairs by tier and discipline group.

5: Revisit the allocation formula by discipline in light of concerns reported by universities that the allocation formula was inconsistent with hiring and research plans.

6: Increase monitoring of university financial support and teaching relief for Chairs due to the finding that university support by Chairs varied considerably by university.

7: Increase the monitoring of the gender distribution among Chair awards, including monitoring the expected number of female nominations (through the annual university report) and actual number of female nominations by discipline group and tier.

8: Revisit the CRCP objective of "ensuring the effective use of research resources through… inter-institutional and inter-sectoral collaboration." Two options have been presented with respect to this recommendation, including modifying the objective or introducing incentives to encourage collaboration such as allowing joint Chair appointments.

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1 Introduction and Evaluation Methodology

1.1 Program Description

The Government of Canada established the Canada Research Chairs Program (CRCP) in 2000 to enable Canadian universities, affiliated research institutes and hospitals to become "centres of research excellence in the global, knowledge-based economy".[9] The Program builds on the initiatives of Canada's federal research granting agencies by assisting Canadian universities, together with their affiliated research institutes and hospitals, to retain the best Canadian researchers and to attract top researchers from other countries.

The Chairs program is designed to strengthen the research environment in Canada and to help offset "brain-drain" pressures. Faculty leaving Canada to do research elsewhere cited higher salaries, more resources (in terms of research infrastructure and support), a bigger critical mass of research collaborators, and a reduced teaching load as important in their decision to relocate.[10] The Canada Research Chairs program is also designed to help attract top researchers from outside of Canada, and will therefore contribute to faculty renewal in Canadian institutions. The program's logic model can be found in Appendix A. More specifically, the Chairs Program aims to:

- strengthen research excellence in Canada and increase Canada's research capacity by attracting and retaining the best researchers;
- improve the training of highly qualified personnel through research;
- improve universities' capacity to generate and apply new knowledge;
- promote the best possible use of research resources through strategic institutional planning, and through collaboration among institutions and between sectors.

As of August 2004, approximately 1,282 Chairs had been awarded to researchers from across Canada and around the world.[11] Uptake increased 183% between 2000-01 and 2001-02 (173 Chairs in 2000-01 and 490 Chairs in 2001-02), by 57% between 2001-02 and 2002-03, and by a further 42% between 2002-03 and 2003-04. Turnover (percent of Chairs retiring or resigning) has remained fairly consistent at about one to two percent each year of the program.

The goal of this $900-million program, funded by the Government of Canada, is to establish 2,000 Canada Research Chairs. The 2000 Chairs were allocated between 2000/01 and 2004/05. Once a university has been allocated a Chair, it has up to three years to fill the Chair position. Therefore, it is expected that the 2000 Chairs will be filled by 2007/08. As summarized in the table[12] below, the program has had budget lapses since its creation, which will continue until the 2000 Chairs are filled. This reflects the time needed by universities to fill Chair positions, particularly when recruiting top researchers from outside Canada.

2000-2001	2001-2002	2002-2003	2003-2004
$13,225,000	$59,250,000	$102,691,667	$146,062,614

Over ninety percent of Chairs are allocated to universities based on the funding received by researchers at the university level[13] from the Natural Sciences and Engineering Research Council of Canada (NSERC), the

[9] Program Guide, February 2002, p. 3
[10] "The Brain Drain", Michael Dilworth. The Ross Clouston Scholarship Review. 2002.
[11] CRCP administrative data.
[12] CRCP administrative data
[13] and/or affiliated research institute

Canadian Institutes of Health Research (CIHR), and the Social Sciences and Humanities Research Council of Canada (SSHRC). The remaining Chairs are reserved for smaller institutions.

Chairs are allocated by Tier level and by discipline group, with Chairs being split equally between tier levels, and with natural sciences/engineering, health, and social sciences/humanities discipline groups accounting for 45%, 35%, and 20% of Chairs respectively. Universities are afforded some level of flexibility in allocating Chairs. The corridor of flexibility, introduced after the Third Year Review of the CRCP, permits universities to use a specified number of unused Chairs for any combination of tier that respects the budget and in any discipline group. The additional flexibility was introduced to allow universities to further develop new research areas or expand priority areas.

Chair appointments are open to Canadian researchers, whether they are working in Canada or elsewhere, as well as researchers from other countries. Only Canadian universities can nominate researchers for two levels of Canada Research Chairs:

- Tier 1 Chairs are awarded to experienced researchers acknowledged by their peers as world leaders in their field. These appointments are worth $200,000 each year for a period of seven years and are renewable.
- Tier 2 Chairs are for researchers acknowledged by their peers as having the potential to be world leaders in their field. These appointments are worth $100,000 per year for a period of five years, and can be renewed once.

The Chairs program has partnered with the Canada Foundation for Innovation (CFI) to provide $250 million in infrastructure funding support. Institutions are allocated CFI envelopes valued at $125,000 per Chair (without consideration for the type of Chair). However, individual CFI applications are not limited to $125,000. With the exception of smaller universities, the CFI will contribute a maximum of 40% of the total cost and the institution is responsible for securing the remaining funding. Within their maximum allocation, smaller universities (those that receive less than 1% of total granting agencies funding) may choose one of two options for each infrastructure project associated with a nomination:

- For projects with a total eligible cost not exceeding $75,000, CFI may provide 100% of the costs.
- For projects with a total eligible cost exceeding $75,000, CFI may provide funding for up to 40% of the eligible costs of the projects

1.2 Description of Evaluation Issues

The evaluation was designed to examine the following evaluation issues:

- ***relevance issues*** pertaining to the continued need for the CRCP, ongoing relevance of the Program objectives in the current environment, and the need for the CFI funding beyond its initial budget contribution;
- ***overall results/effects***, addressing key objectives of the CRCP such as retention and attraction of top researchers, the development of centres of research excellence, the effect of the CRCP on the training of highly qualified personnel, unintended effects of the program, as well as the program's effect on inter-institutional and inter-sectoral collaboration;
- ***results/effects at the institution level***, which deal with university commitment in supporting the Chairs, unintended effects of the program at the department/faculty level, and generation of additional funding; and
- ***design issues*** such as the appropriateness of the allocation formula (NSERC – 45%; CIHR – 35%; SSHRC – 20%), effect of the newly introduced corridor of flexibility (which allows universities to use a specified number of unused Chairs for any combination of tier that respects the budget and in any discipline group), effort to distribute Chairs equitably between men and women, and use of CRCP funds by universities.

A matrix of evaluation issues, with corresponding indicators and data sources was devised as part of the design phase of the evaluation. This matrix is presented in Appendix B.

1.3 Evaluation Methodology

In the evaluation, multiple lines of evidence were employed to answer the evaluation questions. The data collection methodologies used are described in the following sections.

1.3.1 Review of Statistical Reports, Administrative Data and Other Documents

Administrative data and documentation from the Chairs program was reviewed, including the following:

- Statistical reports derived from CRCP administrative data;
- 51 university annual reports for 2003;
- 2003 CFI project report forms (244);
- Administrative data from the three federal granting agencies; and
- Other documentation (e.g., gender studies completed for the CRCP, documentation on other funding programs internationally and in Canada, etc.).

Data from the university annual reports has been analyzed as part of this report; however, the units in which results were reported (thousands of dollars versus dollars), differed by university. In such cases, corrections were made to ensure that data reported in the annual reports were consistent across universities.

1.3.2 Interviews

Exhibit 1.1 illustrates the number of interviews completed with key stakeholders, university representatives and researchers who declined Chair positions:

EXHIBIT 1.1: Key Informant Interviews Completed by Subgroup

Subgroup	Number of Interviews Completed
Key stakeholders (e.g., Association of Universities and Colleges of Canada, the Canadian Association of University Teachers, the Canadian Association of Graduate Studies, the Secretariat of the Chairs Program, the Interdisciplinary Adjudication Committee members, and the federal granting agencies, etc.)	20
University Representatives	28[1]
Researchers who were offered, but declined Chair Position	5
Total	53

Interviews were conducted with 28 universities (out of 64[14] universities, representing a participation rate of 43.8%). Universities were selected to ensure a representation based on university size and region.

The interview guides for stakeholders and university representatives have been provided in Appendices C and D.

1.3.3 Survey of Chairs and Faculty

[14] source: Chairs' Secretariat. It should be noted that the total number of universities that are allocated Chairs might vary slightly from one year to the other based on the amount of funding they receive from the three granting agencies.

Surveys were completed by 606 Chairholders, 1,119 other researchers, and 39 nominees who were not funded. CRCP administrative data was used to select all Chairholders that had been in place more than one year[15], as well as all researchers that were nominated for a Chair position, but not funded. The sample of other researchers was constructed from granting agencies' administrative data. The distribution of other researchers was designed to match the distribution of Chairs on the basis of discipline (NSERC – 45%; CIHR – 35%; SSHRC – 20%) and seniority (Full Professor/Professor – 50%; Associate and Assistant Professor – 50%). The "other researcher" sample was selected from the top half (CIHR and SSHRC) and top quarter (NSERC) of researchers by total agency expenditures from April 1 1999 to March 31 2000 in order to ensure that the sample of other researchers was comparable to the Chairs in terms of research activities. NSERC restricted the researchers to the top quarter, due to the greater number of researchers funded by NSERC compared to CIHR and SSHRC.

The overall breakdown by subgroups and response rates can be found in Exhibit 1.2.

EXHIBIT 1.2: Sample Frame by Subgroup and Number of Completed Surveys

Break-down by Discipline Group and Tier					
Discipline Group	**Tier**	**Valid Sample**	**Number of Surveys Completed**	**Valid Response Rate[1]**	**Margin of Error[2]**
SSHRC	Tier 1	86	72	83.7%	±4.7%
	Tier 2	68	56	82.4%	±5.5%
	Other Researcher/No Chair[3]	470	200	42.6%	±6.6%
CIHR	Tier 1	136	105	77.2%	±4.6%
	Tier 2	101	88	87.1%	±3.8%
	Other Researcher/No Chair	818	419	51.2%	±4.1%
NSERC	Tier 1	194	162	83.5%	±3.1%
	Tier 2	147	123	83.7%	±3.6%
	Other Researcher/No Chair	1,061	499	47.0%	±4.1%
Attracted (recruited from outside Canada) Versus Retained (from within Canada) Chairholders					
Canada		597[4]	479	80.2%	±2.0%
Outside Canada		174	125	71.8%	±4.7%
Totals					
Total Chairholders		732	606	82.8%	±1.7%
Total Other Researchers		2,349	1,119	47.6%	±2.7%
Nominees not Funded		89	39	43.8%	±11.8%
Total Surveys		**3,170**	**1,764**	**55.6%**	±2.1%

[1] Valid response rate = Number of survey completions divided by the total sample less non-qualifiers (retirees, resigned Chair, etc.).
[2] At the 95% confidence level (19 times out of 20).
[3] One survey respondent from this category did not have a discipline provided (one researcher returned a paper copy of the survey with no identifier). This 'other researcher' group does not include nominees not funded.
[4] This represents the total sample and not the valid sample. The valid sample of retained Chairholders and the valid sample of attracted Chairholders were not calculated.

A copy of the faculty survey has been provided in Appendix C.

1.3.4 Focused International Study

[15] awarded before April 2003. A small number of Chairs were not active by April 2003; these Chairs were removed from the sample. This sample restriction was intended to ensure that results were measured only for Chairs that had begun their research as a Chair.

The international study provides a brief overview of approximately 20 research funding initiatives within Canada and other countries of the Organisation for Economic Cooperation and Development (OECD) that may be considered "comparable" to the Canada Research Chairs Program (i.e., prestigious research funding awards offered at a national or international level). The international study is used throughout the evaluation report to contextualize and interpret the results of the evaluation. This study complements findings from interviews with key stakeholders and universities with respect to the ongoing relevance of the Program. As part of this component of the evaluation, a literature review was completed of comparable Canadian and international programs (primarily institutional programs). Consultations were also made with (14) key stakeholders, including representatives from selected programs and Science and Technology counsellors/officers of Canada's Department of Foreign Affairs and International Trade (DFAIT) located in several different countries. A summary table of the international programs reviewed as part of the focused international study is presented in Appendix G.

1.3.5 Special Data Requests to Universities

Forty-two universities completed the special data request (of 64 universities with Chairs that were sent the data request). The data request captured information concerning researchers who were nominated but not awarded a Chair, teaching load for Chairholders and other faculty, professors hired parallel to setting up Chairs, use of CRCP funds, faculty hiring by discipline (1995 to 2003), and qualitative assessments of Chair research impacts. A majority of universities provided data to most questions included in the data request. One area where inconsistent data was provided by universities involved researchers who were nominated for a Research Chair or considered for a Chair but not awarded a Chair that were no longer at the institution. Universities provided a mix of external and internal candidates, as well as a listing of candidates still at the university. As the Project Team received a suitable number of names of nominations that were not funded by the CRCP (89) for survey purposes, this was not a significant issue for the evaluation. A copy of the special data request is provided in Appendix E following the interview guide. Data requests were completed by 22 small universities, and 20 medium and large universities.

1.3.6 Case Studies

Nine case studies were completed as part of the Fifth-Year Evaluation of the Canada Research Chairs Program. The case studies were selected based on suggestions made by universities and the Canada Research Chairs' Secretariat, and media coverage. The Chairholders selected for case studies are listed in Exhibit 1.3 below.

EXHIBIT 1.3: Case Study Sample Frame

Case Study Tier and Discipline Group	University
Tier One Engineering/Natural Sciences	Acadia University
Tier Two Engineering/Natural Sciences	University of Toronto
Tier Two Engineering/Natural Sciences	École Polytechnique de Montréal
Tier One Health	University of Toronto
Tier One Health	McGill University
Tier Two Health	University of British Columbia
Tier One Social Sciences/ Humanities	Memorial University of Newfoundland
Tier One Social Sciences/ Humanities	University of New Brunswick
Tier Two Social Sciences/ Humanities	University of Windsor

1.3.7 Treatment of Scaled Responses

Responses to closed-ended questions with five-point scales have been collapsed where appropriate for reporting purposes. For example, for importance ratings, a rating of "5" was labeled in the interview guides and survey instruments as "very important" and "1" was labeled "Not at all important." For the purposes of analysis, ratings of "4" and "5" were collapsed into the category "important or very important" and ratings of "1" and "2" were collapsed into "not at all important or not very important."

1.4 Context and Limitations of the Evaluation Approach

The context for this evaluation, specifically, that the Canada Research Chairs Program is early in its existence, should be kept in mind when interpreting the results from this evaluation. Most of the Chairholders surveyed as part of this evaluation had been in place for only one to three years, a short time period to evaluate the effects of research investment. Particularly given the amount of time typically required to show results from research investment, the short time interval since the establishment of the program limits the extent to which the ultimate results of CRCP research investment can be assessed.

Throughout this evaluation document, multiple lines of evidence are presented to assess both qualitatively and quantitatively the effects of the program. In the report, where significant differences occur between discipline groups, tier, or Chair origin (retainee[16] versus external recruit), a discussion of the results is presented. Where there were no significant/substantial differences, differences by discipline group or other differences are not discussed. Differences between the three granting agencies in terms of relative funding levels and research culture should be kept in mind when interpreting results. For instance, research in the natural sciences and health research fields tends to be infrastructure-reliant. As a result, infrastructure funding from CFI was higher in these fields compared to the social sciences and humanities.[17] In addition, traditionally SSHRC has had a smaller budget with which to fund its researchers relative to NSERC or CIHR.[18] These differences by discipline group are reflected in the current allocation of Chairs by discipline group, as described in Section 1.1.

A limitation of this evaluation study is that the short-term results of the Chairs program related to research productivity were measured using self-reported data from Chairholders and other researchers. Survey data is less reliable than other sources of data such as administrative data or curriculum vitae due to errors associated with recall and potential for misunderstanding survey questions. Where possible, self-reported data has been supplemented by other lines of evidence, including administrative data, to measure the effects of the Chairs program.

[16] Chairs nominated from within their original university

[17] Researchers in NSERC fields were awarded $73.8M in infrastructure funding through the CFI component of the Chairs program, compared to $47.6M for CIHR researchers and $15.0M for SSHRC researchers.

[18] NSERC and CIHR are expected to invest $850M and $662M respectively in research between 2004 and 2005 compared to $211M from SSHRC.

2 Program Relevance

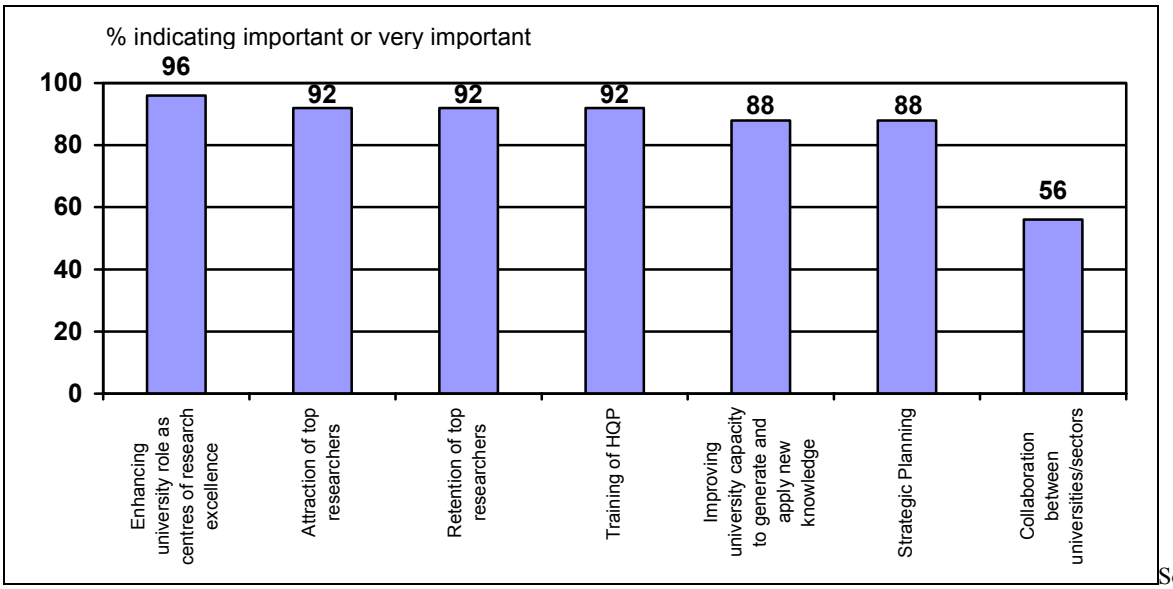
Both the literature and university representatives interviewed affirmed that the Canada Research Chairs Program provides an important vehicle in enhancing Canadian research capacity. The objectives of the Canada Research Chairs Program were seen by universities interviewed to be relevant five years after the initiation of the program, and the CRCP was unique among international programs in its scale and structure. Only one objective, collaboration between universities and between sectors, was seen as marginally related to the design of the CRCP. Specifically, universities interviewed felt that the CRCP was designed to recruit and retain researchers, not promote collaboration.

CFI funding for Canada Research Chairs was seen by universities interviewed as instrumental to the continued success of the program, both to maintain an environment conducive to the long-term retention of researchers through the availability of modern equipment, and to establish attractive recruitment packages (including money to establish a research lab) for new Chairs as the program continues. Most universities interviewed reported that without the CFI component of the Chairs program, it would not have been possible to recruit some of their top researchers, particularly in the health and science fields.

2.1 Continued Need for the Program

Twenty out of 26 (76.9%)Universities interviewed viewed the objectives of the Chairs Program as continuing to be relevant in the current government, economic and research environment (see Exhibit 2.1), and reported that the CRCP was an effective vehicle to achieve the objectives. As one university representative stated: "The CRCP has a flagship quality about it. It is very visible due to the prestige of the award. The Program has affected recruiting new researchers in a way that a simple allocation of dollars would not have done."

EXHIBIT 2.1: Importance of CRCP objectives



Source: University interviews, n = 25 to 26. Universities interviewed rated the importance of each objective on a scale of one to five (please see Appendix E for the university representative interview guide).

As shown in Exhibit 2.1, effective use of resources was seen as an important objective, particularly through strategic planning exercises required by the CRCP; 23 of 26 (88%) universities interviewed described this objective as important. However, only 14 of 25 (56%) universities interviewed rated the objective of making the best possible use of research resources through collaboration among universities and between sectors as important or very important. The most common reason given for this lower rating was that the primary purpose of the Chairs program was to recruit and retain researchers, not encourage collaboration with other

universities/sectors. Indeed, a number of universities interviewed reported that the Chairs program had created greater competition between universities rather than collaboration.

Examples of universities' rationale for rating this objective of less importance are provided below:

> *"The CRCP leads to less collaboration, not more. There is greater competition due to the Chairs program. Collaboration is due to situations where there is a mutual need between universities or universities and the private sector."*
>
> *"How would the program encourage this objective - in what way? This objective could only be achieved if universities developed plans that were linked and they don't."*
>
> *"The CRCs are not the driver of inter-university collaboration. Attracting a person to the university does not set up a collaborative structure."*

When asked if there was a better way in which the funding devoted to the Canada Research Chairs Program could be spent, only one university mentioned a funding priority that would be higher than the Canada Research Chairs, specifically, greater investment in university facilities/buildings. However, it was unclear as to whether this type of investment/program would address the same objectives as the CRCP.

2.2 Similarity of the Program to Comparable Programs Offered Internationally

The results from the review of international research funding programs suggest that the CRC program is unique.[19] In terms of general design and objectives, overall, very few international programs reviewed for this study resemble the Canada Research Chairs Program closely. Of the people outside of Canada who were interviewed for this study, most indicated that they had never heard of a funding program that was on such a large scale as the Canada Research Chairs Program.

However, there are reports that other countries may be using the Canada Research Chairs Program as a model to design their own research funding instruments. The proposed Federal Research Chairs Program in the United States, for example, is evidence of this phenomenon. The program's design is almost identical to that of the CRCP, with the same tier levels, and nominal funding amounts.[20]

Other evidence of the Canada Research Chairs Program being used as a model can be found in Singapore. For instance, the National University of Singapore requested information on the CRCP which was provided to determine if they could apply a similar model in Singapore.

Programs examined for this review tend to offer significantly fewer awards compared to the Canada Research Chairs Program. It appears that only a few programs offer a comparable number of awards to that offered by the Canada Research Chairs Program (i.e., 2000 Chairs). Of the programs reviewed for this study, most of the programs offered between five and one hundred awards per annum. For example, Canada's Killam Award, New Zealand's James Cook Fellowships, and les Chaires internationales de Recherche Blaise Pascal in France all offer five awards per year, while Germany's Humboldt Research Awards grant up to one hundred awards annually. Exceptions to this include the prestigious CAREER and PECASE programs in the United States that grant 300 to 350[21] awards per annum (junior researchers), as well as Germany's "Junior Professorship Program" that has been awarded to 933 researchers over the past two years.[22]

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[19] For a list of programs considered as part of the international review, please refer to Appendix G.
[20] Federal Demonstration Partnerships. "The Basic Assistance Grant- the Federal Research Chair (Draft of 12/8/03). http://thefdp.org/BA_FedChair_Draft.pdf.
[21] PECASE awards are considered honorary for CAREER award recipients.
[22] It should be noted, however, that the Junior Professorship Program is not considered as prestigious as the Canada Research Chairs Program.

The majority of the research funding programs reviewed also had shorter funding terms than the Canada Research Chairs Program. The funding terms ranged from six months (e.g., the Humboldt Research Awards in Germany) to five years (e.g., Australia's Federation Fellowships; the U.S. CAREER and PECASE programs). The majority of the programs had terms of between one to three years. No funding program reviewed had a term as long as the CRCP Tier 1 Chair award (seven years).

In general, the funding amounts for the prestigious research awards examined were comparable to, or higher than, the amounts awarded for the CRCP.[23] The American CAREER and PECASE awards, for example, offer funding of up to CAN $640,000 over a 5-year period for junior researchers. On the other hand, Australia's Federation Fellowship program and Europe's Marie Curie program, offer up to CAN $221,261/annum and CAN $410,161/annum, respectively—amounts similar to or higher than those offered through the CRCP.

2.3 Continued Need for the Canada Foundation for Innovation Component of the Chairs Program

Both university representatives and key stakeholders interviewed reported a need for continued CFI funding beyond the initial five-year period established when the program was initiated. All universities answering this question and most key stakeholders stated that this funding should be continued, either as the Chairs Infrastructure Fund currently functions or with modifications. The rationale for continued CFI funding was based on two main arguments:

a) The fact that Chairs had been attracted to the university did not assure their continued tenure. Top scholars were described as being very mobile, and likely to leave the university or Canada without continued access to top-notch facilities. The implication is that in order to retain top researchers in Canada, purchase of modern equipment and technology will need to be renewed on an ongoing basis (particularly as equipment and technology was seen as advancing rapidly in science and health research) through the program in order to ensure that the CRCP remains viable as a long-term attraction and retention tool.

b) Attracting top researchers to Canada was not seen as stopping after the first 2,000 Chairs were allocated. Universities expected to see turnover in Chair positions, either initiated by the university or through Chair relocation/retirement. As a result, the need to put together an attractive package for researchers was seen as imperative on an ongoing basis in ensuring a roster of top research talent in Canada. Universities interviewed reported that for half of Chair positions, the level of funding did not adequately compete with packages available outside Canada (see Section 5.4). Without the CFI funding, the Chairs program was not seen as offering a sufficiently attractive package to attract top researchers.

Particularly worrisome is the finding that most university representatives stated that without the CFI component of the Chairs programs, it would not have been possible to recruit the top researchers that they had attracted to their university (18 of 27 universities or 66.7%). In recruiting top researchers internationally, universities stressed that researchers would often not leave their existing institution without a lab that was at least comparable to what they had at their current host institution. These findings are consistent with the survey results as sixty-three percent of Chairs with CFI funding indicated that the CFI funding was key in their decision to accept a Chair position.

Statements made by universities to demonstrate the need for continued CFI funding included:

[23] It should be noted that Tier 1 Canada Research Chairs are renewable every seven years for life and therefore provide long-term financial stability to researchers.

"CFI financing is important for the following reasons:
1. Nowadays, it is impossible to do cutting-edge research without cutting edge infrastructures.
2. The university is incapable of providing financing for equipment….
A Chair is glory first and foremost, along with an increased salary and post-doctoral fellows. But without CFI, the departments could not put together an interesting package. Upon renewal of the Chairs, it will be necessary to renew cutting edge equipment as well as to maintain the world-class character of the research centres."

"Some Chairs will not get renewed, some will get timed out, some will retire. CFI is designated as a start-up, but it needs to be designed to sustain the program. Without the CFI, CRCP will wither up and lose steam."

"There are two areas where the CFI component of the Chairs program has been crucial: a) where new Chairs have been appointed, funding has been needed for equipment and space renovation; and b) as Tier 2 Chairs progress and they are ready for Tier 1 Chairs. It is the second cycle of recruitment where CFI funding is needed, where there is a new Chair or due to the university renewing a Tier 2 Chair with a new Tier 1 Chair. Restrictions of funding for recruiting a new person to a Chair position would be a problem in attracting top researchers."

"For new recruits, even in next cycle of renewals, CFI has been essential. For re-nominated Chairs, CFI funding is nice but not essential. Start-up funds are most important."

"In Canada, we need to make it easier for Chairs to do their research supported by the technology they need - these researchers are very mobile and so there is the danger of losing people after they have been recruited if the infrastructure isn't there to support them on an ongoing basis."

3 Overall Results/Effects

According to Chairhoders surveyed and universities interviewed, the Chairs program has helped to create a research environment conducive to the long-term attraction and retention of researchers. While the relationship between the Chairs program and retention is a complex one (e.g., nominees not funded generally did not relocate from Canada within one to three years), Chairs reported substantial increases in research capacity that should help to attract and retain top researchers in Canada over the long-term. It should be noted that changes in research capacity are influenced by multiple factors within Canadian universities and institutions, and thus changes reported since the establishment of the Chairs program can only be partly attributed to the CRCP.

Examples of the increase in Canada's research capacity due to the program were varied and significant given the short time frame. For instance, research centres associated with Chairs have grown by 60% since the establishment of the Chair positions. Based on survey with Chairholders and other researchers, Chairholders reported a significantly greater increase in research productivity between 1999/2000 and 2002/2003 compared to other researchers over the same period. Also, Chairholders reported a significant increase in the number of highly qualified personnel receiving training compared to other researchers. While a substantial number of other researchers surveyed reported negative effects of the program on researchers other than Chairholders due to concentration of resources with Chairs, they also reported positive effects such as reinforcement of existing research teams or creation of new research teams due to the program.

3.1 Attraction and Retention of Top Researchers

The national capacity for research and innovation is dependent upon the availability of top researchers and a research environment that allows them to be productive. A central objective of the Canada Research Chairs Program is to encourage opportunities in Canada for top researchers that would "offset pressures that contribute to the 'brain-drain' of Canada's outstanding researchers", particularly at a time when "U.S. and other G-7 universities are combing the world for the best brains".[24]

Competition for the best researchers internationally is fierce. For instance, the Marie Curie Chairs program in the European Union has the goal of attracting and retaining world-class researchers to conduct their research in Europe. Similarly, Australia's Federation Fellowship program has the aim of attracting and retaining world class researchers of international renown (as well as bringing expatriate Australian researchers back to Australia), while the United Kingdom's Royal Society Wolfson Research Merit Award's main purpose is to provide universities with additional support to attract to the UK, or retain, researchers of outstanding achievement and research potential.

The Chairs program has contributed more to date to retention of top researchers than to the attraction of international researchers. The focus on attracting researchers located outside of Canada has increased as the program has matured; the number of Chairs that were expatriate or non-Canadian has increased from 8% in 2000 to 39% in 2003 (see Exhibit 3.1). Overall, 29% of Chairs awarded to date were expatriate or non-Canadian, compared to 71% retained.

EXHIBIT 3.1: Number of Expatriate, Non-Canadian and Retained Chairs (awarded and accepted)

Group	Number of Chairs by Year				Total
	2000	2001	2002	2003	
Within Nominating University	240	196	156	148	740
Other Canadian University	19	35	41	54	149
Non-University Within Canada	2	2	6	12	22

[24] *Canada Research Chairs Program Guide,* February 2002, p. 3.

Non-University Outside Canada	1	11	20	28	60
University Outside Canada	21	76	96	111	304
Total	283	320	319	353	1275
Retained (from within Canada)	**92%**	**73%**	**64%**	**61%**	**71%**
Attracted (from outside Canada)	**8%**	**27%**	**36%**	**39%**	**29%**

* Based on administrative data, including Chairs positions approved/accepted as of the end of 2003.

It should be noted when interpreting the increase in external recruits that in 2003, the Canada Research Chairs Secretariat has expanded the definition of external recruits to include researchers from abroad who had been in a Canadian institution for less than one year at the time of nomination. This change was applied retroactively to Chairs awarded since the launch of the program (2000 to date). It should be noted that the evaluation team did not examine the appropriateness of the definition adopted by the Chairs' Secretariat.

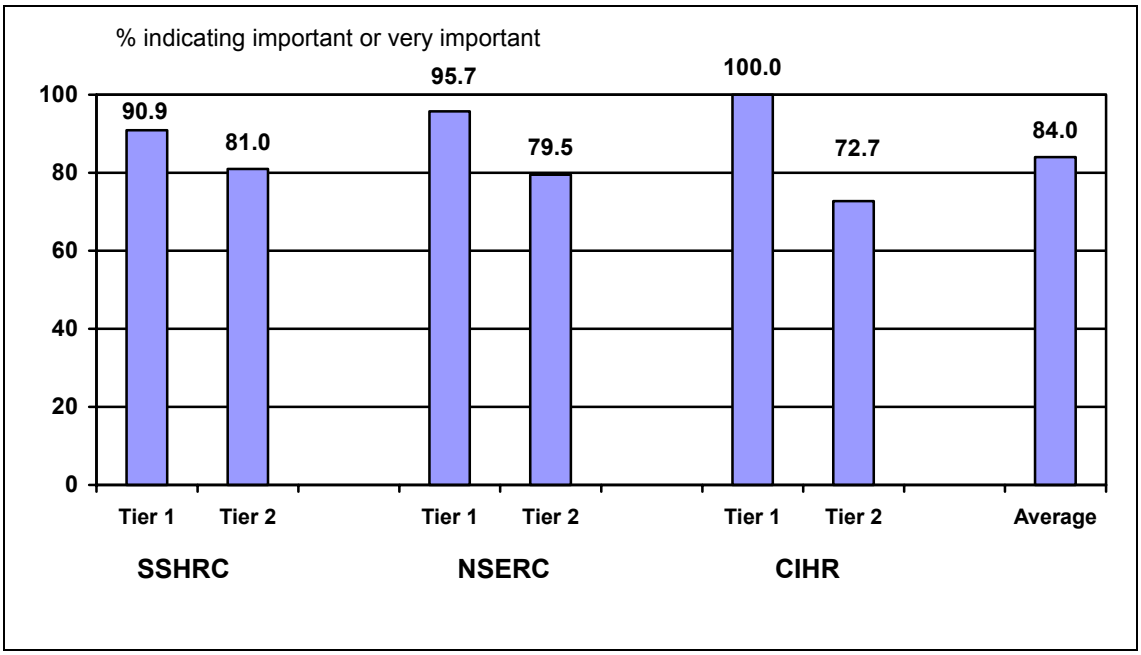
Attraction:

Chair awards were important in attracting top international researchers to Canada. Based on updated figures from exhibit 3.1 (as of August 2004), 359 Chairholders that were active have been attracted[25] from outside Canada (with 181 being non-Canadian researchers and 178 being expatriates). The majority of researchers were attracted from the United States (63.0% of Chairs from outside Canada), with a significant proportion also from the United Kingdom (11.1%).

According to surveys with Chairholders recruited from outside of Canada, 84.0% of Chairholders felt that the Chairs program was important (76.8% very important, 7.2% important) in their decision to accept a position in Canada. As shown in Exhibit 3.2, Chair funding was particularly important for CIHR and NSERC Tier 1 Chairs in accepting a position in Canada.

EXHIBIT 3.2: Importance of Chair award in accepting position in Canada

[25] Based on the expanded definition adopted by the Chairs Secretariat and described under section 3.1.



Source: Survey of Chairholderss, n = 125

Recruiting international researchers was not without its difficulties. Challenges to recruiting international researchers identified by universities included:

- difficulty or impossibility of making a contingent offer to a researcher while waiting to hear about the results of the CRC application;
- insufficient funding to offer competitive salaries (particularly for Tier 2 Chairs and Chairs in the health fields) and research packages;
- bureaucracy associated with security in recruiting international candidates. Some universities reported that Canadian immigration organizations overseas were not aware of the CRC program;
- lag time associated with the CRC approval process. Universities noted that the speed in approving CRC applications had improved, but felt that more needed to be done; and
- challenges associated with the application requirements, such as timing of multiple applications, (e.g., CFI, etc.).

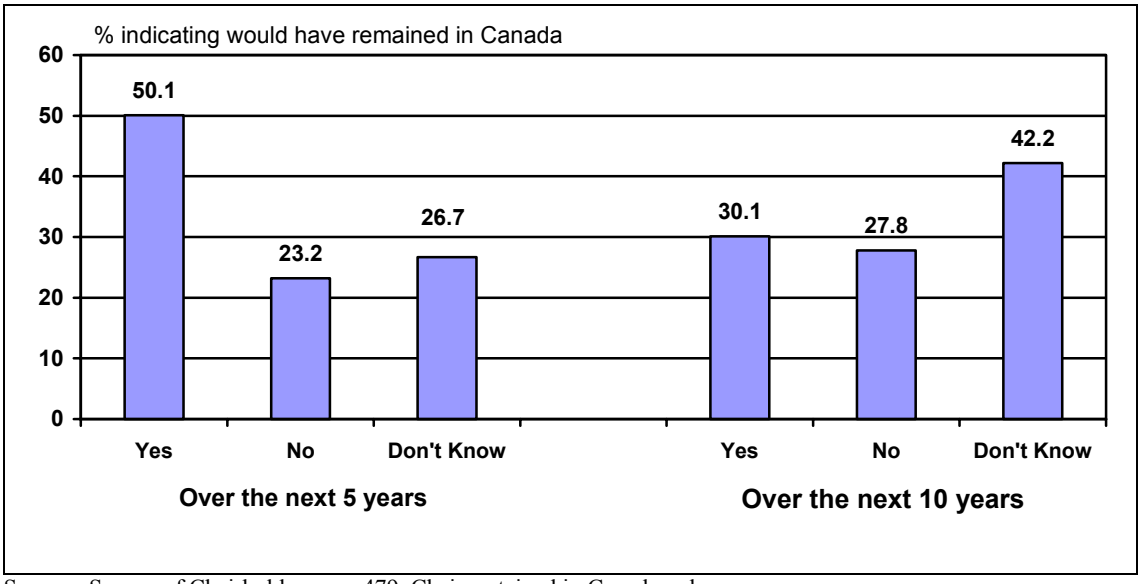
In some cases, a Chair offer was not sufficient to attract or retain top researchers. A sample of researchers that were offered Chair positions but declined (2 Tier 1 nominees and 3 Tier 2 nominees) were interviewed to assess their reasons for turning down a Chair position. All five nominees that declined a Chair position identified salary as being a key reason for turning down the Chair. Four of the nominees rated the funding package as inadequate. Nominees also described the funding offered to Chairs as less than comparable programs elsewhere, particularly in the U.S. Three of the nominees reported that the nominating university either offered no funding or minimal funding (apart from the CRCP funding). Other reasons that researchers gave for declining a Chair position included uncertainty associated with the Chair position offer (reported by four out of five researchers), either due to a lack of a guarantee that the researcher would be offered tenure or that a research centre to support the Chair would be established. In addition, three nominees expressed frustration negotiating with the universities, and in particular that the terms of the position were sometimes not negotiated up-front (prior to the nomination).

Retention:

Evidence of the program's effect on retention is mixed. A substantial percentage of Chairholers retained within Canada reported that they would have relocated outside of Canada if they had not received a Chair. As illustrated in Exhibit 3.3, out of 479 Chairholders from Canada, 111 of them (23.2%) indicated that they would

not have stayed in Canada over the next five years if they had not received a Chair, and 133 Chairholders (27.8%) stated that they would not have remained in Canada over the next ten years without the Chairs program.

EXHIBIT 3.3: Percentage of Chairholders that would have remained in Canada had they not received a Chair



Source: Survey of Chairholders, n = 479, Chairs retained in Canada only.

However, nominees that were not funded by the Chairs program were not likely to relocate out of Canada. Only one researcher reported relocating outside of Canada after being refused a Canada Research Chair position. In other words, the proportion of nominees not funded that relocated outside of Canada (3.6% of nominees not funded that responded to this question) is lower than the percentage of Chairholders that indicated that they would have relocated outside of Canada in five years without the Chair (23.2%). It should be noted that the sample for this group was fairly small with only 39 survey completions obtained. Also, as most of the Chairholders surveyed had been in place for only one to three years, the time frame in the questions posed to Chairholders and nominees not funded were not equivalent.

Making a decision to relocate involves a number of considerations including career and personal factors; as a result, the actual rate of relocation amongst Chairholders may very well have been lower than that estimated by Chairholders due to a range of factors including personal and family considerations. Case studies completed with Canada Research Chairs suggested that there were a range of reasons for remaining in Canada for top researchers. For instance, one leading health researcher at the University of Toronto stated: "a lot of us are here (in Canada) because we believe in being here." For other Chairholders profiled as part of case studies, the effect of the Chair position on retention was complex. One researcher indicated that while she would likely not have left Canada if she had not received the Chair award, she had considered leaving academia altogether due to the weight of her teaching workload.

3.1.1 Importance of the CFI Component of the Chairs Program in Attraction and Retention of Chairs

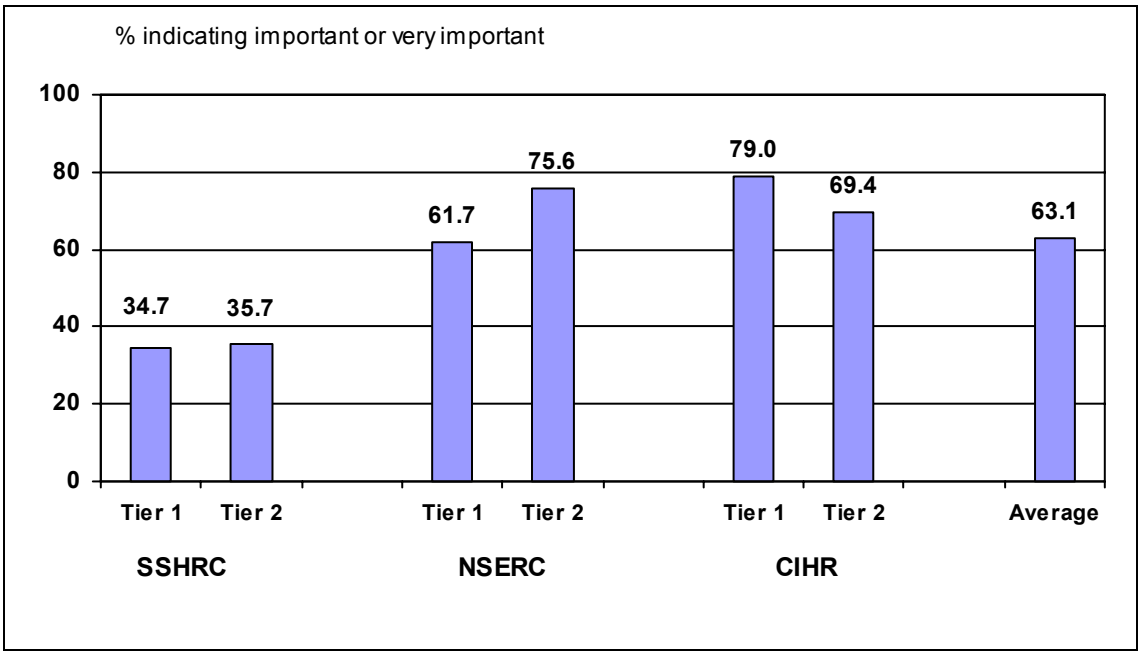
The CFI funding was seen as critical in attracting top researchers from outside Canada. As reported in Section 2.3, most universities stated that without the CFI component of the Chairs Program, it would not have been possible to recruit some of the top researchers from outside their university (18 of 27 universities or 66.7%). As one university representative commented: "Start up funding [for Canada Research Chairs] couldn't have been afforded for 20% of Chairs without CFI." Or as another university representative stated: "In some of disciplines, NSERC and CIHR, none of objectives would have been possible without CFI. In eight out of 10 cases, CFI is essential; in two out of ten cases, CFI is less than critical."

Consistent with the comments of universities, a majority of Chairholders profiled as part of the case studies identified the CFI funding as central in their decision to accept the Chair position. According to a McGill Chairholder in health research: "If the CFI component had not been available, McGill would have had to find some other way of coming up with that money… I would not have come without the money to set up my lab." Likewise, a Chairholder in the natural sciences at Acadia University stated that "the CFI funding was vital… I would not have taken the [Chair] position without it."

Chairholders surveyed also described the CFI funding as important in their decision to accept a Chair position. Sixty-three percent of Chairholders surveyed described CFI funding as key in their decision to accept a Chair position (please see Exhibit 3.4). CFI funding was seen as particularly important by CIHR Tier 1 Chairholders (79.0%) and NSERC Tier 2 Chairholders (75.6%). The lower percentage of SSHRC Chairholders describing CFI funding as important or very important is consistent with the lower rate at which SSHRC researchers received CFI funding. Researchers in SSHRC fields were awarded $15.0M in infrastructure funding through the CFI component of the Chairs program, compared to $47.6M for CIHR researchers and $73.8M for NSERC researchers. Of Chairholders surveyed, about one-quarter of SSHRC Chairholders indicated that they had not applied or been invited to apply for CFI funding, compared to 6% for NSERC or CIHR Chairholders.[26]

EXHIBIT 3.4: Importance of the opportunity to apply for CFI funding in decision to accept Chair position

[26] A statistically significant difference.



Source: Survey of Chairholders, n = 606. 16.7% of SSHRC Tier 1 Chairholders and 10.7% of SSHRC Tier 2 Chairholderss indicated either "not applicable" or "don't know" for this question, compared to only 5.8% on average.

Over 60% (17 out of 28) of universities felt that the amount of infrastructure funding available was borderline or insufficient, particularly for attracting external researchers. One university representative characterized the availability of CFI funding as follows: "The CFI is not sufficient for recruitment purposes. The New Opportunities Fund averages $167,000, and this is for people right out of graduate school. CFI for Chairs should be higher." Universities were positive about the ability to pool CFI money so that these funds could be used in strategic areas requiring infrastructure, but particularly for smaller universities, obtaining matching funding was described as difficult.

3.2 Enhancement of University Role as Centres of Research Excellence

Research centres associated with Chairs have grown dramatically since the establishment of these Chairs, with Chairholders reporting an increase of 59.9% in the number of researchers at the centre since their Chair was awarded. In total, research centres associated with the Chairholders surveyed grew by 2,816 researchers since the time the Chairs were awarded. Because the size of research centres would have likely been influenced by numerous factors other than the Chairs program, this result can only be partly attributed to the Chairs program. However, we can conclude that research capacity associated with the Chairs has grown substantially over a short period of time (particularly as nearly all of the Chairs surveyed had been in place for less than three years).

EXHIBIT 3.5: Growth in Research Centres since Chair Award

Discipline Group	Tier	Number of Chair holders with Research centre	Percentage of Chair holders with Research centre	Current Number of Researchers		Number of Researchers at time of Chair Award		Increase in Number of Researchers*
				Mean	Total	Mean	Total	

SSHRC	Tier 1	43	59.7%	16	635	10	405	56.8%
	Tier 2	21	37.5%	21	409	11	202	102.5%
CIHR	Tier 1	67	63.8%	25	1,646	19	1,129	45.8%
	Tier 2	49	55.7%	24	1,096	16	676	62.1%
NSERC	Tier 1	91	56.2%	31	2,700	20	1,558	73.3%
	Tier 2	58	47.2%	20	1,028	16	728	41.2%
Total		**329**	**54.3%**	**24**	**7,514**	**17**	**4,698**	**59.9%**

Source: Survey of Chairholders, n = 606
* since Chair award; based on total number of researchers

Overall, SSHRC Chairs reported the largest increase in research centres (72%), compared to NSERC (63%) and CIHR (52%). This is consistent with the finding that CIHR Chairs were least likely to agree that the Chair award had created new research teams within their faculty, suggesting that health research teams were reasonably well established compared to the social sciences and humanities.[27] That the Chairs program would result in a larger increase in social science and humanities disciplines may reflect the lower level of funding historically available in these disciplines to support research, and a greater incremental effect of the Chairs program in these disciplines as a result.

Nearly all universities felt that the Chairs program had helped universities and their affiliated research institutes and hospitals become centres of research excellence and research training (21 of 23 universities or 91%).[28] The remaining universities were neutral on the issue, typically because they felt it was early in the program to measure; however, several of these universities volunteered that the program was on the right track.

Case studies of Chairholders provided noteworthy examples of research unit expansions since the Chair award. For instance, since the establishment of one Chair in the social sciences, the University of New Brunswick has initiated a national network of researchers, placing 25 young scholars across Canada in a research program dedicated to studying early childhood development.

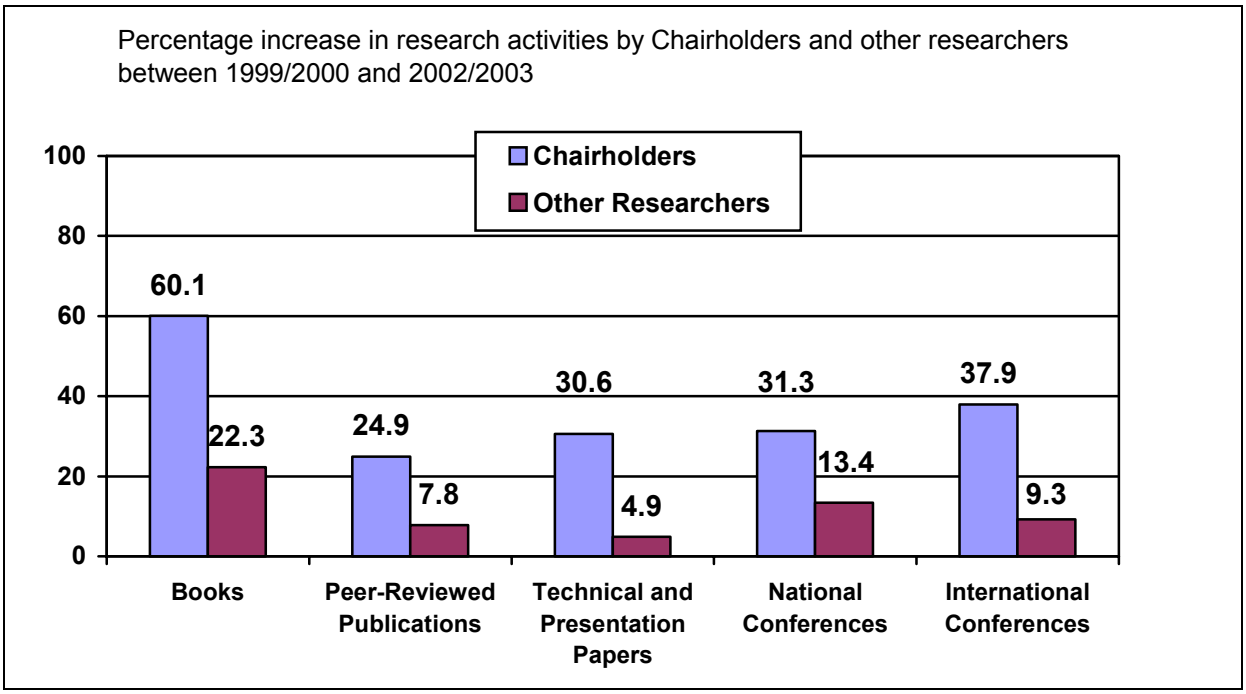
3.2.1 Creation and Application of New Knowledge

While there is no program requirement that universities use a set proportion of CRCP funds for research, Chairs and universities reported that 22 to 25% of CRCP funding was used to support research (see Section 5.5). A key issue for this evaluation was to establish whether Chairs showed a larger increase in research productivity since the Chair award. As a result, research productivity indicators were analysed for Chairs and other researchers between 1999/2000 and 2002/2003.

As illustrated in Exhibit 3.6, Chairs reported a larger increase over this period in the number of books published (60.1%), peer reviewed publications (24.9%), and technical and presentation papers (30.6%) compared to other researchers.[29] Likewise Chairs reported a larger increase in the number of national and international conference presentations since the Chair award compared to their peers over the same time period.

EXHIBIT 3.6: Increase in the Research Productivity of Chairholders versus Other Researchers

[27] Although it should be noted that the finding was not statistically significant.
[28] Of universities reporting an opinion. The most common examples of how the Chairs program had assisted universities become centres of research excellence and training referenced the creation of new research centres and attraction of students to those centres.
[29] All of these results were significant using GLM repeated measures. This statistical measure controlled for the pre-existing differences between Chairs and other researchers in terms of research productivity.



Source: Survey of Chairholders and other researchers, n = 1,656

To date, Chairs in SSHRC disciplines have reported a greater mean increase in research productivity compared to Chairs in NSERC and CIHR disciplines. Chairs in SSHRC disciplines reported the largest increase in the number of peer-reviewed publications (31.3%), technical and presentation papers (49.1%), national conferences (43.3%), and international conferences (42.1%) compared to other disciplines. The relative performance by SSHRC Chairs is particularly noteworthy, given the smaller number of Chairs awarded in SSHRC fields, and the lower level of CFI funding in this area. On the other hand, Chairs in NSERC disciplines had a greater increase (78.3% increase) in the number of books published than Chairs in CIHR and SSHRC disciplines. Generally, retained Chairholders (Chairholders recruited from Canada) showed a similar or greater increase in research productivity compared to attracted Chairholders (Chairholders recruited from outside Canada) since the Chair was awarded. In total, external Chairholders surveyed produced 59 books, 714 peer-reviewed publications, and 451 technical and presentation papers.

The following pages document research impacts reported by Chairholders. It should be noted that due to the length of time required for research to produce results impacting industry (e.g., patents, processes) and healthcare (e.g., treatments for disease, etc.), the following sections should be interpreted as describing the types of research being undertaken by Chairholders, rather than indicating results that can be entirely attributable to the Chairs program. In addition, the impacts reported through the CFI project report forms can only be partly attributable to the CFI component of the Chairs' program. These impacts can also be attributable to other organizations (e.g. provincial governments) that provided matching funding.

Impacts on Industry:

Chairholders reported that their research resulted in technology transfer, as evidenced by 112 patents, 224 patent applications, and 83 inventions reported by Chairs surveyed. Chairholders reported an increase of 72.9% in patent applications submitted from 1999/2000 to 2002/2003, compared to 23.4% among other researchers, a statistically significant difference. In terms of patents granted, Chairs reported a 50% increase compared to no change among other researchers; however, this result was not statistically significant. Due to the length of time between the patent application stage and granting of a patent, [30] it is reasonable that any change in the number of patents granted to Chairholders would not be entirely attributable to the program. Chairholders originally from outside of Canada reported 19 patent applications and 14 patents since the Chair award.

[30] In addition to the length of time required to get to the patent application stage.

Chairholders reported that their research had resulted in technology transfer and other impacts on industry. Of 561 Chairholders, 83 Chairholders reported inventions or innovations on products (15% of Chairholders responding to the question), and 69 new processes were disclosed, such as improvements to food safety/quality control (12%). Chairholders surveyed reported launching 19 new spin-off companies. NSERC Chairholders accounted for the majority of inventions/innovations (84.3%) and new processes (82.6%), and attracted Chairholders cited 6 inventions and 11 processes.
The sampling of quotes below illustrates the range of industry impacts reported by Chairholders:

"We are currently working with many Canadian industries. The CFI award was given for equipment utilized in collaboration between Bayer and Waters and our laboratory. Our equipment has been licensed by Cangene. We have our own spin-off company, valued at $60 million, where our equipment is being used."

"Over the past three years, I have substantially advanced my work to understand novel procedures introduced to repair and replace buried pipes without conventional trench excavation. This is reducing [illegible]

"Une meilleure reconnaissance des travaux sur la nutrition et les maladies cardiovasculaires. Prise de conscience de la communauté médicale et du grand publique de l'importance de nouveaux facteurs de risque cardiovasculaire comme par exemple, la taille des lipoprotéines de faible densité."

"Many of the projects are geared towards improving appropriate utilization of blood products and strategies preventing wastage which will help to ensure an adequate blood supply for Canadians."

"We have discovered a novel gene which we had identified as important in regulating death of heart cells during heart attacks. This resulted in a patent application and commercialization opportunities. It will lead to drugs and therapies for patients."

"Based on our research, programs have been implemented to assess strategies that can be implemented to help reduce injuries in the healthcare sector. There has been intervention at the level of provincial government to implement these findings, resulting in cost savings of $51 million in the first two years."

CFI project reports forms (43) demonstrated a range of industry impacts, including 31 new inventions or processes, 11 patents, and 6 spin-off companies.

Health Impacts:

With respect to health impacts, 108 Chairholders surveyed reported new treatments or potential treatments for diseases, injuries or illnesses (19% of Chairholders responding to the survey). Improvements in disease prevention and community health (31 Chairholders or 6%), healthcare service delivery (20 or 4%), and diagnosis such as cancer diagnostic methods (16 or 3%) were also cited by Chairholders. CIHR Chairholders accounted for the largest number of new treatments/potential treatments (68.5%), diagnostic methods (62.5%), disease prevention/community health (48.4%), and healthcare service delivery (45%). External recruits reported 17 reported treatments, 8 improvements to diagnosis and community health, and 4 healthcare system improvements. Selected quotations below demonstrate the diverse impacts of
Chair research on human health:

CFI project report forms provided evidence of 8 new treatments for disease (18.6%), 5 instances of improved diagnosis or healthcare service, and 7 instances of improved community health.

Public Policy, Social and Environmental Benefits:

A range of public policy, social and environmental benefits was also reported by Chairholders. One in six Chairholders (91 or 16% of respondents) indicated that their research findings had been disseminated to decision-makers or had helped inform policies or other decisions. A further 34 Chairholders reported that their research would have a positive impact on the environment (6%), and 38 Chairholders attributed improved understanding of culture and social issues to their research (7%). Chairholders in the social sciences and humanities were most likely to report that their research had been disseminated to policy makers (42.9%) or had improved understanding of culture/social issues (84.2%), and 12 external recruits reported research dissemination to decision-makers. CFI project report forms also substantiated Chairs impacts on public policy and the environment, with 6 instances of research used to affect policy and 5 instances where Chair research helped to improve the environment.

Examples of Chair impacts on public policy, society, and the environment are highlighted below:

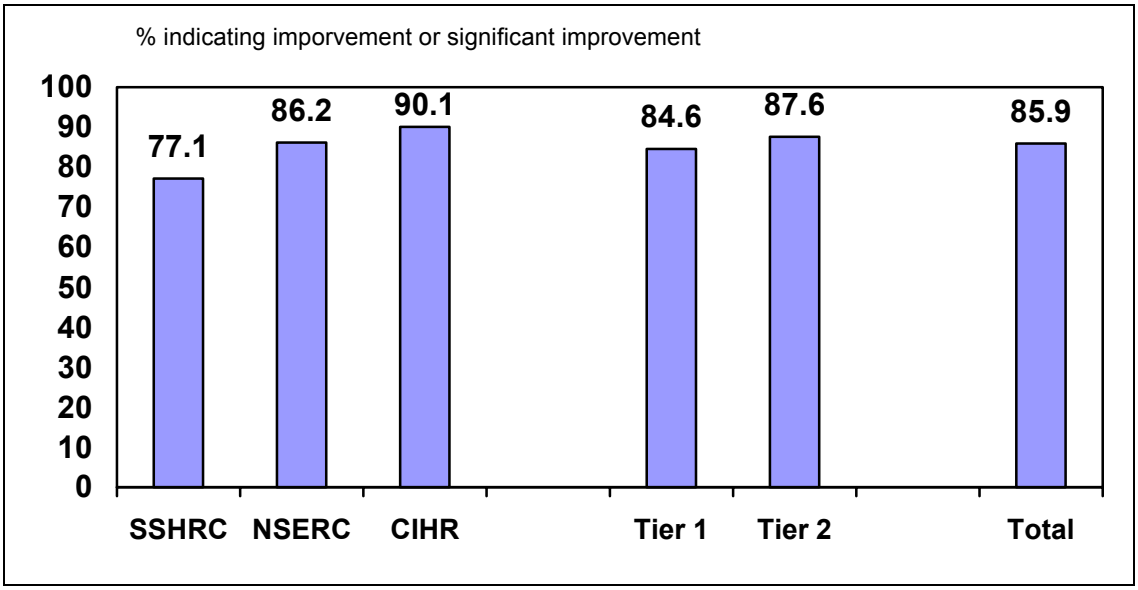
> *"(i) Meilleure gestion des stocks de poissons d'eau douce exploités par les pêches commerciale et sportive (ii) Amélioration des outils d'aménagement et de conservation des espèces de poissons d'eau douce (iii) Mise au point d'outils pour une gestion durable des forêts (impact sur les milieux aquatiques) (iv) Production d'avis d'expert à la demande ministères gouvernementaux."*
>
> *"My research contributes to international lawmaking negotiations with respect to intellectual property and indigenous knowledge. Contributions have been made to the World Intellectual Property Organization (Global Issues), civil servants concerned with implementation of Article 8J of the Convention on Biodiversity, indigenous NGOs, international civil society organizations, third world government delegations to environmental negotiations, indigenous research protocols."*

3.2.2 Impact of CFI on the University System

CFI funding as part of the CRCP helped support the establishment of research centres with leading-edge technology/infrastructure. Universities believed that the infrastructure funded as part of the CFI component of the Chairs program was comparable to the best in Canada (41%) or in the world (34%).[31] Universities reported that 1.3 researchers joined their institution on average for each project funded by the CFI component of the Chairs program, and 1.5 researchers were retained per project. In addition, universities reported that on average, 3.6 researchers at their institution and 3.4 researchers outside their institution substantively advanced their research (e.g., more productive, more multidisciplinary, more risky, more competitive internationally) per project[32] because of the availability of infrastructure.

University representatives and Chairholders described the CFI component of the Chairs Program as having a positive impact on the university system. Over eighty percent of Chairholders that reported receiving funding from the CFI component of the Chairs program felt that the CFI funding improved their research environment (85.9%). In interpreting Exhibit 3.7, it should be kept in mind that SSHRC Chairholders were less likely to receive CFI funding.

EXHIBIT 3.7: Extent CFI funding improved research environment



Source: Survey of Chairholders and other researchers, n = 546. Researchers reporting "not applicable" have been removed from this analysis (i.e., researchers not receiving CFI funding).

3.3 Unintended Effects

[31] CFI project report forms (2003). This information was not available by discipline.
[32] CFI project reports forms (2003)

Negative effects of the Chairs program were identified by a substantial number of non-Chair researchers (see Exhibit 3.8). For instance, approximately one-third of researchers felt that the CRCP had a negative impact on non-Chair faculty due to greater concentration of university resources in favour of Chairs (34.7%), and 31.1% of other researchers felt that the Chairs program resulted in decreased morale among faculty due to greater segmentation of the faculty corps resulting from the Chairs program.

EXHIBIT 3.8: Effects of the Chairs Program at the Faculty Level

	Agree	
	Chairholders	**Other Faculty**
Funding from the Canada Research Chairs Program has resulted in the reinforcement of existing research teams within my faculty or university.	86.8%	66.1%
The Canada Research Chairs Program has benefited faculties or programs to which Chairs have been awarded as a whole due to greater publicity / awareness of the program.	78.1%	51.4%
Funding from the Canada Research Chairs Program has resulted in the creation of new research teams within my faculty or university.	71.9%	44.6%
The Canada Research Chairs Program has had a negative impact on non-Chair faculty due to greater concentration of university resources (e.g., equipment, research facilities/space, funding) with Chairs.	3.5%	34.7%
The Canada Research Chairs Program has resulted in decreased morale among the faculty generally due to the segmentation of the faculty corps resulting from the Chairs program.	5.8%	31.1%
The Canada Research Chairs Program has made it difficult for non-Chair researchers to attract or retain graduate students of high caliber.	1.0%	13.3%

Source: Survey of Chairholders and other researchers, n = 1,725

However, universities and other researchers reported mainly positive unintended effects of the Chairs Program. Specifically, 66.1% of non-Chair researchers agreed that: "funding from the Canada Research Chairs Program has resulted in the reinforcement of existing research teams within my faculty or university." Further, 51.4% of researchers indicated that the Canada Research Chairs Program had benefited faculties or programs to which Chairs had been awarded due to greater publicity / awareness of the program.

In terms of differences between discipline groups (i.e SSHRC, NSERC, CIHR), researchers in SSHRC fields were least likely to agree that the Chairs program had reinforced existing research teams in their faculty, likely due to the smaller number of Chairs awarded in the social sciences and humanities. Interestingly, CIHR researchers were most likely to disagree that the Chairs program had resulted in the creation of new research teams within their faculty, perhaps due to greater support for research teams in health/medical research prior to the establishment of the Chairs program.[33]

University representatives reported a few negative unintended effects of the Chairs program. Universities stated that the program had little to no effect on the ease with which non-Chairs could retain or attract graduate students (21 of 23 universities or 91.3%). However, numerous universities did report that the Chairs program had resulted in lower morale among non-Chairs (7 of 25 universities or 28%) and a reallocation of research resources (e.g., equipment, research facilities, funding, etc.) in favour of Chairs, with 17 of 25 (68%) universities indicating that this had occurred. Several universities pointed out that reallocation of resources was not necessarily negative, as it caused the university to become more focused on areas of strategic importance.

One potential unintended effect was identified by three health charities interviewed, who felt that star researchers were or would soon be less likely to accept research funding from non-profit organizations due in part to the Chairs program. Specifically, health charities stated that because health charity funding is not considered in the allocation of Chairs in the same way as granting agency funding, the Chairs program essentially created a 'caste' system of research dollars (with health charity research funding being less highly

[33] Differences by discipline group reported in this section refer to statistically significant results.

valued by universities than granting agency funding). It should be noted that according to a preliminary analysis done by Industry Canada to investigate this issue, using Canadian Association of University Business Officers (CAUBO) data from the fiscal year 2001 as a proxy for data on charity funding, including health charity funding as part of the allocation formula had little impact on each university's share of research funding. The results with respect to this issue were not conclusive.

3.4 Contribution to Training of Highly Qualified Personnel

The objective of improving the training of highly qualified personnel (HQP) through research was present in several research funding programs in other countries. For instance, the training of HQP is an important element of Europe's Marie Curie Chairs Program, in which recipients must "have the quality to inspire their trainees" and are expected to spend at least half their time teaching and training PhD students.[34] Similarly, Australia's Federation Fellowships program has the objective of research capacity building, which includes the training of HQP: "Research capacity-building activities could include research leadership in teams and centres and supervision of postgraduate students."[35]

Enhancing the number and quality of trainees, particularly at the graduate and post-graduate level, is an important mechanism for increasing the pool of highly qualified people and of researchers in Canada. With respect to the Chairs program, there was a substantial increase in the number of students supervised by Chairholders over the three-year period since their Chair awards. Specifically, according to the survey of Chairholders and other researchers,[36] Chairholders reported that they supervised 75.1% more post-doctoral fellows compared to non-Chairs (11.4%) between 1999/2000 and 2002/2003, since the Chair award. Similarly, Chairholders reported a 53.3% increase in the number of doctoral students supervised compared to 14.8% among other researchers.[37] In total, Chairholders surveyed supervised 779 more doctoral students and 490 more post-doctoral fellows in 2002/2003 than in 1999/2000. On average, Chairholders supervised three Masters students, three doctoral students, and two post-doctoral students in 2002/2003, an increase from two Masters students, two doctoral students, and one post-doctoral student prior to the award.

There was an increase of 46.8% in Masters student supervision for Chairholders compared to 2.1% for other researchers. The number of undergraduates supervised went up by 8.0% for Chairholders and by 1.6% among other researchers. Technical staff supervision increased by 83.8% for Chairholders and by 24.9% for other researchers.

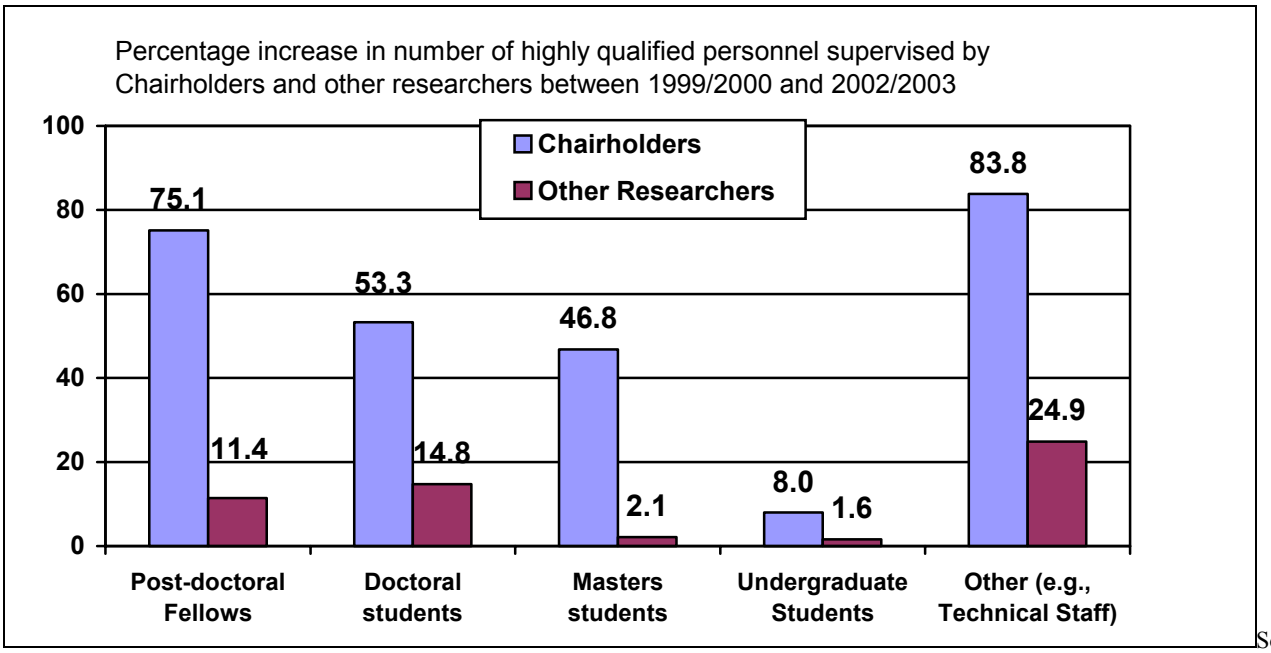
EXHIBIT 3.9: Increase in the Number of Highly Qualified Personnel Supervised by Chairholders versus Other Researchers

[34] European Commission Research Directorate General Human Resources and Mobility. "Marie Curie Chairs Handbook". Brussels, Belgium. 2003. http://europa.eu.int/mariecurie-actions

[35] Australian Research Council. "Federation Fellowships: Funding Rules". 2004. http://www.arc.gov.au/apply_grants/discovery_federation.htm

[36] Faculty were asked to provide the number of students supervised from April 1 1999 to March 31 2000 and from April 1 2002 to March 31 2003.

[37] All of these results were significant using GLM repeated measures.



Source: Survey of Chairholders and other researchers, n = 1,678

SSHRC Chairholders reported the greatest increase in post-doctoral fellows (222%), doctoral students (79%), and other HQP (213%) supervised compared to NSERC (81%, 55% and 82% respectively) and CIHR (56%, 33%, and 69% respectively). Few differences between the discipline groups were found for masters students.

Ninety-two percent of university representatives interviewed (23 of 25) stated that the CRCP had achieved the objective of improving the training of highly qualified personnel through research. Some universities found it difficult to assess the effect of the program on training due to the longer-term nature of this objective. In their annual reports, universities reported a total of 487 masters students, 431 PhD students, 193 post-doctoral fellows, 470 undergraduate students, and 148 other highly qualified personnel supervised as a result of the Chairholders that were active in 2003. In addition, universities reported that 130 masters students and 60 PhD students had graduated under the direct supervision of Chairholderss that were active in 2003.[38]

Students of Chairholders interviewed as part of case studies reported a number of impacts on their training under the supervision of Canada Research Chairs. The most commonly mentioned benefit was the ability to meet and collaborate with other top Canadian and international researchers as a result of the Chair. Students referenced the opportunity to write grant applications in collaboration with other researchers, and greater opportunities to do research international in scope through collaboration with other researchers as a result of the Chair.

3.4.1 CFI Impact on Training

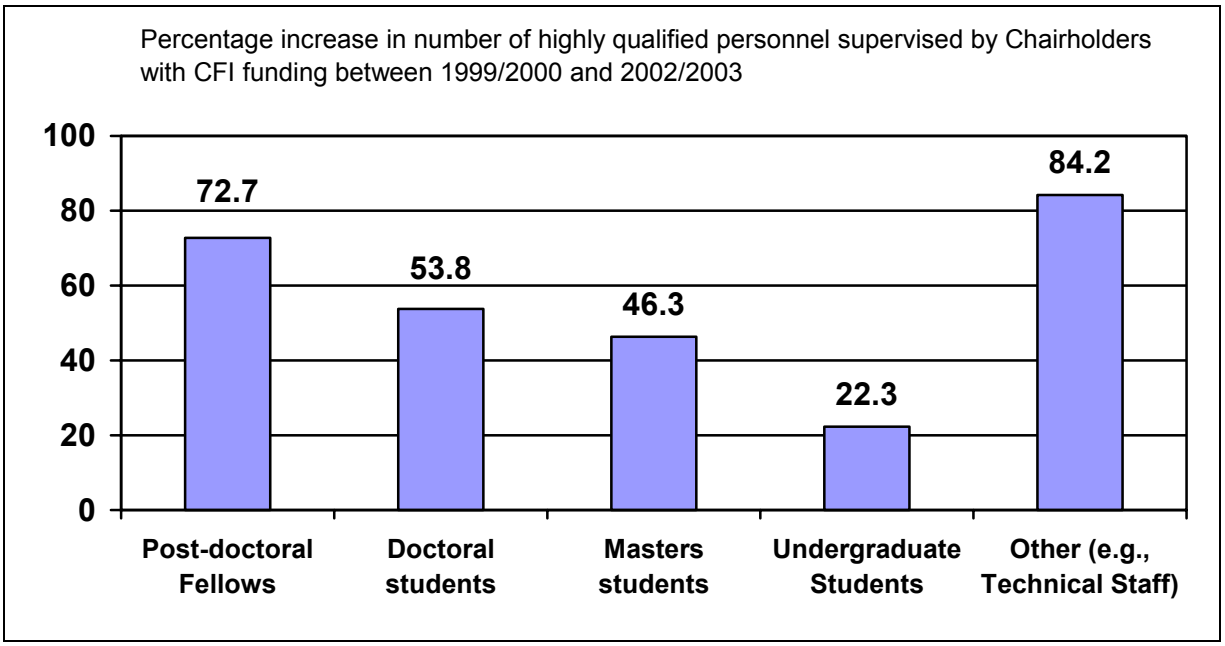
The CFI component of the Chairs program substantially increased the training of graduate students and other highly qualified personnel. Universities reported as part of CFI project report forms that the CFI infrastructure (Chairs component) was important in attracting an average of 1.6 post-doctoral fellows, 4.3 graduate students, and 2.1 other trainees per project to their institution. According to universities, 10.8 trainees enhanced their training on average per project due to the infrastructure.

Data from the Chairs survey indicated that Chairholders with CFI funding reported 72.7% more post-doctoral fellows between 1999/2000 and 2002/2003, 53.8% more doctoral students, 46.3% more Masters students, 22.3%

[38] University annual reports. An analysis was also completed of comments made by universities with respect to training of HQP. Few comments were made by universities with respect to training strategies to attract HQP and help them develop in their area of expertise.

more undergraduates, and 84.2% more technical staff, etc. In total, Chairholders with CFI funding reported 2,757 more supervised HQP between 1999/2000 and 2002/2003.

EXHIBIT 3.10: Increase in the Number of Highly Qualified Personnel Supervised by Chairholders with CFI Funding



Source: Survey of Chairholders, n = 532

3.5 Effects on Smaller Universities

Representatives from smaller[39] universities felt that the main challenge that smaller universities faced in recruiting or selecting nominees involved a shortage of financial resources, equipment and infrastructure (9 of 10 universities classified as small, or 90%). Despite the additional challenges reported, smaller universities were positive about the impact of the Chairs Program on their institution. Most smaller universities felt that the Chairs Program had assisted their institution in establishing a "critical mass" needed in order to establish centres of research excellence (8 of 10 universities or 80%).

Nearly ninety percent of smaller universities (8 of 9 universities or 88.9%) felt that the CRCP had a *more* significant impact in smaller or medium sized universities (relative) than in larger universities. This perception is supported in part by the finding that Chairholders from smaller universities reported a greater relative increase in the number of peer-reviewed publications, technical/presentation papers, and national/international conferences compared to Chairholders from medium and large universities, though it should be noted that none of these effects were statistically significant.[40] Chairholders from smaller universities also reported that their research centres more than doubled in size (112.6% increase) compared to a 57.3% increase among Chairs from medium or large universities.[41]

Interestingly, while smaller universities reported that a similar proportion of CRCP funding was used for Chair salaries and benefits compared to medium-sized and larger universities, a slightly greater percentage of CRCP funds was used to fund research in smaller universities (31.3%) compared to medium and larger universities

[39] Smaller universities were defined as those that were allocated less than ten Canada Research Chairs. Ten interviews were completed with universities from smaller universities.

[40] Analysis of Chair survey data using GLM repeated measures. It should be noted that the limited number of Chairs from smaller universities completing the survey (55) would have reduced the power of these statistical tests to detect a difference.

[41] Again, this result was not significant using GLM repeated measures.

(20.5%).[42] At larger universities, a greater percentage of CRCP funds went to administration (9.8% compared to 3.4% in smaller universities) and HQP support (9.6% compared to 5.8% in smaller universities).

Case studies completed of Chairholders from smaller universities suggested that the infusion of funding to the smaller communities had a significant impact on capacity building in the geographical region. Specifically, the arrival of one Chair at Acadia University has resulted in the establishment of a research centre that is expected to generate significant benefits to the Atlantic region and the Annapolis Valley region of Nova Scotia. For example, it is anticipated that the increased research activity will lead to job creation, as well as greater collaboration between the university and the region's environmental and resource industries.

3.6 Excellence of Researchers

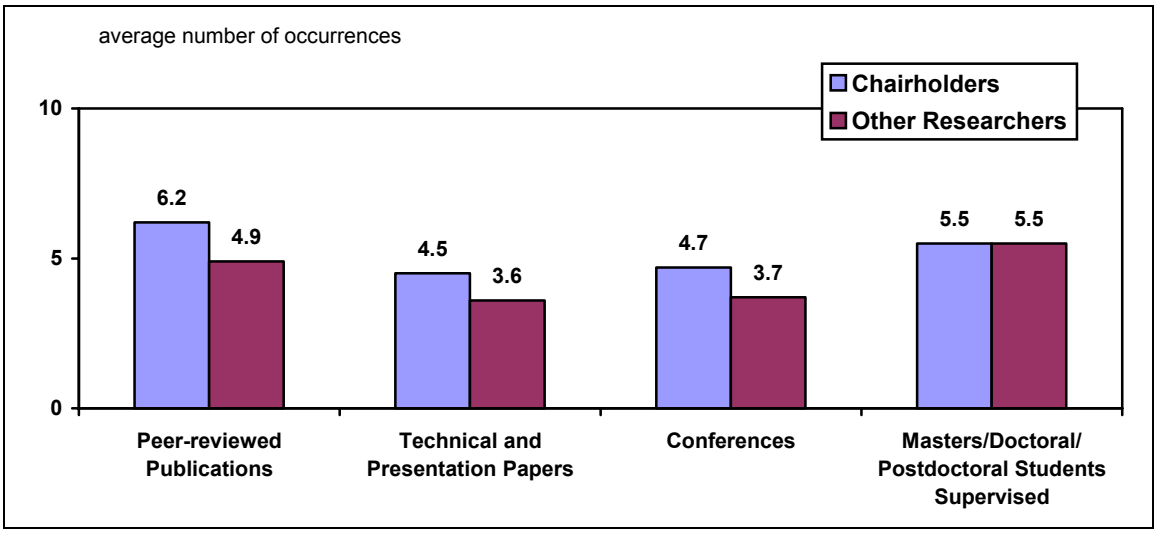
Chair nominations submitted by universities are subject to a peer review process governed by a College of Reviewers. The intent of this review process is to ensure the research excellence of Canada Research Chairs. As a result of this process, and given that research excellence was a core objective of the program, it was expected that Chairs would demonstrate research excellence. An analysis was done of the research profile of Chairholders and other researchers prior to the Chairs program to assess the excellence of Chairholders relative to other researchers using both survey and administrative data.

In constructing the sample of other researchers for the survey, the list of other researchers was constructed to ensure a comparable sample to Chairs on the basis of discipline (NSERC – 45%; CIHR – 35%; SSHRC – 20%) and seniority (Full Professor/Professor – 50%; Associate and Assistant Professor – 50%). The other researcher group was also selected from the top 25% (NSERC) and top 50% of researchers (CIHR/SSHRC) by agency funding to ensure that the other researcher group was comparable to the Chairholders in terms of research activity.[43]

The analysis of research activities prior to the Chair program indicated that, as expected, Chairholders(survey of chairholders and other researchers) reported significantly more peer-reviewed publications (6.2 in 1999/2000) compared to other researchers (4.9). Chairholders also reported a significantly greater number of technical papers, national conferences, and international conferences compared to other researchers. No significant differences were found with respect to the number of graduate students supervised by Chairholders and other researchers. Chairholders had a higher level of funding ($366,753)[44] compared to other researchers ($261,593).

EXHIBIT 3.11: Research and Teaching Profile of Chairholders versus Other Researchers Prior to Chair Award (April 1 1999 to March 31 2000)

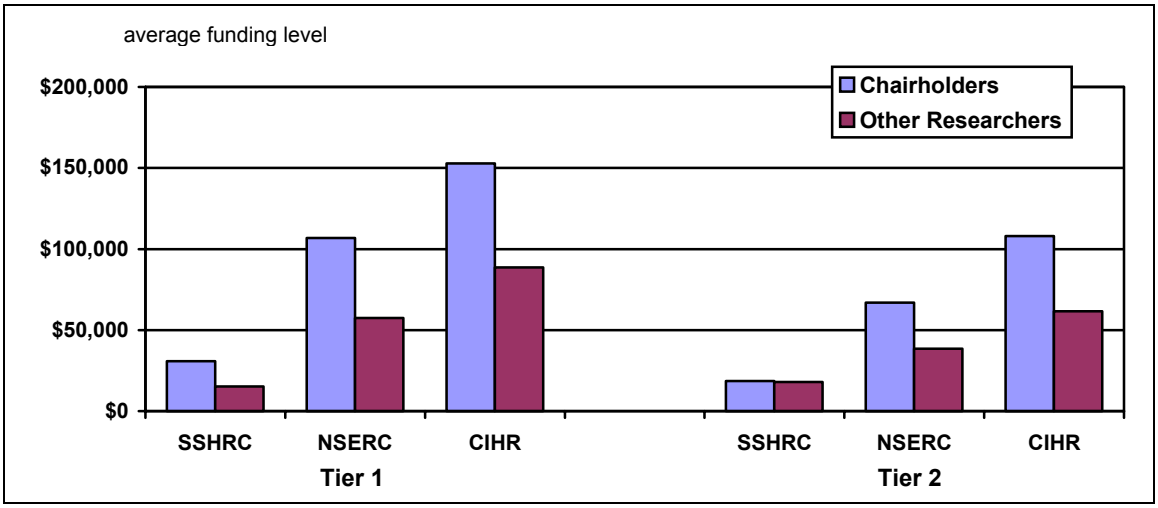
[42] Special data request to universities. This analysis is based on 42 special requests returned by universities (22 small universities, and 20 medium and large universities). Note that not all universities responded to this question.
[43] NSERC restricted researchers to the top quarter, due to the greater number of researchers funded by NSERC.
[44] All sources of funding. Funding level data was taken from the survey of Chairs/Other Researchers.



Source: Survey of Chairholders and other researchers, n = 1,656. Note: numbers presented are means

Administrative data provided by the granting agencies confirmed the excellence of Chairholders prior to the award. Chairholders consistently had a higher level of granting agency funding than did researchers in the top 50% of funded SSHRC and CIHR researchers/top 25% of NSERC-funded researchers (please see Exhibit 3.12).

EXHIBIT 3.12: Granting Agency Funding Profile of Chairholders versus Other Researchers Prior to Chair Award (April 1 1999 to March 31 2000)



As illustrated in Exhibit 3.12, SSHRC Chairholders showed less of a difference from non-Chair researchers funded by SSHRC, particularly at the Tier 2 level. It should be noted that SSHRC funds fewer researchers in proportion to the eligible pool of researchers compared to NSERC or CIHR.

While the survey results supported the excellence of Chairholders relative to other researchers, other researchers did not show a high level of agreement that "Canada Research Chairs are consistently awarded to clearly leading, world-class researchers." Less than half agreed with this statement (48.1%). Agreement was lowest among SSHRC researchers (41.5%) compared to NSERC (50.9%) and CIHR (48%) researchers. This result may be related to the lower proportion of SSHRC researchers awarded Chairs (SSHRC disciplines represent more than 50% of faculty in Canadian universities, but are awarded 20% of Chairs). As a result, it is likely that a greater number of top SSHRC researchers have not been awarded Chair positions, perhaps resulting in fewer perceived differences between Chairholders and other leading SSHRC researchers.

3.7 Inter-Institutional and Inter-Sectoral Collaboration

The results of this evaluation did not indicate that the Chairs Program had encouraged collaboration between universities or between sectors. Only 8 of 26 (30.8%) universities agreed that the program had helped

universities make the best use of research resources through collaboration among universities and between sectors, and 3 out of 15 (20%) key stakeholders felt that the Program had achieved this objective. The most common reason given for this lower rating was that stakeholders felt that the program was not particularly designed to achieve this objective (please see Section 2.1). Indeed, one university reported that they had attempted to promote collaboration between universities by attempting to create a joint Chair with another university, but had been told that this would not be possible. The only two universities that provided an explanation for a positive rating of this objective specifically referenced the CFI, rather than the Chairs program independent of CFI funding.

3.7.1 Collaboration due to CFI

CFI infrastructure funding as part of the Chairs program had a strong effect on developing multi-disciplinary research networks within universities, as well as across universities and across sectors. According to the CFI project report forms, seventy percent of universities reported a significant impact of the CFI funding on both intra-institutional and inter-institutional collaboration, and 42% reported a significant impact on inter-sectoral collaboration, and 171 of 243 projects funded by CFI had a significant impact on collaboration with outside institutions or sectors.

Nearly seventy percent of universities also reported that the availability of infrastructure had a significant or very significant impact on the opportunities for multidisciplinary research. Instances of collaboration due to the CFI component of the Chairs program include:

> *"Collaborative activities with industrial partners (Avigen, Bayer, Octagen and Pfizer) have added greater than $300,000 to our operating funding."* (CFI project report form)
>
> *"The availability of the infrastructure has very significantly enhanced opportunities for multidisciplinary research and has had a significant impact on our ability to attract funds from the Canadian Institutes of Health Research and international sources."* (CFI project report form)
>
> *"At our university, we have been able to set up the Canadian Rivers Institute (which receives funding from Environment Canada); the Institute of Biomedical Engineering (which has drawn in other researchers); and the Canadian Research Institute for Research Policy (which is attached to a Statistics Canada institute)."* (University interview)
>
> *"The central collaboration… has been extremely valuable from not only a technical perspective, but also in terms of 'economies of scale'. We have shared the costs of development… the total cost is a relatively small fraction of the price that one would expect to pay for a traditional supercomputer of similar performance capabilities."* (CFI project report form

3.8 Displacement of Personnel

As indicated in the Third Year Review of the Canada Research Chairs Program, initially there was concern that Chair recruitment by larger universities would result in smaller universities losing researchers. Contrary to this expectation, the current evaluation found that domestic transfers for Chairs have been positive for small (eleven researchers gained and six lost) and medium sized universities (34 gained and 32 lost).[45] In comparison, domestic transfers have been negative for larger universities (21 researchers gained and 28 lost). This finding is relatively consistent with that reported as part of the Third Year Review; domestic transfers reported in 2002 were neutral for smaller universities, and negative for larger universities.

3.9 Balance Achieved Between Tier 1 and Tier 2 Chairs

The Program has achieved an approximately even balance of Tier 1 and Tier 2 Chairs, consistent with the original intent of the program. CRCP administrative data showed that 51% of Chairs awards were to Tier 1 Chairs, and 49% of awards were to Tier 2 Chairs.[46]

[45] Based on CRCP administrative data as of April 2004.
[46] Data as of August 2004.

4 Results/Effects at the Institution Level

Results from university reports, interviews and surveys with Chairs suggest that universities have been successful in using CRCP funds to foster innovative research related to their strategic plans. Even within the short interval since most Chairs were implemented, universities and Chairholders surveyed reported between $218M and $343M in leveraged research funding. Administrative data from the research funding agencies indicated that retained CIHR Chairholders and SSHRC Tier 2 Chairholders showed a greater increase in granting agency funding between 1999/2000 and 2002/2003 compared to other top researchers. NSERC Chairholders did not show an increase in granting agency funding.

Universities reported a number of risks in using the Chairs program. The most common risk involved financial costs to universities associated with potential non-renewal of Chairs or Tier 2 Chairs no longer eligible for renewal. In addition, because both universities and Chairs generally reported that universities provided support for Chairs (though this varied by university), universities were concerned that inflation in costs to support Chairs would be borne increasingly by universities. Finally, a number of universities expressed uncertainty about how the program will operate in the future, and asked for greater clarity as the program makes the transition from a new program to a mature program.

4.1 University Support for Chairs

The funding provided by the Canada Research Chairs Program is not intended as stand-alone funding; it is expected that universities will provide supplementary support to Chairs. Based on the responses of both Chairholders and universities, universities provide a substantial amount of funding to Chairholders in addition to CRCP funds. However, university support varied across universities.

According to the survey of Chairs, universities provided an average of $68,988.41 in research funding to Chairholders between April 1 2002 and March 31 2003 (see Exhibit 4.1). Of Chairholders that were originally from the nominating university, the amount of university-provided research funding reported more than doubled on average since the Chair award; in the 1999/2000 time period, these Chairholders reported $29,402.21 in research funding from universities, compared to $68,837.70 after the Chair award.

EXHIBIT 4.1: Research and Teaching Profile of Chairholders After Chair Award (April 1 2002 to March 31 2003)

Discipline Group	Tier	University Research Funding	Undergraduate Courses Taught	Graduate Courses Taught
SSHRC	Tier 1	$41,175.21	1.7	1.3
	Tier 2	$32,248.70	1.6	1.2
CIHR	Tier 1	$88,406.44	1.0	1.4
	Tier 2	$94,923.80	1.0	1.2
NSERC	Tier 1	$77,702.05	1.0	0.9
	Tier 2	$54,912.79	1.3	0.9
Total		**$68,988.41**	**1.2**	**1.1**

Source: Survey of Chairholders, n = 606.
Note: Figures based on means. Six Chairholders that were not in place by 2003 were removed from the analysis.

As indicated in Exhibit 4.1, the amount of financial support provided by universities was highest for CIHR Tier 2 Chairholders ($94,923.80) and lowest for SSHRC Tier 2 Chairholders ($32,248.70). The higher level of funding provided to Tier 2 CIHR Chairholders may be consistent with university statements that the CRCP funding was not sufficient for this group and as a result, substantial incremental funding was needed from the university. In addition, a number of universities interviewed reported that researchers in the social sciences and humanities generally did not require the same level of infrastructure support from the university compared to the natural sciences and health.

The support reported by Chairholders varied considerably by university, with approximately 20% of Chairholders reporting that their university provided no research funding support. In addition, 166 Chairholders reported either the same undergraduate course load or a higher course load after the Chair award compared to before the Chair award (27% of Chairholders). Further analysis was completed to examine variance of research funding support by universities.[47] University funding as reported by Chairholders *decreased* since the Chair award for 23.5% of universities. However, it should be noted that when universities with greater than 5 Chairholders responding were analysed, no university showed a decrease in funding since the Chair award, based on Chair survey data. Chairholders at 9% of universities cited an increase in undergraduate teaching load (most of the increases were slight[48]).

University annual reports were analyzed to estimate the resources devoted to Chairholders as reported by universities (2003 data). Overall, universities reported providing $91 million in funding support to all Chairholders in 2003. Universities reported the largest contribution in the area of Chair salaries (20.9%), followed by salaries of other non-Chair faculty (19.5%). Universities reported spending 16.5% on HQP support (incremental), and 11.2% on equipment costs. In addition, 77.8% of universities reported policies for release from teaching or other duties for Chairs.

Data provided by universities and Chairholders also indicated that universities had provided teaching relief to Chairholders. For Chairholders originally from the nominating university, teaching loads decreased from 2.4 undergraduate courses per year to 1.3 (decrease of 45% in teaching load).[49] There was no substantial decrease in the teaching load at the graduate level. According to university special data requests, teaching loads for SSHRC and NSERC Chairholders were half that of non-Chair faculty, and teaching loads for CIHR Chairholders were sixty percent of that of non-Chair faculty (Exhibit 4.2).

EXHIBIT 4.2: Average Teaching Load of Chairholders of Chairholders and Other Researchers by Discipline Group (April 1 2002 to March 31 2003)

Discipline Group		Chair	Non-Chair Faculty
SSHRC		2.0	4.1
CIHR		2.1	3.4
NSERC		1.6	3.3
Discipline Group	**University Size**	**Chair**	**Non-Chair Faculty**
SSHRC	Small	1.2	3.9
	Medium/Large	2.6	4.5
CIHR	Small	1.9	3.7
	Medium/Large	2.4	4.0
NSERC	Small	1.3	3.1
	Medium/Large	2.1	3.6

Source: University Special Data Request, n = 28

[47] Only retainees were included in this analysis. Universities where no Chairs responded to either survey question (funding support between 1999-2000 or between 2002-2003) were also removed.
[48] less than 10% increase
[49] Chair survey data

Note: Only responses where average teaching loads were provided both for Chairholders and non-Chair faculty are included. Where universities reported number of credits instead of number of courses, the responses were converted to course-load.

Both small and medium to large universities reported that Chairholders had smaller teachings loads (70% to 225% less) than other researchers.

4.2 University Progress Relative to Strategic Plans

While a number of universities reported that originally they had reservations about the requirement to develop a strategic plan for CFI/CRCP, universities were positive about the impact of strategic plans on the university research culture. Forty-four percent of universities (11 out of 25) indicated that the strategic plans had been used to complement existing areas of research specialization, but institutions also noted that the strategic plans were being used to initiate new areas of strength for the university (6 of 25 or 24.0%). Universities felt that the strategic plans had assisted them in creating an atmosphere of strategic choice and prioritized investment (9 of 25 or 36%).

Analysis of the university annual reports suggest that universities have been successful in fostering research related to their strategic plans, and enhancing innovative, interdisciplinary research. Universities reported gains in hiring researchers related to their strategic plans (both Chairholders and other researchers), research collaborations related to their strategic research plans (though it was not stated whether this was due to the CRCP or CFI component), dissemination of research findings, and the recruitment of graduate students in research fields related to their strategic plans.

4.3 Additional Funds Leveraged

Chairholders and other researchers were asked to estimate the amount of research funding they received between April 1 1999 and March 31 2000, as well as between April 1 2002 and March 31 2003. The results of the survey indicated that funding to Tier 1 Chairholders doubled on average since the implementation of the Chair, and funding to Tier 2 Chairholders increased by 159.8%. In comparison, the funding level reported by the top half (SSHRC and CIHR) and top quarter (NSERC) [50] of researchers surveyed increased by 49.9% over the same period.[51] The net increase of funding dollars for Chairholders between 1999/2000 and 2002/2003 (of Chairholders that were surveyed) was $218.1M. It should be noted that research funding levels over $10M reported by Chairholders were trimmed.[52] Universities reported a leveraged amount of $343.4M due to the Chairs Program.[53]

Cultural differences and resource allocation formulas should be borne in mind when interpreting differences between discipline groups presented in Exhibit 4.3. Chairholders in SSHRC disciplines reported a lower level of research funding, consistent with the fact that SSHRC distributes less funding compared to CIHR or NSERC. In addition, funding reported by Chairholders in NSERC and CIHR disciplines is more likely to include CFI funding support for their research compared to SSHRC researchers. With respect to the change over time, statistical testing indicated that Chairholders in all three disciplines and at both tier levels showed a similar pattern of increase between 1999/2000 and 2002/2003.

EXHIBIT 4.3: Value of Grants, Prizes and All Other Funding (1999-2000 and 2002-2003) for Chairholders and Non-Chair Researchers

[50] Top half/quarter by Council funding level. NSERC restricted researchers to the top quarter, due to the greater number of researchers funded by NSERC.
[51] The difference between Chairs and non-Chairs was statistically significant.
[52] Values over $10M were removed from the analysis in order to reduce the possibility that researchers were reporting the total value of funded research projects where they were co-investigators.
[53] University annual reports

		Average			Total Funding	
Research Discipline Group	Type of Chair	1999-2000	2002-2003	% Difference	1999-2000	2002-2003
SSHRC	Tier 1	$209,816	$474,671	126.2%	$12,588,987	$30,378,960
	Tier 2	$77,376	$370,500	378.8%	$3,791,441	$19,636,488
	No Chair	$189,709	$316,184	66.7%	$35,285,894	$58,810,201
CIHR	Tier 1	$594,517	$1,095,413	84.3%	$58,857,197	$106,255,079
	Tier 2	$293,162	$603,422	105.8%	$22,866,608	$50,084,030
	No Chair	$305,675	$373,694	22.3%	$120,130,393	$147,609,321
NSERC	Tier 1	$385,008	$902,470	134.4%	$56,981,193	$132,663,044
	Tier 2	$161,276	$461,113	185.9%	$16,127,582	$50,261,272
	No Chair	$174,831	$320,943	83.6%	$81,471,372	$151,164,182
Total	Tier 1	$418,330	$874,341	109.0%	$128,427,377	$269,297,083
	Tier 2	$188,483	$489,722	159.8%	$42,785,631	$119,981,790
	No Chair	$226,687	$339,908	49.9%	$236,887,659	$357,583,704

Source: Survey of Chairholders and other researchers, n = 1,620. Values over $10 million were trimmed.

As indicated earlier, other lines of evidence such as administrative data were used to complement self-reported data. In particular, granting agency administrative data (retainees only) indicates that Tier 2 Chairholders in SSHRC and CIHR disciplines experienced a larger increase in granting agency funding from 1999/2000 to 2002/2003 (SSHRC – 52.9%; CIHR – 50%) compared to other emerging researchers in these disciplines (SSHRC – 27.2%; CIHR – 14.4%). CIHR Tier 1 researchers also showed a somewhat larger increase (32.7%) compared to senior non-Chair health researchers (21.1%). For SSHRC Tier 1 and NSERC researchers, Chairholders did not show a substantial increase compared to their non-Chair counterparts.

Granting agency funding for Chairholders recruited from outside Canada was examined as part of this analysis. Administrative data provided by NSERC indicated that external Chairholders were awarded $54,527.45 on average for Tier 1 Chairholders and $46,035.34 for Tier 2 Chairholders in 2002/2003, which represents 53% and 71% of the average amount awarded to all NSERC Tier 1 and Tier 2 Chairholders (Tier 1 – $102,479.85; Tier 2 – $64,655.92). Comparability of funding levels for external recruits may be an issue in ensuring the long-term retention of these researchers.

4.3.1 Additional Funds Leveraged as a Result of CFI

The CFI contributes a maximum of 40% of the total cost for Chair infrastructure support.[54] Financial Reports from the CFI were analysed to assess the sources of matching funding obtained by institutions. As indicated in Exhibit 4.4, the most common source of matching funding was the provincial government (37%). The CFI funding also resulted in $11,530,171 in leveraged funds from Institutions, trust funds or foundations, $10,015,407 from corporations/firms, and $274,464 from voluntary organizations.

EXHIBIT 4.4: Partner Funding by Source – CFI Funding Support

Partner	Matching Funds	Partner Share
Institutions, trust funds or foundations	$11,530,171	13%
Federal government departments or agencies (not CIHR, NSERC, SSHRC)	$292,123	0%
Provincial governments (departments or agencies)	$34,156,817	37%
Other governmental sources (municipal or foreign)	$109,089	0%
Corporations/firms	$10,015,407	11%
Voluntary organizations	$274,464	0%

[54] *Canada Research Chairs Program Guide,* February 2002.

Other	$0	
Total All Partners	**$56,378,071**	**61%**
CFI	$35,735,127	39%
Grand Total	**$92,113,198**	**100%**

Source: CFI administrative data, project financial information

4.4 Potential Risks for Universities

Universities were aware of the potential risks of using the Chairs Program. The most common risk that universities identified involved potential non-renewal of Chairs or Tier 2 Chairs no longer eligible for renewal (after two terms), with 15 of 27 (55.6%) universities mentioning this risk. Particularly with respect to potential non-renewal, universities expressed a concern that universities would be left to cover salary costs of the non-renewed Chair. Another commonly identified concern was that the CRC program would not be renewed (12 of 27 or 44.4%). Risks associated with covering portions of the Chairs' salaries (10 of 27 or 37.0%), and risks associated with covering the inflation in Chair costs (7 of 27 or 25.9%) were also identified by universities.

Of particular concern is the finding that only one third of universities interviewed had planning mechanisms in place to deal with potential financial risks associated with the Chairs program (8 of 27 universities or 29.6%). The most common mechanisms in place to plan for potential non-renewal of Chairs is bridging Chair positions to future retirements and folding faculty into university funding. Some universities reported that covering the cost for Chair salaries due to potential non-renewals might mean cut-backs to other areas of the university budget such as teaching budgets/student funding areas (7 of 27 or 25.9%). This relative lack of planning could leave universities vulnerable to changes (e.g. losing a chair as a result of recalculation) in Chair allocations as the program progresses.

A number of universities also expressed uncertainty with the manner in which the program would operate in the future, particularly after the 2,000 Chairs had been filled. Some universities expressed a worry that it would be harder to recruit researchers after all the Chairs had been filled, since as one university stated after the 2,000 Chairs are awarded, "there will then be fewer levers to attract the greatest talents". Some universities also expressed questions about what would happen once Chairs have been allocated if the tri-agency funding received by universities changes. A number of universities asked for greater clarity as the program moves from the transition from a new program to one that is mature. Uncertainty with respect to how the program will operate in the future could impede effective planning by universities to offset financial risks associated with the program.

A sample of comments from universities and stakeholders is reproduced below:

"There are certainly financial risks. There is the risk of escalating salaries, as well as the risk of picking up the Tier 2 Chairs after the first renewal. We were aware of the risks and we bought into the program, so this is not a big issue. We will have to plan in our budgets—this is not the biggest issue—the benefits far outweigh the risks." (University)

"The CRCP creates risks because the universities need to contribute additional funding to sustain the federal government investment (building of research capacity). The universities are counting on federal government funds; universities' investments are tied to federal funds. Any change/loss of a Chair would cause spin-off losses such as the loss of grad students (pool of future researchers), etc." (Key Stakeholder)

"It may be a risk for institutions to take on top people—it is hard to promise anything, since the environment we live in today will not last forever. There is the risk that researchers don't have the environment that they want; there is a risk of losing these people. Universities, however, do not necessarily have to take on Chairs. They should only take on what's best for their institution." (Key Stakeholder)

"The uncertainty regarding financing in the long term is a major issue... How will we manage renewals? How should we plan in the long term? What will the renewal rules be?" (University)

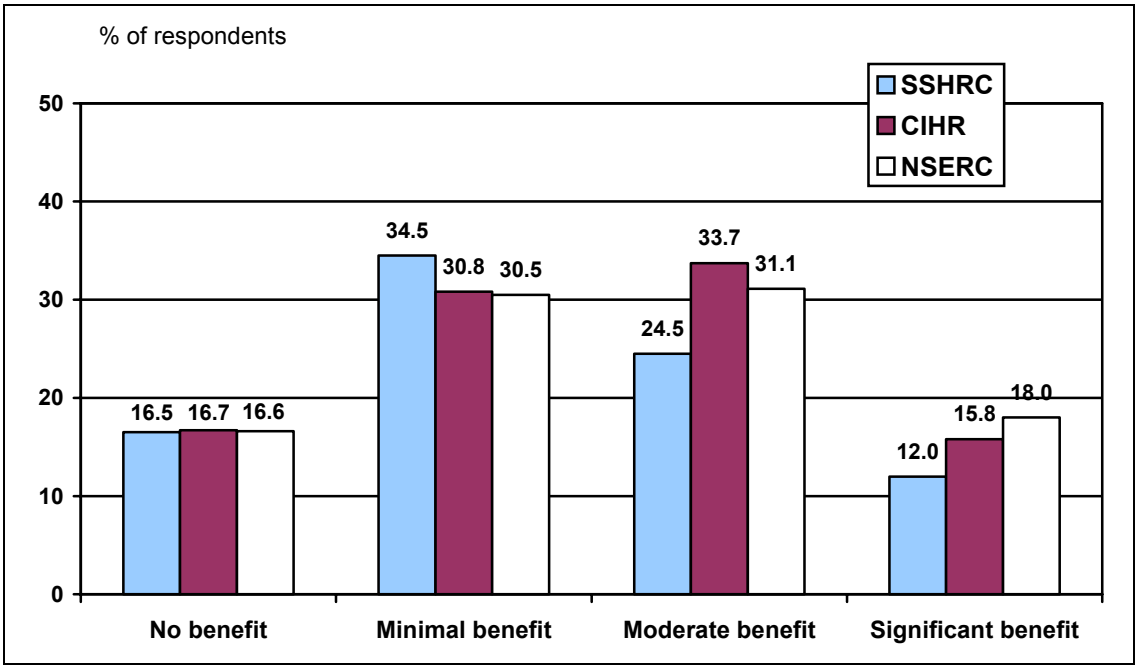
4.5 Effects of Program at

Faculty Level

Most researchers were divided with respect to the effect of the Chairs Program on other faculty. Over half of SSHRC researchers felt that the CRCP had no or minimal benefit for researchers other than Chairs. By comparison, 49.5% of CIHR researchers, 49.1% of NSERC researchers, and 36.5% of SSHRC researchers felt that the CRCP had a moderate or significant positive benefit for other researchers. Researchers from smaller universities were slightly more likely to feel that the Chairs program benefited other researchers, but this difference was not significant.

Illustrated in Exhibit 4.5 is the percentage of non-Chair researchers who felt that the CRCP benefited researchers other than Chairs.

EXHIBIT 4.5: Extent the Canada Research Chairs Program benefited researchers other than Chairholders – Other Faculty respondents



Source: Survey of other researchers, n = 1,118

University representatives reported that the Chairs program had caused a variety of effects at the faculty level. Specifically, 11 of 25 (44%) universities reported that the Chairs program had affected promotion and internal prestige within the university. Twenty-eight percent (7 of 25) of universities felt that the Chairs program had increased competition within the university; in contrast, however, 64% (16 of 25) of universities reported increased collaboration at the university level due to the program.

5 Design Issues

Modifications made to the program as a result of the Third Year Review, such as the corridor of flexibility, which provided universities with a set number of unused Chairs for any combination of tier and discipline group that respected the budget, have been effective. Indeed, a majority of universities requested greater flexibility to allocate Chairs by tier and discipline group, particularly in creating a greater number of SSHRC Chairs to make the distribution of Chairs more consistent with university strategic research plans. Universities and Chairholders raised the issue of whether the level of funding for Chairs was sufficient to attract top researchers, in light of international programs offering larger sums, especially for Tier 2 Chairs.

With respect to the gender balance, the Chairs program's monitoring of the gender balance among Chairs (implemented after the Third Year Review) indicates that 54% of universities expected to show significant growth in the number of Chairs held by women between 2003 and 2005. As of 2003, universities appear to have realized some progress; CRCP administrative data shows a steady change in the percentage of female Chairs from 2000 (14.1%) to 2004 (32.0%).

5.1 Effort to Distribute Chairs Equitably Between Men and Women

According to an assessment of the potential for attaining gender balance in the CRCP during the initial phase of the program,[55] while the number of Tier 1 Chairs awarded in the SSHRC and NSERC disciplines is roughly representative based on the professorial distribution, females are under-represented among CIHR Tier 1 Chairs. Projections made in 2003 suggest that to ensure a representative set of Chairs, approximately 161 CIHR Tier 1 Chairs would need to be awarded to women between 2003 and 2006. For Tier 2 Chairs, in order to achieve gender parity (based on the distribution of associate and assistant professors), SSHRC and NSERC Tier 2 female nominations would have to double, and CIHR Tier 2 female nominations would have to quadruple.

Prompted by this analysis, the percentage of Chair positions that universities expected to fill with women (taken from the 2003 university annual reports) was compared to the historical number of Chairs awards by university. Fourteen of 26 universities (53.8%) providing data expected to show a 200% or more increase in the number of Chairs awarded to women between 2003 to 2005 compared to the historical number of Chairs awarded to women at the university.[56] The information provided as part of the annual reports does not specify the expected number of female Chairs *by discipline*, and as a result, makes comparison against the targets specified in the gender-based analysis impossible. When administrative data for 2003 and 2004 (first cycle) was compared to the annual reports, one-third of universities expecting to show a 200% increase or more in the number of female Chairs met their target.[57] It should be noted that universities were asked to state the number of expected female Chairs from 2003 to 2005, and therefore this represents a preliminary comparison to administrative data between 2003 and the first cycle of 2004.

In addition to annual reports, CRCP administrative data was analysed to determine trends over time in the percentage of Chairs awarded to women. Overall, the percentage of Chairs awarded to women has shown a steady increase between 2000 and 2004 (first cycle of 2004), with the percentage of female Tier 1 Chairs increasing from 10.6% to 23.3% and the percentage of female Tier 2 Chairs increasing from 20.4% to 38.3%. Consequently, this analysis indicates that progress is being made towards the targets identified by the gender-based analysis. Exhibit 5.1 presents the percentage of female Chairs for each discipline-tier combination by year.

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[55] Nicole Bégin-Heick. *An Assessment of the Potential for Attaining Gender Balance in the Canada Research Chairs during the Initial Phase of the Program (2000-2006)*, May 2003.

[56] 30 annual reports provided a specific goal (expressed as a percentage) on the expected Chair appointments to women between 2003 to 2005. A further 4 universities did not have a Chair appointed between 2000 and 2002.

[57] Four out of 12 universities (two institutions had no Chair awards in 2003-2004). Further, six out of 18 (33.3%) universities expecting a 35% or more increase in the percentage of Chairs awarded to women met their target in 2003-2004.

EXHIBIT 5.1: Percentage of Female Chairholders by Discipline, Tier and Year

Discipline Group	Tier	2000	2001	2002	2003	2004	Total
CIHR	1	8.8%	13.8%	11.4%	36.5%	18.8%	18.3%
	2	18.2%	26.2%	26.9%	22.6%	40.0%	25.0%
NSERC	1	6.1%	2.3%	9.7%	9.8%	20.0%	7.2%
	2	24.4%	14.3%	13.8%	18.9%	36.0%	18.4%
SSHRC	1	23.7%	15.9%	30.6%	21.9%	33.3%	23.5%
	2	16.7%	33.3%	32.6%	52.8%	40.0%	38.1%
Total	**1**	**10.6%**	**8.9%**	**15.4%**	**23.1%**	**23.3%**	**14.6%**
	2	**20.4%**	**21.8%**	**22.3%**	**28.8%**	**38.3%**	**25.1%**
All Tiers		**14.1%**	**14.9%**	**19.2%**	**26.3%**	**32.0%**	**19.8%**

Source: CRCP administrative data

The Consultant also interviewed universities and other stakeholders on the issue of gender parity within the Canada Research Chairs Program. Stakeholders interviewed in particular with respect to the gender issue questioned the attention provided to the issue of gender parity during the planning or design phases of the program. Indeed, some universities that reported being successful in terms of recruiting women for Chair positions identified specific planning concerning gender representation during early stages of implementation. Examples of such planning included selecting as strategic research areas those where women were populous, as well as areas where men were populous, working with equity offices already established within the university to approve nominations, and inclusion of an equity office representative to sit on the CRC advisory committee at the university level.

5.2 Corridor of Flexibility

The corridor of flexibility was introduced after the Third Year Review of the Canada Research Chairs Program. This corridor allows universities to use a specified number of unused Chairs for any combination of tier that respects the budget and in any discipline group. The additional flexibility was introduced to allow universities to further develop new research areas or expand priority areas.[58]

Based on administrative data (as of November 2004), overall modifications (about 10 accepted Chairs) by granting agency were in favor of SSHRC[59]:

- No changes for CIHR as it lost three Chairs to NSERC and one Chair to SSHRC, and gained four Chairs from NSERC.
- A net loss of three chairs for NSERC as it lost four Chairs to CIHR and 2 Chairs to SSHRC, and gained three chairs from CIHR.

- A net gain of three Chairs for SSHRC as it gained one Chair from CIHR and 2 Chairs from NSERC.

The proposed modifications (7 Chairs not accepted yet) show similar trends with no changes for CIHR, a net loss of three Chairs for NSERC and a net gain of three Chairs for SSHRC.

Ninety-three percent of universities (25 of 27) reported that the corridor of flexibility had positively affected their ability to create Chairs, and all universities stated that the corridor of flexibility should be maintained. One-fourth of universities interviewed reported that the corridor of flexibility had affected the nomination of Chairs by discipline group (7 of 27 or 25.9%), and 63% (17 of 27) of universities reported changing the distribution of Chairs by tier. When asked if they would suggest any modifications to the corridor, 52% (14 of 27) of universities reported a desire for greater flexibility.

[58] Response of the Canada Research Chairs Steering Committee to the Third Year Review Report, 2002/2003.
[59] Data based on Chairs accepted only.

The two main recommendations for further flexibility suggested by universities were:

- Increase the corridor of flexibility generally, particularly in the ability to allocate Tier 1 versus Tier 2 Chairs. Smaller universities especially noted that it was easier to attract top emerging researchers compared to established researchers.
- Greater flexibility in the use of CRCP funds in order to offer differently valued awards. Two suggestions that were made by universities included the ability to create a) "Tier 1 Plus" Chairs which would allow universities to attract Nobel Prize-calibre candidates, and to offer such candidates a higher level of CRCP funding than $200,000 per year, and b) Intermediate Chair positions, which would be established for researchers that are too senior to be awarded Tier 2 awards, but too junior to be awarded Tier 1 awards. The second option would focus on "growing" talent within Canada and might lessen the probability that Tier 2 Chairs would leave Canada after their term was finished.

5.3 Effects of the Chair Allocation Formula

The allocation by research discipline was set as follows: NSERC was allocated 45% of Chairs positions, CIHR was assigned 35% and SSHRC was assigned 20%. This allocation approximated the budget of the three research granting agencies at the time that the program was established. The number of Chairs awarded to date is roughly consistent with this allocation, with 45.3% of Chairs being awarded in NSERC disciplines, 32.1% in CIHR fields, and 22.6% in SSHRC fields.

Almost sixty percent of universities felt that the lower allocation given to SSHRC Chairs had impacted their research and hiring plans (16 of 27 or 59.3%), compared to 29.6% (8 of 27) of universities that reported that the existing allocation of Chairs had not impacted their research development plans and hiring at their university. Over three-quarters (21 of 27 or 77.8%) of universities interviewed felt that the Chairs in the SSHRC discipline group had been under-represented and/or was inconsistent with their research development plans and hiring.

Universities stated that due to the small number of SSHRC Chairs and the large number of faculty in contrast falling into SSHRC research areas, the Chairs Program had not created the "critical mass" needed in the social science and humanities fields in order to have the strong effects that would result from having research clusters.[60] Universities generally did not speak to the issue of whether the additional SSHRC Chairs should result from a reallocation of Chairs, or creation of new Chairs, but a substantial proportion of universities felt that they had not been well served by the allocation formula in this way, and were unsure as to the rationale behind the allocation.

The following represent comments made by university representatives on this topic:

"We have not had much funding for SSHRC and therefore we are not able to do same capacity building. The current allocation doesn't allow us to develop a critical mass in social sciences."

"I don't agree with the balance of Chairs by discipline. For smaller universities, this ratio is grossly out of proportion: there are no CIHR Chairs at smaller universities. The SSHRC proportion of Chairs should be much larger for small universities."

"THIS IS KEY. The policy should be 1/3, 1/3, 1/3. Our university is hard hit on the social sciences and humanities end. Our mix of programs and research on social/cultural issues are very important for Canada in the knowledge society, however, it is never rewarded. We have created new areas of research, but we have been hindered by low allocation because we are a SSHRC university. The allocation disfavours large schools that don't have medical or engineering schools. The allocation formula needs to be changed. The Chairs should be awarded: 1/3, 1/3, 1/3 to each of the councils. It is a simple formula, easy to implement, and would allow the whole country to move forward."

"Given program objectives of establishing a science and technology base, the allocation formula makes sense. But at our university, few Chairs are given in SSHRC. In retrospect, the Program should have focused on having a larger cultural effect. It is inappropriate to go based on number of faculty. However, CIHR chairs have been difficult to recruit... The balance is out of line for the natural focus of the strategic plan of our university. The ideal would be… NSERC 40/CIHR 30/SSHRC 30."

"A bit more flexibility would have been advantageous. Was it the intent of the CRCP program to drive the objectives of the universities? We want more flexibility to direct our own strategic plans."

Analysis of the university data requests supports

[60] For instance, SS

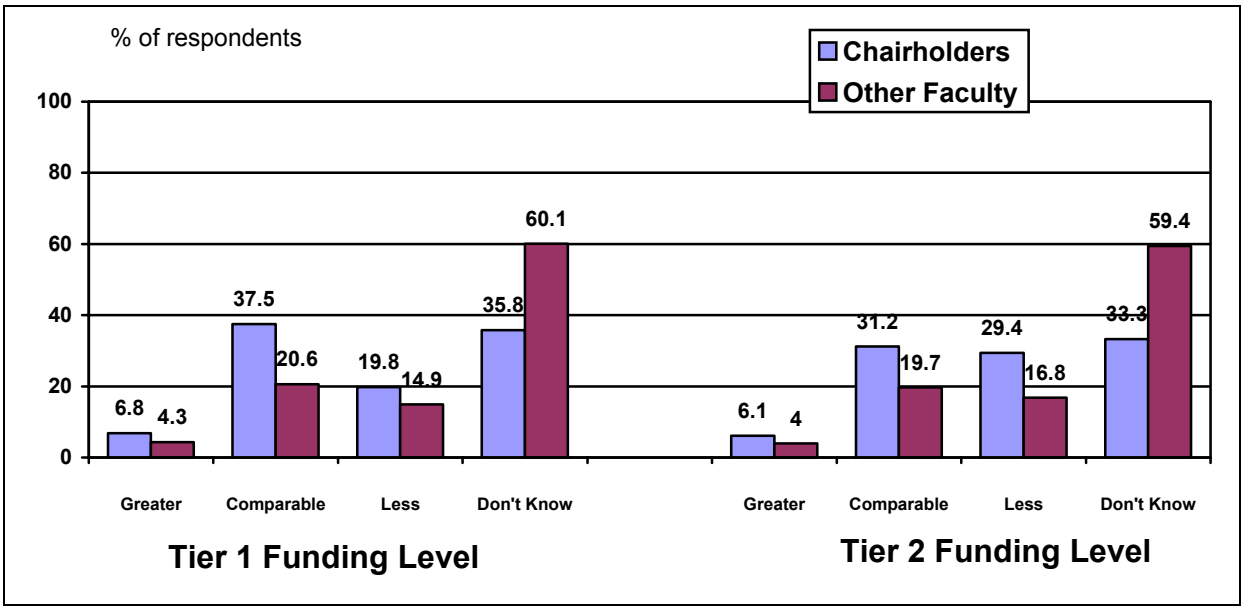
the finding that the Chair allocation was inconsistent with faculty hiring. Universities reported between 1995 and 2003 that approximately 50% of faculty was hired in SSHRC disciplines compared to approximately 35% in NSERC disciplines and 15% in CIHR disciplines. However, it should be noted that this estimate reflects total faculty, as opposed to researchers.

5.4 Level of Funding

Generally, while universities and Chairs felt that the level of funding for Tier 1 Chairs was appropriate, fewer agreed that the Tier 2 CRCP funding amount was adequate. Chairs surveyed reported that the level of CRCP funding for Tier 1 Chairs was sufficient (67.8%), and that the funding compared favourably to international programs (44.3% overall or 69% of decided Chairs). In contrast, Chairholders were less likely to agree that the amount of funding provided by the CRCP to universities for Tier 2 Chairs was adequate (46.7%), though Chairholders were divided in terms of how Tier 2 funding was perceived relative to international funding programs available (see Exhibit 5.2).

It should be noted that a majority of non-Chair researchers felt that the funding amounts for Tier 1 (59%) and Tier 2 (52.7%) Chairs were adequate. When comparing CRCP funding to international programs, non-Chairs were more likely to state that they didn't know.

EXHIBIT 5.2: Percentage of Chairholders and Other Researchers Describing the CRCP Funding as Greater, Comparable or Less than Similar International Programs



Source: Survey of Chairholders and other researchers, n = 1,725

Consistent with the lower level of agreement about the adequacy of Tier 2 funding amounts, 70.6% (12 of 17) of universities interviewed stated that the amount of money was less than similar international programs, compared to 35.3% (6 of 17) that felt that Tier 1 funding amounts were less than similar international programs.

Several of the funding program representatives (in Canada and abroad) who were interviewed for the International Study also indicated that they thought the amount of funding provided to Tier 2 Chairs/ Junior researchers was relatively low. Funding amounts for prestigious research awards examined for the study were generally comparable to, or higher than, the amounts awarded for the CRCP.[61] The American CAREER and PECASE awards for junior researchers, for example, offer funding of up to $640,000 (USD) over a 5-year period, which can be considered comparable to the CRCP Tier 2 award. On the other hand, several funding programs for researchers at the junior level in Europe offer considerably more. These include: the European

[61] One caveat that should be added is that Chairs in Canada often receive additional funding from the host university as well as from CFI. The total funding package for Chairs, therefore, would typically be higher than the nominal value of the Chair funding.

Young Investigator's Award (EURYI) which provides funding of up to 200,000€ (approximately CAN $315,476) to 250,000€ (approximately CAN $394,345) per annum; Austria's START program, which provides up to 200,000€ (approximately CAN $315,476) per annum; Denmark's Young Principal Investigators program that grants 200,000€ (approximately CAN $315,476) to 250,000€ (approximately CAN $394,345) per annum; and Germany's Emmy Noether award which can provide young "excellent" researchers with annual grants of up to 300,000€ (approximately CAN $473,285).

5.5 University Use of Program Funds

Chair holders reported that the largest portion of CRCP funding went to salary (54.3%), followed by research (21.7%). As highlighted in Exhibit 5.3, a larger proportion of CRCP funds is spent on Tier 2 salaries than Tier 1 salaries. By discipline, a greater percentage of CRCP funds is directed towards administration for SSHRC Chairs compared to other Chairs. By university, 68.6% of universities[62] directed 50% or more of CRCP funds towards salary. Of the remainder of universities, only 3 universities (5.9%) directed more than 50% of CRCP funds towards research, and the rest divided the funds between salary, research and HQP support.

EXHIBIT 5.3: Percentage of CRCP Funding Allocated towards Research, Salary/benefits, HQP Support, and Administration

Discipline Group	Tier	Salary/ Benefits	Research	HQP Support	Administration	Other
SSHRC	Tier 1	56.3%	20.9%	8.8%	10.1%	3.9%
	Tier 2	64.6%	16.0%	5.9%	10.4%	3.0%
CIHR	Tier 1	56.1%	20.2%	11.5%	10.1%	2.1%
	Tier 2	61.8%	22.8%	4.2%	7.2%	4.0%
NSERC	Tier 1	52.4%	23.0%	13.6%	7.8%	3.2%
	Tier 2	65.6%	16.6%	7.7%	8.0%	2.2%
Total		**54.3%**	**21.7%**	**12.0%**	**9.0%**	**3.0%**

Source: Survey of Chairholders, n = 532. Note: totals were rebased to 100%, as some Chairholders provided responses that did not equal 100% (55 respondents).

The results from the Chair survey are consistent with the *Use of Grant Funds and University Commitments* study;[63] according to institutions surveyed as part of this study, after salary (and sometimes facilities and administrative costs), the remainder of CRCP funding was typically devoted to research. Universities reported a similar break-down of CRCP funds, with 59.7% of funding going towards the salary and benefits of the Chair, 25.5% towards research, 7.4% towards HQP support, 6.3% to administration and 1.2% of funds to other costs[64].

Another issue, which was reported anecdotally by a number of individuals, was use of CRCP funds by universities in such a way that provided no increased support to Chairs. Anecdotally, there was one report that an institution took the money provided by CRCP and used it in lieu of the money the institution had previously been providing for the Chair. As stated in the *Use of Grant Funds and University Commitments* study, institutional practices and means vary. However, given the finding of this evaluation that Chairs at 23.5% of universities reported a decrease in university funding support following the Chair award, future research should continue to monitor use of CRCP funds as an issue.

[62] As reported in Chair surveys.
[63] Nicole Bégin-Heick & Mireille Brochu. *Use of Grant Funds and University Commitments*, March 2002.
[64] Special data requests.

6 Conclusions and Recommendations

Based on the evaluation results, we can conclude that the Canada Research Chairs program has helped to create a research environment that is conducive to the long-term retention and attraction of top researchers. Based on the survey of chairholders and other faculty, Chairs reported significant increases in research productivity and number of highly qualified personnel being trained at the graduate level since their Chair awards compared to other researchers over the same time period. Also, Chairs reported research impacts such as patents, inventions and potential health treatments. However, these impacts can only be partly attributable to the Chairs program due to the short time since the award of most Chairs. The CFI component of the Chairs' program was seen as key to the success of the program and as critical to the attraction of top researchers (particularly for CIHR and NSERC disciplines) from outside Canada.

In addition, Universities and Chairs reported that the Chairs program had leveraged between $218M and $343M in additional research funding. Not all of the increase in funding generated by Chairs may be attributed to the Chairs program, as there are multiple factors that influence the level of research funding generated. However, according to the survey of chairholders and other researchers, Chairs did report a significantly larger increase in research funding since the Chair award compared to other researchers over the same period. Based on CF I administrative data, the CFI component has also resulted into $21.8M in matched funding from private sector and not-for-profit organizations (total of $56.4M in leveraged funding from all sources).

While the evaluation results demonstrated that the program is on the right track, the following issues need to be addressed in order to ensure the continued success of the program:

1. The CFI component was only committed for the first 2000 Chairholders and is not a permanent component of the program. Continued CFI funding was seen as essential by universities and key stakeholders in recruiting (especially NSERC and CIHR Chairs)and retaining Chairs and developing leading-edge research centres established as part of the CFI component of the Canada Research Chairs.

2. Universities identified a number of risks associated with participating in the Chairs program, such as the associated cost of covering salaries for non-renewed chair positions (in particular Tier 2 Chairs). Of note, only one-third of universities interviewed had planning mechanisms in place to deal with potential financial risks associated with the Chairs program. Universities also expressed uncertainty about how the program would operate after the first 2,000 Chairholders are in place, and asked for greater clarity as to what would happen once Chairs have been allocated if and when the tri-agency funding received by universities changes.

3. The results from this evaluation indicate that competition for top researchers exists in the form of other international research funding programs targeted at the same pool of leading researchers as the CRCP. As a result, attraction and retention of top researchers might become more difficult as competition for top talent increases.

4. Universities reported that the corridor of flexibility, introduced as a result of the third-year review, was effective and should be maintained and requested additional flexibility.

5. Universities interviewed reported that the current allocation formula by discipline was inconsistent with their hiring and research plans. In particular, most universities interviewed reported that the lower allocation given to SSHRC Chairs had impacted their research and hiring plans.

6. The funding provided by the Canada Research Chairs Program is not intended as stand-alone funding; it is expected that universities will provide supplementary support to Chairs to ensure that they have the necessary resources to conduct leading-edge research and enable their universities to become centers of research excellence. Analysis of Chair survey data indicated that university support for Chairs (including both funding support and teaching relief) varied considerably by university.

7. With respect to the gender balance, progress is being made towards the targets identified in the gender-based analysis. However, the information provided in the annual reports does not specify the number of expected female Chair nominations by discipline. This makes comparison against the targets identified in the gender-based analysis impossible.

8. The objectives of the Chairs program were seen as continuing to be relevant five years after the establishment of the program, with the exception that the objective of collaboration which was not seen as closely related to the design of the program. Only 8 of 26 universities (30.8%) felt that the Chairs program had assisted them make the best use of resources through collaboration among universities and between sectors, primarily because universities felt that the Chairs program was not designed to achieve this objective. While the CFI component of the Chairs program does encourage inter-sectoral collaboration through the requirement that institutions secure matching funding for infrastructure,[65] the CRCP is competitive in nature and does not create an incentive for inter-sectoral and/or inter-institutional collaboration.

Based on the evaluation study findings, eight recommendations have been developed as detailed below.

Recommendation 1:

Continue the CFI component of the Canada Research Chairs

In particular, the CFI should continue to provide start-up infrastructure funding for newly appointed Chairs as the program continues beyond the first 2,000 Chairholders. Also, the CFI should consider providing funding for infrastructure upgrading (to ensure that research facilities do not deteriorate following the provision of initial start-up capital under the CRCP).

Recommendation 2:

In order to sustain the success of the program over the long-term, universities and senior management should address strategic issues and risks associated with the on-going operation of, and participation in, the program, for example: how the Chairs program will be managed on an on-going basis; planning for when Tier 2 Chair terms expire. In particular:

1. Universities should ensure that they have the necessary planning mechanisms in place to deal with risks associated with the non-renewal of Chairs (in particular once Tier 2 Chairs are no longer eligible for renewal) and/or the loss of a chair because of the yearly recalculation of their allocations.

2. Program management should examine and provide universities with further clarification on how the Chairs program will operate on an on-going basis, particularly with respect to allocation of Chairs as the program reaches its steady state and how the allocation of Chairs by university will change if tri-agency funding changes over time.

Recommendation 3:

Identify mechanisms to ensure the future recruitment of top researchers

The Chairs program should continue to review mechanisms to ensure that recruitment of top researchers is facilitated by the program. Options include:

[65] One exception to this is that smaller universities may choose to have CFI fund 100% of the costs of infrastructure up to $75,000.

1. Ensure that packages offered to top researchers remain competitive. Options include:

   - Work with universities and the granting agencies to explore mechanisms to present "combined" funding packages that are attractive to recruits, particularly for international recruits, which would include CFI funding, granting agency funding (if applicable), and CRCP funding.
   - With respect to awards that cannot currently be held concurrently with Canada Research Chairs (e.g. CIHR'S Senior Investigators award), investigate the possibility that Canada Research Chairholders could hold more than one career award.

2. Explore methods to further ease administrative requirements for international researchers, such as:
   - increased flexibility in the timing of CRCP/CFI applications; and
   - further efforts to "fast-track" qualified candidates.

Recommendation 4

Further add to the corridor of flexibility by allowing a greater number of "free" Chairs by Tier and discipline group. Options include:

- Increasing the number of substitutions allowed to universities under the corridor of flexibility.
- Consider mechanisms to increase the flexibility that universities are afforded in the amount of funding allocated to each Chair, for example for Tier 2 Chairs or CIHR Chairs, given the reported difficulties in recruiting such researchers.

Recommendation 5:

Revisit the allocation formula by disciplinary sectors in light of concerns reported by universities.

This recommendation could include for example further studying the impact of the allocation by disciplinary sector on research and hiring plans at universities and on the program's ability to achieve its objectives, as well as the possible repercussions on Canada's overall R&D system.

Recommendation 6:

Increase monitoring of university support (including funding support and teaching relief for Chairs) and of the use of CRCP funding.

In particular, university annual reports should increase tracking of university support for Chairs by tier and disciplinary sector, and use of CRCP funding.

Recommendation 7:

Increase the monitoring of the gender distribution among Chair awards.

Specifically, the program should request additional information (through annual reports) about the number of Chairs positions expected to be filled by women by discipline and tier group, as the analysis done by Bégin-Heick was specific to discipline/tier combinations. In addition, the program should monitor whether universities are meeting their targets identified in the annual reports.

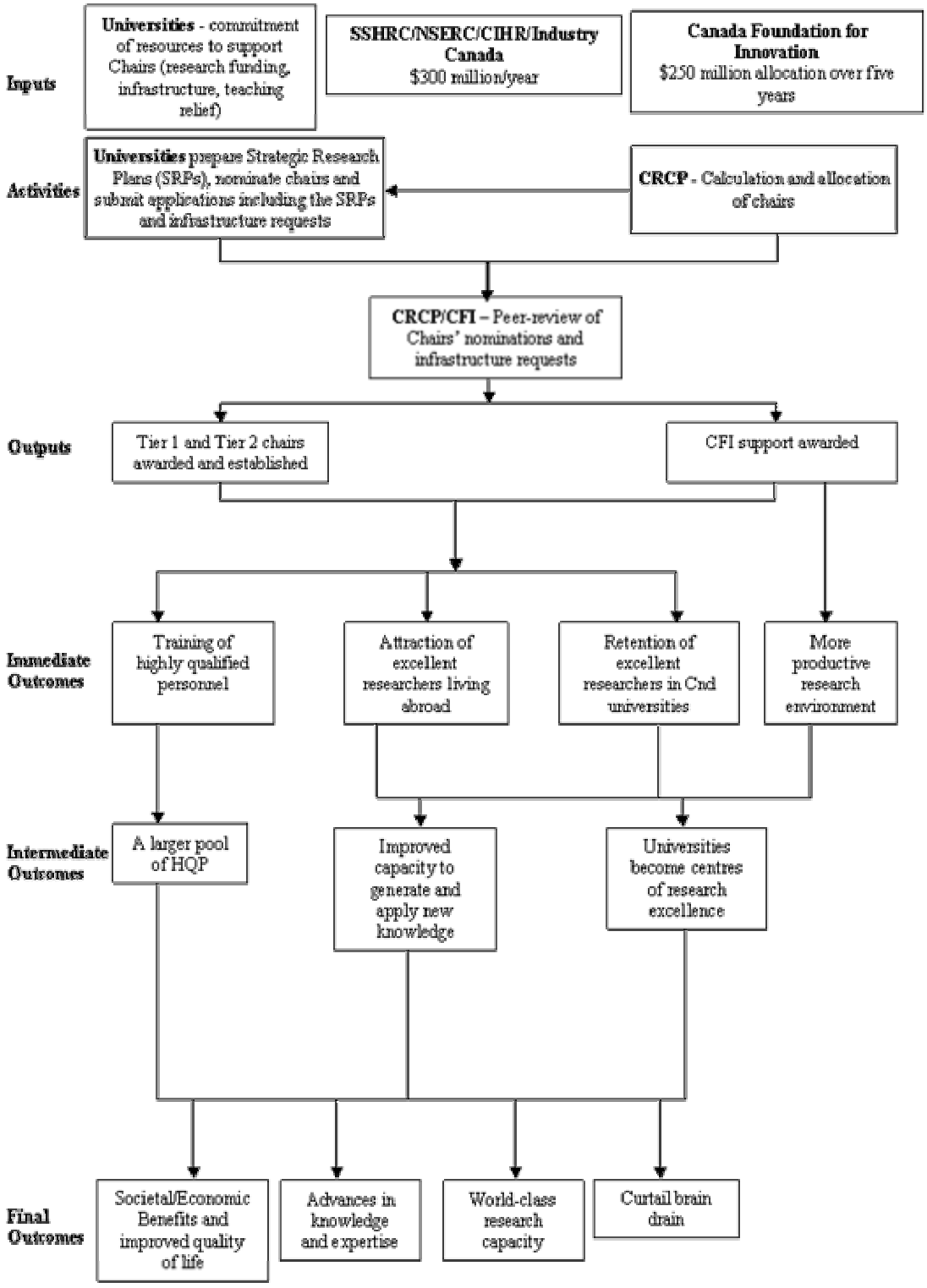
Recommendation 8:

Revisit the CRCP objective of "ensuring the effective use of research resources through… inter-institutional and inter-sectoral collaboration." Options include:

1. Modify the objective.
2. Alternatively, consider adding incentives to encourage collaboration as part of the Chairs program, in order to further leverage outside funding as a result of the CRCP investment, and allowing joint Chairs (affiliated with more than one university).

7 APPENDIX A

8 Canada Research Chairs Program – Logic Model



APPENDIX B
Issues-Indicators Matrix

1.1 Evaluation Question		Indicators	Data sources
Relevance			
Is the Canada Research Chairs still needed ? Are the objectives of the Chairs program still relevant?	1	➢ opinions about the continued need for the program ➢ opinions about the relevance of program objectives	➢ interviews with stakeholders ➢ interviews with university representatives
		➢ similarity of the program to other similar-caliber competitions worldwide	➢ document/literature review ➢ special study on the CRCP relative to other Canadian and international research funding programs of a similar caliber (e.g., NSERC Chairs, etc.)
CFI: Is the CFI component of CRC needed past its initial budget allocation?		➢ opinions about the contribution of/continued need for the CFI component	➢ interviews with stakeholders ➢ interviews with university representatives
Overall Results/Effects			
Have ***retention and attraction*** taken place? What are the barriers to retention/attraction? How could the Chairs program help alleviate them?	2	➢ proportion of Chairs awarded to Canadian expatriates and foreign researchers	➢ statistical reports
		➢ importance of the Chair award in the decision to accept a position in Canada	➢ survey of Chair holders ➢ qualitative case studies of Chair holders
		➢ rate at which nominees not funded left Canada	➢ special request to universities ➢ survey of nominees not funded
		➢ existence of formal processes to select researchers likely to depart and to identify researchers to attract ➢ difficulties encountered ➢ suggestions for program improvements	➢ interviews with university representatives
		➢ reasons for turning down Chairs	➢ interviews with researchers who refused chairs
CFI: How important is the CFI component in attracting and retaining top researchers? How could the CFI component help alleviate any barriers to retention/attraction?		➢ role of the CFI funding in retaining and attracting Chair holders to the nominating university	➢ survey of Chair holders ➢ interviews with university representatives ➢ case studies of chairholders

1.2 Evaluation Question		Indicators	Data sources
What has been the program's contribution to the university research system's capacity to produce and apply new knowledge and to help universities become ***world-class research centres***? Were new research teams created? Were existing teams reinforced?	3	➢ informed opinions	➢ interviews with university representatives ➢ interviews with key stakeholders
		➢ impact of the Chairs program had on government (regulations, policies); industry (processes, products), healthcare; general impacts on society), etc.	➢ interviews with university representatives ➢ interviews with key stakeholders ➢ faculty survey ➢ university annual reports/CFI reports ➢ case studies
		➢ number of established or expanded research centres in areas related to university strategic plans since CRCP ➢ examples of universities building capacity in their areas of expertise	➢ case studies of Chair holders ➢ annual university reports ➢ strategic plans ➢ survey of Chair holders
		➢ number of faculty hired by research disciplines correlated to the number of Chairs	➢ special request to universities
		➢ number of researchers working in research centres/groups with Chairs before and after CRCP funding	➢ survey of Chair holders
		➢ department-wide research productivity correlated with the presence (and number) of Chairs (aggregation of individual-level indicators listed for evaluation question #7)	➢ survey of faculty members ➢ survey of Chair holders
		➢ lists of achievements ➢ list of research outputs/achievements	➢ annual university reports ➢ survey of Chair holders
CFI: What has been the CFI component's contribution to the university research system's capacity to produce and apply new knowledge and to help universities become *world-class research centres*?		➢ examples of universities building capacity in their areas of expertise	➢ case studies of Chair holders with CFI funding ➢ CFI progress reports
		➢ department-wide research productivity correlated with the presence (and number) of CFI funding recipients (aggregation of individual-level indicators listed for evaluation question #7)	➢ survey of faculty members ➢ survey of CFI recipients (sub-set of Chair holders)
		➢ list of research outputs/achievements	➢ annual university reports ➢ survey of CFI recipients (sub-set of Chair holders)

1.3 Evaluation Question		Indicators	Data sources
Have the Chairs program and its CFI component produced ***unintended effects*** in the Canadian university research system? Has the program contributed to the reinforcement of research capacity across the university research system? Has the program contributed to the creation of two types of university professors (teachers and researchers)?	4	➢ informed opinions	➢ interviews with university representatives ➢ interviews with key stakeholders ➢ interviews with Steering Committee members
		➢ annual Council grant funds by university, starting in 1995, segmented by university size ➢ index of concentration/dispersion of grants by researcher/university	➢ councils ➢ statistical reports
		➢ teaching load of chairs relative to average teaching loads	➢ special request to universities
What has been the Chairs program contribution to the ***training*** of highly qualified personnel?	5	➢ comparison of Canada Research Chairs, other Chairs and other faculty on: • # of graduate students supervised • # of (Cdn and foreign) post doctoral fellows • Number of students who graduated under the direct supervision of the chair • Proportion of chair funds allocated to training of HQP • Quality of training – description of training strategies to attract and HQP and help them develop in their area of expertise	➢ survey of faculty members ➢ university annual reports ➢ financial reports ➢ case studies
<u>CFI</u>: What has been the CFI component contribution to the ***training*** of highly qualified personnel?		➢ role of the CFI component on attracting HQP and its impact on the quality of training	➢ survey of faculty members ➢ university annual reports ➢ financial reports
What effects have Chairs created in ***smaller universities*** produced? Are they similar to those created in larger universities?	6	➢ qualitative assessments of the contribution of the Chairs program to developing centres of research excellence in smaller universities	➢ case studies of Chair holders ➢ interviews with university representatives ➢ annual university reports
		➢ CRCP funding as a percentage of all other research funding in smaller universities versus larger universities	➢ Special request to universities ➢ statistical reports
		➢ percent of CRC funding devoted to research versus salaries in smaller universities versus larger universities	➢ special request to universities
		➢ annual Council grant funds by university, starting in 1995, correlated with the number of Chairs awarded	➢ Councils ➢ Statistical reports

1.3 Evaluation Question		Indicators	Data sources
Has the program rewarded ***clearly leading*** or "excellent" researchers?	7	➢ research production indicators: • # of publications (articles, books and book chapters, conference presentations, technical papers, conference presentations) • # of appearances as a guest speaker in national and international conferences • # of graduate students supervised • # of (Cdn and foreign) post doctoral fellows • value of grants/funding received (all sources) • # of patents (applied for and granted) • # and nature of awards and prizes held ➢ membership on boards of peer-reviewed journals	➢ survey of faculty members ➢ administrative data (curriculum vitae/nomination file) ➢ Councils
		➢ opinion of peers	➢ survey of faculty members
		➢ statements made on selection reporting forms	➢ selection committee reporting forms
What has been the program's contribution to inter-institutional and inter-sectoral ***collaboration***? <u>CFI</u>: What has been the contribution of the CFI funding to inter-institutional and inter-sectoral ***collaboration***?	8	➢ incidences of collaboration traceable to the program	➢ annual university reports ➢ interviews with university representatives
		➢ total funding (by source) from eligible partners (CFI)	➢ CFI proposals ➢ statistical reports
		➢ incidences of collaboration traceable to the program	➢ CFI progress reports ➢ interviews with university representatives
How much ***displacement of personnel*** has taken place from one institution to the next? Is there a notable flow of personnel between smaller and larger universities? Whom does it advantage?	9	➢ Chairs attributed to researchers from another Canadian university, broken down by origin and destination university size	statistical reports survey of Chair holders
Does ***balance achieved between the numbers of Tier 1 and Tier 2*** Chairs conform to the original intent of the program and to program objectives?	10	➢ proportion of Tier 1vs Tier 2 Chairs	➢ statistical reports

1.4 Evaluation Question		Indicators	Data sources

1.5 Results/Effects at the Institution Level

To what extent are universities ***committed to supporting*** the Chairs? Have they included funding of their own to create Chairs?	11	➢ funding extended by universities to Chairs ➢ teaching load of Chairs relative to average teaching loads ➢ number of (associate) professors hired parallel to setting up the Chair ➢ percent of CRC funding devoted to research/salaries versus administration	➢ special request to universities ➢ university annual reports ➢ Use of funds study (2002) ➢ financial reports (form 300) ➢ faculty survey
Do universities show progress toward the realisation of their ***strategic plan***? Do the Chairs program feature enough flexibility to maximize its contribution to the implementation of university strategic plans?	12	➢ progress realized in meeting research objectives as stated in the strategic research plan ➢ contribution of the Chairs to the realization of the strategic research plan	➢ annual university reports ➢ interviews with university representatives ➢ strategic plans
<u>CFI</u>: Does the CFI component contribute to the implementation of university strategic plans?		➢ examples of where the CFI funding has been concentrated in areas related to the universities' strategic plans	➢ case studies
Have the grants of the Chairs program generated significant ***additional funds*** from other sources? (leveraging estimate)	13	➢ annual value of grants/funding received from all sources, starting in 1995	➢ special request to universities ➢ information from councils, if available ➢ university annual reports
<u>CFI</u>: Has the CFI component generated significant incremental funds from other sources? (leveraging estimate)		➢ total infrastructure funding provided by eligible partners (CFI) ➢ infrastructure funding contributed by eligible partners per dollar granted by CFI	➢ statistical reports ➢ CFI progress reports/proposals
Does the program create ***undue risks*** for universities? How will universities manage the renewal of the Chairs?	14	➢ informed opinions re. effects on universities of potential decreasing allocations	➢ interviews with university representatives ➢ interviews with key stakeholders
		➢ qualitative assessment of impacts on the research culture within universities	➢ survey of faculty members
What have been the effects of the Chairs' program at the department/faculty level? Has the Chair program affected the reward system within universities?	15	➢ informed opinions	➢ interviews with university representatives
		➢ perceptions on the segmentation of the faculty corps ➢ perceptions of benefits to faculty/university due to Chair positions ➢ perceptions of negative effects on faculty/university due to Chair positions	➢ survey of faculty members

Design Issues

Does the make-up of the pool of Chair holders reflect an effort to distribute Chairs equitably between men and	16	➢ proportion of women among Chair nominations and awards compared to the proportion of women among feeder groups	➢ Gender-based analysis

1.4 Evaluation Question		Indicators	Data sources
women?		➢ reasons for rate of female nominations ➢ qualitative assessment of universities' efforts to increase women participation	➢ Gender-based analysis ➢ interviews with university representatives ➢ interviews with stakeholders
What are the effects of the ***Chair allocation formula***? Is the balance of Chairs by discipline adequate, considering the program objectives? Is allocation by discipline appropriate? Has the allocation formula led universities to redirect their hiring and research priorities? To what extent, if at all, does the allocation formula tend to reinforce past wealth structures ("the rich getting richer")?	17	➢ list of possible bases for allocating the Chairs ➢ arguments in favour and against each basis ➢ qualitative assessment of the effect of the allocation formula on innovation, hiring and research	➢ interviews with university representatives ➢ interviews with key stakeholders ➢ interviews with Steering Committee members
		➢ comparison of program objectives to balance of Chairs	➢ program documents
		➢ number of faculties hired annually, by council discipline, starting in 1995	➢ special request to universities
		➢ number of Chairs/total funding awarded by the program, by university and discipline sector	➢ statistical reports
		➢ annual council grant funds by university, starting in 1995	➢ Councils
To what extent has the corridor of flexibility introduced to the allocation formula (one of the recommendations of the third-year review) been effective? Should it be maintained? Should it be modified? If so, how?	18	➢ change in take-up of the Chairs program ➢ balance by tier and discipline	➢ statistical reports
		➢ reported change in the ability of universities to create Chairs	➢ interviews with university representatives
		➢ suggested modifications	➢ interviews with university representatives
Is the level of funding appropriate (the overall budget of the program and the amount allocated to Tier 1 and Tier 2 Chairs)?	19	➢ informed opinions	➢ interviews with university representatives ➢ interviews with key stakeholders ➢ Councils ➢ survey of Chairs ➢ survey of faculty members
		➢ qualitative assessment of how competitive the level of funding is	➢ Interviews of researchers who refused Chairs
		➢ level of funding for Tier 1 and Tier 2 Chairs compared to similar international funding programs	➢ review of other programs
How are universities using CRCP funds?	20	➢ percent of CRC funding devoted to research, salaries, HQP support and administration	➢ special request to universities ➢ Use of funds study (2002) ➢ financial reports (form 300) ➢ faculty survey

9 APPENDIX C
10 Faculty Survey

11

Fifth-Year Evaluation of the Canada Research Chairs Program (CRCP)

11.1 Faculty Survey

You have been selected to participate in this national survey of faculty members for the fifth-year evaluation of the Canada Research Chairs Program. The information that you will provide is unique and not available from other sources. The survey will be used to help assess the results of the Canada Research Chairs Program (including its Canada Foundation for Innovation funding component) in fostering research excellence and enhancing the role of universities as world-class centres of research excellence.

The survey collects information about the effects of the Canada Research Chairs program on Chair holders and other faculty within institutions and faculties. Information about the research and teaching activities of faculty (including publications, number of students, etc.), before the initiation of the Chairs program and after the Chairs program, is also requested as part of the survey. The survey will provide important data about the impact of the Chairs program on the research and teaching environment in Canadian universities, as well as the perceptions of Chair holders and faculty generally in Canada about the program.

Your participation in this research is voluntary. Any information you provide will be kept confidential, and used only for research purposes.

The Canada Research Chairs Program Faculty Survey is available online. An e-mail invitation, with a link to your personal on-line survey, was sent to your e-mail address in the recent past. If you prefer to complete the survey in a telephone interview, please call 1-888-274-1700 and cite your project reference number (the last series of digits/letters found on the hyperlink starting with the letters CRCP).

If you have any questions concerning this survey, please feel free to contact:

Heather MacDonald or **Elaine Yardley**

at R.A. Malatest & Associates Ltd

Tel: (800) 665-5848 **Tel: (888) 689-1847**

Fax: (250) 384-2774 **Fax: (613) 288-1278**

h.macdonald@malatest.com **e.yardley@malatest.com**

Thank you for your involvement in this important survey!

12 YOUR BACKGROUND

The following section of the survey is extremely important to provide background about the researchers completing this survey, and to provide information about the results of the Canada Research Chairs.

A1. Have you ever applied for research funding from any of the following granting agencies? (Please check all that apply).

❍ NSERC ❍ SSHRC ❍ CIHR ❍ None

A2. Have you ever received research funding from any of the following granting agencies? (Please check all that apply).

❍ NSERC ❍ SSHRC ❍ CIHR ❍ None

A3. Do you hold a chair position (please do not include a Canada Research Chair)

❍ Yes ❍ No

A3a. Please identify which chair positions you hold. (If A3 = Yes)

❍ CHSRF/CIHR Chair award
❍ Industry chair, not including NSERC Industrial Research Chairs (please specify: _____)
❍ University chair program
❍ NSERC chair
❍ Other chair (please specify: _____)

13 RESULTS OF THE CHAIRS PROGRAM

B1. How important was the chair award in your decision to accept a position in Canada? (Chairs originally from outside Canada only)

Not at all important				Very important
❍1	❍2	❍3	❍4	❍5

B1b. If you had <u>not</u> received a chair, do you think you would you have remained in Canada… (Chairs located in Canada at time of Chair award only)

a) over the next five years?

❍Yes ❍No ❍Don't know

b) over the next ten years?

❍Yes ❍No ❍Don't know

B2. Please rate the importance of the Chairs program to your ability to conduct the <u>quality</u> of research that you currently conduct.

Not at all important				Very important	Don't Know
❍1	❍2	❍3	❍4	❍5	❍

B3. How important was the opportunity to apply for CFI funding in your decision to accept the Chair position?

Not at all important				Very important	Not Applicable/ Don't Know
❍1	❍2	❍3	❍4	❍5	❍

B4. In your opinion, to what extent did the CFI funding improve your research environment?

No improvement				Significant Improvement	Not Applicable/ Don't Know
❍1	❍2	❍3	❍4	❍5	❍

B5. Please describe briefly one or two of the most noteworthy impacts of your research (as a result of your Canada Research Chair award) in any of the following areas.

	Description of Impacts of Chair Research
Government (e.g., regulations, policies, etc.)	
Industry (e.g., processes, products, etc.)	
Health and/or healthcare	
Other Impacts on Society (e.g. environment)	

14 INSTITUTIONAL SUPPORT PROVIDED TO CHAIRS

C1. Please indicate the level of support provided by your institution in supporting your Chair.

a) Research Funding Extended to you.

Please specify the total research funding provided to you directly by your institution between April 1 1999 and March 31 2000, and b) between April 1 2002 to March 31 2003**.** If you were not employed by your current institution between April 1 1999 to March 31 2000, please check "Not applicable" for this time period. If your institution has contributed funding to research **teams** in support of your Chair, please exclude all amounts provided to such research teams (please include only research funding provided directly to you).

	April 1 1999 to March 31 2000	**April 1 2002 to March 31 2003**
Total Research Funding Provided to you by your Institution	$ ❍ **Not applicable**	$

b) Teaching Load Relief

Please specify the total number of undergraduate and graduate courses you taught between April 1 1999 and March 31 2000, and b) between April 1 2002 to March 31 2003. If you were not employed by your current institution between April 1 1999 to March 31 2000, please check "Not applicable" for this time period.

	April 1 1999 to March 31 2000	**April 1 2002 to March 31 2003**
Number of Undergraduate Courses Taught Per Year	❍ **Not applicable**	
Number of Graduate Courses Taught Per Year	❍ **Not applicable**	

C2. Does your institution have a research centre related to your research?

❍ Yes ❍ No

C2a. In what year was the research centre established? (If C2 = Yes)

[ ] (year)

C2b. How many researchers currently belong to your research centre/group? (If C2 = Yes)

[ ] (number of researchers)

C2c. How many researchers belonged to your research centre/group at the time you were awarded the Chair? (If C2 = Yes)

[ ] (number of researchers

C3. Between April 1 2002 and March 31 2003, what percentage of the Chair funding from the Canada Research Chairs Program ($100,000 per year for Tier 2 Chairs and $200,000 per year for Tier 1 Chairs) was allocated towards research, salary/benefits of the Chair, HQP support (incremental), and Administration? (If your institution contributed additional funds, please answer this question with respect to Chairs program funding only.)

	% of CRCP funding
Research	%
Your Salary/benefits	%
HQP support (incremental)/Faculty salary (other than Chairs)	%
Administration	%
Other	%

15 NOMINEES NOT FUNDED

D1. Since your nomination for a Canada Research Chair, have you relocated outside Canada for any period of time or accepted a position outside of Canada?

❍ Yes ❍ No ❍ Not applicable

D1a. Please explain why you decided to relocate outside of Canada. (If D1 = Yes)

_____

_____

_____

16 EFFECTS OF CHAIRS PROGRAM AT THE FACULTY/INSTITUTION LEVEL

E1. To what extent do you agree with the following statement: "Canada Research Chairs are consistently awarded to clearly leading, world-class researchers"?

❍ Strongly disagree ❍ Disagree ❍ Neither agree nor disagree ❍ Agree ❍ Strongly agree

E2. In your opinion, what effect has the Canada Research Chairs program had within your faculty or university as a whole? (Please check all options with which you agree)**.**

a) The Canada Research Chairs Program has resulted in decreased morale among the faculty generally due to the segmentation of the faculty corps resulting from the Chairs program.

❍ Disagree ❍ Agree ❍ No opinion

b) The Canada Research Chairs Program has had a negative impact on non-Chair faculty due to greater concentration of university resources (e.g., equipment, research facilities/space, funding) with Chairs.

❍ Disagree ❍ Agree ❍ No opinion

c) Funding from the Canada Research Chairs Program has resulted in the creation of new research teams within my faculty or university.

❍ Disagree ❍ Agree ❍ No opinion

d) Funding from the Canada Research Chairs Program has resulted in the reinforcement of existing research teams within my faculty or university.

❍ Disagree ❍ Agree ❍ No opinion

e) The Canada Research Chairs Program has made it difficult for non-Chair researchers to attract or retain graduate students of high caliber.

❍ Disagree ❍ Agree ❍ No opinion

f) The Canada Research Chairs Program has benefited faculties or programs to which chairs have been awarded as a whole due to greater publicity / awareness of the program.

❍ Disagree ❍ Agree ❍ No opinion

g) Other (please specify: _____)

E3. To what extent has the Canada Research Chairs program benefited researchers other than the chairs (e.g., through the creation of new research teams, possible reinforcement of existing research teams, etc.)?

❍ No benefit to researchers other than the chairs

❍ Minimal benefit to researchers other than chairs

❍ Moderate benefit to researchers other than chairs

❍ Significant benefit to researchers other than chairs

17 YOUR RESEARCH AND TEACHING PROFILE

F1. Please indicate the number of graduate students and post-doctoral fellows you supervised from April 1 1999 to March 31 2000, as well as from April 1 2002 to March 31 2003. (Please complete the following table)

	April 1 1999 to March 31 2000	**April 1 2002 to March 31 2003**
Masters students		
Doctoral students		
Postdoctoral Fellows		
Undergraduate Students		
Other (e.g., Technical Staff, etc.)		

F2. Please indicate the number of your publications and technical papers (where you were the primary author or co-author) published from April 1 1999 to March 31 2000, as well as from April 1 2002 to March 31 2003. (Please complete the following table)

	April 1 1999 to March 31 2000	**April 1 2002 to March 31 2003**
Books		
Peer-reviewed Publications		
Technical and Presentation Papers		

F3. Please indicate the number of conferences at which you were invited to present from April 1 1999 to March 31 2000, as well as from April 1 2002 to March 31 2003. (Please complete the following table)

	April 1 1999 to March 31 2000	**April 1 2002 to March 31 2003**
Number of **National** Conferences at which you presented		
Number of **International** Conferences at which you presented		

F4. Please indicate the number of patent applications submitted where you were the primary author or co-author from April 1 1999 to March 31 2000, as well as from April 1 2002 to March 31 2003. (Please complete the following table)

	April 1 1999 to March 31 2000	**April 1 2002 to March 31 2003**
Number of Patent Applications **Completed**		
Number of Patent Applications **Granted**		

F5. What is the value of all grants, prizes, awards and all other funding you held between April 1 1999 and March 31 2000, as well as from April 1 2002 to March 31 2003. (Please include SSHRC, NSERC, CIHR, and all other sources of grants or funding).

Total Value of Grant or Funding	
April 1 1999 to March 31 2000	**April 1 2002 to March 31 2003**
$	$

F6. Please list your top two funding sources (by dollar value) between April 1 2002 to March 31 2003.

Top Funding Source (#1)	
Top Funding Source (#2)	

18 LEVEL OF FUNDING

LEVEL OF FUNDING

G1. In your opinion, is the amount of funding provided to universities for Tier I Canada Research Chairs appropriate?

***Tier 1 Chairs**, tenable for seven years and renewable, are for outstanding researchers acknowledged by their peers as world leaders in their fields. For each Tier 1 Chair, the university receives $200,000 annually for seven years.*

❍ Yes ❍ No ❍ Don't Know/No opinion

G2. In your opinion, how does the amount of funding provided to universities for Tier I Canada Research Chairs compare to similar research funding programs offered internationally?

❍ The CRCP offers significantly **greater** funding than similar international programs

❍ The CRCP offers **comparable** funding to similar international programs

❍ The CRCP offers significantly **less** funding than similar international programs

❍ Don't Know/No opinion

G3. In your opinion, is the amount of funding provided to universities for Tier II Canada Research Chairs appropriate?

***Tier 2 Chairs**, tenable for five years and renewable once, are for exceptional emerging researchers, acknowledged by their peers as having the potential to lead in their field. For each Tier 2 Chair, the university receives $100,000 annually for five years.*

❍ Yes ❍ No ❍ Don't Know/No opinion

G4. In your opinion, how does the amount of funding provided to universities for Tier II Canada Research Chairs compare to similar research funding programs for emerging researchers offered internationally?

❍ The CRCP offers significantly **greater** funding than similar international programs

❍ The CRCP offers **comparable** funding to similar international programs

❍ The CRCP offers significantly **less** funding than similar international programs

❍ Don't Know/No opinion

OVERALL PERCEPTIONS

In your opinion, what factors facilitate and/or hinder the success of the Canada Research Chairs Program?

_____

_____

Other comments

_____

_____

THANK YOU FOR COMPLETING THIS IMPORTANT SURVEY.

If you have any questions, please contact:

R.A. Malatest & Associates Ltd.
3rd Floor – 910 View St.
Victoria, BC V8V 3L5
Toll-free Phone: 1-877-813-8388

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22 APPENDIX D
23 Interview Guide: Key Stakeholders

24 EVALUATION QUESTIONS

The following reflect the key questions to be covered in the interview.

RELEVANCE

1. In your opinion, how important are the following objectives of the Chairs Program given the current research, economic and government context:

Objective	Not important at all				Very important	Don't know/No opinion
	1	2	3	4	5	
➢ helping universities and their affiliated research institutes and hospitals become world-class centres of research and research training	❍	❍	❍	❍	❍	❍
➢ retaining world-class researchers in Canadian universities ("brain-drain" issue)	❍	❍	❍	❍	❍	❍
➢ recruiting world-class researchers to Canadian universities	❍	❍	❍	❍	❍	❍
➢ improving the training highly qualified personnel through research	❍	❍	❍	❍	❍	❍
➢ improving universities' capacity for generating and applying new knowledge	❍	❍	❍	❍	❍	❍
➢ making the best possible use of research resources through strategic planning	❍	❍	❍	❍	❍	❍
➢ making the best possible use of research resources through collaboration among universities and between sectors	❍	❍	❍	❍	❍	❍

If not important please explain why.

2. Is there a better way that the funding devoted to the Canada Research Chairs program could be spent to meet its objectives?

3. What changes (if any) should be made to the Chairs program in order to make it more relevant and effective?

4. In your opinion, is there a need for continued CFI funding? Please explain.

5. What changes (if any)should be made to the CFI component program in order to make it more relevant and effective?

OVERALL RESULTS/EFFECTS

6. To what extent has the Chairs program achieved its objectives? Specifically, has the Chairs Program:

Objective	**Did not achieve objective**				**Achieved objective**	**Don't know/No opinion**
	1	2	3	4	5	
➢ helped universities and their affiliated research institutes and hospitals become world-class centres of research and research training	❍	❍	❍	❍	❍	❍
➢ attracted and retained world-class researchers in Canadian universities	❍	❍	❍	❍	❍	❍
➢ improved the training highly qualified personnel through research	❍	❍	❍	❍	❍	❍
➢ made the best possible use of research resources through strategic planning	❍	❍	❍	❍	❍	❍
➢ made the best possible use of research resources through collaboration among universities and between sectors	❍	❍	❍	❍	❍	❍

7. What are your views on the balance achieved by the program between retaining top researchers in Canada versus attracting researchers to Canada?

8. In your opinion, what role does the availability of infrastructure funding provided by the Canada Foundation for Innovation component of the Chairs program play in retaining and attracting researchers to Canadian universities? Please explain.

9. In your experience, what effect has the Chairs program had on concentrating the resources of universities in areas of research specialization, and assisting to enhance the role of universities as world-class research centres?

10. What are your views on the balance of Chairs by discipline (NSERC – 45%, CIHR – 35%, and SSHRC – 20%) considering the program objectives? What effect has the Chair allocation formula had on innovation, hiring and research at universities?

11. Has the Chairs program produced ***unintended effects***? For example:
    - In your experience, has the program contributed to greater separation between teachers and researchers in the university environment?
    - HEALTH CHARITY REPRESENTATIVES. In your experience, has the Chairs program affected applications for funding from your organization? In what way?
    - HEALTH CHARITY REPRESENTATIVES. In your opinion, has the Chairs program affected the type of research or quality of research funded by your organization?
    - HEALTH CHARITY REPRESENTATIVES. What are the implications for your organization of any of the impacts that you described earlier? What are the broader implications for health research, in your opinion?
    - HEALTH CHARITY REPRESENTATIVES. In your experience, have Chairs received special treatment (or been treated differently) compared to other researchers when they applied for grants from your organization? Please explain.
    - COUNCIL REPRESENTATIVES. Are Chair holder proposals are accorded any special status* when they apply for Council funding, if their proposal is judged meritorious?
      * for instance, with respect to Council funding levels, etc.

- What other unexpected effects has the Chairs program had?

12. INTERDISCIPLINARY ADJUDICATION COMMITTEE REPRESENTATIVES. Based on your reviews of nominations, to what extent have universities filled Chair positions with ***world-class*** researchers? To what extent does the quality of researchers vary by university? Are there any issues you have observed with respect to the excellence or quality of Chairs?

RESULTS/EFFECTS AT THE INSTITUTION LEVEL

13. Does the Canada Research Chairs program create risks for universities related to the long-term operational costs associated with the Chairs or potential decreasing allocations? Are these risks part of the deal made implicitly in using the CRC program? What challenges do you see in managing the Chairs program after the initial 2,000 Chairs are allocated?

DESIGN ISSUES

14. In your opinion, is the amount of funding provided to universities for Tier 1 Canada Research Chairs appropriate? (Note: **Tier 1 Chairs**, tenable for seven years and renewable, are for outstanding researchers acknowledged by their peers as world leaders in their fields. For each Tier 1 Chair, the university receives $200,000 annually for seven years).

❍ Yes ❍ No ❍ No opinion

15. In your opinion, how does the amount of funding provided to universities for Tier 1 Canada Research Chairs compare to similar research funding programs offered internationally? Would you say…

❍ The CRCP offers significantly greater funding than similar international programs

❍ The CRCP offers comparable funding to similar international programs

❍ The CRCP offers significantly less funding than similar international programs

16. In your opinion, is the amount of funding provided to universities for Tier 2 Canada Research Chairs appropriate? (Note: **Tier 2 Chairs**, tenable for five years and renewable once, are for exceptional emerging researchers, acknowledged by their peers as having the potential to lead in their field. For each Tier 2 Chair, the university receives $100,000 annually for five years).

❍ Yes ❍ No ❍ No opinion

17. In your opinion, how does the amount of funding provided to universities for Tier 2 Canada Research Chairs compare to similar research funding programs for emerging researchers offered internationally? Would you say…

❍ The CRCP offers significantly greater funding than similar international programs

❍ The CRCP offers comparable funding to similar international programs

❍ The CRCP offers significantly less funding than similar international programs

18. What is the nature of the barriers, if any, affecting the gender balance of the Chairs?

19. Do you have any suggestions to improve the Canada Research Chairs Program?

20. Do you have any other comments?

29 APPENDIX E
30 Interview Guide: University Representatives

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32 EVALUATION QUESTIONS

The following reflect the key questions to be covered in the interview.

RELEVANCE

1. In your opinion, how important are the following objectives of the Chairs Program:

Objective	Not important at all				Very important	Don't know/No opinion
	1	2	3	4	5	
➢ helping universities and their affiliated research institutes and hospitals become world-class centres of research and research training	❍	❍	❍	❍	❍	❍
➢ retaining world-class researchers in Canadian universities ("brain-drain" issue)	❍	❍	❍	❍	❍	❍
➢ recruiting world-class researchers to Canadian universities	❍	❍	❍	❍	❍	❍
➢ improving the training highly qualified personnel through research	❍	❍	❍	❍	❍	❍
➢ improving universities' capacity for generating and applying new knowledge	❍	❍	❍	❍	❍	❍
➢ making the best possible use of research resources through strategic planning	❍	❍	❍	❍	❍	❍
➢ making the best possible use of research resources through collaboration among universities and between sectors	❍	❍	❍	❍	❍	❍

2. Given the current research, economic and government context, is there a better way that the funding devoted to the Canada Research Chairs program could be spent to meet its objective of encouraging world class research in Canada?

3. In your opinion, is there a need for continued CFI funding? If yes, please provide specific examples to demonstrate the need for continued CFI funding.

OVERALL RESULTS/EFFECTS

4. To what extent has the Chairs program achieved its objectives? Specifically, has the Chairs Program:

Objective	**Did not achieve objectives**				**Achieved objectives**	**Don't know/No opinion**
	1	2	3	4	5	
➢ helped universities' and their affiliated research institutes and hospitals become world-class centres of research and research training	❍	❍	❍	❍	❍	❍
➢ attracted and retained world-class researchers in Canadian universities	❍	❍	❍	❍	❍	❍
➢ improved the training highly qualified personnel through research	❍	❍	❍	❍	❍	❍
➢ made the best possible use of research resources through strategic planning	❍	❍	❍	❍	❍	❍
➢ made the best possible use of research resources through collaboration among universities and between sectors	❍	❍	❍	❍	❍	❍

5. What difficulties (if any) has your institution encountered in recruiting researchers outside of Canada for Chair positions? What changes (if any) would you recommend to the Chairs program to assist universities in attracting world-class researchers from outside of Canada for a Chair position?

6. In your experience, what effect has the Chairs program had on concentrating the resources of universities in areas of research specialization, and assisting to enhance the role of universities as world-class research centres?

7. How important is the funding provided by the CFI component of the Chairs program in:

Objective	**Not important at all**				**Very important**	**Don't know/No opinion**
	1	2	3	4	5	
➢ helping universities' and their affiliated research institutes and hospitals become world-class centres of research and research training	❍	❍	❍	❍	❍	❍
➢ retaining world-class researchers in Canadian universities ("brain-drain" issue)	❍	❍	❍	❍	❍	❍
➢ recruiting world-class researchers to Canadian universities	❍	❍	❍	❍	❍	❍
➢ improving the training highly qualified personnel through research	❍	❍	❍	❍	❍	❍
➢ improving universities' capacity for generating and applying new knowledge	❍	❍	❍	❍	❍	❍
➢ making the best possible use of research resources through strategic planning	❍	❍	❍	❍	❍	❍
➢ making the best possible use of research resources through collaboration among universities and between sectors	❍	❍	❍	❍	❍	❍

If you answered important or very important for any of the objectives, please explain.

8. What changes (if any) would you recommend to the Canada Foundation for Innovation component of the Chairs program to better assist your institution in attracting top researchers from outside Canada to your institution?

9. What effect has the Chairs program had on attracting other researchers in research areas related to your strategic plan?

10. Has the Chairs program produced ***unintended effects*** at your university? On a scale of one to five where one is a significant effect of the Chairs program, and five is no effect, to what extent has the Chairs program:

Unintended Effect	**No Effect**				**Significant Effect**	**Don't know/No opinion**
	1	2	3	4	5	
➢ contributed to greater separation between teachers and researchers in the university environment?	❍	❍	❍	❍	❍	❍
➢ made it more difficult for non-Chair researchers to attract or retain existing graduate students?	❍	❍	❍	❍	❍	❍
➢ had a negative impact on the research climate due to increased competition and/or lower morale among non-Chairs?	❍	❍	❍	❍	❍	❍
➢ resulted in a reallocation of research resources (e.g., space, equipment, funding) at the university level in favour of Chairs?	❍	❍	❍	❍	❍	❍
➢ changed the types of research funding for which top researchers are likely to apply (e.g., non-profit/private sector versus Council funding)?	❍	❍	❍	❍	❍	❍

- Does the CFI requirement that the infrastructure must support the Chair's research hinder collaboration with other researchers, institutions and sectors?

- What other unexpected effects has the Chairs program had?

11. FOR SMALL and MEDIUM SIZE UNIVERSITIES ONLY - In your opinion, have Chairs created in ***smaller universities*** produced effects similar/larger/smaller than those created in larger universities? Specifically:

- **What is the nature of the challenges to recruiting or selecting nominees (internal or external) for Chairs, that the smaller university encounters that larger universities would not?**

- **What barriers do smaller universities have in implementing/establishing Chairs that larger universities do not?**

- **Does the Chairs program assist smaller universities in reaching a "critical mass" needed in order to establish world-class centres of research excellence? Please demonstrate using specific examples.**

- **Generally, to what extent has the Chairs program benefited smaller universities relative to larger universities?**

12. For smaller universities, does the CFI infrastructure funding worth 100% of costs for infrastructure projects up to $75,000 in value have a significant impact on the attraction and retention of leading researches, and on the establishment of research centres?

RESULTS/EFFECTS AT THE INSTITUTION LEVEL

13. What progress has your institution made towards the realization of specific areas of your strategic research plan? What role has the Chairs program played in accomplishing progress towards your strategic plan? What role does your strategic plan play in further developing areas of research concentration/research niches in your institution?

14. What risks (if any) does the Canada Research Chairs program create for your university related to the long-term operational costs associated with the Chairs or potential decreasing allocations? Do you consider these risks as part of the deal made implicitly in using the CRC program? How will your university manage the renewal of the Chairs?

15. What have been the effects of the Chairs' program at the faculty level? Specifically has the program had a significant effect (five is a significant effect and one is no effect) on :

Effect	**No Effect**				**Significant Effect**	**Don't know/No opinion**
	1	2	3	4	5	
➢promotion and internal prestige within universities	❍	❍	❍	❍	❍	❍
➢Increased competition within the university Structure	❍	❍	❍	❍	❍	❍
➢Increased collaboration within the university structure	❍	❍	❍	❍	❍	❍

DESIGN ISSUES

16. What are your views on the balance of Chairs by discipline (NSERC – 45%, CIHR – 35%, and SSHRC – 20%) considering the program objectives? What has been the impact of the number of Chairs allocated to your institution by discipline area had on your research development plans and hiring at your institution?

17. Please describe your efforts to increase representation of women. What are your future plans/goals with respect to the participation of women?

18. The corridor of flexibility provided additional flexibility to institutions in allocating Chairs in order to develop new areas of expand priority research areas. As part of this corridor of flexibility, universities were allowed to use a specified number of unused Chairs for any combination of tier and in any discipline group: to what extent has the corridor of flexibility introduced to the allocation formula increased your university's ability to create Chairs? Has the corridor of flexibility affected the distribution of Chairs by tier and by discipline in your institution? Would you suggest any modifications to the corridor of flexibility? Should the corridor be maintained?

19. In your opinion, how does the amount of funding provided to Tier 1 Canada Research Chairs compare to similar research funding programs offered internationally? (**Tier 1 Chairs**, tenable for seven years and renewable, are for outstanding researchers acknowledged by their peers as world leaders in their fields. For each Tier 1 Chair, the university receives $200,000 annually for seven years). Would you say…

    ❍ The CRCP offers significantly greater funding than similar international programs
    ❍ The CRCP offers comparable funding to similar international programs
    ❍ The CRCP offers significantly less funding than similar international programs

20. In your opinion, how does the amount of funding provided to Tier 2 Canada Research Chairs compared to similar research funding programs for <u>emerging</u> researchers offered internationally? (**Tier 2 Chairs**, tenable for five years and renewable once, are for exceptional emerging researchers, acknowledged by their peers as having the potential to lead in their field. For each Tier 2 Chair, the university receives $100,000 annually for five years). Would you say…

    ❍ The CRCP offers significantly greater funding than similar international programs
    ❍ The CRCP offers comparable funding to similar international programs
    ❍ The CRCP offers significantly less funding than similar international programs

37 REQUESTED DATA

1. We are interested in completing interviews with leading researchers at your institution who were nominated for a Research Chair in the past five years, but **not** awarded a Chair, as well as those researchers that were considered for a Chair but not formally nominated. Contact information for nominees that were not awarded a Chair that are no longer at your institution would be greatly appreciated. (If needed, please include this list on a separate page.)

2. Teaching load (number of courses taught between April 1, 2002 and March 31, 2003) for Canada Research Chairs at your institution by discipline group versus teaching loads for other (non-Chair) full-time faculty in the same program(s) as the research Chairs. Please feel free to include a spreadsheet containing the requested data.

Program in which one or more Chairs was awarded at your institution	**Average Teaching Load of Chairs**	**Average Teaching Load of non-Chair faculty**
* please provide numbers between April 1, 2002 and March 31, 2003		
NSERC disciplines		
SSHRC disciplines		
CIHR disciplines		

3. How many professors has your institution hired parallel to setting up Chairs (i.e., professors hired to lessen the teaching load of Chairs)?

Program in which one or more Chairs was awarded at your institution	**Number of professors hired to lessen the teaching load of Chairs**
* please provide <u>total</u> number of professors hired to lessen the teaching load of Chairs	

4. On average between April 1 2002 to March 31 2003, what percentage of the CRCP funding was allocated towards research, salary/benefits of the Chair, HQP support (incremental), and Administration? For universities that contribute additional funding for Chairs, please answer this question with respect to CRCP funding only.

	% of CRCP funding
Research	
Salary/benefits of the Chair	
HQP[66] support (incremental)/Faculty salary (other than Chairs)	
Administration	
Other	

5. What is the annual value of grants/funding received by your institution from all sources, not including NSERC, CIHR and SSHRC funding, by researcher discipline, starting in 1995?

Year	**Total Annual Value of all Grants/Funding Received by your Institution**		
	NSERC disciplines	SSHRC disciplines	CIHR disciplines
1995			
1996			
1997			
1998			
1999			
2000			
2001			
2002			
2003			

[66] Incremental highly qualified personnel

6. How many faculty has your university hired in the following research disciplines starting in 1995?

Year	**Number of Faculty Hired by Discipline**		
	NSERC disciplines	SSHRC disciplines	CIHR disciplines
1995			
1996			
1997			
1998			
1999			
2000			
2001			
2002			
2003			

7. What impact has the research of Chairs had on the following areas? Please identify and discuss one or two of the most noteworthy examples where the research of Chair holder (following the allocation of a Canada Research Chairs award) has impacted the following areas. Please provide details to support your answer.

   - Government policies or regulations

   - Industry processes or products

   - Provision of health and/or health care

   - Other impacts on society (e.g. environment)

8. Please provide a brief description of any examples where the **Chairs program** played a key role in attracting or retaining top researchers (please provide a maximum of 1 or 2 examples).

   a) attracting top researchers from outside your institution (either from Canada or from outside Canada).

   b) retaining top researchers within your university (e.g., a top researcher planning to leave your institution)

9. Please provide a brief description of any examples where the **CFI component** of the Chairs program played a key role in attracting or retaining top researchers (please provide a maximum of 1 or 2 examples).

   a) attracting top researchers from outside your institution (either from Canada or from outside Canada).

   b) retaining top researchers within your university (e.g., a top researcher planning to leave your institution)

10. Please provide a description or any documentation available on any formal or informal processes used at your university to select **researchers likely to leave your institution** for Chair nominations.

38 APPENDIX F

39

Interview Guide: Case Studies

41 EVALUATION QUESTIONS

The following reflect the key questions to be covered in the interview.

1. The Chairs program is interested in understanding the effect of the program on retaining and attracting top researchers in Canada. What effect did the Canada Research Chairs Program have either a) in encouraging you to stay in Canada to do your research b) in encouraging you to come to Canada to do your research? (Probe to find out several previous positions held by Chair, what other positions were open to or offered to the Chair, and whether retained Chairs had considered leaving Canada)

2. What was the most important or deciding factor in your decision to accept a Chair position?

3. Does your institution have a research centre related to your research?

   ❍ Yes ❍ No

3a. In what year was the research centre established? (If 3 = Yes)

(year)

3b. How many researchers currently belong to your research centre/group? (If 3 = Yes)

(number of researchers)

3c. How many researchers belonged to your research centre/group at the time you were awarded the Chair? (If 3 = Yes)

(number of researchers)

3d. How many graduate students and post-doctoral fellows currently belong to your research centre/group? (If 3 = Yes)

(number of graduate students and post-doctoral fellows)

3e. How many graduate students and post-doctoral fellows belonged to your research centre/group at the time you were awarded the Chair? (If 3 = Yes)

(number of graduate students and post-doctoral fellows)

3f. Please describe the nature of your research centre, in terms of facilities, staffing, research, etc. What effect, if any, did the Chairs program have on your research centre (probe for examples of the impact)?

4. What effect has your research centre or your research had on the attraction of other researchers, graduate students or post-doctoral fellows to your research centre at the university? Would it be possible to interview one or two other researchers or students associated with your research? (If yes, ask for names of individuals).

5. For Chairs that received CFI funding associated with the Chairs program:

   - How important was the CFI component of the Chairs funding in your decision to accept the Chair position? Would you have accepted the Chair position without the CFI funding component?

   - How was the CFI funding component of the Chairs program used?

   - To what extent did the CFI funding component of the Chairs program improve your research environment, or create a suitable environment for your research? Please provide examples.

   - To what extent did the CFI funding help achieve progress in areas related to your university's strategic plan?

   - What role did the CFI component play in attracting other researchers and graduate students and post-doctoral fellows?

   - Do you have any suggestions on how to improve the CFI component of the Canada Research Chairs Program?

6. What have been the major benefits of your research to Canada since the award of your Chair (caveat that it is early in the program)? (Probe for government/policy implications, industry/commercialization, health care, general impacts on society, etc.)

7. Since the award of the Chair, has your research been recognized through other prestigious awards (other than the Canada Research Chair position) or funding sources?

8. Has the Chairs program affected the type or amount of research funding or awards that you have successfully obtained since you were awarded the Chair? What types of funding have you been awarded (Probe for significant sources)?

9. CHAIRS FROM SMALLER UNIVERSITIES - In your opinion, to what extent has the Chairs program benefited smaller universities relative to larger universities? (Probe for examples related to the Chair's position)

10. To what extent have you collaborated within your university, between universities or between sectors in completing your research? Has the amount of collaboration increased since the award of your Chair position? Please provide examples.

11. Please indicate the level of support provided by your institution for your Chair, in terms of funding, teaching support, facilities provided, etc.

12. Do you have any suggestions on how to improve the Canada Research Chairs Program?

13. Do you have any other comments?

APPENDIX G
List of International Programs

The following international programs were reviewed as part of the focused international study on research funding programs comparable to the Canada Research Chairs:

Country	**Name of Program**
Canada	Killam Awards
	CIHR University-Industry Research Chairs
	CIHR Institutional Establishment Grant Program
	NSERC Industrial Research Chairs (IRC)
European Union	Marie Curie Chairs Program
	European Young Investigators Award (EURYI)
France	Programme "Chaires d'excellence"
	Les Chaires internationales de Recherche Blaise Pascal
Germany	The Humboldt Research Awards
	Emmy Noether Programme
	The Junior Professorship Program
Austria	START
	Wittgenstein Award
Denmark	Young Principal Investigators
	Taxation of the Salaries of Researchers and Key Employees Recruited Abroad
Finland	Academy Research Fellow
Sweden	Competence Centres Programme
	Swedish Tax Exemption Rules for Foreign Experts
United Kingdom	Royal Society Wolfson Merit Awards
	University Research Fellowships
	Dorothy Hodgkin Fellowships
South Africa	President's Awards
Australia	Federation Fellowships
New Zealand	James Cook Fellowships
	NZ Science and Technology Post-Doctoral Fellowships
Japan	JPS (Japan Society for the Advancement of Science) Postdoctoral Fellowship Program for Foreign Researchers *(Gaikokujin Tokubetsu Kenkyuin)*
Singapore	National University of Singapore (NUS) Search Committee
United States	Fulbright Distinguished Chairs Program
	Faculty Early Career Development (CAREER) Program
	Presidential Early Career Awards for Scientists and Engineers (PECASE)
	(Proposed) Basic Assistance Grant- Federal Research Chair